

DOCUMENT RESUME

ED 164 922

08

CE 019 237

TITLE AEL Career Decision-Making Program. Worker Trait Group Guide. First Edition.

INSTITUTION Appalachia Educational Lab., Charleston, W. Va.

SPONS AGENCY National Inst. of Education (DHEW), Washington, D. C. Education and Work Group.

REPORT NO. AEL-5805

PUB DATE 78

CONTRACT NE-C-00-3-0093

NOTE 446p.; For related documents see CE 019 229 and CE 019 231-241 ; Guide prepared by the Div. of Career Guidance

AVAILABLE FROM MCKnight Publishing Company, Bloomington, Illinois 61701 (SBN:87345-739-0, \$11.95)

EDRS PRICE MF-\$0.83 Plus Postage. HC Not Available from EDRS.

DESCRIPTORS Career Education; Career Exploration; \*Employment Qualifications; Guidance Programs; \*Management Information Systems; \*Occupational Clusters; \*Occupational Information; Reference Books; Secondary Education; \*Vocational Interests

IDENTIFIERS \*Career Decision Making Program

ABSTRACT

This Worker Trait Group Guide was designed for students as a basic reference in the Career Information System (CIS) component of the Career Decision-Making (CDM) program developed by the Appalachia Educational Laboratory. (See CE 019 229 for an overview of the total CDM program.) This guide contains descriptive information about twelve broad areas and sixty-six groups of occupations. The twelve areas are related to general work interests of people; the sixty-six groups are divisions of the twelve areas and represent clusters of occupations requiring similar worker characteristics, hence the title, Worker Trait Groups (WTG). The twelve WTG areas are the following: artistic, scientific, nature, authority, mechanical, industrial, business detail, persuasive, accommodating, humanitarian, social/business, and physical performing. Each worker trait group is divided into three parts: a description of the group; a list of worker qualifications; and a list of occupations in the group. Nine appendixes are provided to help the student better utilize the qualifications profile section in each Worker Trait Group. (A professional manual, CE 019 233, and student's guide, CE 019 239, explain how this document is used in conjunction with other materials in the CDM Career Information System component.)

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David Winefordner

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM.

2

# WORKER TRAIT GROUP GUIDE

David W. Winefordner, Director  
Career Decision-Making Program  
Appalachia Educational Laboratory, Inc.

**AKNIGHT**  
PUBLISHING COMPANY  
Bloomington, Illinois 61701

**McKNIGHT  
McKNIGHT  
McKNIGHT  
McKNIGHT**

**PUBLISHING COMPANY/BLOOMINGTON, ILLINOIS, 61701**

**First Edition**

**Lithographed in U.S.A.**

**Copyright © 1978 by Appalachia Educational Laboratory, Inc.  
Charleston, West Virginia**

**Published by McKnight Publishing Company  
Bloomington, Illinois**

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**"The development of this project was paid for by the Education and Work Group of the National Institute of Education, Department of Health, Education, and Welfare. The opinions expressed, however, do not necessarily reflect the positions or policies of the institute."**

**Card Catalog Number: 77-90865**

**SBN: 87345-739-0**

# FOREWORD

The **Career Information System (CIS)**, developed by the **Appalachia Educational Laboratory (AEL)**, uses the **Worker Trait Group** approach to organize career information resources. By framing information around a worker rather than an industry or product orientation, the approach helps students integrate self-exploration with exploration of the world of work.

Information about the requirements, routines, and rewards of occupations is provided through the **Worker Trait Group** descriptions which are homogeneous in terms of worker characteristics. Students are able to link their own interests, aptitudes, and other personal characteristics to those of the related **Worker Trait Groups**. This approach enables students to explore broad groups of occupations which parallel their own unique characteristics, before focusing in on specific occupations for more in-depth exploration. Concurrently, students are able to tie these groups of occupations to their own course selection or leisure time activity preferences.

While the **Worker Trait Group** approach is based on the **Dictionary of Occupational Titles, 4th Edition**, AEL has used it, in the **Career Information System**, in a most innovative way as an organizing structure for managing career information. I am very excited by this approach because it is person oriented, in terms of how the information is presented and how it is used.



**Corinne H. Rieder**

Associate Director

Education and Work Group

National Institute of Education

# PREFACE

The **Worker Trait Group Guide** has been designed as a basic reference for use in the **Career Decision-Making Program** developed by the Appalachia Educational Laboratory (AEL), under funding from the Education and Work Group, National Institute of Education. The **Worker Trait Group Guide** contains descriptive information about 12 broad Areas and 66 Groups of occupations. The 12 Areas are related to the general work interests of people. The 66 Groups are divisions of the 12 Areas and represent clusters of occupations requiring similar worker characteristics. Because of this, these Groups are called Worker Trait Groups.

The **Worker Trait Group Guide** may be used by itself as a source of information about the Areas and Worker Trait Groups, but will have maximum value when used with other career exploration materials. The Worker-Trait Groups are used as the basic structure for the **Career Decision-Making Program's Career Information System (CIS)**. In using the **Worker Trait Group Guide**, you may go from a Worker Trait Group you have explored to occupational information and other career information resources which are filed and/or indexed by Worker Trait Groups. Prior to the exploration of an occupation, you should have an understanding of the related Worker Trait Group and be aware of other occupations belonging to the Group.

Hopefully, the **Worker Trait Group Guide** will assist you in the critical process of career exploration and decision-making, thus making it possible to become aware of and utilize your potential in seeking, identifying, and pursuing rewarding careers.

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# ACKNOWLEDGMENTS AND DEDICATION

The staff of the Division of Career Guidance, Appalachia Educational Laboratory (AEL), wish to express their appreciation to the many individuals who have contributed to the successful development and publication of the **Career Decision-Making Program**. Therefore, this program is dedicated to former staff members, AEL staff, consultants, field test site personnel, students, advisory committees, McKnight Publishing Company staff, and others who have contributed in many ways.

Walter Adams  
Mary Bee Antholz  
Anna Louise Lucas  
John G. Odgers

Martha Stanley  
Phyllis Stowers  
C. Todd Strohmenger  
David W. Winefordner, Director

The publisher wishes to acknowledge the individuals and companies who contributed to the illustrations in this book.

Curt Beamer  
Loy Conley  
John Engstrom  
Ron McKinney

Ronald Perkins  
James Sewell  
Wilmer Zehr

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# INTRODUCTION

All occupations in the world of work have been organized by the U. S. Department of Labor into twelve broad areas based upon the interests of workers. The occupations have been further organized into 66 different groups called Worker Trait Groups. The occupations in each Worker Trait Group include workers with similar qualifications. The Worker Trait Groups are based upon the following types of worker qualifications:

- Level(s) of general educational development.
- Amount of specific training and experience.
- Types of activities preferred by workers.
- Ability to adjust to different types of working situations.
- Level(s) of aptitudes (ability to learn).
- Physical capacities.
- Level(s) of complexity at which the worker is involved with data (working with information), people (working with people), and things (working with tools, machines, or materials).

The basis upon which the Worker Trait Groups are organized can help you relate your own interests, abilities, and aptitudes to the occupations' requirements. As you use the **Worker Trait Group Guide** to explore career fields or specific occupations, you should keep the following in mind. The level of any worker qualifications shown for each Worker Trait Group is the level related to the average successful performance of workers in the group. Some workers in occupations within a group may have higher qualifications. Other workers with lower qualifications can also be successful workers. Also, not all qualifications shown for each group will apply to every occupation in the group. Keep in mind that each Worker Trait Group describes a group of related occupations, never a single occupation.

The 66 Worker Trait Groups in the **Worker Trait Group Guide** are based upon the Groups described in the **Supplement to the Dictionary of Occupational Titles**. The **Worker Trait Group Guide** provides additional and easier to read information to help you in your career planning in the following ways:

- Gain a general understanding about the world of work.
- Identify Worker Trait Groups which relate to what you know about yourself, such as your special interests and abilities, or the type of work you want to do.
- Study and explore groups of occupations so that you become familiar with the qualifications required and the training and experience needed.
- Learn more about specific occupations which may interest you.
- Learn about other occupations which may be similar to specific occupations which may interest you.

## HOW TO USE THE GUIDE

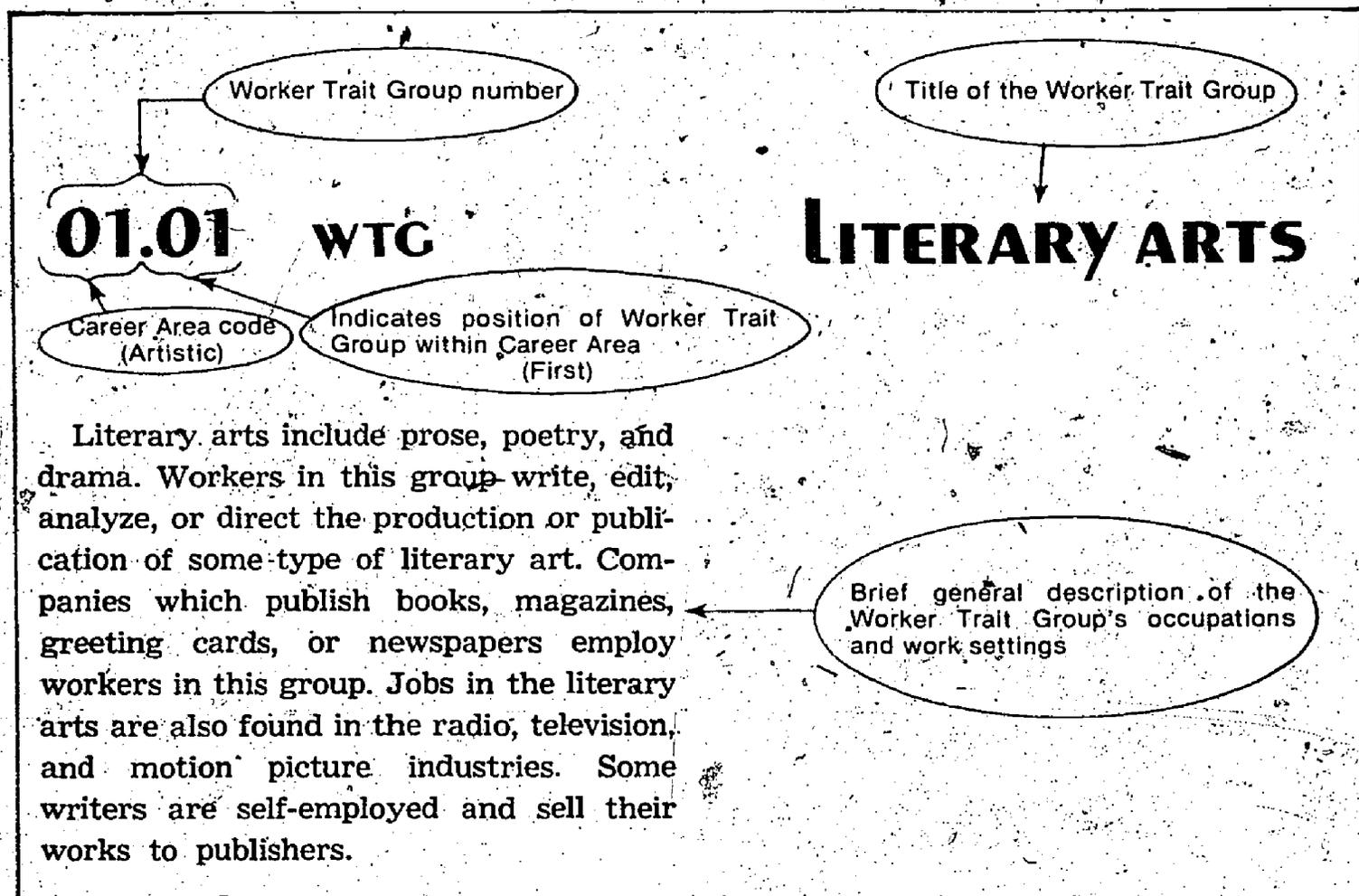
The **Worker Trait Group Guide** contains two major sections: (1) the **Worker Trait Group** descriptions and (2) a series of nine appendices.

Each **Worker Trait Group** is divided into three parts:

- A description of the group.
- A list of worker qualifications.
- A list of occupations in the group.

Each of the appendices provides more detailed information to help you make better use of the **Qualifications Profile** section in each **Worker Trait Group** description.

The **Worker Trait Groups** are numbered from 01.01: **Literary Arts** through 12.02: **Physical Feats**. The first two digits identify the **Career Area** (01 through 12) into which the **Worker Trait Group** falls. The last two digits distinguish one **Worker Trait Group** from another within the same **Career Area**. The **Worker Trait Groups** are described in exactly the same manner to make it easier for you to compare them. The following examples show one of the **Worker Trait Groups** section by section to help you understand its organization and content.



## WORK PERFORMED

What would you do as a worker in this group?

You would express your ideas through creative writing or you would work with the writing of others. You would perform one or more of the following tasks.

General description of the work performed by the workers in the group of occupations

Specific description: each task usually illustrates the work performed in a different occupation

- Write short stories, poems, novels, or plays.
- Write copy for magazine, billboard, radio or television advertising.
- Write dialogue for radio or television programs, or for motion pictures.
- Write a feature column for magazines or newspapers.

## WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Express original ideas or interpret the ideas of others through writing.
- Analyze writings for form, style, plot, and artistic value.
- Know the rules of grammar and have a large vocabulary.

A summary of the most important skills, abilities, and interests needed by workers in the group to perform well.

## CLUES

Do you have or can you develop these skills, abilities, and interests?

A list of questions to help you decide if you have or can develop the skills, abilities, and interests related to the group of occupations. Your personal experiences can help you answer the questions.

Your answers to the following questions will help you decide.

- Have you written book reports? Do you enjoy reviewing the writing of others?
- Have you written an original story? Can you create characters and situations that interest and entertain others?

How can you prepare for and enter this kind of work?

## PREPARATION

Jobs in this field require extensive writing experience. Working for the school newspaper or yearbook can help you gain writing experience. Writing assignments in English and journalism courses can also help you gain it. Community colleges and universities offer programs that help prepare for this work. Courses in English and creative writing develop important skills. Courses in art, music, or drama help critics in these fields gain the needed knowledge and background. Editing jobs require several years of writing experience.

The training and experience worker's need to enter the occupations in the group.

Self-employed writers often use literary agents to help them find publishers. These agents make suggestions about writing topics and style. Publishers may hire free-lance writers to write about a certain subject. To be hired, writers should frequently submit writing samples to magazines and other publishers. Some employers require samples of published writings.

## OTHER CONSIDERATIONS

What else should you know about these jobs?

Additional information you would need to consider

Most new workers in writing start with routine assignments such as proofreading. Few newcomers are employed as creative writers.

## QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

How to use the Qualifications Profile section of the Worker Trait Group description

## WORK ACTIVITIES

Workers generally prefer the following types of work activities.

5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.
8. Activities involving creative thinking.

See Appendix A of the Worker Trait Group Guide for detailed work activity descriptions

## WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

3. Planning and directing an entire activity.
4. Dealing with people.
5. Influencing people's opinions, attitudes, and judgments.

See Appendix B of the **Worker Trait Group Guide** for detailed work situation descriptions

## WORKER FUNCTIONS

See Appendix C of the **Worker Trait Group Guide** for detailed information on worker functions

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Synthesizing       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Handling           |

## PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

5. Sedentary work.
5. Talking and/or hearing.
6. Seeing.

See Appendix D of the **Worker Trait Group Guide** for detailed descriptions of the physical demands

## WORKING CONDITIONS

See Appendix E of the **Worker Trait Group Guide** for detailed descriptions of the working conditions

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

## APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

See Appendix F of the **Worker Trait Group Guide** for aptitude definitions

| Aptitudes   | Levels   |   |   |       |           |
|-------------|----------|---|---|-------|-----------|
|             | Low<br>5 | 4 | 3 | 2     | High<br>1 |
| G - General |          |   |   | 2 - 1 |           |
| V - Verbal  |          |   |   | 2 - 1 |           |

## GENERAL EDUCATION DEVELOPMENT (GED)

See Appendix G of the **Worker Trait Group Guide** for the GED level definitions

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Specific description illustrating the Worker Trait Group GED level

Workers apply logical thinking to express ideas through creative writing. They collect or interpret information. They may use their creative ability to edit or guide the work of others. These workers deal with abstract concepts such as styles and symbols. They also work with reference materials and typewriters.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

### Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- C - College studies in English, literature, or composition.
- T - Studies in English at the community college level.
- NFT - Some occupations in this group have no related formal education or training programs.

### Training Time

Occupations in this group may require from 2 years up to and over 10 years (SVP 7, 8, 9).

### Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

### Important Courses

- Courses required for entrance to post high school formal programs.
- Language Skills, Literature, Composition.

### Helpful Courses

- Music, Drama.

This section describes the different ways by which people can prepare for the group's occupations. See Appendix H for detailed information.

## OCCUPATIONS IN LITERARY ARTS

Selected list of occupations belonging to the Worker Trait Group. Additional information and a complete listing of these occupations may be found in the Dictionary of Occupational Titles (DOT) and its Supplement. See Appendix I of the Worker Trait Group Guide for more information.



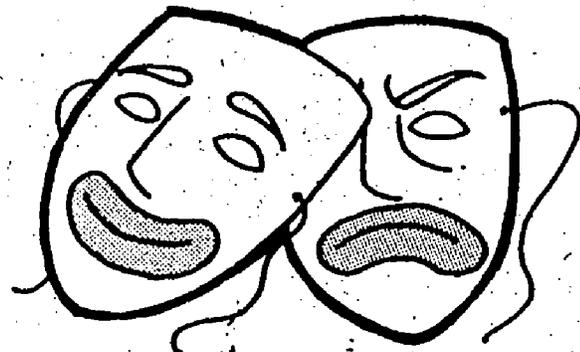
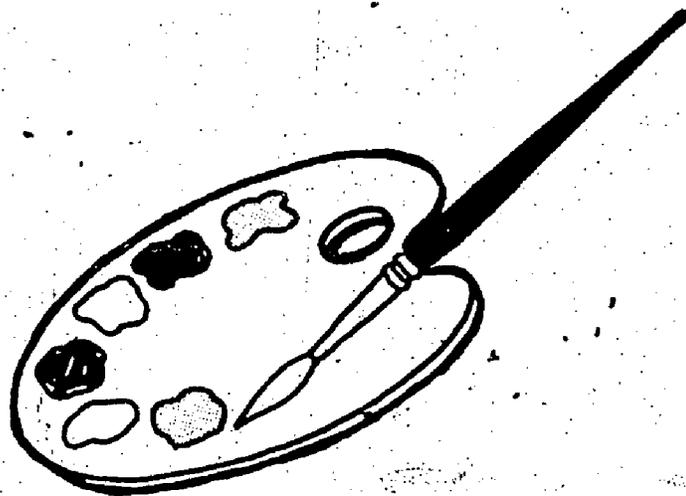
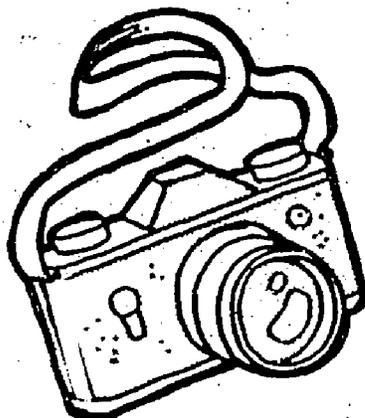
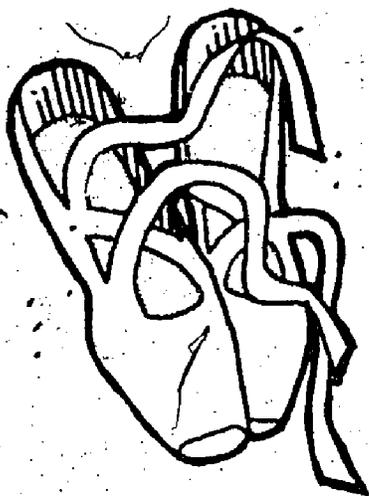
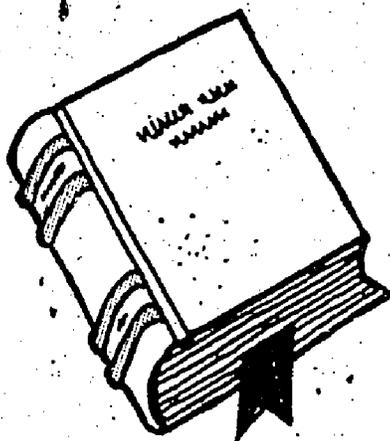
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These numbers indicate the specific worker functions (data / people / things) of the occupation. See Appendix C of the Worker Trait Group Guide for details.

## ARTISTIC

This is an interest in creative expression of feelings or ideas:

You can satisfy this interest in several of the creative or performing arts fields. You may enjoy literature. Perhaps writing or editing would satisfy you. You may prefer to work in the performing arts. You could direct or perform in drama, music, or dance. You may enjoy the visual arts. You could find a job as a critic in painting, sculpture, or ceramics. You may want to use your hands to create or decorate products. You may also prefer to model or develop entertaining acts.



# LITERARY ARTS

Literary arts include prose, poetry, and drama. Workers in this group write, edit, analyze, or direct the production or publication of some type of literary art. Companies which publish books, magazines, greeting cards, or newspapers employ workers in this group. Jobs in the literary arts are also found in the radio, television, and motion picture industries. Some writers are self-employed and sell their works to publishers.

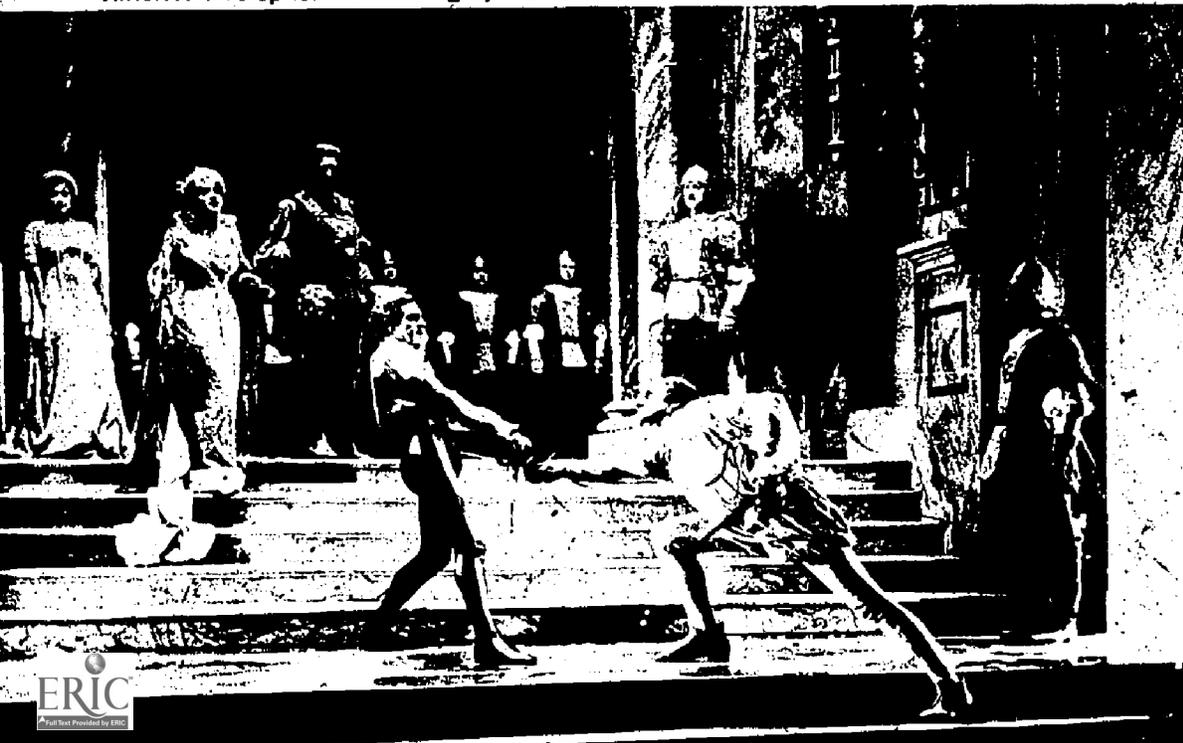
## WORK PERFORMED

What would you do as a worker in this group?

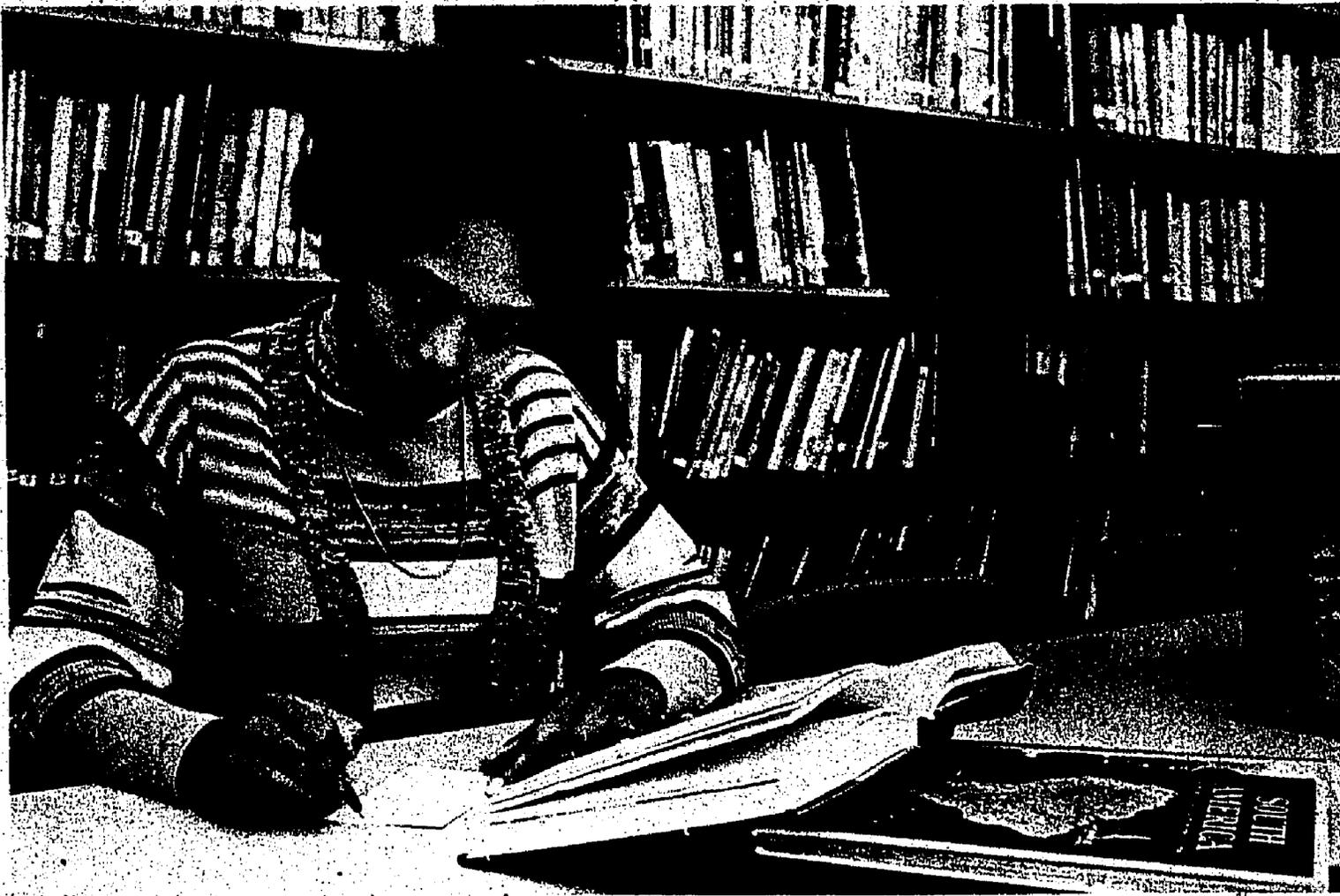
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You would express your ideas through creative writing or you would work with the writing of others. You would perform one or more of the following tasks.

- Write short stories, poems, novels, or plays.
- Write copy for magazine, billboard, radio or television advertising.
- Write dialogue for radio or television programs, or for motion pictures.
- Write a feature column for magazines or newspapers.
- Write reviews of literary works or artistic performances.
- Edit the writing of others.
- Develop ideas and set policies for a publisher.



Drama critics attend artistic performances to prepare and write their reviews on author's plays.



Writing novels often requires a great deal of research to insure accuracy.

**What skills, abilities, and interests would help you succeed in this kind of work?**

## WORKER REQUIREMENTS

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Express original ideas or interpret the ideas of others through writing.
- Analyze writings for form, style, plot, and artistic value.
- Know the rules of grammar and have a large vocabulary.
- Edit or critique the writing of others.
- Create advertising copy that will attract readers, viewers, or listeners.
- Plan and direct the work of a staff of writers.



Gathering information for your school newspaper's news features can help you gain the experience you need.

## CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you written book reports? Do you enjoy reviewing the writing of others?
- Have you written an original story? Can you create characters and situations that interest and entertain others?
- Have you written poems? Do you enjoy reading or writing poetry?
- Have you edited or written feature articles for a school paper or yearbook?
- Have you played word games or solved crossword puzzles? Do you have a large vocabulary?

**How can you prepare for and enter this kind of work?**

Jobs in this field require extensive writing experience. Working for the school newspaper or yearbook can help you gain writing experience. Writing assignments in English and journalism courses can also help you gain it. Community colleges and universities offer programs that help prepare for this work. Courses in English and creative writing develop important skills. Courses in art, music, or drama help critics in these fields gain the needed knowledge and background. Editing jobs require several years of writing experience.

Self-employed writers often use literary agents to help them find publishers. These agents make suggestions about writing topics and style. Publishers may hire free-lance writers to write about a certain subject. To be hired, writers should frequently submit writing samples to magazines and other publishers. Some employers require samples of published writings.

**PREPARATION****What else should you know about these jobs?**

Most new workers in writing start with routine assignments such as proofreading. Few newcomers are employed as creative writers.

**OTHER  
CONSIDERATIONS**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**QUALIFICATIONS  
PROFILE**

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 5. Activities resulting in recognition or appreciation from others.
- 6. Activities involving the communication of ideas and information.
- 8. Activities involving creative thinking.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 3. Planning and directing an entire activity.
- 4. Dealing with people.
- 5. Influencing people's opinions, attitudes, and judgments.
- 7. Making decisions using personal judgment.
- 9. Interpreting and expressing feelings, ideas, or facts.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Synthesizing       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Handling           |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- 5. Sedentary work.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes   | Levels   |   |   |   |           |
|-------------|----------|---|---|---|-----------|
|             | Low<br>5 | 4 | 3 | 2 | High<br>1 |
| G - General |          |   |   |   | 2 - 1     |
| V - Verbal  |          |   |   |   | 2 - 1     |

**GENERAL EDUCATION DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply logical thinking to express ideas through creative writing. They collect or interpret information. They may use their creative ability to edit or guide the work of others. These workers deal with abstract concepts such as styles and symbols. They also work with reference materials and typewriters.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

- E – To enter some occupations workers only need the required competencies and credentials.
- A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

### Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- C – College studies in English, literature, or composition.
- T – Studies in English at the community college level.
- NFT – Some occupations in this group have no related formal education or training programs.

### Training Time

Occupations in this group may require from 2 years up to and over 10 years (SVP 7, 8, 9).

### Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

### Important Courses

- Courses required for entrance to post high school formal programs.
- Language Skills, Literature, Composition.

### Helpful Courses

- Music, Drama.

## OCCUPATIONS IN LITERARY ARTS

|                                       |             |
|---------------------------------------|-------------|
| Copy Writer                           | 131.067-014 |
| Critic                                | 131.067-018 |
| Editor, Book                          | 132.067-014 |
| Editor, Film                          | 962.264-010 |
| Editor, Publications                  | 132.037-022 |
| Editorial Writer                      | 131.067-022 |
| Playwright                            | 131.067-038 |
| Producer                              | 187.167-174 |
| Writer, Prose, Fiction and Nonfiction | 131.067-046 |

# VISUAL ARTS

Visual arts include drawing, painting, sculpture, ceramics, photography, and design. Advertising agencies, printing and publishing firms, art schools, and department stores employ visual artists. Tele-

vision and motion picture studios and industrial firms also employ these workers. Some artists are self-employed. They may teach or may sell their work themselves or through an agent.

## WORK PERFORMED

What would you do as a worker in this group?

You would use your talent to create visual art that expresses your ideas and feelings. You would perform one or more of the following tasks.

- Paint or draw landscapes, portraits, or still life.
- Design and decorate movie or television scenery.
- Design store window displays.
- Create designs used in weaving cloth or decorating pottery.
- Photograph people, places, or events for a magazine or newspaper.
- Plan advertising layouts for department stores.
- Draw cartoons for animated movie features.
- Shape wood or stone into artistic forms.
- Instruct art students.

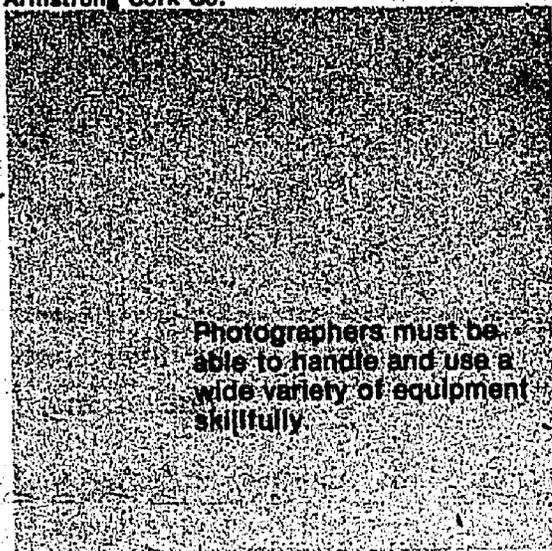


Art instructors use existing works of art to train students in visual arts techniques.



Interior designers arrange exhibits to display a manufacturer's products to wholesalers at trade fairs.

Armstrong Cork Co.



Photographers must be able to handle and use a wide variety of equipment skillfully.



**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Create visual artwork in drawing, painting, sculpture, or photography.
- Form a mental image of how shapes and forms can be combined and arranged in an artistic way.
- Recognize different shades and tones of color.
- Move the eyes, hands, and fingers skillfully to use brushes, pens, pencils, chisels, or cameras.
- Teach and demonstrate various art forms.

**WORKER REQUIREMENTS**



You can develop your skill and talent by pursuing a hobby in your chosen art form.

## CLUES

**Do you have or can you develop these skills, abilities, and interests?**  
Your answers to the following questions will help you decide.

- Have you taken art courses or private lessons? Were your works selected for display or competition? Have you won any awards for artwork?
- Have you painted scenery for plays? Did the scenery achieve the desired effect?
- Do you paint or draw as a hobby? Do others admire your work?
- Have you taken photographs for the school paper or as a hobby? Do you try to get the best possible arrangement, lighting, and exposure?
- Have you visited art shows and galleries? Do you regularly read articles or magazines about art?
- Have you modeled objects from clay or carved figures from wood or soap? Do you enjoy creating designs and figures?

**How can you prepare for and enter this kind of work?**

Most workers in this field specialize in one art form. Some people with exceptional talent become artists with little or no formal training. However, training is often needed for employment.

A college degree in fine arts or commercial art is one type of preparation. Some artists earn a two- or three-year degree at an art institute. Study with a private instructor often provides added training. Jobs in appraising or restoring art objects require a background in art history. Artists need to know the chemistry of paints and protective coatings to restore artworks.

Some employers hire talented persons with vocational school or junior college training in commercial art or photography. These workers are trained on the job. They are assigned more difficult work as they become ready for it. Industrial design jobs require artistic and engineering skills. Workers in these jobs need these skills to make scale drawings and to illustrate technical information. To be hired, artists must show samples or photographs of their work.

**PREPARATION****What else should you know about these jobs?**

Artists who can create artwork in a variety of art forms can find employment more easily than those who specialize.

Many free-lance artists hold jobs in related art fields until their work is in demand.

**OTHER  
CONSIDERATIONS**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**QUALIFICATIONS  
PROFILE**

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 6. Activities involving the communication of ideas and information.
- 8. Activities involving creative thinking.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 3. Planning and directing an entire activity.
- 4. Dealing with people.
- 7. Making decisions using personal judgment.
- 9. Interpreting and expressing feelings, ideas, or facts.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Synthesizing       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Precision Working  |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- L Light work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 1. Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performances of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                | Levels |   |   |   |      |
|--------------------------|--------|---|---|---|------|
|                          | Low    | 4 | 3 | 2 | High |
|                          | 5      |   |   |   | 1    |
| G - General              |        |   | 3 | 2 |      |
| S - Spatial              |        |   |   | 2 |      |
| P - Form Perception      |        |   |   | 2 |      |
| K - Motor Coordination   |        |   | 3 | 2 |      |
| F - Finger Dexterity     |        |   | 3 | 2 | 1    |
| M - Manual Dexterity     |        |   | 3 | 2 |      |
| C - Color Discrimination |        |   |   | 2 |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers use logical thinking and creative talent to draw, paint, sculpt, or photograph people or objects. They interpret technical instructions. They use imagination and creativity to deal with abstract artistic concepts and forms. They also use concrete materials such as art supplies.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- C - College studies in studio arts or graphic arts.
- T - Courses in studio or graphic arts at community colleges, technical schools, and private art schools.
- V - Vocational courses in graphic arts or drafting.
- NFT - Some occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from 2 years up to and over 10 years (SVP 7, 8, 9).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Art

**OCCUPATIONS IN VISUAL ARTS**

|                                   |             |                                     |             |
|-----------------------------------|-------------|-------------------------------------|-------------|
| Art Director                      | 141.031-010 | Illustrator, Medical and Scientific | 141.061-026 |
| Art Director                      | 142.031-010 | Industrial Designer                 | 142.061-026 |
| Audiovisual Production Specialist | 149.061-010 | Interior Designer                   | 142.051-014 |
| Cartoonist                        | 141.061-010 | Manager, Display                    | 142.031-014 |
| Cloth Designer                    | 142.061-014 | Memorial Designer                   | 142.061-030 |
| Clothes Designer                  | 142.061-018 | Painter                             | 144.061-010 |
| Commercial Designer               | 141.081-014 | Photographer Helper                 | 976.667-010 |
| Creative Director                 | 141.067-010 | Photographer, Motion Picture        | 143.062-022 |
| Display, Merchandise              | 298.081-010 | Photographer, Still                 | 143.062-030 |
| Fashion Artist                    | 141.061-014 | Photojournalist                     | 143.062-034 |
| Floral Designer                   | 142.081-010 | Sculptor                            | 144.061-018 |
| Fur Designer                      | 142.081-014 | Set Decorator                       | 142.061-042 |
| Graphic Designer                  | 141.061-018 | Set Designer                        | 142.061-050 |
| Illustrator                       | 141.061-022 | Teacher, Art                        | 149.021-010 |

# PERFORMING ARTS: DRAMA

Drama, as used here, includes plays, musicals, readings, pantomimes, and similar performances. Tasks in this group include performing, teaching, and directing.

Radio stations, television and motion picture studios, and theaters employ workers in this group. Schools and colleges also employ some of these workers.

Columbia Artists Management, Inc.



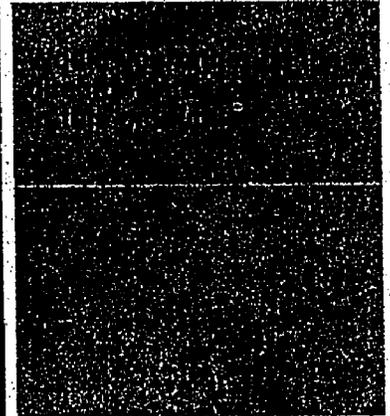
A mime uses body gestures and facial expressions to tell a story to an audience.

## WORK PERFORMED

What would you do as a worker in this group?

You would use words and actions to play a role or entertain an audience, or you would help others with their roles. You would perform one or more of the following tasks.

- Act in a play or movie.
- Present a comic or dramatic monolog in a night club or on a television show.
- Do a pantomime using only body movements and facial expressions.
- Instruct others in acting methods.
- Direct actors and others in a play or movie.
- Read announcements or commercials for radio or television.



**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Express ideas and emotions through facial expressions and body motions.
- Perform before an audience with poise and self-confidence.
- Speak clearly and loudly.
- Memorize dialogue.
- Direct actors and instruct drama students.

## WORKER REQUIREMENTS

The ability to relate to an unseen audience is important in radio communications.

The University of Alabama





Taking part in speech contests can help you gain poise and self-confidence before an audience.

## CLUES

**Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.**

- Have you attended plays or movies? Do you enjoy them? Can you judge the quality of the acting?
- Have you been on a debate team? Have you taken part in a public speaking contest?
- Have you performed in a school or community theater group? Did you enjoy the experience?
- Have you been a master of ceremonies for a school event? Were you at ease before the audience?
- Are you able to memorize easily? Can you remember lines and cues when you perform before an audience?
- Have you had courses in speech? Did you enjoy them?

**How can you prepare for and enter this kind of work?**

Workers in this group must have both training and experience in the dramatic arts. High school speech classes, debate programs, and plays provide valuable training and experience. Colleges offer programs in drama or communications leading to bachelor's and master's degrees. These programs include courses in speech, pantomime, acting, and directing. Special schools and theater groups also offer training in the dramatic arts.

Experience in many productions is very important. Community and college theater groups provide experiences for the amateur. Dinner theaters, summer stock companies, and repertory groups provide part-time and entry jobs.

Jobs in directing require extensive experience. Dramatic coaching and college teaching often require advanced degrees in dramatics. High school teachers of drama, speech, or communications must meet state licensing requirements.

**What else should you know about these jobs?**

Dramatic artists often have demanding work schedules. Rehearsals and performances may start early and run late every day. Frequent travel may be necessary.

College teachers, theatrical agents, and radio and television station managers often know about job openings in the dramatic arts. Community theater members may have professional experience. They may be willing to advise people who are interested in this field.

Work assignments sometimes depend upon a person's voice or physical appearance. Distinctive physical features may be an asset.

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**OTHER****CONSIDERATIONS****QUALIFICATIONS****PROFILE**

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 5. Activities resulting in recognition or appreciation from others.
- 6. Activities involving the communication of ideas and information.
- 8. Activities involving creative thinking.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 3. Planning and directing an entire activity.
- 4. Dealing with people.
- 7. Making decisions using personal judgment.
- 9. Interpreting and expressing feelings, ideas, or facts.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                                |                |
|--------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Coordinating |
| PEOPLE | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Diverting    |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | - Handling     |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes   | Levels |   |   |   |      |
|-------------|--------|---|---|---|------|
|             | Low    | 4 | 3 | 2 | High |
| G - General | 5      |   |   |   | 1    |
| V - Verbal  |        |   |   | 2 |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply logical thinking, technical knowledge, and creativity to communicate a role or thought to an audience through words or actions. These workers give or interpret a variety of instructions presented in written or spoken form. They deal with abstract variables such as emotional portrayal and concrete variables such as stage props and scripts.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E – To enter some occupations workers only need the required competencies and credentials.
- A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- C – College studies in speech or dramatics.
- NFT – Some occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from 1 year up to and over 10 years (SVP 6, 7, 8, 9).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

**Important Courses**

- Courses required for entrance to post high school formal programs.
- Speech
- Drama

**Helpful Courses**

- Music

## OCCUPATIONS IN PERFORMING ARTS: DRAMA

|                           |             |
|---------------------------|-------------|
| Actor                     | 150.047-010 |
| Announcer                 | 159.147-010 |
| Comedian                  | 159.047-014 |
| Communications Technician | 962.362-010 |
| Director, Motion Picture  | 159.067-010 |
| Director, Stage           | 150.067-010 |
| Disk Jockey               | 159.147-014 |
| Dramatic Coach            | 150.027-010 |
| Producer                  | 159.117-010 |
| Teacher, Drama            | 150.027-014 |

# PERFORMING ARTS: MUSIC

Music, as used here, includes playing an instrument, singing, arranging, and composing. Teaching music and directing music groups are also included. Workers in this group can find jobs in theaters, television and radio stations, concert halls, or wherever music is performed. Schools and colleges, recording studios, and music publishing companies also employ these workers.

## WORK PERFORMED

What would you do as a worker in this group?

You would express ideas and feelings through music. You would perform one or more of the following tasks.

- Sing alone or with others before an audience.
- Play one or more instruments in a musical group.
- Perform solos on an instrument such as a piano, violin, or harp.
- Direct a choir, band, or orchestra in rehearsals and performances.
- Arrange vocal or instrumental music for a person or group.
- Compose background music for a movie or television show.
- Accompany a singer or singing group.
- Teach vocal or instrumental music.



The chance to give a solo performance is often reward enough for years of daily practice.



Directing a musical group requires leadership abilities as well as musical knowledge.

**What skills, abilities, and interests would help you succeed in this kind of work?**

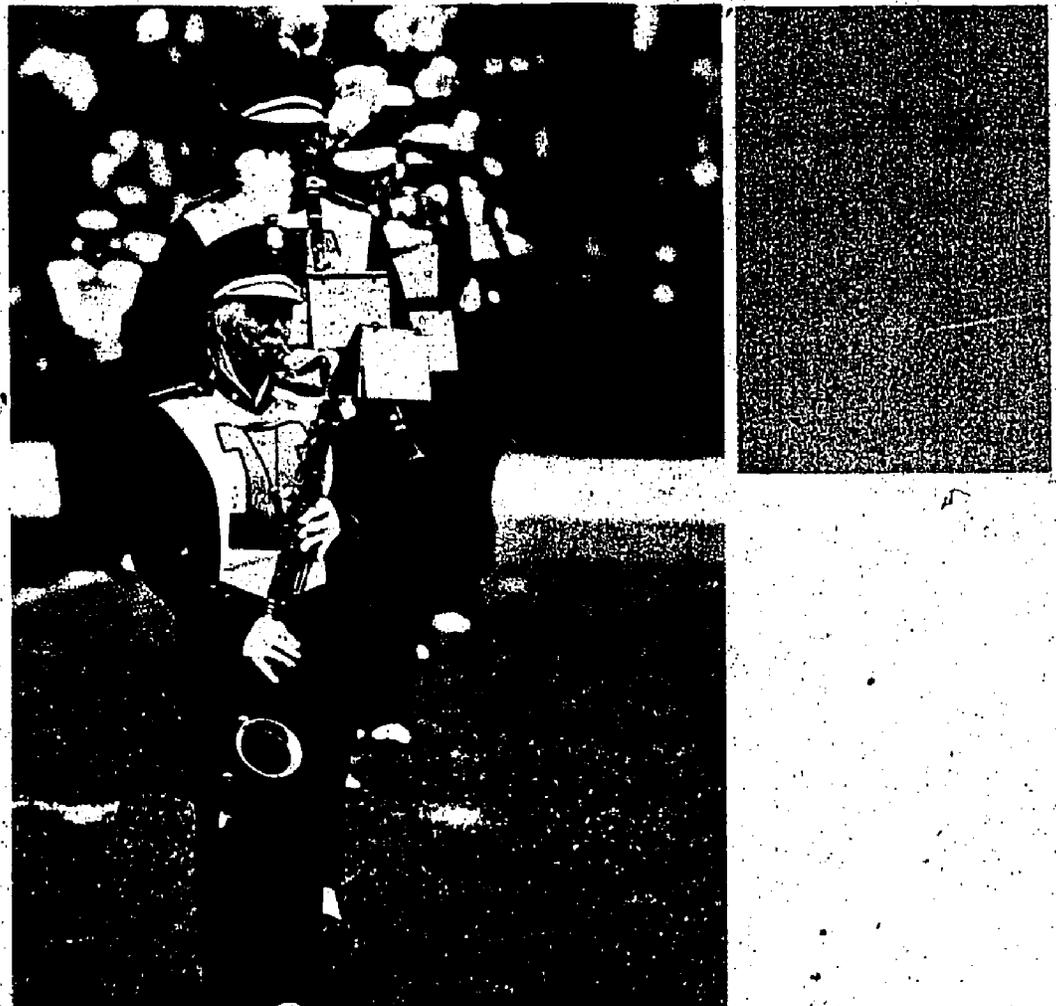
## WORKER REQUIREMENTS

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Spend long hours developing and perfecting your talent.
- Move the eyes, hands, and fingers skillfully to play an instrument.
- Know musical theory.
- Compose or arrange music.
- Perform before an audience with poise and self-confidence.
- Teach or direct others to improve their musical skills.

**Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.**

- **Have you had lessons in singing or in playing an instrument? Did you practice regularly? Did you take part in musical recitals?**
- **Do you have a good ear for music? Can you tell when a singer or instrument is off-key?**
- **Have you sung in a school or church choir? Were you chosen for a solo?**
- **Have you played in a school band or orchestra? Can you read music?**
- **Have you composed or arranged vocal or instrumental music? Have you directed a musical group?**



Playing in a school band can help you gain experience in performing before an audience.

**PREPARATION****How can you prepare for and enter this kind of work?**

Instrumental musicians usually start training in elementary school. They usually study during most of their working life. Hours of practice are required each day to develop and maintain musical skills. Playing in a band or orchestra provides valuable experience and training.

Vocal musicians usually start training whenever their voices mature. Taking part in school musical plays and programs or singing in a choir provides good training and experience. Vocal musicians also need to practice daily.

Such daily practice also helps these workers maintain and improve their skills in reading music.

Musical study in college, at a conservatory, or with private teachers is helpful. Formal courses include musical theory, composition, conducting, and voice or instrumental instruction. Arrangers, composers, and conductors need advanced training in these subjects. They must also have experience in performing.

Musicians depend upon their skill and experience to find employment. Teachers in schools and colleges must meet educational and licensing requirements as well.

**What else should you know about these jobs?**

The quality of vocalists' voices may change with age. As a result, these workers often have a short working life. Sometimes, personal singing styles become outdated or unpopular.

Singers who can also dance or act are preferred for some jobs. Some employers prefer musicians who play several different instruments.

**OTHER  
CONSIDERATIONS**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**QUALIFICATIONS  
PROFILE**

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 5. Activities resulting in recognition or appreciation from others.
- 6. Activities involving the communication of ideas and information.
- 8. Activities involving creative thinking.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 3. Planning and directing an entire activity.
- 4. Dealing with people.
- 7. Making decisions using personal judgment.
- 9. Interpreting and expressing feelings, ideas, or facts.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                      | Avg.                                | High                                |                     |
|--------|--------------------------|-------------------------------------|-------------------------------------|---------------------|
| DATA   | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Synthesizing      |
| PEOPLE | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Diverting         |
| THINGS | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Precision Working |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                      | Levels |   |       |     |      |
|--------------------------------|--------|---|-------|-----|------|
|                                | Low    |   | to    |     | High |
|                                | 5      | 4 | 3     | 2   | 1    |
| G - General                    |        |   | 3-2-1 |     |      |
| V - Verbal                     |        |   | 3-2-1 |     |      |
| P - Form Perception            |        |   | 3-2   |     |      |
| Q - Clerical Perception        |        |   | 3-2   |     |      |
| K - Motor Coordination         |        |   |       | 2   |      |
| M - Manual Dexterity           |        |   |       | 2   |      |
| F - Finger Dexterity           |        |   |       | 2   |      |
| E - Eye-Hand-Foot Coordination |        |   |       | 2-1 |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers in this group sing, play an instrument, arrange and compose music, or conduct or direct the efforts of other musicians. They interpret instructions presented in spoken or symbolic form. These workers deal with concrete and abstract variables such as musical instruments, and music theory and composition.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- G – Advanced college studies in directing, composing, or arranging music.
- C – College studies in music.
- NFT – Some occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from 2 years up to and over 10 years (SVP 7, 8, 9).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

**Entry and Advancement Information**

- E – To enter some occupations workers only need the required competencies and credentials.
- A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Important Courses**

- Courses required for entrance to post high school formal programs.
- Music

**Helpful Courses**

- Drama

**OCCUPATIONS IN PERFORMING ARTS: MUSIC**

|                        |             |
|------------------------|-------------|
| Arranger               | 152.067-010 |
| Choral Director        | 152.047-010 |
| Conductor, Orchestra   | 152.047-014 |
| Composer               | 152.067-014 |
| Musician, Instrumental | 152.041-010 |
| Singer                 | 152.047-022 |
| Teacher, Music         | 152.021-010 |

# PERFORMING ARTS: DANCE

Dance, as used here, includes composing, performing, or teaching rhythmic body movements. Television and movie studios, theaters, and night clubs employ workers in this group. Schools and colleges may also employ these workers.

## WORK PERFORMED

What would you do as a worker in this group?

You would dance alone or with a group before an audience. You would teach or direct others who dance. You would perform one or more of the following tasks.

- Dance in a chorus line in a theater or night club.
- Compose dance routines for a stage or television show.
- Perform with a ballet troupe.
- Teach dancing in a studio, a college, or high school.
- Direct dancers in a musical show.

University of Illinois Krannart Center for the Performing Arts



Dancers express their feelings and emotions through body movements.



Danish Information Office

Private dance instructors often provide daily training to young children who show signs of dancing talent.

**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use active physical motions during rehearsals and performances.
- Memorize dance routines.
- Move with grace and rhythm.
- Coordinate body movements to music.
- Perform before an audience with poise and self-confidence.
- Demonstrate dance techniques to others.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you attended dances? Can you lead or follow dance steps easily? Can you teach dance steps to others?
- Have you marched in a band? Have you been a member of a drill team? Do you have a sense of rhythm?
- Have you taken dance lessons? Have you danced in recitals or community shows? Do you enjoy this kind of activity?



Ballroom dance instructors must be able to demonstrate dance steps to others.

Do you enjoy learning new popular dance steps?



**PREPARATION****How can you prepare for and enter this kind of work?**

Dancers often start training at preschool age. They continue the training through most of their working lives. Hours of practice are required each day to develop and maintain dancing skills. Private dance studios usually provide the training. Elementary and high school physical education and music classes offer helpful experience.

Colleges, dance academies, and theater art schools offer two- to four-year programs. These programs include courses in the techniques, theory, and history of dance. Students also learn how to interpret and convey the meaning of a story to an audience. These programs can help students specialize in certain types of dance. Schools cooperate with professional dance companies to provide performance experiences to the students.

Competition is great for jobs in this field. Dancers depend on their skills, experience, and available jobs for employment. Dance instructors need to be able to learn and teach popular dance steps. Chorus line and theater jobs require experience and skill in different types of dancing. Training in drama or music often increases chances for employment. Ballet and modern dance companies require extensive experience and unusual talent. Choreographers compose and arrange dance movements to accompany music. These workers, as well as dance instructors, must have a lot of performing experience. Teachers in schools and colleges must meet educational and licensing requirements.

**What else should you know about these jobs?**

The physical demands of dancing are strenuous. The working life of a professional dancer is relatively short. Related or other occupations should be selected before a dancer retires.

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**OTHER  
CONSIDERATIONS****QUALIFICATIONS  
PROFILE**

## WORK ACTIVITIES

Workers generally prefer the following types of work activities.

5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.
8. Activities involving creative thinking.

## WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
9. Interpreting and expressing feelings, ideas, or facts.

## WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                                |                |
|--------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Coordinating |
| PEOPLE | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Instructing  |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | - Handling     |

## PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

1. Light work.
2. Climbing and/or balancing.
3. Stooping, kneeling, crouching, and/or crawling.
5. Talking and/or hearing.
6. Seeing.

## WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

1. Inside.

## APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                      | Levels |   |       |       |      |
|--------------------------------|--------|---|-------|-------|------|
|                                | Low    |   | to    |       | High |
|                                | 5      | 4 | 3     | 2     | 1    |
| G - General                    |        |   | 3 - 2 |       |      |
| S - Spatial                    |        |   | 3 - 2 |       |      |
| K - Motor Coordination         |        |   | 3 - 2 |       |      |
| E - Eye-Hand-Foot-Coordination |        |   |       | 2 - 1 |      |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply logical thinking and skill in body movement to create or perform dance routines. They may interpret technical instructions presented in spoken or diagram form, or they may instruct others. These workers deal with abstract and concrete variables such as music interpretation, dance steps, and practice schedules.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- C - College studies in dance and choreography; dance courses at special schools.
- NFT - Some occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require over 1 year up to and over 10 years (SVP 6, 7, 8, 9).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.

## OCCUPATIONS IN PERFORMING ARTS: DANCE

Choreographer  
Dancer  
Instructor, Dancing

151.027-010  
151.047-010  
151.027-014

# TECHNICAL ARTS

Technical arts include graphics, handcrafts, and product decoration. Workers in this group use materials such as wood, stone, clay, metal, and gemstones. Industries such as printing and publishing, map

making, taxidermy, and jewelry employ these workers. Companies making furniture or ceramic tiles also have jobs in this group. Some workers are self-employed and sell their own products.

The Gem Lab



Handcrafting jewelry requires knowledge of gemstones and metals as well as artistic skills.

## WORK PERFORMED

What would you do as a worker in this group?

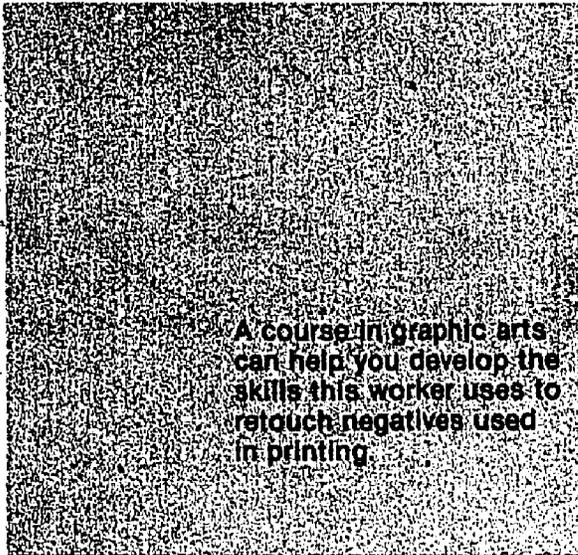
You would use artistic judgment to make, repair, or decorate products. You would perform one or more of the following tasks.

- Carve designs and lettering on rollers or wooden blocks for printing.
- Paint or draw artistic lettering to be used in books, publicity, or other printed materials.
- Make or repair fine jewelry.
- Sew beads onto leather articles or clothing to form decorative designs.
- Retouch photographs to highlight features or hide blemishes.
- Prepare skins of birds, fish, or other animals to make lifelike reproductions.



A make-up artist must be able to select the proper cosmetics and techniques to produce the desired change in the performer's appearance.

Cornell University



A course in graphic arts can help you develop the skills this worker uses to retouch negatives used in printing.



What skills, abilities, and interests would help you succeed in this kind of work?

**WORKER REQUIREMENTS**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Demonstrate artistic skills in one or more of the visual arts or crafts.
- Select proper tools, materials, and techniques for each task.
- Picture how shapes, forms, and colors can be arranged in an artistic way.
- Move the eyes, hands, and fingers skillfully to use brushes, pens, chisels, knives, and engraving instruments.
- Draw sketches or follow designs made by others.

## CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you assembled plastic models, made pottery, or completed paint-by-number pictures? Do you have a steady hand for this kind of activity?
- Have you any craft hobbies such as jewelry making, wood carving, or leather tooling? Do you like to do this work?
- Have you taken industrial arts or other courses which give training in the use of hand tools? Can you use screwdrivers, pliers, chisels, and files skillfully?
- Have you had a mechanical drawing course? Can you draw things to scale? Do you like to do lettering?
- Have you painted or decorated unfinished furniture? Do you like this kind of work?

Illinois Natural History Survey



You can learn techniques used in taxidermy by working with a professional.

**How can you prepare for and enter this kind of work?****PREPARATION**

Jobs in this group require different skills. Courses in the industrial arts, drafting, or art are helpful for most of these jobs. On-the-job training and experience help develop many specific skills.

Vocational high schools and technical schools provide training in graphic arts. Some trade unions and employers offer apprenticeship training for graphic art jobs.

Hand decorating jobs usually do not require formal training before entry. Art courses, drafting, or mechanical drawing classes in high school or junior college are helpful. Most employers provide on-the-job training to teach techniques.

Handicraft hobbies help develop the skills needed for some jobs. Techniques may be self-taught or learned during short evening courses.

**What else should you know about these jobs?**

Many jobs in this group do not allow for creative expression. However, all workers need some artistic talent.

Highly skilled workers are sometimes self-employed. They make and sell products or do contract work for others.

**OTHER  
CONSIDERATIONS**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**QUALIFICATIONS  
PROFILE**

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 1. Activities dealing with things and objects.
- 9. Activities involving processes, methods, or machines.
- 10. Activities involving working on or producing things.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 7. Making decisions using personal judgment.
- 8. Making decisions using standards that can be measured or checked.
- 10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                                |                      |
|--------|-------------------------------------|-------------------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Compiling          |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Precision Working  |

**PHYSICAL DEMANDS**

Workers must be able to perform the following physical activities.

- S. Sedentary work.
- L. Light work.
- 4. Reaching, handling, fingering, and/or feeling.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I. Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                | Levels |    |   |   |       |
|--------------------------|--------|----|---|---|-------|
|                          | Low    | to |   |   | High  |
|                          | 5      | 4  | 3 | 2 | 1     |
| G - General              |        |    |   |   | 3     |
| S - Spatial              |        |    |   |   | 3 - 2 |
| P - Form Perception      |        |    |   |   | 3 - 2 |
| K - Motor Coordination   |        |    |   |   | 3     |
| F - Finger Dexterity     |        |    |   |   | 3 - 2 |
| M - Manual Dexterity     |        |    |   |   | 3     |
| C - Color Discrimination |        |    |   |   | 3     |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 4-5.

Workers apply judgment and manual skills to make or decorate products for practical or artistic purposes. They follow instructions which are written, spoken, or in diagram form. These workers deal with concrete and abstract variables such as special hand tools, artistic mediums, and aesthetic expression.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- T - Technical school courses in drafting.
- V - Vocational school courses in the trade and industrial fields.

**Training Time**

Occupations in this group may require over 1 year up to and including 10 years (SVP 6, 7, 8).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Manufacturing or Communications in industrial arts.

**OCCUPATIONS IN TECHNICAL ARTS**

|                              |             |
|------------------------------|-------------|
| Airbrush Artist              | 970.281-010 |
| Art Conservator              | 102.167-010 |
| Carver, Hand                 | 761.281-010 |
| Decorator                    | 298.381-010 |
| Decorator                    | 524.381-014 |
| Engraver, Hand, Soft Metals  | 704.381-030 |
| Etcher                       | 704.684-010 |
| Etcher, Photoengraving       | 971.381-014 |
| Form Designer                | 970.361-010 |
| Glass Bender                 | 772.381-010 |
| Jeweler                      | 700.281-010 |
| Letterer                     | 970.661-014 |
| Lithographic Plate Maker     | 972.381-010 |
| Milliner                     | 784.261-010 |
| Model Maker                  | 709.381-018 |
| Museum Technician            | 102.381-010 |
| Painter, Hand                | 970.381-022 |
| Painter, Sign                | 970.381-026 |
| Photoengraver                | 971.381-022 |
| Photoengraving Finisher      | 971.381-030 |
| Photoengraving Printer       | 971.381-034 |
| Photographer, Aerial         | 143.062-014 |
| Photographer, Lithographic   | 972.382-014 |
| Photographer, Photoengraving | 971.382-014 |
| Photograph Retoucher         | 970.281-018 |
| Picture Framer               | 739.684-146 |
| Process Artist               | 972.281-010 |
| Sign Writer, Hand            | 970.281-022 |
| Silversmith                  | 700.281-022 |
| Sound Cutter                 | 962.382-014 |
| Stripper                     | 971.381-050 |
| Taxidermist                  | 199.261-010 |
| Transferrer                  | 972.381-026 |
| Wig Dresser                  | 332.361-010 |

## AMUSEMENT

Amusement, as used here, includes performing an act to entertain people in a setting such as a carnival. Workers attract people's attention by shouting, gesticulating, or wearing a costume. Carnivals, street fairs, and amusement parks often employ these workers.

You would put on an act in front of an audience. You would perform one or more of the following tasks.

- Prepare and interpret horoscopes for people.
- Announce circus acts.
- Drive a sound truck and operate a public address system to announce or advertise events or products.
- Use props to give a fire-eating performance.
- Shout at passersby to get them to enter a carnival attraction.

### WORK PERFORMED

What would you do as a worker in this group?



As a psychic reader, you would use a crystal ball, playing cards, or read people's palms to predict the future.



Circus World Museum, Baraboo, Wisconsin

Poise and concentration help this amusement park entertainer hold the audience's attention.

**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Speak clearly.
- Get the attention of others to entertain them through speaking, gesturing, or shouting.
- Be at ease before an audience.
- Learn the principles of fortune-telling or mind reading.

## WORKER REQUIREMENTS



Would you feel at ease wearing a costume in front of strangers?

## CLUES

**Do you have or can you develop these skills, abilities, and interests?**  
Your answers to the following questions will help you decide.

- Have you read or prepared horoscopes for your friends or at a party? Are you interested in this type of activity?
- Have you worn a costume as a school mascot? Do you enjoy performing before an audience?
- Have you worked at a school or community fair or carnival? Were you able to get people to play the games or watch the shows?

## PREPARATION

**How can you prepare for and enter this type of work?**

Many of these jobs require only a short period of on-the-job training. Some jobs require no preparation other than to be fitted for a costume. Jobs such as ring conductor are only open to workers with related work experience.

### What else should you know about these jobs?

Many of these jobs are seasonal or temporary. There are few promotions. Jobs in circuses and other shows often require frequent travel. Some jobs, such as fortune-telling, require workers to have their own places of business.

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

### OTHER CONSIDERATIONS

### QUALIFICATIONS PROFILE



Most jobs in this group  
are seasonal or temporary.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 2. Activities involving business contact.
- 6. Activities involving the communication of ideas and information.

**WORKING CONDITIONS.**

Workers need to adjust to the following physical surroundings and working conditions.

- 1 Inside.
- 0 Outside.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 4. Dealing with people.
- 5. Influencing people's opinions, attitudes, and judgments.
- 7. Making decisions using personal judgment.
- 9. Interpreting and expressing feelings, ideas, or facts.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes   | Levels |   |   |   |      |
|-------------|--------|---|---|---|------|
|             | Low    | 4 | 3 | 2 | High |
| G - General |        |   | 3 |   |      |
| V - Verbal  |        |   | 3 |   |      |

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                     |             |
|--------|-------------------------------------|-------------------------------------|--------------------------|-------------|
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Compiling |
| PEOPLE | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Diverting |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Handling  |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- L Light work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 4 - 5.

Workers apply personal judgment and special skills to entertain by talking to or performing before people. These workers may carry out instructions furnished in written, spoken, or diagram form. They may deal with problems primarily involving abstract variables such as announcing or impersonating.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

### Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT – Most occupations in this group have no related formal education or training programs.

### Training Time

Occupations in this group may require from 1 day up to and including 6 months (SVP 2, 3, 4).

### Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Speech, Drama.

## OCCUPATIONS IN AMUSEMENT

|                |             |
|----------------|-------------|
| Announcer      | 159.347-010 |
| Astrologer     | 159.207-010 |
| Psychic Reader | 159.647-018 |
| Ring Conductor | 159.367-010 |
| Stand-in       | 961.667-014 |

# MODELING

Men's Fashion Association of America



Workers may model heavy clothes on a hot day since fashion designers present their fall-winter collections in the summer.

Modeling involves appearing before a camera or an audience with no speaking assignment. Workers show how clothes and jewelry look when worn, stand in for movie performers, and pose for artists. Stores, motion picture studios, and artists' and photographers' studios employ these workers.

## WORK PERFORMED

What would you do as a worker in this group?

You would pose or move as directed by your employer. You would perform one or more of the following tasks.

- Model clothes for a designer or a store.
- Pose for an artist or photographer.
- Stand in for a movie performer for camera and light adjustments.

What skills, abilities, and interests would help you succeed in this kind of work?

## WORKER REQUIREMENTS

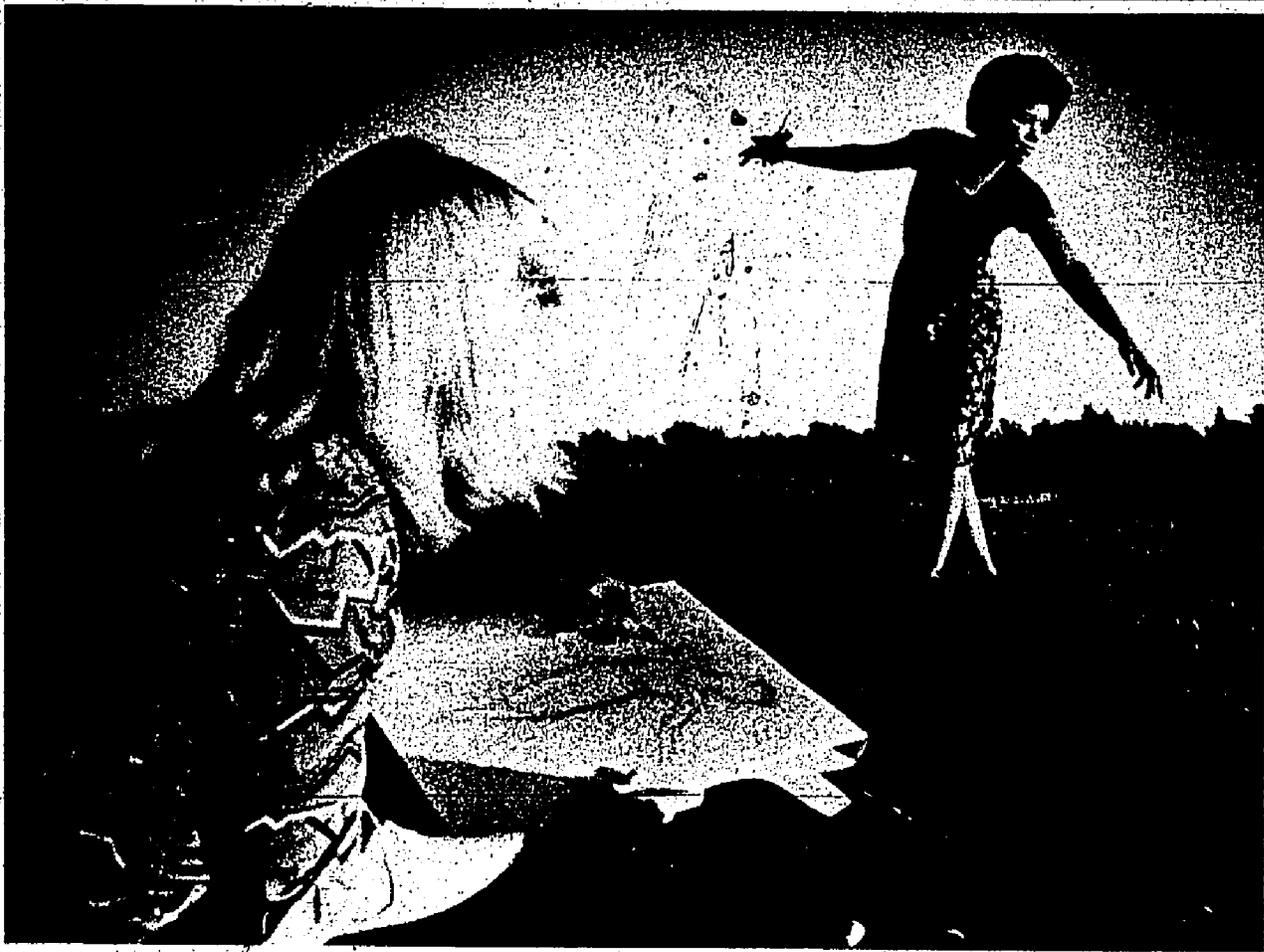
To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Stand, sit, walk, or pose in front of an audience, photographer, or artist for long periods of time.
- Move eyes, hands, feet, and body together gracefully.
- Follow directions for movements and poses.
- Appear before an audience with poise.

Monsanto



Could you still walk gracefully toward the end of a long modeling session?



The artist may ask you to stay in the same position for a long period of time.

## CLUES

**Do you have or can you develop these skills, abilities, and interests?**  
Your answers to the following questions will help you decide.

- Have you modeled for an artist or photographer? Can you hold a pose for a half-hour or longer?
- Have you modeled clothes in a fashion show? Do you enjoy appearing before groups?

## PREPARATION

**How can you prepare for and enter this type of work?**

Training in this field is usually brief and given on the job. A worker may be hired because of appearance or size. Workers may be under contract with a booking agency. Others may obtain work on their own. Models may work only part-time until the quality of their work is recognized. They often hold other jobs until they obtain full-time schedules.

**What else should you know about these jobs?**

Many of these jobs are short-term or seasonal. There are few chances to advance. However, a few models are in constant demand and earn large salaries.

**OTHER CONSIDERATIONS**

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits:

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 3. Activities of routine, definite, organized nature.
- 6. Activities involving the communication of ideas and information.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 4. Dealing with people.
- 9. Interpreting and expressing feelings, ideas, or facts.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                     |                      |
|--------|-------------------------------------|--------------------------|--------------------------|----------------------|
| DATA   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Comparing          |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Speaking/Signaling |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Handling           |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L. Light work.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I. Inside.
- B. Both: inside and outside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes              | Levels |    |   |   |      |
|------------------------|--------|----|---|---|------|
|                        | Low    | to |   |   | High |
|                        | 5      | 4  | 3 | 2 | 1    |
| G - General            | 4 - 3  |    |   |   |      |
| K - Motor Coordination | 4 - 3  |    |   |   |      |
| M - Manual Dexterity   | 4 - 3  |    |   |   |      |



## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3-4.

Workers use personal judgment to carry out instructions required for posing and modeling. They deal with concrete variables and standard situations such as props, costumes, or working schedules.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

E - To enter most occupations workers only need the required competencies and credentials.

## Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T - Post-high school courses in modeling.

NFT - Most occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from 1 day up to and including 6 months (SVP 2, 3, 4).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

## OCCUPATIONS IN MODELING

Instructor, Modeling

099.227-026

Model

297.667-014

Model, Artists'

961.667-010

Model, Photographers'

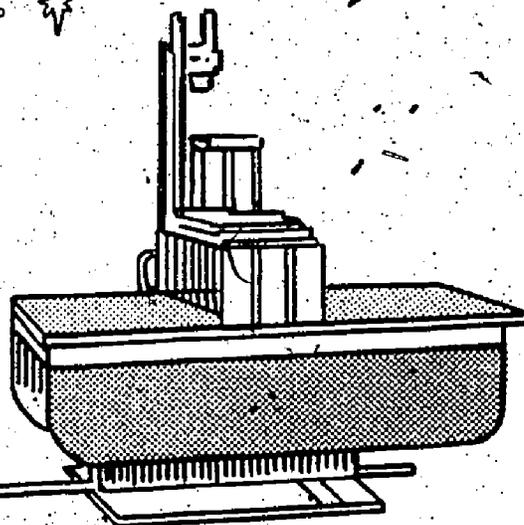
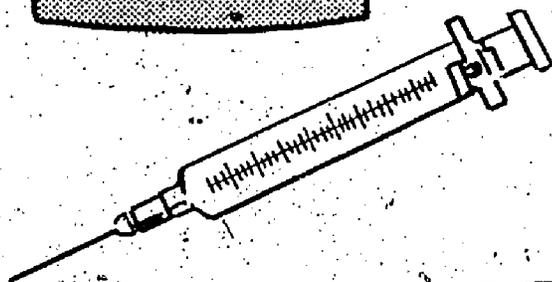
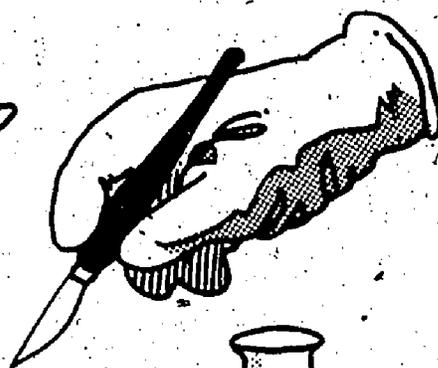
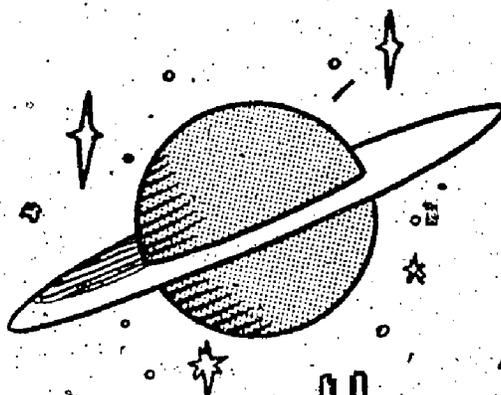
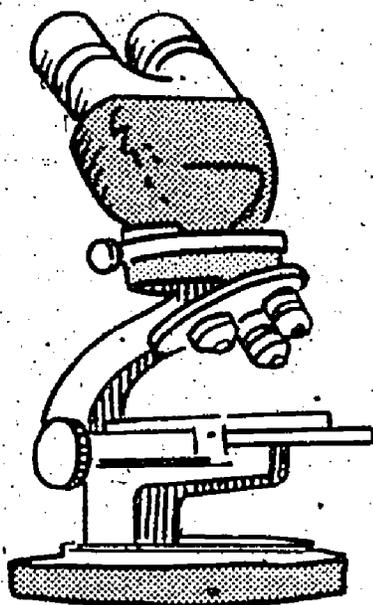
961.367-010

# SCIENTIFIC



This is an interest in researching and collecting data about the natural world and applying them to problems in medical, life, or physical sciences.

You can satisfy this interest by working with the knowledge and processes involved in the sciences. You may enjoy to research and develop new knowledge in mathematics. Perhaps solving problems in the physical or life sciences would satisfy you. You may prefer to study medicine and help humans or animals. You could work as a practitioner in the health field. You may want to work with scientific equipment and procedures. You could seek a job in research or testing laboratories.



# PHYSICAL SCIENCES

Physical sciences are based on mathematics, physics, and chemistry. Workers in this group research, discover, and test new theories. Some workers research new or improved materials or processes for production and construction. Other workers research such fields as geology, astronomy, oceanography; and computer science. All of the workers' conclusions are based on data that can be measured or proved. Industries, government agencies, or large universities employ most of these workers in their research facilities.

The University of Michigan



Research chemists conduct many tests before reaching a conclusion.

## WORK PERFORMED

What would you do as a worker in this group?

You would conduct scientific studies using your knowledge of math, physics, and chemistry. Your work activities would depend on what you want to find out through your studies. You would perform one or more of the following tasks.

- Study the composition and history of the earth's crust.
- Study the earth's atmosphere and its influences on humanity's comfort and well-being.
- Study the stars and planets and their relationship to earth.
- Help solve the problems of air pollution.
- Work on problems related to flights into space.
- Do research to develop or improve materials or products.
- Study the properties and uses of nuclear energy, electrical energy, or sound.
- Develop new ways to apply math concepts.



University of Illinois Planetarium

Astronomers chart the movements of stars and planets to study their effect on earth.

What skills, abilities, and interests would help you succeed in this type of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Understand and apply concepts in math and science.
- Read and use formulas, tables, charts, and graphs dealing with chemistry and math.
- Understand and express complex, technical, and scientific information.
- Determine differences in textures, colors, and shapes of objects.
- Form a mental image of fixed or moving objects in three dimensions and how they relate to each other in space.

**WORKER REQUIREMENTS**

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you belonged to a science club? Have you taken part in a science fair?
- Do you like science or math courses? Do you do well in these areas?
- Have you taken part in a research project or field trip which involved math or geology?
- Have you collected rocks or minerals as a hobby? Can you recognize differences in ore or mineral deposits?
- Have you owned a chemistry set or microscope? Do you enjoy testing new ideas with the equipment?
- Are you interested in such problems as air and water pollution? Would you like to help solve these problems?



A. Collecting rocks.



B. Experimenting with chemicals.



C. Reading scientific materials.

Do you have similar leisure activities?

**How can you prepare for and enter this kind of work?****PREPARATION**

Workers need at least a bachelor's degree with a major in math or a specific physical science to enter this type of work. However, graduate degrees are needed for most research work or college teaching. A master's degree may qualify a person to work in applied research or education. A doctoral degree and advanced studies are usually required to work in basic research.

**What else should you know about these jobs?****OTHER  
CONSIDERATIONS**

Some workers in this group may work irregular hours. They may have to meet research deadlines or observe events in nature whenever they occur. Workers may be outside for long periods of time. They may relocate or travel to remote areas such as excavation sites or near volcano craters. Workers must keep informed of developments in their field. During their leisure time, they often attend seminars and read professional journals.

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**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
6. Activities involving the communication of ideas and information.
7. Activities of a scientific and technical nature.
8. Activities involving creative thinking.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things,

|        |                                     |                          |                                     |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
|        | Low                                 | Avg.                     | High                                |                      |
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | = Synthesizing       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Setting-Up         |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- 1. Light work.
- 4. Reaching, handling, fingering, and/or feeling.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 1. Inside.
- B Both: inside and outside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                | Levels |   |    |     |      |
|--------------------------|--------|---|----|-----|------|
|                          | Low    |   | to |     | High |
|                          | 5      | 4 | 3  | 2   | 1    |
| G - General              |        |   |    |     | 1    |
| V - Verbal               |        |   |    |     | 1    |
| N - Numerical            |        |   |    | 2-1 |      |
| S - Spatial              |        |   |    | 2   |      |
| P - Form Perception      |        |   | 3  |     |      |
| Q - Clerical Perception  |        |   | 3  |     |      |
| C - Color Discrimination |        |   | 3  |     |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5-6.

Workers apply logical thinking and scientific methods to develop theories and principles based on complex mathematical or scientific information. They interpret and use technical formulas, equations, and graphs involved in mathematics and physical sciences. These workers deal with abstract and concrete variables such as trigonometry, geology, and measuring instruments.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- G - Graduate degrees in the science specialty.

**Training Time**

Occupations in this group may require from over 4 years up to and over 10 years (SVP 8, 9).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

**Important Courses**

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry, Advanced Math, Physics, Earth/Space Sciences.

**Helpful Courses**

- Chemistry, Composition.

**OCCUPATIONS IN PHYSICAL SCIENCES**

Astronomer  
 Chemist  
 Computer - Applications Engineer  
 Environmental Analyst  
 Geodesist  
 Geographer  
 Geographer, Physical  
 Geologist  
 Geophysical Prospector  
 Geophysicist  
 Hydrologist

021.067-010  
 022.061-010  
 020.062-010  
 029.081-010  
 024.061-014  
 029.067-010  
 029.067-014  
 024.061-018  
 024.061-026  
 024.061-030  
 024.061-034

Mathematician  
 Metallurgist, Physical  
 Meteorologist  
 Mineralogist  
 Petrologist  
 Physicist  
 Physicist, Theoretical  
 Project Manager, Environmental Research  
 Seismologist  
 Stratigrapher

020.067-014  
 011.061-022  
 025.062-010  
 024.061-038  
 024.061-046  
 023.061-014  
 023.067-010  
 029.167-014  
 024.061-050  
 024.061-054

# LIFE SCIENCES

Life sciences are the studies of plants and animals. Workers in this group conduct research and experiments to expand knowledge about living organisms. Workers may try to solve problems related to the effects of the environment on plant and animal life. They may study causes of diseases and methods of control. Hospitals, government agencies, industries, or universities usually employ these workers in their research facilities.

## WORK PERFORMED

**What would you do as a worker in this group?**

You would perform research and experiments to study and try to solve problems

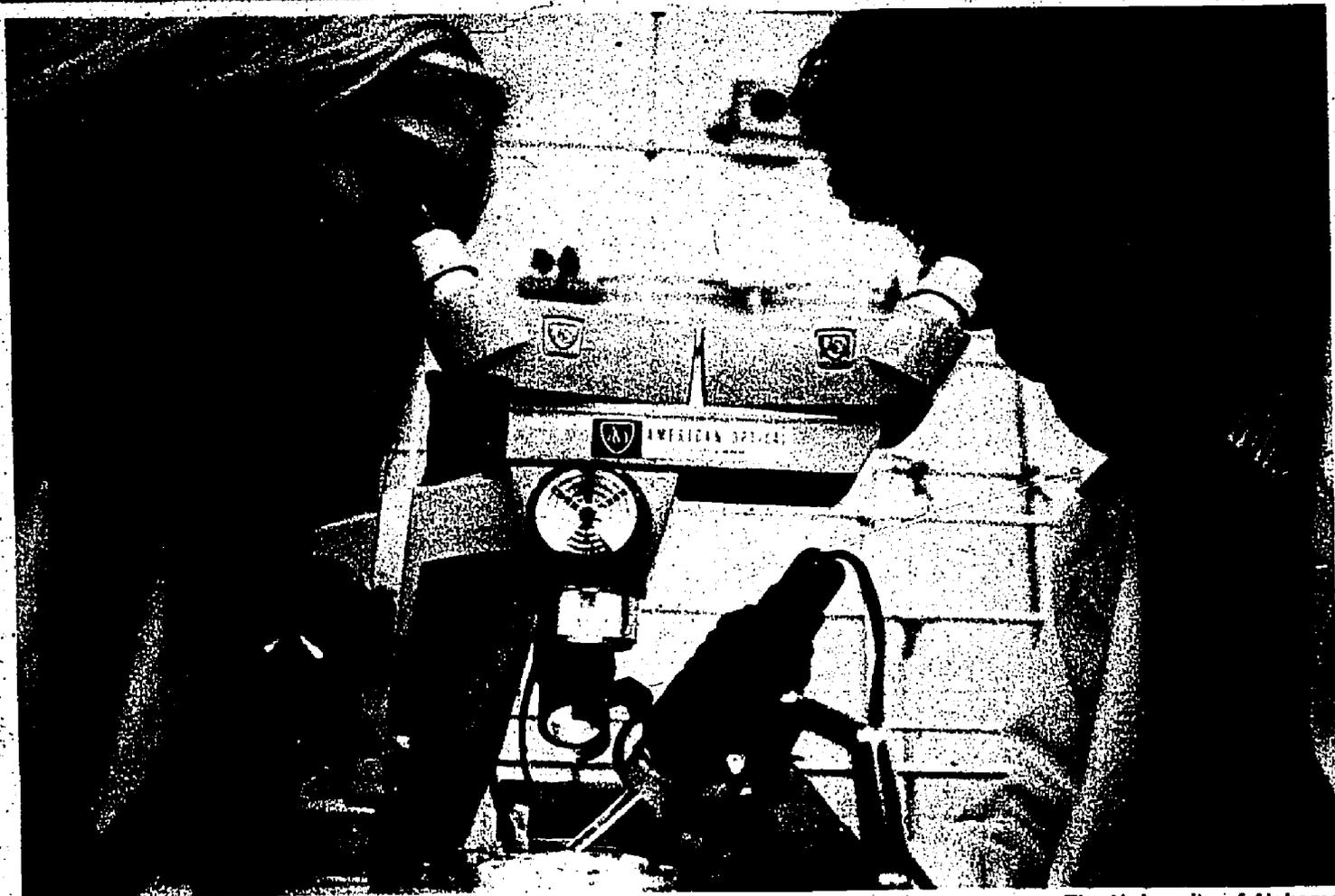
affecting plants and animals. There are many fields within the life sciences in which you can specialize. You would perform one or more of the following tasks.

- Study the climate, soil conditions, and other factors affecting forests.
- Conduct research related to food processing and nutrition.
- Experiment to develop new and improved trees and other plants.
- Study the effects of drugs, gases, and other materials on plants and animals.
- Stain, mount, and study human cells to determine whether they are diseased.
- Study the functions of the brain and nervous system of animals.

U. S. Department of Agriculture

Soil scientists wear masks for protection as they research the best way to remove radioactivity from the field.





The University of Alabama

These toxicologists look for possible effects of chemicals on the tissue of laboratory animals.

What skills, abilities, and interests would help you succeed in this type of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- See differences in form and structure to distinguish one organism from another.
- Move eyes, hands, and fingers together to handle sensitive or delicate instruments.
- See differences in shades of colors.
- Use concepts in mathematics and statistics.
- Understand and report technical and scientific data.
- Do a variety of tasks that may change often.
- Supervise other workers.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you had courses in biology, botany, or zoology? Did you like performing experiments to learn more about plants or animals?
- Have you taken part in a science project in which you raised, cared for, or studied differences among various kinds of plants?
- Have you belonged to a nature club? Do you enjoy walking along nature trails to observe plants and wildlife?
- Have you belonged to a scout troop? Did you take part in efforts to clean up or preserve forests, parks, or campgrounds?
- Have you worked in a plant nursery or in an animal clinic?

Clemson University



Students overcome their sensitivity as they observe the instructor dissect the lab animal.

This food chemist uses the experience and knowledge gained in college to research new food preservation methods.



**How can you prepare for and enter this kind of work?**

## PREPARATION

A bachelor's degree with a major in biology or another life science is generally required to enter this type of work. However, graduate degrees are needed for most research work or for college teaching. A master's degree may qualify a person to work in applied research or education. A doctoral degree and advanced studies are usually required to work in basic research.

**What else should you know about these jobs?**

Some jobs require workers to study tissue and waste products of humans and animals. Others require workers to live or work in remote areas such as forests or deserts.

Workers must keep informed of developments in their field. During their leisure time, they often attend seminars and read professional journals.

## OTHER

## CONSIDERATIONS

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

## QUALIFICATIONS

## PROFILE

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
6. Activities involving the communication of ideas and information.
7. Activities of a scientific and technical nature.
8. Activities involving creative thinking.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Synthesizing       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Precision Working  |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
4. Reaching, handling, fingering, and/or feeling.
6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- B Both: inside and outside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                | Levels |   |   |   |       |
|--------------------------|--------|---|---|---|-------|
|                          | Low    | 4 | 3 | 2 | High  |
| G - General              |        |   |   |   | 1     |
| V - Verbal               |        |   |   |   | 2-1   |
| N - Numerical            |        |   |   |   | 2-1   |
| S - Spatial              |        |   |   |   | 3-2-1 |
| P - Form Perception      |        |   |   |   | 3-2-1 |
| F - Finger Dexterity     |        |   |   |   | 3-2   |
| M - Manual Dexterity     |        |   |   |   | 3     |
| C - Color Discrimination |        |   |   |   |       |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5-6.

Workers apply logical thinking and scientific knowledge to study living things. They interpret technical instructions presented in written, mathematical, or diagram form. These workers deal with abstract and concrete variables such as life processes, classification of plants and animals, and laboratory equipment.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

A -- To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G -- Graduate degrees in the science specialty.

**Training Time**

Occupations in this group may require from over 4 years up to and over 10 years (SVP 8, 9).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

**Important Courses**

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry, Advanced Math, Chemistry, Biological Sciences.

**Helpful Courses**

- Composition.

**OCCUPATIONS IN LIFE SCIENCES**

|                          |             |
|--------------------------|-------------|
| Agronomist               | 040.061-010 |
| Anatomist                | 041.061-010 |
| Animal Scientist         | 040.061-014 |
| Anthropologist, Physical | 055.067-014 |
| Aquatic Biologist        | 041.061-022 |
| Biochemist               | 041.061-026 |
| Biologist                | 041.061-030 |
| Biomedical Engineer      | 019.061-010 |
| Biophysicist             | 041.061-034 |
| Botanist                 | 041.061-038 |
| Chemist, Food            | 022.061-014 |
| Dairy Technologist       | 040.061-022 |
| Dietitian, Research      | 077.061-010 |
| Entomologist             | 041.061-046 |
| Food Technologist        | 041.081-010 |
| Geneticist               | 041.061-050 |
| Histopathologist         | 041.061-054 |
| Horticulturist           | 040.061-038 |
| Microbiologist           | 041.061-058 |
| Mycologist               | 041.061-062 |
| Parasitologist           | 041.061-070 |
| Pathologist              | 070.061-010 |
| Pharmacologist           | 041.061-074 |
| Physiologist             | 041.061-078 |
| Plant Pathologist        | 041.061-086 |
| Range Manager            | 040.061-046 |
| Soil Conservationist     | 040.061-054 |
| Soil Scientist           | 040.061-058 |
| Veterinary Anatomist     | 073.061-014 |
| Wood Technologist        | 040.061-062 |
| Zoologist                | 041.061-090 |

# MEDICAL SCIENCES

Medical sciences involve the prevention, diagnosis, and treatment of human and animal diseases, disorders, or injuries. Some workers in this group specialize in treating specific kinds of illnesses or areas of the body. Doctors, dentists, veterinarians, and other health workers usually work in hospitals or clinics.

## WORK PERFORMED

What would you do as a worker in this group?

You would prevent, diagnose, or treat the illnesses or injuries of human or animal patients. Your work activities would depend on your training. You would perform one or more of the following tasks.

- Practice general medicine and treat many types of ailments.
- Specialize in treating only one part of the body or only certain types of diseases.
- Provide general dental care or specialize in one area of dentistry.
- Examine eyes and prescribe glasses or contact lenses to improve vision.
- Diagnose and treat disorders of the ear, nose, and throat.
- Perform surgery to correct deformities, repair injuries, or remove diseased organs.
- Care for women during pregnancy and deliver babies.
- Prevent and treat illnesses and injuries of pets or livestock.

American Veterinary Medical Association



Often, the same procedures are used to diagnose and treat both humans and animals.



U. S. Arm

Surgical staff workers use delicate instruments with precision and skill and must remain calm in emergencies.

**What skills, abilities, and interests would help you succeed in this type of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Understand human or animal anatomy.
- Stay calm and clearheaded in emergency situations.
- Care for the physical welfare of people or animals.
- Concentrate and remain alert for long periods.
- Make critical decisions and judgments.
- Move eyes, hands, and fingers together to use surgical instruments with precision and skill.

**WORKER REQUIREMENTS**



American Veterinary Medical Association

The workers' long training may range from studying animal bone structure to diagnosing health problems from X-rays.

## CLUES

**Do you have or can you develop these skills, abilities, and interests?** Your answers to the following questions will help you decide.

- Have you taken courses in biology, anatomy, or chemistry? Have you done well in your science courses?
- Have you had any training in first aid techniques? Have you treated an accident victim? Are you calm during emergencies?
- Have you done volunteer work in a hospital? Have you had a part-time job as a nurses' aid or an orderly? Do you enjoy such work?
- Have you assembled a plastic model of a human or animal? Are you interested in how internal body structures or systems work?
- Have you cared for a sick or injured animal?
- Have you watched shows presenting medical facts on television? Do you enjoy such programs?

**How can you prepare for and enter this kind of work?**

**PREPARATION**

Doctors of medicine, veterinary medicine, and dentistry need to have the following minimum preparation. They must study two to four years in a premedical, pre dental, or other professional college. These years are then followed by four years of advanced study. Most doctors serve one to two years as interns in approved hospitals after they graduate from medical school.

Some physicians specialize in a specific field. To do so, they spend several more years in study and training as residents or interns. Some dentists specialize, teach, or perform research in specific fields. To do so, they take postgraduate courses or serve as residents in a hospital. All states require medical doctors, dentists, and veterinarians to have a license to practice.

**What else should you know about these jobs?**

**OTHER**

The training needed to enter this type of work is costly in time and money. Workers must adjust to irregular hours, weekend and holiday work, and 24-hour on call duties. However, pay in most of these jobs is in the upper levels.

**CONSIDERATIONS**

Workers must update their knowledge and skills. They must attend seminars, take advanced courses, and read journals related to their professions.

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**QUALIFICATIONS  
PROFILE**

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 4. Activities involving direct personal contact to help or instruct others.
- 5. Activities resulting in recognition or appreciation from others.
- 7. Activities of a scientific and technical nature.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 4. Dealing with people.
- 7. Making decisions using personal judgment.
- 8. Making decisions using standards that can be measured or checked.
- 10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        |                          |                          |                                     |                     |
|--------|--------------------------|--------------------------|-------------------------------------|---------------------|
|        | Low                      | Avg.                     | High                                |                     |
| DATA   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Coordinating      |
| PEOPLE | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Mentoring         |
| THINGS | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Precision Working |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- 1. Light work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 1. Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                | Levels |   |   |   |      |
|--------------------------|--------|---|---|---|------|
|                          | Low    | 4 | 3 | 2 | High |
|                          | 5      |   |   |   | 1    |
| G - General              |        |   |   |   | 1    |
| V - Verbal               |        |   |   | 2 | 1    |
| N - Numerical            |        |   |   | 2 | 1    |
| S - Spatial              |        |   |   | 2 | 1    |
| P - Form Perception      |        |   |   | 2 | 1    |
| K - Motor Coordination   |        |   | 3 | 2 |      |
| F - Finger Dexterity     |        |   |   | 2 | 1    |
| C - Color Discrimination |        |   | 3 |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5-6.

Workers apply logical thinking and scientific knowledge to prevent, diagnose, and treat animal or human injuries or illnesses. They interpret technical instructions presented in written, mathematical, or diagram form. These workers deal with abstract and concrete variables such as symptoms of disease, body processes, diagnostic aids, and surgical instruments.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G - Graduate degree in one of the medical sciences.

**Training Time**

Occupations in this group may require from over 4 years up to and over 10 years (SVP 8, 9).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry, Advanced Math, Chemistry, Biological Sciences.

**OCCUPATIONS IN MEDICAL SCIENCES**

|                           |             |
|---------------------------|-------------|
| Anesthesiologist          | 070.101-010 |
| Audiologist               | 076.101-010 |
| Chiropractor              | 079.101-010 |
| Dentist                   | 072.101-010 |
| Dermatologist             | 070.101-018 |
| General Practitioner      | 070.101-022 |
| Gynecologist              | 070.101-034 |
| Intern                    | 070.101-038 |
| Internist                 | 070.101-042 |
| Medical Officer           | 070.101-046 |
| Obstetrician              | 070.101-054 |
| Ophthalmologist           | 070.101-058 |
| Optometrist               | 079.101-018 |
| Oral Pathologist          | 072.061-010 |
| Oral Surgeon              | 072.101-018 |
| Orthodontist              | 072.101-022 |
| Osteopathic Physician     | 071.101-010 |
| Pediatrician              | 070.101-066 |
| Pedodontist               | 072.101-026 |
| Periodontist              | 072.101-030 |
| Physiatrist               | 070.101-070 |
| Physician, Head           | 070.101-074 |
| Physician, Occupational   | 070.101-078 |
| Podiatrist                | 079.101-022 |
| Prosthodontist            | 072.101-034 |
| Psychiatrist              | 070.107-014 |
| Radiologist               | 070.101-090 |
| Speech Pathologist        | 076.107-010 |
| Surgeon 1                 | 070.101-094 |
| Urologist                 | 070.101-098 |
| Veterinarian              | 073.101-010 |
| Veterinary Meat Inspector | 073.264-010 |

# LABORATORY TECHNOLOGY

Laboratory technology involves using special equipment to perform tests in chemistry, biology, or physics. Workers in this group record data obtained from experiments and tests. They help scien-

tists, researchers, and engineers in their work. Hospitals, government agencies, universities, and private industries employ these workers in their research labs.



Goodyear Tire and Rubber Co.

The accuracy of both medical and industrial laboratory technologists can affect the life or death of a patient or a consumer.

## WORK PERFORMED

What would you do as a worker in this group?

You would set up and operate testing equipment. You would usually gather samples of materials to be tested.

You would perform one or more of the following tasks.

- Test blood, tissue, or other samples to help in the diagnosis and treatment of diseases.
- Analyze samples of water to check the chemical content or purity.
- Test ore samples to estimate the value of precious metals.
- Measure rainfall and river flow at metering stations.
- Test petroleum products or synthetic fibers to find out if they meet quality standards.
- Test aircraft materials to measure strength and hardness.
- Analyze mud to determine the presence of oil or gas.



Would you like to learn how to plot a weather chart?

Diamond Shamrock



Delta Air Lines

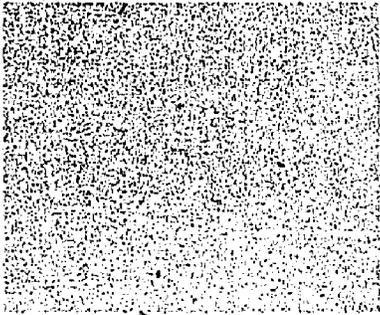
Laboratory technologists use the experience gained in handling basic testing instruments to operate special equipment with precision and skill.

**What skills, abilities, and interests would help you succeed in this type of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing the following items. Not all items are important to every job.

- Understand and use scientific and technical language and symbols.
- See slight differences in form or texture of substances being tested.
- Move hands and fingers together to operate testing equipment and use delicate instruments.
- Recognize color shadings that might indicate tissue condition or the presence of minerals in ore samples.
- Make and use graphs, charts, and maps to record data.

## WORKER REQUIREMENTS



A high school chemistry course can help you explore or confirm your interest and skills in laboratory work.

American Textile's Manufacturers Institute, Inc.

## CLUES

**Do you have or can you develop these skills, abilities, and interests?**

Your answers to the following questions will help you decide.

- Have you used test tubes, microscopes, or other testing instruments? Do you enjoy working with such equipment?
- Do you like to read scientific or technical manuals or journals? Can you understand the language and symbols used?
- Have you collected rocks? Could you recognize the different minerals present in the rocks?
- Have you had algebra or geometry courses? Do you like your math classes? Can you read and understand charts and graphs?

## PREPARATION

**How can you prepare for and enter this kind of work?**

Most of these jobs require workers to have a two- to four-year degree from a vocational or technical school. Some junior colleges and universities also offer the needed scientific and technical courses. Some workers in production may move into testing if their skills and interests show an aptitude for this type of work. Workers with related work experience may sometimes obtain on-the-job training. Applicants who had scientific or technical courses in high school may obtain some of these jobs.

## What else should you know about these jobs?

OTHER

Many medical and technical facilities operate on a 24-hour schedule. Workers may have to work at night or at different hours from week to week.

CONSIDERATIONS

## QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

### WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
7. Activities of a scientific and technical nature.
9. Activities involving processes, methods, or machines.

### WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

### WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Analyzing          |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Precision Working  |

### PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

- L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

## WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I - Inside.

## APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                | Levels   |       |       |   |           |
|--------------------------|----------|-------|-------|---|-----------|
|                          | Low<br>5 | 4     | 3     | 2 | High<br>1 |
| G - General              |          |       | 3 - 2 |   |           |
| N - Numerical            |          |       | 3 - 2 |   |           |
| S - Spatial              |          |       | 3     |   |           |
| P - Form Perception      |          |       | 3 - 2 |   |           |
| Q - Clerical Perception  |          | 4 - 3 |       |   |           |
| K - Motor Coordination   |          |       | 3     |   |           |
| F - Finger Dexterity     |          |       | 3     |   |           |
| M - Manual Dexterity     |          |       | 3     |   |           |
| C - Color Discrimination |          |       | 3     |   |           |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 4 - 5.

Workers apply logical thinking and scientific knowledge to perform precise tests and operate laboratory equipment and machines in order to solve scientific problems. They interpret technical instructions presented in written, oral, diagram, or schedule form. These workers deal with abstract and concrete variables such as laboratory equipment and procedures and quality control.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

E - To enter some occupations workers only need the required competencies and credentials.

A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

### Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C - College courses in science.

T - Technical school courses in laboratory technology.

NFT - Some occupations in this group have no related formal education or training programs.

### Training Time

Occupations in this group may require from over 1 year up to and including 10 years (SVP 6, 7, 8).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

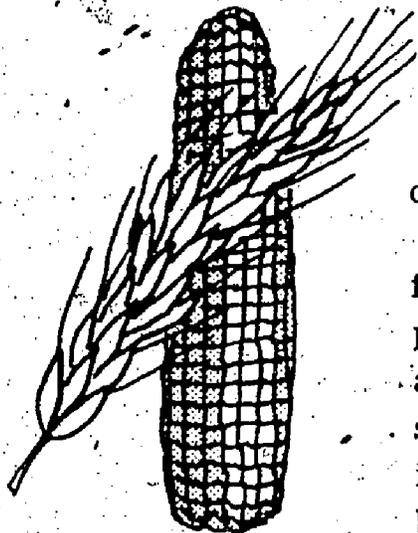
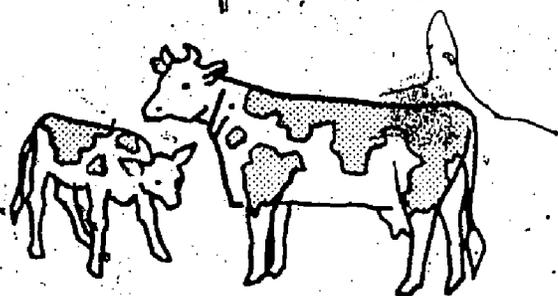
- Courses required for entrance to post high school formal programs.
- Science courses related to the laboratory specialty.

**OCCUPATIONS IN LABORATORY TECHNOLOGY**

|                                |             |                               |             |
|--------------------------------|-------------|-------------------------------|-------------|
| Assayer                        | 022.281-010 | Medical-Laboratory Assistant  | 078.381-010 |
| Biological Aide                | 049.384-010 | Medical-Laboratory Technician | 078.381-014 |
| Cephalometric Analyst          | 078.384-010 | Medical Technologist          | 078.361-014 |
| Chemical-Laboratory Technician | 022.261-010 | Medical Technologist, Chief   | 078.161-010 |
| Chemistry Technologist         | 078.261-010 | Metallurgical Technician      | 011.261-010 |
| Colorist                       | 022.161-014 | Morgue Attendant              | 355.667-010 |
| Criminalist                    | 029.281-010 | Pharmacist                    | 074.161-010 |
| Cytotechnologist               | 078.281-010 | Photographer, Scientific      | 143.062-026 |
| Decontaminator                 | 199.384-010 | Pilot-Control Operator        | 559.382-046 |
| Embalmer                       | 338.371-014 | Quality-Control Technician    | 012.261-014 |
| Film Laboratory Technician I   | 976.381-010 | Scientific Helper             | 199.364-014 |
| Fingerprint Classifier         | 375.387-010 | Tester                        | 011.361-010 |
| Food Tester                    | 029.361-014 | Tester                        | 029.261-022 |
| Laboratory Supervisor          | 022.137-010 | Tissue Technologist           | 078.361-030 |
| Laboratory Tester              | 022.281-018 | Ultrasound Technologist       | 078.364-010 |
| Laboratory Tester              | 029.261-010 | Weather Observer              | 025.267-014 |

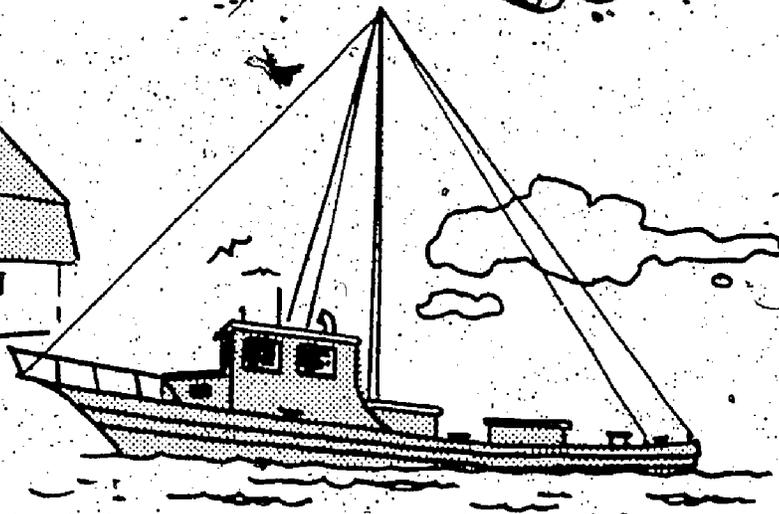
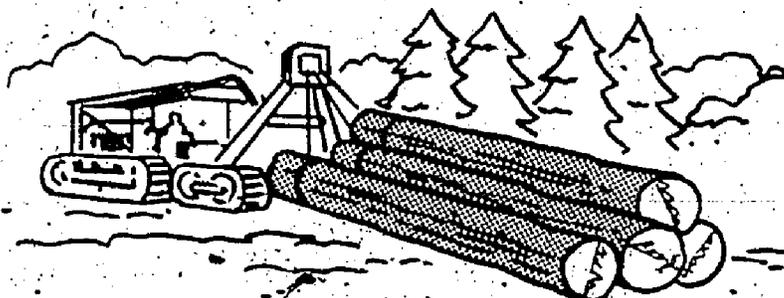
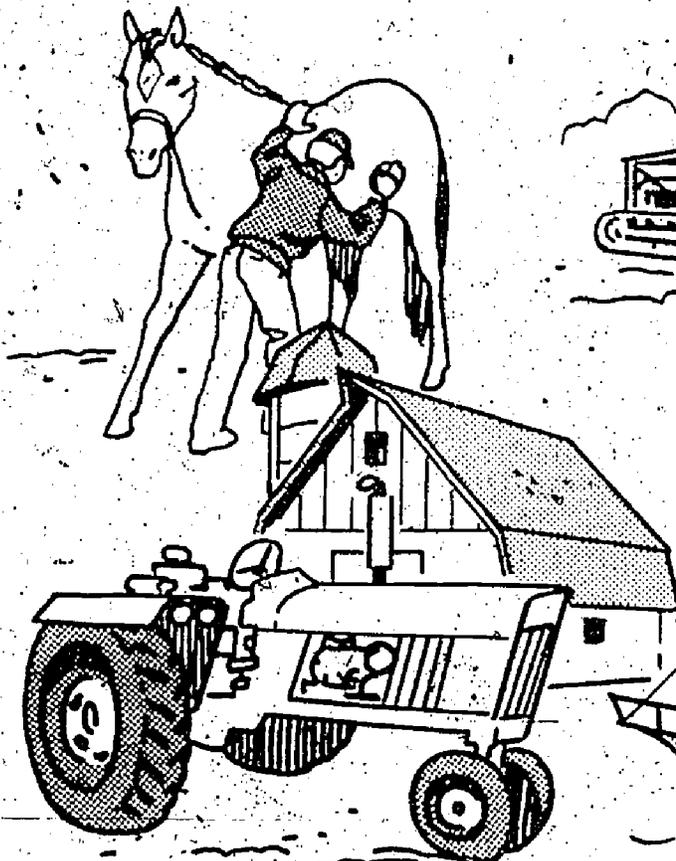


## NATURE



This is an interest in activities involving the physical care of plants and animals, usually in an outdoor setting.

You can satisfy this interest by working in farming, forestry, fishing, and related fields. You may like doing physical work outdoors, working on a farm. You may enjoy animals. Perhaps training or taking care of animals would satisfy you. You may prefer to use your management abilities. You could own, operate, or manage farms or related businesses or services.



# MANAGERIAL WORK: NATURE

Managerial work: nature is the managing and directing of work in farming, logging, or forestry. It includes fish and animal breeding, landscaping, and ranching. Some workers in this group own and operate their own farms or related businesses. Private owners, large companies, and the government also employ workers in this group. Managers often do physical work with the people they direct. Job settings include farms, ranches, landscape nurseries, fish hatcheries, and forests.



Landscape contractors plan and execute landscaping operations of private and business residences.

## WORK PERFORMED

What would you do as a worker in this group?

You would manage a landscaping or lumbering firm, farm, fish hatchery, nursery, ranch, park, or forest. You would hire and supervise other workers or do the work yourself.

You would perform one or more of the following tasks.

- Plan and oversee the buying of seed, livestock, feed, fertilizer, and other supplies.
- Plan and oversee the sale and shipment of crops, poultry, livestock, fish, or timber.
- Develop a system to keep financial and production records.
- Arrange contracts with logging companies to harvest timber.
- Supervise the workers in a large government forest or park.
- Plan and arrange for the purchase of equipment and machinery.
- Raise poultry, shellfish, game birds, reptiles, fur-bearing animals or grow Christmas trees.



This nursery manager checks the stock to determine which plants are ready for sale.

What skills, abilities, and interests would help you succeed in this type of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Work outdoors.
- Work with plants and animals.
- Keep financial and production records.
- Deal with people in an effective manner when hiring, supervising, purchasing, or contracting for the sale of products.
- Know your specific field of work thoroughly.
- Have physical stamina.
- Work with your hands.

**WORKER REQUIREMENTS**

## CLUES

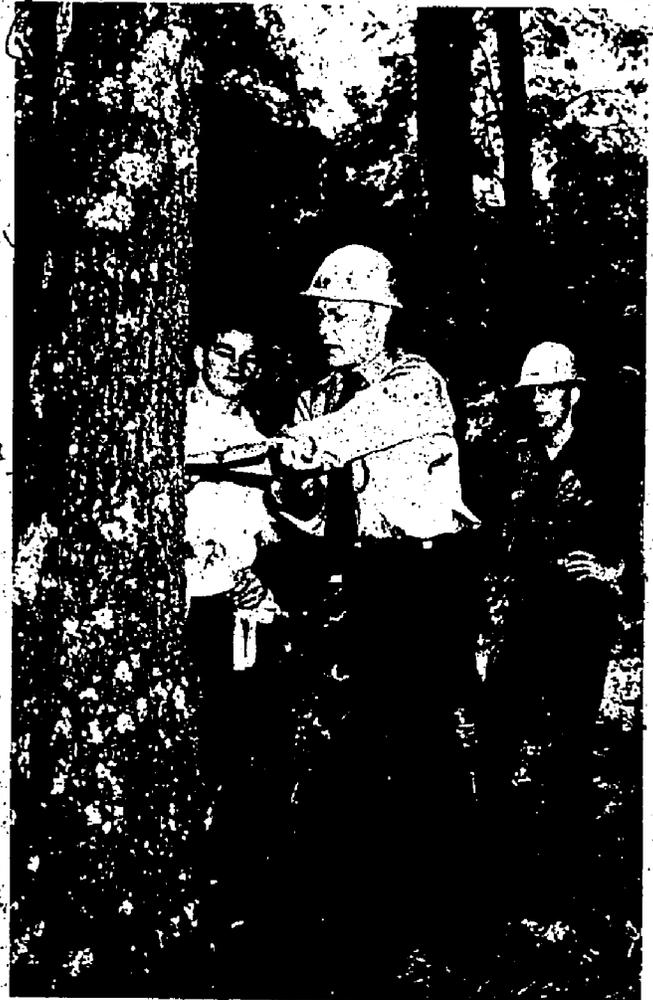
Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken care of plants or animals as a hobby? Would you like to learn more about growing plants or raising animals?
- Have you been a member of Future Farmers of America or 4-H? Were you involved in projects which required you to keep records? Do you enjoy record keeping?
- Have you fished, or camped as a hobby? Do you like outdoor activities?
- Have you been a club leader or chaired a committee? How do you feel about being responsible for the work of others?
- Have you done any part-time or full-time work on a farm, fishing boat, or for a nursery or lawn care company? Would you like to operate this kind of business?

U. S. Department of Agriculture



U. S. Forest Service



Managers in this group must be able to do the actual work, as well as train others to do it.

**How can you prepare for and enter this kind of work?**

Most of the jobs in this group are open only to people with related work experience. Growing up on a farm may often help prepare workers for many of these jobs. Formal training is offered at the high school and college levels. Many high schools offer vocational courses in agriculture. Adults may attend similar courses at night or on weekends. Many colleges and technical schools offer programs in agribusiness, animal husbandry, and forest management. They may also provide courses in small business management. Each state has at least one college which offers four- and five-year programs in related fields.

Courses in plant growing, gardening, or turf management prepare workers for jobs in nurseries, tree services, and landscaping firms.

Group-run farm businesses, big companies, and large farm owners hire workers with management training and farm experience. Some of these workers form contracting companies which provide farm services or purchase farm products.

**What else should you know about these jobs?**

Jobs in farm management are found in all parts of the country. However, the climate and the land dictate the location of jobs related to special crops, such as citrus fruits or cotton. The timber producing areas of the Pacific Northwest and the South provide most of the forestry and lumbering jobs. States which stock lakes and streams for fishing provide a few jobs in fish hatchery management. Jobs with plant nurseries, landscaping companies, and tree service firms are usually found in city and suburban areas.

Federal loans are sometimes offered to qualified people who wish to start a farm or forestry service business. However, these people should first be certain that this type of service is needed in the area. Few firms hire people in animal breeding, beekeeping, or fish farming. Workers can start these businesses at home with personal financial investment.

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**PREPARATION****OTHER  
CONSIDERATIONS****QUALIFICATIONS  
PROFILE**

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
2. Activities involving business contact.
7. Activities of a scientific and technical nature.
9. Activities involving processes, methods, or machines.
10. Activities involving working on or producing things.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Coordinating       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Precision Working  |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
3. Stooping, kneeling, crouching, and/or crawling.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- O Outside.
- B Both: inside and outside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |       |       |      |
|-------------------------|--------|---|-------|-------|------|
|                         | Low    | 4 | 3     | 2     | High |
|                         | 5      |   |       |       | 1    |
| G - General             |        |   |       | 3 - 2 |      |
| V - Verbal              |        |   |       | 3     |      |
| N - Numerical           |        |   |       | 3     |      |
| S - Spatial             |        |   | 4 - 3 |       |      |
| Q - Clerical Perception |        |   | 4 - 3 |       |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply scientific knowledge of efficient agricultural methods to solve practical problems in farming, animal breeding, or forestry. They interpret instructions presented in mathematical or diagram form. These workers deal with concrete and abstract variables such as business records, land management, and timber operations.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- C - College studies in agriculture, forestry or business management.
- T - Technical school courses in agriculture or business management.
- V - Vocational courses in agriculture.

**Training Time**

Occupations in this group may require from over 1 year up to and including 10 years (SVP 6, 7, 8).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Basic Math, Language Skills

**OCCUPATIONS IN  
MANAGERIAL WORK: NATURE**

|                                       |             |
|---------------------------------------|-------------|
| Animal Breeder                        | 410.161-010 |
| Beekeeper                             | 413.161-010 |
| Cruiser                               | 459.378-010 |
| Farmer, Cash Grain                    | 401.161-010 |
| Farmer, Diversified Crops             | 407.161-010 |
| Farmer, Field Crop                    | 404.161-010 |
| Farmer, General                       | 421.161-010 |
| Farmer, Tree-Fruit-and-Nut Crops      | 403.161-010 |
| Farmer, Vegetable                     | 402.161-010 |
| Field Contractor                      | 162.117-022 |
| Fish Farmer                           | 446.161-010 |
| Forester                              | 040.061-034 |
| Forester Aide                         | 452.364-010 |
| Fur Farmer                            | 410.161-014 |
| Game-Bird Farmer                      | 412.161-010 |
| General Manager, Farm                 | 180.167-018 |
| Horticultural-Specialty Grower, Field | 405.161-014 |
| Landscape Contractor                  | 182.167-014 |
| Landscape Gardener                    | 408.161-010 |
| Livestock Rancher                     | 410.161-018 |
| Manager, Dairy Farm                   | 180.167-026 |
| Manager, Fish Hatchery                | 180.167-030 |
| Manager, Nursery                      | 180.167-042 |
| Poultry Farmer                        | 411.161-018 |
| Superintendent, Production            | 180.167-058 |
| Tree Surgeon                          | 408.181-010 |
| Wildlife Control Agent                | 379.267-010 |

# GENERAL SUPERVISION: NATURE

General supervision: nature is overseeing several kinds of work in farming, fishing, or forestry. Workers in this group usually work under a general manager. Job settings include farms, ranches, landscape nurseries, fish hatcheries, forests, and fishing boats.

## WORK PERFORMED

What would you do as a worker in this group?

You would supervise others at a farm, fish hatchery, nursery, ranch, park, forest, or landscaping or lumbering firm. You might work along with those you supervise.

You would perform one or more of the following tasks.

- Supervise workers who plant, cultivate, and harvest farm crops.
- Supervise workers who plant, cultivate, harvest, and pack seedling trees.
- Supervise workers who milk, breed, and care for dairy cows.
- Oversee the work in a fish hatchery.



This logging supervisor oversees the planning of the tree harvest.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Demonstrate how to use the necessary tools and equipment.
- Work with plants and animals.
- Use tact to get people to finish a task.
- Give clear directions.
- Organize in the best way the work to be done.

USDA — Soil Conservation Service

As a crop supervisor, you would explain how to improve soil conditions.



Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you been in charge of a scout or other group for a clean-up day? Did they follow your directions?
- Have you belonged to Future Farmers of America or 4-H? Did you have a project involving plants or animals?
- Have you worked full days mowing lawns, cutting weeds, or picking fruit? Could you do this type of work every day?
- Do you like to camp, fish, or hunt? Do you like to be outdoors?
- Have you used rakes, shovels, saws, or other tools? Do you like to work with your hands?

**CLUES**

Directing a community recycling project can give you experience in organizing work and supervising workers.



## PREPARATION

**How can you prepare for and enter this kind of work?**

Jobs in this group require experience in doing the work to be supervised. Workers must know about the tools and methods used in the work.

Vocational and technical courses in agriculture, forestry, or related fields sometimes helps experienced people move into these jobs.

## OTHER CONSIDERATIONS

**What else should you consider?**

Workers in this group usually stay with those being supervised all day. Workers may also be exposed to extremes of weather and other natural hazards.

## QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 5. Activities resulting in recognition or appreciation from others.
- 9. Activities involving processes, methods, or machines.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 1. Performing duties which change frequently.
- 3. Planning and directing an entire activity.
- 4. Dealing with people.
- 7. Making decisions using personal judgment.
- 8. Making decisions using standards that can be measured or checked.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                                |                     |
|--------|-------------------------------------|-------------------------------------|-------------------------------------|---------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Coordinating      |
| PEOPLE | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Supervising       |
| THINGS | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Precision Working |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- 3. Stooping, kneeling, crouching, and/or crawling.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 0 Outside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes            | Levels |   |    |   |      |
|----------------------|--------|---|----|---|------|
|                      | Low    |   | to |   | High |
|                      | 5      | 4 | 3  | 2 | 1    |
| G - General          |        |   |    |   | 3    |
| V - Verbal           |        |   |    |   | 3    |
| N - Numerical        |        |   |    |   | 3    |
| S - Spatial          |        |   |    |   | 3    |
| M - Manual Dexterity |        |   |    |   | 3    |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 4.

Workers use logical and scientific thinking together with knowledge of agricultural production to supervise a variety of agricultural processes and workers. They interpret oral and written instructions. They deal with concrete variables such as picking and loading equipment, seed stocks, and poultry.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

## Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- T – Technical school courses in agriculture and related subjects.
- V – Vocational school courses in agriculture.
- NFT – Most occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from over 1 year up to and including 10 years. (SVP 6, 7, 8).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

### Important Courses

- Basic Math and Language Skills.

### Helpful Courses

- Biological Sciences.

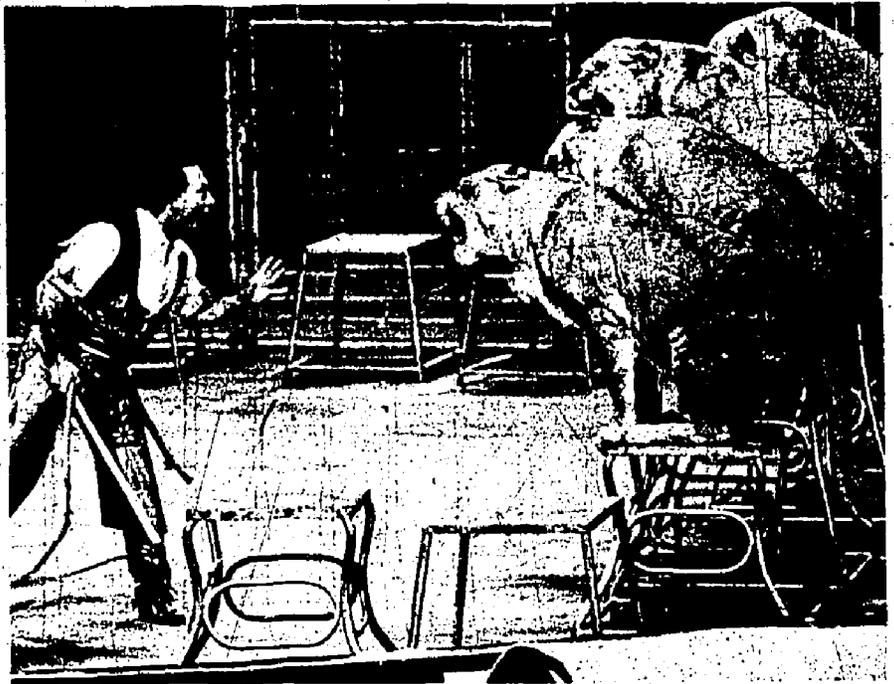
OCCUPATIONS IN GENERAL SUPERVISION: NATURE

|   |             |  |             |
|---|-------------|--|-------------|
| Barn Boss                                   | 410.131-010 | Supervisor, Poultry Farm               | 411.131-010 |
| Supervisor, Diversified Crops               | 407.131-010 | Supervisor, Poultry Hatchery           | 411.132-010 |
| Supervisor, Fish Hatchery                   | 446.134-010 | Supervisor, Stock Ranch                | 410.131-022 |
| Supervisor, Horticultural-Specialty Farming | 405.131-010 | Supervisor, Tree-Fruit-and-Nut Farming | 403.131-010 |
| Supervisor, Logging                         | 459.133-010 | Supervisor, Vegetable Farming          | 402.131-010 |
| Supervisor, Park Workers                    | 408.134-014 |  |             |

# TRAINING AND ANIMAL CARE

Animal training and care is the feeding and taking care of animals used for various purposes. Animals are trained to entertain or be of service to people. Many dogs, cats, birds, and fish are raised and sold as pets. Wild animals, marine animals, horses, and dogs are trained to perform or to race. Dogs are trained to lead the blind or protect people and property. Small animals are raised for medical research. Animal shelters, zoos, circuses, and pet shops employ workers in this group. Race tracks, medical labs, marine animal shows, and animal training schools also employ these workers.

Joseph Broderick, Trainer



Veterinarians and jobs related to the caring of farm animals are not included in this group.

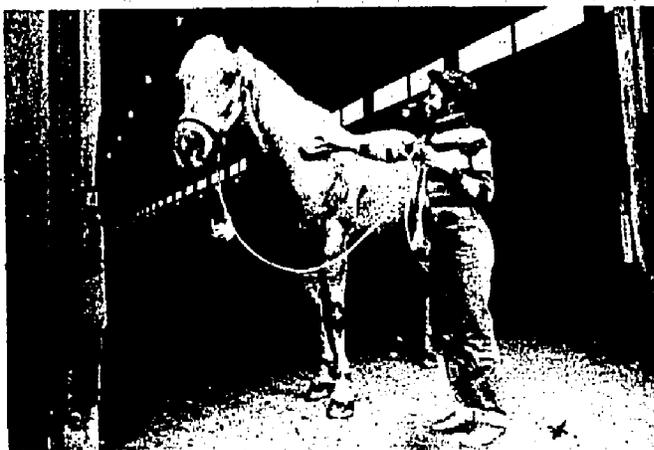
## WORK PERFORMED

What would you do as a worker in this group?

You would take care of animals by feeding, grooming, and exercising them. You would perform one or more of the following tasks.

Animal trainers help meet people's needs for protection and entertainment by training domestic and wild animals.

- Train animals to be obedient, perform acts, or serve as guards or watchdogs.
- Exercise animals at kennels or stables to keep them in good physical condition.
- Select and mix food for animals.
- Study behavior of racehorses and plan training programs for them.
- Take water samples and check the condition and temperature of fish tanks.
- Supervise workers who care for animals at a zoo.
- Comb and shape dogs' coats.
- Train animals to perform for a circus.
- Teach dogs to guide blind people.
- Train birds or other animals to perform night club acts or act in motion pictures or on television.
- Take care of ponies used to give children rides at a carnival.



Would you enjoy grooming horses or taking care of animals at a zoo?



What skills, abilities, and interests would help you succeed in this type of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Like animals and feel responsible for their well-being.
- Know the habits and physical needs of the types of animals you work with.
- Judge the health and condition of an animal by the way it looks or acts.
- Use your hands and fingers to groom and treat animals without hurting them.
- Move eyes, hands, feet, and body together to saddle and ride horses, train animals, or keep animal shelters clean.
- Repeat signals and actions many times while training animals.

## WORKER REQUIREMENTS

107

A job in a pet shop can help you explore your interest in this kind of work.



The Humane Society of the United States

## CLUES

**Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.**

- Have you raised or cared for an animal? Did you always remember to feed, water, and groom it?
- Have you taken care of a sick or injured animal? Can you tell if an animal is getting sick or better by the way it looks or acts?
- Have you lived or worked on a farm? Did you care for or work with animals? Did you clean barns, stables, or pens? Could you do this type of work every day?
- Have you had a hobby raising small animals or fish? Did you use eyedroppers, strainers, or other tools to feed, treat, or care for them?
- Have you trained a dog or other animal? Were you patient with the animal when you had to repeat commands many times? Did the animal learn what you were trying to teach?

**How can you prepare for and enter this kind of work?**

Most animal care jobs are open to people able to follow directions and act quickly and surely. Most beginning workers are given simple duties. Other duties are added as workers gain experience. Some high schools, vocational schools, and junior colleges have courses in animal care. These courses include housing and feeding animals, basic zoology and anatomy, and methods of treating sick and injured animals.

Workers experienced in the care of certain animals may obtain jobs in training these animals as performers, guide dogs, or saddle horses.

**What else should you know about these jobs?**

This type of work involves more than feeding, watering, and grooming. Sometimes workers must remove waste from cages, stables, animal shelters, or from the animals themselves. Treating sick or injured animals may expose the worker to bites, scratches, or kicks.

**PREPARATION**

**OTHER CONSIDERATIONS**

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**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

3. Activities of a routine, definite, organized nature.
4. Activities involving direct personal contact to help or instruct others.
6. Activities involving the communication of ideas and information.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                      | Avg.                                | High                                |                |
|--------|--------------------------|-------------------------------------|-------------------------------------|----------------|
| DATA   | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Analyzing    |
| PEOPLE | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Instructing  |
| THINGS | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Manipulating |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- 3. Stooping, kneeling, crouching, and/or crawling.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- O Outside.
- B Both: inside and outside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                      | Levels   |   |   |   |           |
|--------------------------------|----------|---|---|---|-----------|
|                                | Low<br>5 | 4 | 3 | 2 | High<br>1 |
| G - General                    |          |   |   |   |           |
| V - Verbal                     |          |   |   |   |           |
| P - Form Perception            |          |   |   |   |           |
| K - Motor Coordination         |          |   |   |   |           |
| F - Finger Dexterity           |          |   |   |   |           |
| M - Manual Dexterity           |          |   |   |   |           |
| E - Eye-Hand-Foot Coordination |          |   |   |   |           |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3-4.

Workers use reasoning and personal judgment to carry out instructions presented in written, oral, or diagram form. They deal with problems involving concrete variables such as grooming, equipment, cages, and feeds.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

E - To enter most occupations workers only need the required competencies and credentials.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT - Most occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from over 1 month up to and including 4 years (SVP 3, 4, 5, 6, 7).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

**OCCUPATIONS IN ANIMAL TRAINING AND CARE**

|                       |             |
|-----------------------|-------------|
| Animal Caretaker      | 410.674-010 |
| Animal Keeper         | 412.674-010 |
| Animal-Ride Attendant | 349.674-010 |
| Animal Trainer        | 159.224-010 |
| Dog Bather            | 418.677-010 |
| Dog Groomer           | 418.674-010 |
| Horsehoer             | 418.381-010 |
| Racehorse Trainer     | 159.224-014 |
| Stable Attendant      | 410.674-022 |

# ELEMENTAL WORK: NATURE

Elemental work: nature involves the use of physical strength and energy to do things with your hands. Work in this group of jobs is usually done outside. These jobs are found on farms, fishing boats, or along fishing waters. Workers in this group may also find jobs in forests, parks, gardens, or nurseries.

## WORK PERFORMED

What would you do as a worker in this group?

You would do active, physical, and sometimes heavy work. Much of the work would be outdoors. You would use hand tools such as shovels or axes. Sometimes, you

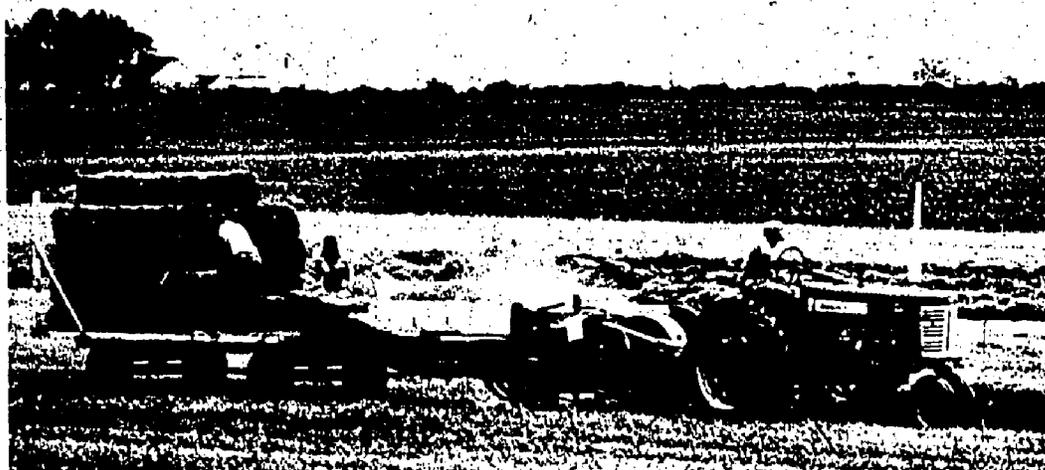
would operate equipment such as plows, chain saws, or fish nets. You would perform one or more of the following tasks.

- Plant, tend, or harvest various types of crops.
- Tend livestock or poultry.
- Take care of flowers, plants, trees, or grass.
- Plant trees or operate logging equipment.
- Help care for a state or national park.
- Work on a fishing boat.
- Supervise others who perform these duties.
- Provide a service to farmers such as spraying crops or tending an irrigation system.

Florida News Bureau



The work on a fishing boat may include cleaning the fish after the catch has been hauled aboard.



Illinois Agricultural Association

Workers spend many hours doing hard physical labor at harvesting time.

Although logging equipment reduces some of the heavy physical work, tree cutters must have physical strength and energy to operate it.



Bill Hedrich, Hedrich-Blessing

**What skills, abilities, and interests would help you succeed in this type of work?**

To do this type of work you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Do active physical work for most of each work day.
- Work with your hands and use hand tools.
- Adjust to routine work.
- Operate farming, fishing, or logging equipment.
- Work outdoors in all kinds of weather.
- Work with plants or animals.

## **WORKER REQUIREMENTS**



Have you earned money doing outdoor physical work? Did you like it?

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you worked full days mowing lawns, cutting weeds, or picking fruit? Could you do this type of work every day?
- Have you delivered newspapers or shoveled snow? Do you mind working outside in all kinds of weather?
- Have you used rakes, shovels, saws, or other tools? Do you like to work with your hands?
- Have you lived on a farm? Did you have daily chores? Do you like this type of work?
- Do you like to camp, fish, or hunt? Do you like to be outdoors?

**How can you prepare for and enter this kind of work?**

Specific training is not required for most jobs in this group. If training is needed, the employer usually gives it to the workers when they are hired or when duties change. Some jobs in local, state, or national parks require a Civil Service test.

Farm experience is helpful in getting a full-time farm job. Seasonal farm jobs usually do not require experience. Many schools and training programs offer courses related to some of the full-time jobs in this group.

Outdoor recreation such as fishing, camping, or hunting provides helpful experience for some of these jobs.

**What else should you consider?**

Many of these jobs require long hours of hard work at certain times of the year. For example, workers need to work long hours at planting or harvesting time or when schools of fish are found. Storms at sea, severe winter weather, or forest fires are hazards in some of the jobs. Some of these jobs are seasonal and provide short-term employment.

General farming jobs are found in most sections of the country. Forestry and lumbering work is found mostly in the timber producing areas of the Pacific Northwest and the South. Most commercial fishing jobs are located along the coasts and in the Great Lakes region. Jobs with nurseries, landscape companies, and lawn and tree service firms are usually found in city and suburban areas.

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**PREPARATION****OTHER  
CONSIDERATIONS****QUALIFICATIONS  
PROFILE**

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
2. Performing routine tasks.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                     |                                  |
|--------|-------------------------------------|--------------------------|--------------------------|----------------------------------|
| DATA   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Comparing                      |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Taking Instruction/<br>Helping |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Tending, Handling              |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- M. Medium work.  
H. Heavy work.
2. Climbing and/or balancing.
  3. Stooping, kneeling, crouching, and/or crawling.
  4. Reaching, handling, fingering, and/or feeling.
  5. Talking and/or hearing.
  6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 0. Outside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes              | Levels |   |   |   |      |
|------------------------|--------|---|---|---|------|
|                        | Low    | 4 | 3 | 2 | High |
| P - Form Perception    | 5      | 4 | 3 | 2 | 1    |
| K - Motor Coordination |        |   |   |   |      |
| F - Finger Dexterity   |        |   |   |   |      |
| M - Manual Dexterity   |        |   |   |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 2-3.

Workers use simple reasoning to follow one- and two-step instructions concerning manual tasks outdoors. They deal with concrete variables such as rakes, saws, or fishing equipment.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

E - To enter most occupations workers only need the required competencies and credentials.

### Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT - Most occupations in this group have no related formal education or training programs.

### Training Time

Occupations in this group may require from a short demonstration up to and including 3 months (SVP 1, 2, 3).

### Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

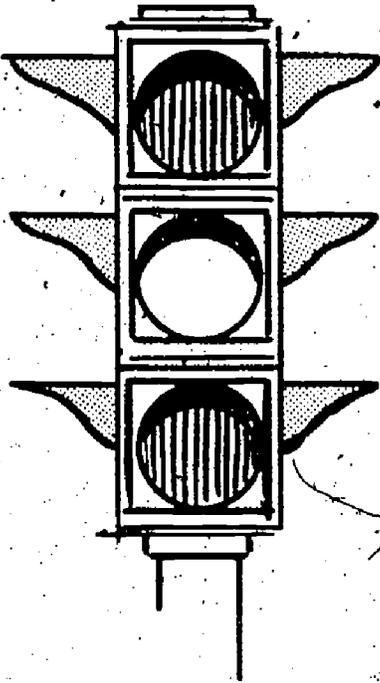
- Courses required for the completion of high school.

## OCCUPATIONS IN ELEMENTAL WORK: NATURE

|                                      |             |
|--------------------------------------|-------------|
| Apple-Packing Header                 | 920.687-010 |
| Artificial Inseminator               | 418.384-010 |
| Bucker                               | 454.684-010 |
| Cemetery Worker                      | 406.684-010 |
| Chick Sexer                          | 411.687-014 |
| Clam Sorter                          | 446.687-010 |
| Cowpuncher                           | 410.674-014 |
| Dog Catcher                          | 379.673-010 |
| Faller 1                             | 454.384-010 |
| Farm Machine Operator                | 409.683-010 |
| Farmworker, Dairy                    | 410.684-010 |
| Farmworker, Diversified Crops 1      | 407.663-010 |
| Farmworker, Fruit 1                  | 403.683-010 |
| Farmworker, Fruit 2                  | 403.687-010 |
| Farmworker, General 1                | 421.683-010 |
| Farmworker, General 2                | 421.687-010 |
| Farmworker, Grain 1                  | 401.683-010 |
| Farmworker, Grain 2                  | 401.687-010 |
| Farmworker, Livestock                | 410.664-010 |
| Farmworker, Poultry                  | 411.584-010 |
| Farmworker, Rice                     | 401.683-014 |
| Farmworker, Vegetable 1              | 402.663-010 |
| Farmworker, Vegetable 2              | 402.687-010 |
| Fisher, Line                         | 442.684-010 |
| Fisher, Net                          | 441.684-010 |
| Forest-Fire Fighter                  | 452.687-014 |
| Forest Worker                        | 452.687-010 |
| Greenskeeper 1                       | 406.137-010 |
| Groundskeeper, Industrial-Commercial | 406.684-014 |
| Groundskeeper, Parks and Grounds     | 406.687-010 |
| Growth-Nedua Mixer, Mushroom         | 405.683-014 |
| Harvest Worker, Fruit                | 403.687-018 |
| Horticultural Worker 1               | 405.684-014 |
| Horticultural Worker 2               | 405.687-014 |
| Irrigator, Gravity Flow              | 409.687-014 |
| Laborer, Brush Clearing              | 459.687-010 |
| Laborer, Landscape                   | 408.687-014 |
| Laborer, Poultry Hatchery            | 411.687-022 |
| Logger, All-Round                    | 454.684-018 |
| Log Sorter                           | 455.684-010 |
| Milker, Machine                      | 410.685-010 |
| Packer, Agricultural Produce         | 920.687-134 |
| Poultry Dabeaker                     | 411.687-026 |
| Poultry Inseminator                  | 411.384-010 |
| Poultry Tender                       | 411.364-014 |
| Shellfish-Bed Worker                 | 446.684-014 |
| Sorter, Agricultural Produce         | 529.687-186 |
| Supervisor, Felling-Bucking          | 454.134-010 |
| Teamster                             | 919.664-010 |
| Trapper, Animal                      | 461.684-014 |
| Tree Cutter                          | 454.684-026 |
| Tree Planter                         | 452.687-018 |
| Tree Pruner                          | 408.684-018 |
| Tree Trimmer                         | 408.664-010 |
| Tree-Trimmer Helper                  | 408.667-010 |
| Yard Worker                          | 301.687-018 |

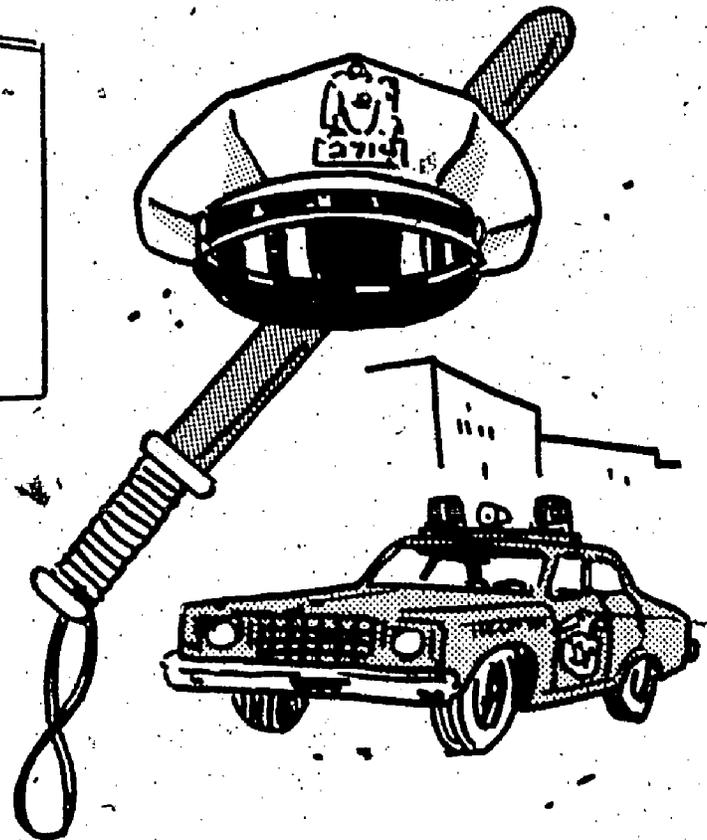
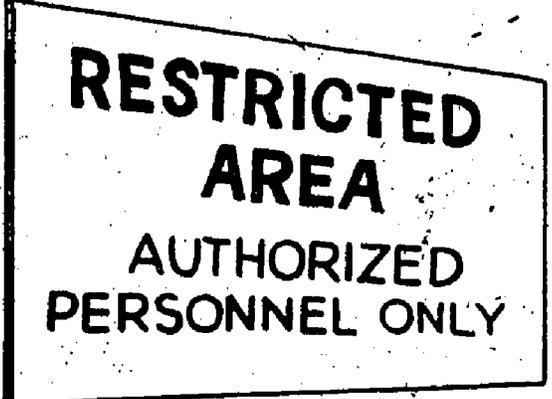
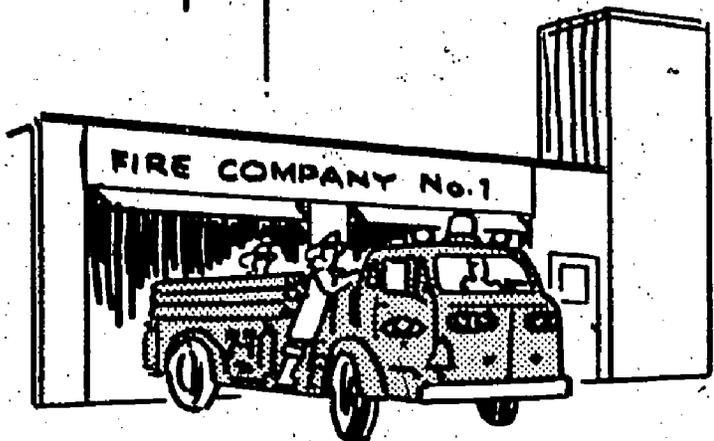


# AUTHORITY



This is an interest in using authority to protect people and property.

You can satisfy this interest by working in law enforcement, fire fighting, and related fields. You may enjoy mental challenge and intrigue. You could investigate crimes or fires. You may prefer to fight fires and respond to other emergencies. You may want more routine work. Perhaps a job in guarding or patrolling would satisfy you. You may prefer to use your management ability. You could seek leadership positions in law enforcement and the protective services.



# SAFETY AND LAW ENFORCEMENT

Safety and law enforcement is the enforcing of rules concerning public welfare and safety. Most jobs in this group are in government services. Police departments, fire departments, and similar agencies employ many workers. Businesses offer a few job openings.

## WORK PERFORMED

What would you do as a worker in this group?

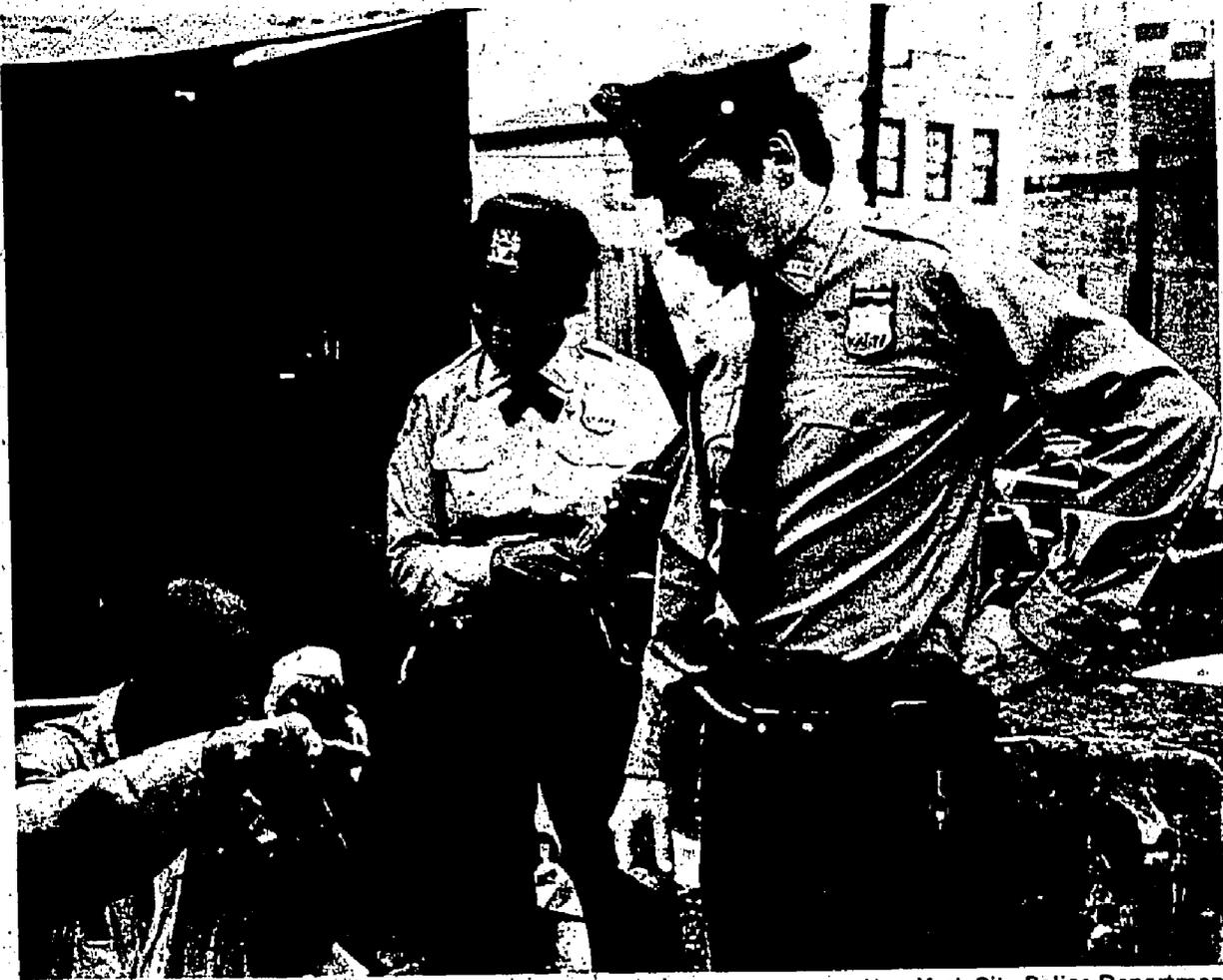
You would enforce laws and safety rules. In many jobs, you would plan and direct the work of other police or safety officers. In some jobs, you would investigate crimes or disasters.

Most of your duties would depend on your specific job. You might perform one or more of the following tasks.

- Direct workers to put out a fire or perform a rescue operation.
- Question suspects and witnesses and make arrests.
- Train or instruct new recruits in a police or fire department.
- Command a police boat to regulate harbor activity.
- Investigate and arrest persons suspected of illegal sale or use of narcotics.
- Plan and direct accident prevention and safety programs.

A fire chief must remain calm in emergency situations.





New York City Police Department

Police officers use tact and courtesy to question witnesses and collect evidence related to crimes.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know laws and safety rules as well as ways to enforce them.
- Organize, plan, and direct the work of others.
- Use guns and safety equipment skillfully.
- Use physical strength in emergency situations.
- Collect, organize, and analyze evidence related to crimes or accidents.
- Write clear reports.
- Use tact and courtesy in working with others.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you had courses in government, civics, or in the study of crime? Did you find these subjects interesting?
- Have you been a member of a volunteer fire department or emergency rescue squad? Were you given training for this work?
- Do you read detective stories or follow the details of current trials? Do you try to solve mysteries as you read them?
- Have you been an officer of a school safety patrol unit? Do you like being responsible for the work of others?
- Have you used a gun for hunting or in target practice? Are you a good shot?
- Have you had lessons in wrestling, karate, or judo? Would you like work involving the use of such physical skills?



Self-defense skills can help you meet the physical demands of this group's occupations.

Careful inspection of safety equipment may save a worker's life.



Police Department, Bloomington, Illinois

**PREPARATION****How can you prepare for and enter this kind of work?**

Local civil service rules control the choice of police officers in most large cities and in many small ones. Applicants must meet specified requirements. They must be U. S. citizens, and be within certain height and weight ranges. Applicants may be required to take written, oral, and physical tests. Often their strength and their ability to move quickly and easily are tested. Applicants should be physically able to use firearms or work on dangerous assignments. All applicants are investigated.

Most police departments hire people with a high school education or its equal. However, some departments hire people with less education. They often accept those who have done guarding or volunteer police work. In some cities, high school graduates can enter police work as cadets or trainees.

Jobs with federal law enforcement agencies usually require a college degree. For example, FBI agents are required to have a degree in law or accounting. Those with accounting degrees must have at least one year of related work experience.

Workers are promoted to most jobs in this group after they gain experience in related jobs. However, a few jobs are open to people with the proper education and training in the field.

**What else should you know about these jobs?**

Most people in these jobs may be called to work any time they are needed. They may work overtime during emergencies. In many of these jobs, the worker may be exposed to physical danger.

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**OTHER  
CONSIDERATIONS****QUALIFICATIONS  
PROFILE**

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
6. Working under pressure.
7. Making decisions using personal judgment.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Coordinating       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Handling           |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- L Light work.
2. Climbing and/or balancing.
3. Stooping, kneeling, crouching, and/or crawling.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- B Both: inside and outside.
6. Hazards.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |       |       |      |
|-------------------------|--------|---|-------|-------|------|
|                         | Low    |   | to    |       | High |
|                         | 5      | 4 | 3     | 2     | 1    |
| G - General             |        |   |       | 3 - 2 |      |
| V - Verbal              |        |   |       | 3 - 2 |      |
| P - Form Perception     |        |   | 4 - 3 |       |      |
| Q - Clerical Perception |        |   |       | 3     |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply logical thinking to conduct detailed investigations or coordinate activities related to enforcing laws and safety regulations. They collect facts, evaluate information, and draw valid conclusions. They deal with abstract and concrete variables such as laws, criminal evidence, and fire fighting equipment.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

- A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.
- C - College degree with a major in law, law enforcement, or accounting.
- T - Studies in a one- or two-year technical program in law enforcement.
- NFT - Some occupations in this group have no related formal education or training programs.

### Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

### Training Time

Occupations in this group may require from over 1 year up to and over 10 years (SVP 6, 7, 8, 9).

### Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

### Important Courses

- Courses required for entrance to post high school formal programs.

### Helpful Courses

- Language Skills, Government, Sociology.

## OCCUPATIONS IN SAFETY AND LAW ENFORCEMENT

Detective

Detective Chief

Detective, Narcotics and Vice

Fire Captain

Fire Chief

Fire Marshal

Fish and Game Warden

Guard, Chief

Harbor Master

375.267-010

375.167-022

375.267-014

373.134-010

373.117-010

373.167-018

379.167-010

372.167-014

375.167-026

Investigator, Private

Park Superintendent

Police Chief

Police Officer 1

Police Sergeant, Precinct 1

Sheriff, Deputy

Special Agent

Special Agent-in-Charge

State-Highway Police Officer

376.267-018

188.167-062

375.117-010

375.263-014

375.133-010

377.263-010

375.167-042

376.167-010

375.263-018

## SECURITY SERVICES

Security services keep people and property safe from unlawful acts or from such hazards as fires or accidents. Many jobs in this group are found in government service. Hotels, stores, resorts, and industries may hire some workers in this group.

### WORK PERFORMED

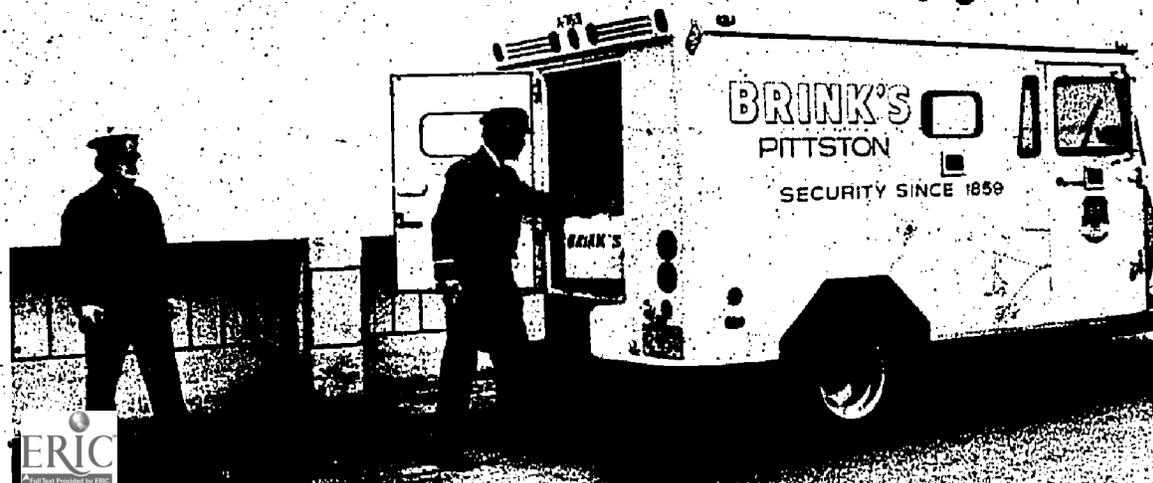
What would you do as a worker in this group?

You would patrol, guard, or investigate to prevent theft, injury, disorder, destruction, or vandalism.

You would perform one or more of the following tasks.

- Act as a bodyguard to protect a person from injury or invasion of privacy.
- Guard money or other valuables in an armored truck.
- Guard prisoners in a jail.
- Keep order in a night club and remove disorderly persons.
- Watch people in swimming areas to prevent drowning and provide first aid.
- Prevent or put out fires or rescue passengers and crew at plane crash sites.
- Patrol a ski area to protect skiers.

WILSON COUNTY  
 WILSON AND TRUST CO



Would you like to have the responsibility of protecting the property of others?



Robeson's Department Store

A security guard must have a keen eye to detect suspicious behavior. Can you detect what illegal activity is taking place?

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know laws and safety rules.
- Recognize illegal activities and signs of danger.
- Stay calm when facing emergency situations.
- Use physical strength in emergency situations.
- Use guns or fire fighting equipment skillfully.
- Make quick decisions and take prompt action.
- Work well with people in many kinds of situations.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you been a member of a school safety patrol? Did you like enforcing safety rules?
- Have you used a gun for hunting or target practice? Are you a good shot?
- Have you been a member of a volunteer fire or rescue squad? Can you stay calm in emergencies?
- Have you taken a first aid course? Can you treat injuries quickly and skillfully?



Could you follow rules yourself?



Could you enforce rules upon others?

**PREPARATION****How can you prepare for and enter this kind of work?**

Some employers require workers to have a high school education or its equal. Applicants must provide character references and have no police record. Some employers require that applicants show their skill in using firearms. People applying for federal government jobs need to take written and physical tests.

Many of these jobs are open to those who have little work experience. However, employers often prefer people who have worked for military, local, or state police.

**What else should you know about these jobs?**

Some of these jobs involve night work. In some jobs, workers take turns working daytime, weekend, and holiday shifts. Workers run the risk of injury by lawbreakers and suspects. This risk is higher when the worker is arresting or guarding such persons.

Workers in these jobs are often required to be bonded. This means they need to have special insurance to assure their honesty. They may also be fingerprinted.

**OTHER  
CONSIDERATIONS**

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**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.
6. Activities involving the communication of ideas and information.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
6. Working under pressure.
7. Making decisions using personal judgment.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                     |                      |
|--------|-------------------------------------|-------------------------------------|--------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Compiling          |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Speaking/Signaling |
| THINGS | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Driving/Operating  |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- B Both: inside and outside.
- 6. Hazards.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |       |   |      |
|-------------------------|--------|---|-------|---|------|
|                         | Low    |   | to    |   | High |
|                         | 5      | 4 | 3     | 2 | 1    |
| G - General             |        |   | 3     |   |      |
| V - Verbal              |        |   | 3     |   |      |
| P - Form Perception     |        |   | 4 - 3 |   |      |
| Q - Clerical Perception |        |   | 4     |   |      |
| K - Motor Coordination  |        |   | 4 - 3 |   |      |
| M - Manual Dexterity    |        |   | 4 - 3 |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3-4.

Workers use reasoning and technical knowledge to handle security or emergency situations. They carry out instructions presented in written, oral, or diagram form. They deal with practical problems involving concrete variables such as firearms, first aid equipment, and fire fighting tools.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

E - To enter most occupations workers only need the required competencies and credentials.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T - Studies in a one- or two-year technical program in law enforcement.

NFT - Most occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from over 1 month up to and including 1 year (SVP 3, 4, 5).

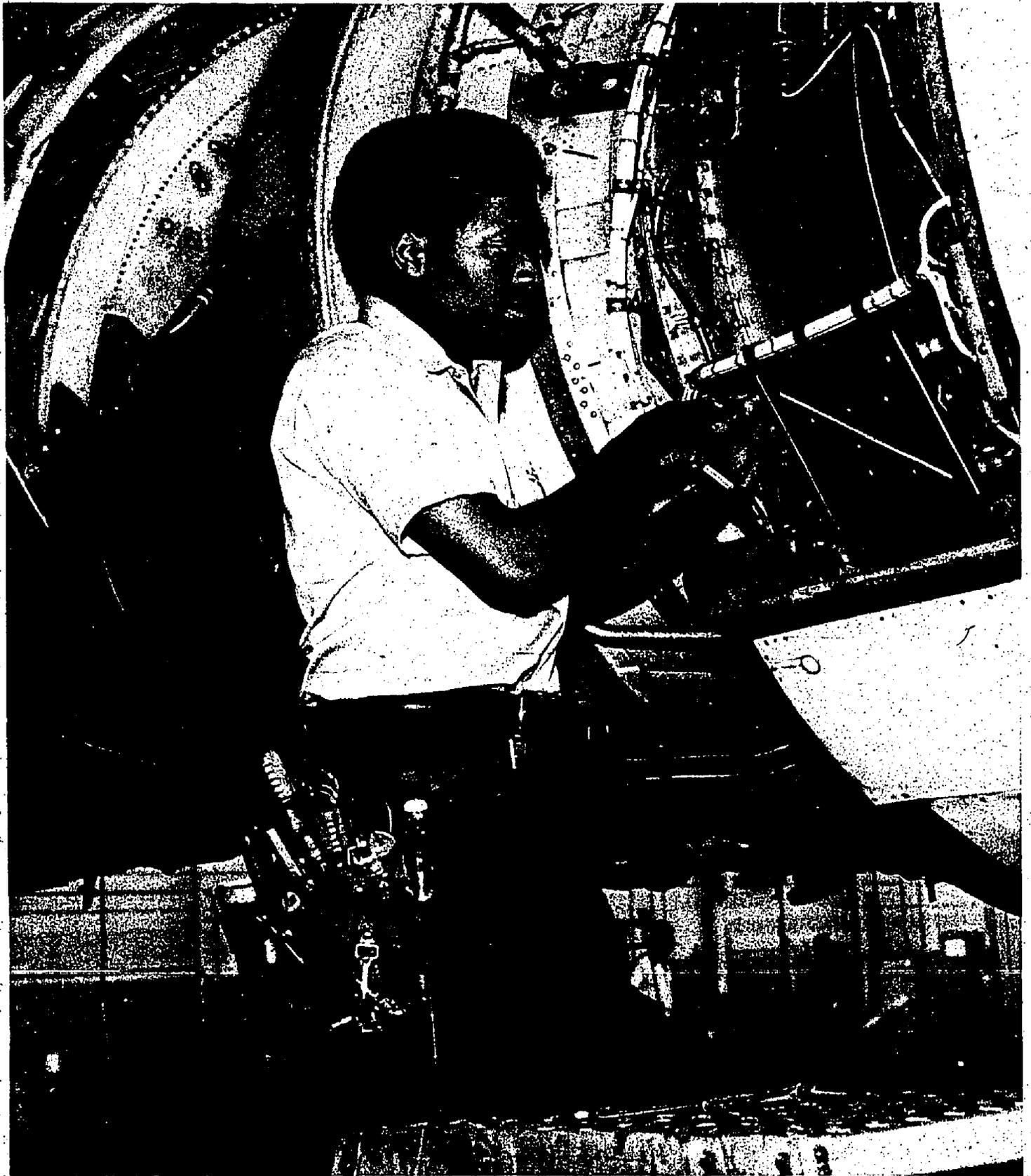
**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

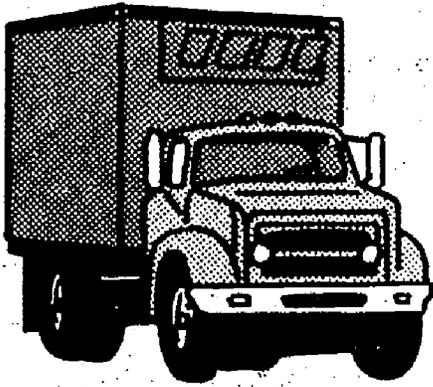
**OCCUPATIONS IN SECURITY SERVICES**

|                             |             |
|-----------------------------|-------------|
| Armored-Car Guard           | 372.567-010 |
| Bodyguard                   | 372.667-014 |
| Border Guard                | 375.363-010 |
| Correction Officer          | 372.667-018 |
| Detective 1                 | 376.367-014 |
| Detective 2                 | 376.667-014 |
| Fire Inspector              | 373.367-010 |
| Fire Ranger                 | 452.367-014 |
| Guard, Security             | 372.667-034 |
| Lifeguard                   | 379.667-014 |
| Parking Enforcement Officer | 375.587-010 |
| Park Ranger                 | 169.167-042 |
| Police Officer 2            | 375.367-010 |
| Ski Patroller               | 379.664-010 |



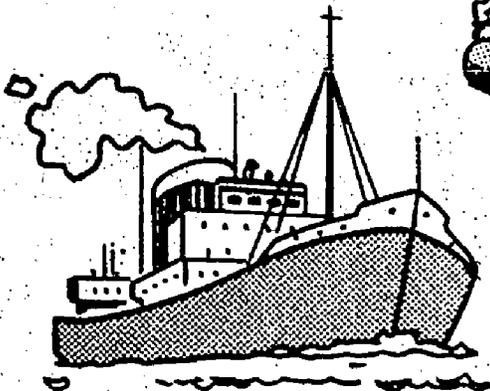
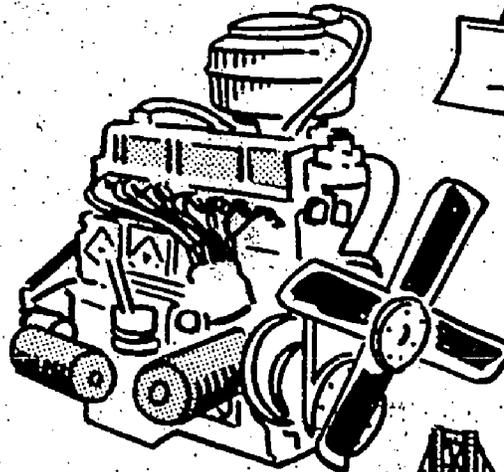
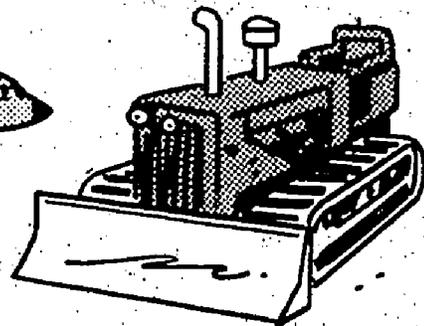
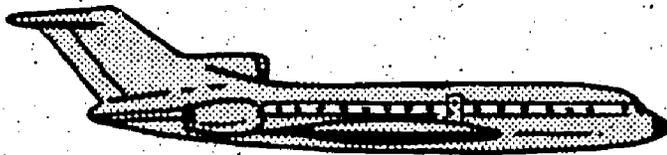
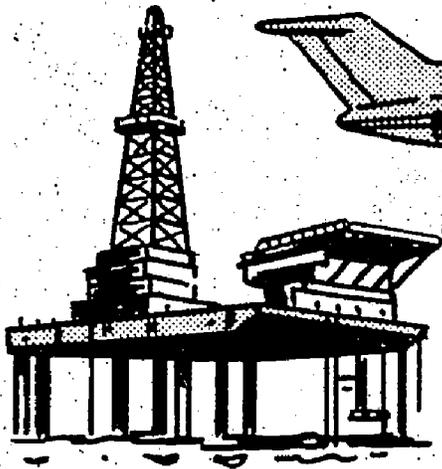
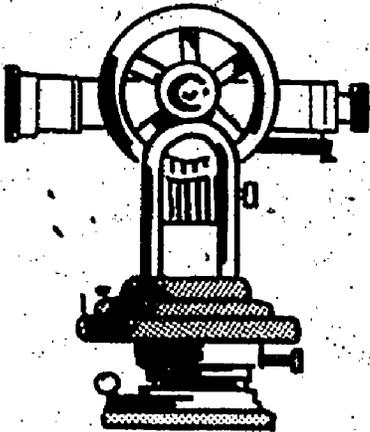
Delta Air Lines

# MECHANICAL



This is an interest in applying mechanical principles to practical situations, using machines, hand tools, or techniques.

You can satisfy this interest in a variety of work ranging from routine to complex professional jobs. You may enjoy working with ideas about things. You could seek a job in engineering or in a related technical field. You may prefer to deal directly with things. You could find a job in the crafts and trades, building, making, or repairing things. You may like to drive or operate vehicles and special equipment. You may prefer routine or physical work in settings other than factories. Perhaps work in mining or construction would satisfy you.



# ENGINEERING

Engineering is the use of science and mathematics to solve problems in construction, manufacture, and other industries. Factories, construction companies, mines, oil fields, and research labs employ workers in this group.

## WORK PERFORMED

What would you do as a worker in this group?

You would specialize in architecture or in one of the engineering fields. These fields include electrical, electronic, civil, mechanical, ceramic, chemical, aerospace, or industrial engineering. You would con-

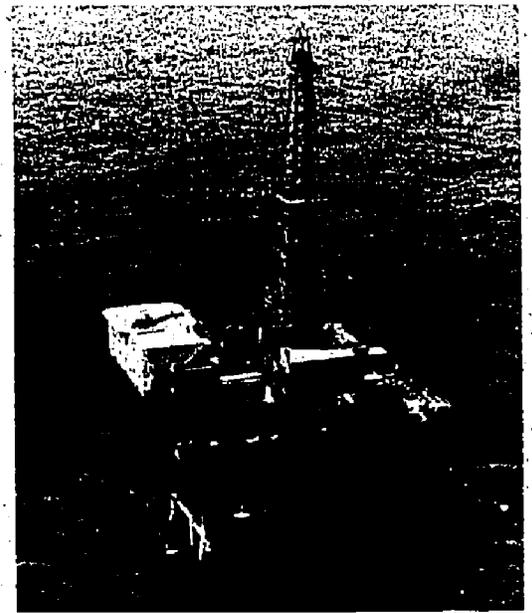
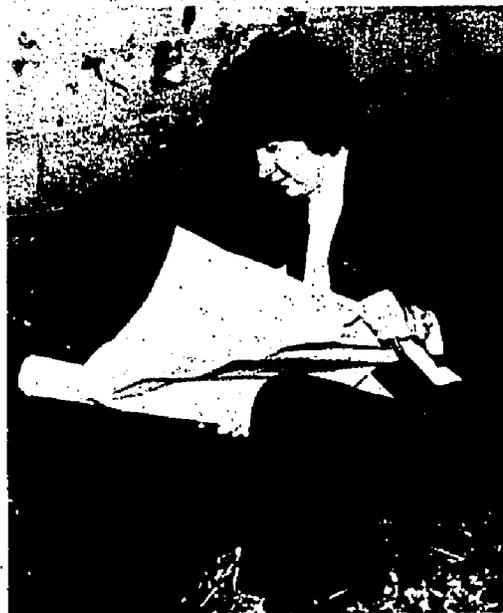
duct research and design products or methods to solve engineering problems. You would perform one or more of the following tasks.

- Design and oversee the building of airports, bridges, or dams.
- Plan industrial equipment layout and workflow.
- Design mechanical, electrical, or electronic equipment.
- Design irrigation systems to provide water for farming.
- Design ways to mine deposits of ore or coal.
- Conduct research to develop new materials for industry.

Savannah River Plant



Esmark



Your work as an engineer may take you to a testing center, a construction site, or a drilling rig at sea.

WORKER  
REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this kind of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know and apply basic principles of engineering.
- Use math and science to solve engineering problems.
- Use chemical formulas.
- Form a mental image of objects or structures by looking at drawings.
- Make drawings to illustrate machine designs, factory layouts, or highway plans.
- Persuade, advise, and assist customers in purchasing engineering products or services.
- Explain technical ideas to others.

Abbott

You would use computers to research and develop new products.





Dow Chemical USA

Manufacturing engineers are responsible for training workers to use a new system.

## CLUES

**Do you have or can you develop these skills, abilities, and interests?** Your answers to the following questions will help you decide.

- Have you read mechanical or automotive design magazines? Can you understand the technical articles in them?
- Have you taken courses in advanced math or science? Do you like these subjects?
- Have you built a model airplane or car? Can you look at drawings or read directions and picture the final structure?
- Have you built a radio, television, or amplifier using a commercial kit? Do you like to work with electrical or electronic products?

## PREPARATION

**How can you prepare for and enter this kind of work?**

A background in math, physics, and chemistry is needed to enter most engineering schools. An engineering degree program includes courses in math, physics, chemistry, social sciences, and English. The last two years are devoted to specialized engineering courses.

Some engineering schools have agreements with liberal arts colleges. Such agreements allow students to spend three years in college and two years in engineering school. A degree is then granted by each school. Some engineering schools offer work-study programs. Students earn a part of their tuition and get experience as they learn. However, these programs take five or six years to complete.

Workers usually need a bachelor's degree in engineering to enter this type of work. However, college graduates trained in science or math may qualify for some beginning jobs. Experienced technicians with courses in engineering are sometimes advanced to engineering jobs.

All states require engineers whose work affects the life, health, or property of others to have a license. An engineering degree and four years of experience are usually required for a license. License applicants may also need to pass a state exam.

#### What else should you know about these jobs?

Jobs in this group often require workers to visit construction sites, plants, mines, and other work areas.

### OTHER CONSIDERATIONS

## QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

### WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
2. Activities involving business contact.
6. Activities involving the communication of ideas and information.
7. Activities of a scientific and technical nature.
8. Activities involving creative thinking.
9. Activities involving processes, methods, or machines.

### WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing tasks which change frequently.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                                |                             |
|--------|-------------------------------------|-------------------------------------|-------------------------------------|-----------------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Synthesizing              |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | - Speaking/Signaling        |
| THINGS | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Operating/<br>Controlling |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- L Light work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- B Both: inside and outside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes           | Levels |   |    |   |      |
|---------------------|--------|---|----|---|------|
|                     | Low    |   | to |   | High |
|                     | 5      | 4 | 3  | 2 | 1    |
| G - General         |        |   |    | 2 | 1    |
| V - Verbal          |        |   |    | 2 | 1    |
| N - Numerical       |        |   |    | 2 | 1    |
| S - Spatial         |        |   |    | 2 |      |
| P - Form Perception |        |   | 3  | 2 |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5-6.

Workers apply principles of logical or scientific thinking to the design, production, construction, or processing of products or materials. They interpret technical information and deal with formulas and other scientific equations. They also deal with abstract and concrete variables such as materials stress, chemical reactions, measuring equipment, and aesthetic design.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- G - Graduate degree in engineering for some occupations.
- C - Four-year degree in engineering for most occupations.

## Training Time

Occupations in this group may require from over 4 years up to and over 10 years (SVP 8, 9).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

## Important Courses

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry, Advanced Math, Physics.

## Helpful Courses

- Chemistry, Composition.

## OCCUPATIONS IN ENGINEERING

|                                    |             |  |             |
|------------------------------------|-------------|--|-------------|
| Aerodynamist                       | 002.061-010 | Marine Engineer                              | 014.061-014 |
| Aeronautical-Design Engineer       | 002.061-022 | Mechanical-Design Engineer, Products         | 007.061-022 |
| Aeronautical Engineer              | 002.061-014 | Mechanical Engineer -                        | 007.061-014 |
| Aeronautical-Research Engineer     | 002.061-026 | Mechanical-Engineering Technician            | 007.161-026 |
| Aeronautical Test Engineer         | 002.061-018 | Metallurgist, Extractive                     | 011.061-018 |
| Agricultural Engineer              | 013.061-010 | Mining Engineer                              | 010.061-014 |
| Architect                          | 001.061-010 | Nuclear Engineer                             | 015.061-014 |
| Architect, Marine                  | 001.061-014 | Optical Engineer                             | 019.061-018 |
| Automotive Engineer                | 007.061-010 | Optomechanical Technician                    | 007.161-030 |
| Ceramic Engineer                   | 006.061-014 | Ordnance Engineer                            | 019.061-022 |
| Chemical Engineer                  | 008.061-018 | Petroleum Engineer                           | 010.061-018 |
| Civil Engineer                     | 005.061-014 | Planning Engineer, Central Office Facilities | 003.061-050 |
| Clerical-Methods Analyst           | 161.267-010 | Plant Engineer                               | 007.167-014 |
| Configuration Management Analyst   | 012.167-010 | Pollution-Control Engineer                   | 019.081-018 |
| Director, Research and Development | 189.117-014 | Production Engineer                          | 012.167-046 |
| Electrical Engineer                | 003.061-010 | Production Planner                           | 012.167-050 |
| Electrical Engineer, Power System  | 003.167-018 | Product-Safety Engineer                      | 012.061-010 |
| Electrical-Research Engineer       | 003.061-026 | Quality-Control Engineer                     | 012.167-054 |
| Electrical Technician              | 003.161-010 | Railroad Engineer                            | 005.061-026 |
| Electrical Test Engineer           | 003.061-014 | Safety Engineer                              | 012.061-014 |
| Electronics Engineer               | 003.061-030 | Safety Engineer, Mines                       | 010.061-026 |
| Electronics Technician             | 003.161-014 | Sales Engineer, Aeronautical Products        | 002.151-010 |
| Electronics-Test Engineer          | 003.061-042 | Sales-Engineer, Electrical Products          | 003.151-010 |
| Engineer-in-Charge, Transmitter    | 003.167-034 | Sales Engineer, Mechanical Equipment         | 007.151-010 |
| Facilities Planner                 | 019.261-018 | Sales Engineer, Mining-and-Oil-Well          |             |
| Fire-Protection Engineer           | 012.167-026 | Equipment and Service                        | 010.151-010 |
| Forest Engineer                    | 005.167-018 | Sanitary Engineer                            | 005.061-030 |
| Health Physicist                   | 079.021-010 | Structural Engineer                          | 005.061-034 |
| Illuminating Engineer              | 003.061-046 | Systems Engineer, Electronic Data Processing | 003.167-062 |
| Industrial Engineer                | 012.167-030 | Time-Study Engineer                          | 012.167-070 |
| Instrumentation Technician         | 003.261-010 | Tool Designer                                | 007.061-026 |
| Landscape Architect                | 001.061-018 | Tool Planner                                 | 012.167-074 |
| Laser Technician                   | 019.181-010 | Tool Programmer, Numerical Control           | 007.167-018 |
| Logistics Engineer                 | 019.167-010 | Transportation Engineer                      | 005.061-038 |
| Manufacturing Engineer             | 012.167-042 | Welding Engineer                             | 011.061-026 |

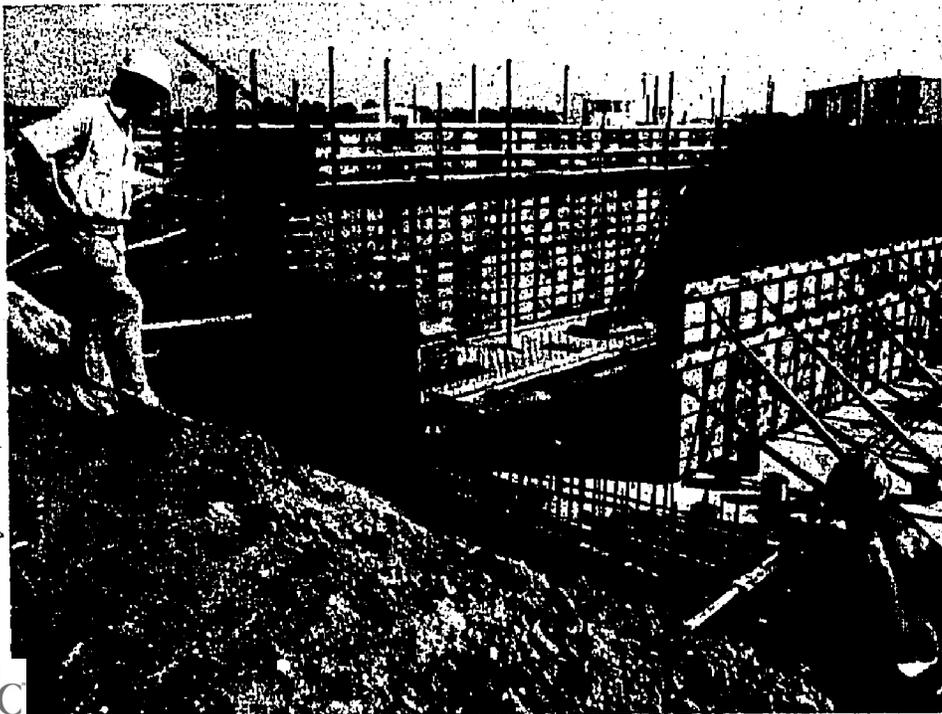
# MANAGERIAL WORK: MECHANICAL

Managerial work: mechanical is the directing of technical operations in an industry, utility, or government agency. Jobs in this group are found in such fields as mining, construction, communications, manufacture, transportation, and fuel production.

## WORK PERFORMED

What would you do as a worker in this group?

Grumman Corporation



You would plan, direct, and organize technical activities. You would perform one or more of the following tasks.

- Direct operations of a pipeline construction company.
- Plan work for the setup and care of oil drilling rigs and pumps.
- Direct operations in a coal mine, ore pit, or rock quarry.
- Organize the construction or repair of roads, bridges, road drains, and tunnels.
- Direct the construction of telephone or telegraph equipment.
- Develop and oversee all processing in a brewery.

This construction superintendent directs the building of a municipal sewage treatment plant.



This worker uses math and blueprint reading skills to solve production problems.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this kind of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know the technical details of a field such as construction or mining.
- Speak and write clearly.
- Use numbers to plan budgets or solve production problems.
- Make judgments based on data that can be measured.
- Encourage people to work in an efficient manner.
- Use charts, maps, and blueprints.
- Stand or walk to observe work progress or problems.
- Perform a variety of duties which often change.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you had courses in chemistry, physics, and advanced math? Did you enjoy these courses?
- Have you taken shop courses in industrial arts? Can you deal with mechanical and technical problems?
- Have you collected rocks or built high fidelity equipment? Do you like technical activities?

## PREPARATION

How can you prepare for and enter this kind of work?

Most workers promoted to jobs in this group are skilled technicians. These workers must have five to ten years of work experience in the technical field. They also must have training and experience in management. College courses in the specific technical field and in management are usually needed. Training often includes instruction in computer science.

Some employers provide management training for the technicians they plan to promote to these jobs. Clerical workers who plan production and work schedules may be promoted to these jobs if they have the technical training.



You can learn to deal with mechanical and technical problems in industrial arts classes.

### What else should you know about these jobs?

These workers do not stay in an office. They often tour work sites. Workers are subject to the same hazards as the people they supervise. Hazards include falling objects, cave-ins, and ventilation problems.

Workers in this group usually specialize in one technical field. If they change companies, it is usually to other firms in the same field. Some industries, such as construction and petroleum, require workers to travel. Some workers have to move their homes to other cities or foreign countries.

## QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

### WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.
7. Activities of a scientific and technical nature.
9. Activities involving processes, methods, or machines.

### WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

### WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                                |                |
|--------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Coordinating |
| PEOPLE | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Supervising  |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | - Handling     |

### PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

## WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- B Both: inside and outside.

## APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels   |   |     |   |           |
|-------------------------|----------|---|-----|---|-----------|
|                         | Low<br>5 | 4 | 3   | 2 | High<br>1 |
| G - General             |          |   |     |   | 2         |
| V - Verbal              |          |   |     |   | 2         |
| N - Numerical           |          |   | 3-2 |   |           |
| S - Spatial             |          |   | 3-2 |   |           |
| P - Form Perception     |          |   | 3   |   |           |
| Q - Clerical Perception |          |   | 3   |   |           |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply logical or scientific thinking to identify and solve management and quality control problems in a technical establishment. They interpret technical instructions presented in mathematical or diagram form. They deal with several abstract and concrete variables such as work schedules, new processing techniques, coordination of workers' activities, and testing equipment.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

## Entry and Advancement Information

- A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

## Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- G - Graduate degree in engineering or related field.
- C - Four-year degree in engineering or related technology and courses in business management.
- T - Technical school courses in certain technologies.
- V - Vocational courses in the trade and industrial fields.
- NFT - Some occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from over 2 years up to and including 10 years (SVP 7, 8, 9).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

## Important Courses

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry.

## Helpful Courses

- Physics, Chemistry.

## OCCUPATIONS IN MANAGERIAL WORK: MECHANICAL

|                                      |             |   |             |
|--------------------------------------|-------------|---|-------------|
| Appliance-Service Supervisor         | 187.167-010 | Superintendent, Concrete-Mixing Plant       | 182.167-022 |
| Director, Quality Control            | 012.167-014 | Superintendent, Construction                | 182.167-026 |
| Dispatcher, Chief 1                  | 184.167-038 | Superintendent, Electric Power              | 184.167-162 |
| Field Supervisor, Oil-Well Services  | 930.131-010 | Superintendent, Drilling and Production     | 181.167-014 |
| General Supervisor                   | 183.167-022 | Superintendent, Maintenance                 | 184.167-170 |
| Maintenance Supervisor               | 184.167-050 | Superintendent, Maintenance                 | 184.167-174 |
| Maintenance Supervisor               | 891.137-010 | Superintendent, Maintenance                 | 189.167-046 |
| Manager, Bulk Plant                  | 181.117-010 | Superintendent, Oil-Well Services           | 010.167-018 |
| Manager, Customer Technical Services | 189.117-018 | Superintendent, Sanitation                  | 188.167-098 |
| Manager, Food Processing Plant       | 183.167-026 | Superintendent, Water-and-Sewer Systems     | 184.161-014 |
| Mine Superintendent                  | 181.117-014 | Supervisor of Communications                | 184.167-230 |
| Pit Supervisor                       | 939.137-014 | Supervisor, Mine                            | 181.167-018 |
| Production Superintendent            | 183.117-014 | Supervisor, Sewer System                    | 184.167-238 |
| Representative, Personal Service     | 236.252-010 | Supervisor, Waterworks                      | 184.167-246 |
| Section Supervisor                   | 939.137-018 | Tooling Coordinator, Production Engineering | 169.167-054 |
| Superintendent, Building             | 187.167-190 | Tool Pusher                                 | 930.130-010 |

# ENGINEERING TECHNOLOGY

Engineering technology is the technical detail work required to apply engineering ideas. This work includes surveying, drafting, and engineering technology. It also includes controlling the flow of materials to meet production schedules. Factories, construction companies, architects, engineering firms, and research labs employ workers in this group.

## WORK PERFORMED

What would you do as a worker in this group?

You would do the accurate detail work needed to support engineering activities.

You would perform one or more of the following tasks.

- Survey land to set boundary lines or determine construction sites.
- Take aerial photographs and prepare maps.
- Make detailed drawings of buildings, machinery, or vehicles.
- Measure radiation in a work area of a nuclear plant.
- Coordinate oil prospecting activities to discover new oil fields.
- Analyze flight test data and write engineering reports about aircraft performance.



Would you prefer to work most of the time outside as a surveyor or inside as a drafter?



Sun Company

Field engineers provide technical assistance to workers prospecting for new oil fields.

Could you pay such strict attention to details?



What skills, abilities, and interests would help you succeed in this kind of work?

To do this kind of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following jobs. Not all items are important to every job.

- Convert technical ideas into working drawings.
- Use complex formulas in math.
- Move eyes, hands, and fingers together to use drafting tools or measuring instruments.
- Do fine detail work in drafting.
- Walk long distances while carrying instruments or equipment.
- Write clearly and with technical accuracy.
- Do work which requires high levels of accuracy.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken courses in mechanical drawing? Can you form a mental image of objects from drawings?
- Have you made models of airplanes or cars following detailed plans? Can you follow written instructions easily?
- Have you taken courses in advanced math, physics, or chemistry? Do you like these subjects?
- Have you used a compass? Can you read maps with accuracy?

## PREPARATION

How can you prepare for and enter this kind of work?

Most jobs in this group require special training and work experience. Many employers provide on-the-job training to prepare workers for specific tasks.

Technical and vocational schools offer surveying programs of one to three years. Many colleges offer degrees in surveying. People with some classroom instruction can start as instrument workers. They may become party chiefs or registered surveyors after getting enough experience. Written tests may be required for advancement. People without formal training in surveying start by helping instrument workers. They must get experience and formal training to operate instruments. They become party chiefs only after extensive experience. All fifty states require land surveyors to have a license. License requirements usually include four to eight years of experience.

For drafting jobs, high school courses in math, science, industrial arts, and mechanical drawing are important. Post high school technical courses are needed for advanced drafting jobs. Workers usually start as assistant drafters and advance as skills develop. Three- and four-year apprenticeship programs in drafting are sometimes offered. Apprentices earn money while getting classroom and on-the-job training.

Technicians usually need specialized training. Credits earned in technical and vocational schools can usually be transferred to colleges. These credits can then be applied toward engineering and other degrees.

**What else should you know about these jobs?**

Surveyors do most of their work outdoors. They may work long hours when weather conditions are suitable. They are exposed to hazards of machinery on construction projects or cars when surveying near highways. Some surveyors travel to distant job sites or camp out.

Most drafting work takes place in an office, but visits to work sites and factories may be required. Some drafters do specialized tasks, but others do a variety of tasks.

Technicians are often the link between engineers and skilled workers.

**OTHER  
CONSIDERATIONS**

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**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
7. Activities of a scientific and technical nature.
9. Activities involving processes, methods, or machines.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Coordinating       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Precision Working  |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- L Light work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- O Outside.
- B Both: inside and outside.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels   |   |   |   |           |
|-------------------------|----------|---|---|---|-----------|
|                         | Low<br>5 | 4 | 3 | 2 | High<br>1 |
| G - General             |          |   |   |   | 3 - 2     |
| N - Numerical           |          |   |   |   | 3 - 2     |
| S - Spatial             |          |   |   |   | 3 - 2     |
| P - Form Perception     |          |   |   |   | 3 - 2     |
| C - Clerical Perception |          |   |   |   | 3         |
| K - Motor Coordination  |          |   |   |   | 3 - 2     |
| F - Finger Dexterity    |          |   |   |   | 3 - 2     |
| M - Manual Dexterity    |          |   |   |   | 3         |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply scientific thinking to the specialties of surveying, drafting, and technical coordination. They interpret technical instructions presented in mathematical or diagram form. These workers deal with abstract and concrete variables such as surveying and drafting techniques and tools.

## Entry and Advancement Information

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

## Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- C - College degree in surveying.
- T - Studies in one and two year technical programs in related technologies.
- V - Vocational courses in the Trades and Industries area.
- NFT - Some occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from over 2 years up to and including 10 years (SVP 7, 8).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

## Important Courses

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry.

## Helpful Courses

- Chemistry, Physics.

## OCCUPATIONS IN ENGINEERING TECHNOLOGY

|   |             |
|---|-------------|
| Air Traffic Control Specialist, Station     | 193.162-014 |
| Air-Traffic-Control Specialist, Tower       | 193.162-018 |
| Chief Drafter                               | 007.261-010 |
| Chief of Party                              | 018.167-010 |
| Construction Inspector                      | 182.267-010 |
| Detailer                                    | 017.261-018 |
| Die-Drawing Checker                         | 007.167-010 |
| Dispatcher                                  | 912.167-010 |
| Drafter, Aeronautical                       | 002.261-010 |
| Drafter, Architectural                      | 001.261-010 |
| Drafter, Assistant                          | 017.281-018 |
| Drafter, Automotive Design                  | 017.281-022 |
| Drafter, Automotive Design Lay-Out          | 017.281-026 |
| Drafter, Cartographic                       | 018.261-010 |
| Drafter, Civil                              | 005.281-010 |
| Drafter, Commercial                         | 017.261-026 |
| Drafter, Electrical                         | 003.281-010 |
| Drafter, Electronic                         | 003.281-014 |
| Drafter, Geological                         | 010.281-014 |
| Drafter, Heating and Ventilating            | 017.261-034 |
| Drafter, Marine                             | 014.281-010 |
| Drafter, Mechanical                         | 007.281-010 |
| Drafter, Oil and Gas                        | 017.281-030 |
| Drafter, Structural                         | 005.281-014 |
| Engineering Assistant, Mechanical Equipment | 007.161-018 |
| Estimator                                   | 160.267-018 |
| Estimator                                   | 166.261-018 |
| Field Engineer                              | 193.262-018 |
| Flight Engineer                             | 621.261-018 |
| Industrial Engineering Technician           | 012.267-010 |
| Inspector, Building                         | 168.167-030 |
| Inspector, Quality Assurance                | 168.287-014 |
| Land Surveyor                               | 018.167-018 |
| Material Scheduler                          | 012.187-010 |
| Observer, Seismic Prospecting               | 010.161-018 |
| Packaging Engineer                          | 019.187-010 |
| Pattern Grader-Cutter                       | 781.381-022 |
| Patternmaker                                | 781.381-026 |
| Potogrammetrist                             | 018.261-026 |
| Pollution-Control Technician                | 029.261-014 |
| Production Clerk                            | 221.382-018 |
| Radiation Monitor                           | 199.167-010 |
| Radiographer                                | 199.361-010 |
| Radiotelephone Operator                     | 193.262-034 |
| Specification Writer                        | 019.267-010 |
| Surveyor Assistant, Instruments             | 018.167-034 |
| Surveyor, Geodetic                          | 018.167-038 |
| Surveyor, Marine                            | 018.167-046 |
| Surveyor, Mine                              | 018.167-050 |
| Technical Illustrator                       | 017.281-034 |
| Tool-Drawing Checker                        | 007.167-022 |
| Tower Operator                              | 910.362-010 |
| Traffic Technician                          | 199.267-030 |
| Transmitter Operator                        | 193.262-038 |
| Video Operator                              | 194.282-010 |

# AIR AND WATER VEHICLE OPERATION

Air and water vehicle operation is the moving of passengers or cargo by plane or ship. The workers included in this group pilot airplanes or ships or supervise others who do. They work for shipping companies and commercial airlines. Companies and people who have their own boats or air-

planes also hire these workers. Workers in this group travel to many ports or airports in the world.

## WORK PERFORMED

What would you do as a worker in this group?

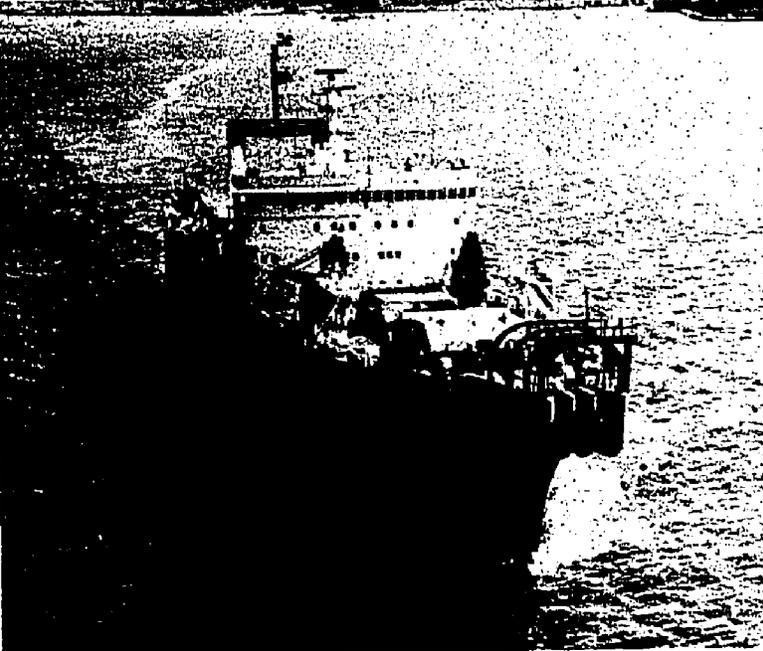
You would pilot an airplane or ship or supervise other crew members in the vehicle's operation. You would travel over an established route or as directed by your employer. You would perform one or more of the following tasks.

- Fly an airplane for an airline or freight company.
- Check content, weight, and destination of cargo vehicle against load and fuel limits and assigned travel plan.
- Keep radio contact with others about weather conditions and traffic problems.
- Command the crew of a tugboat or fishing vessel.
- Serve as a flight instructor or a check pilot.
- Operate a vehicle such as a helicopter or a submarine.
- Read charts and use navigation instruments to plot or maintain course.

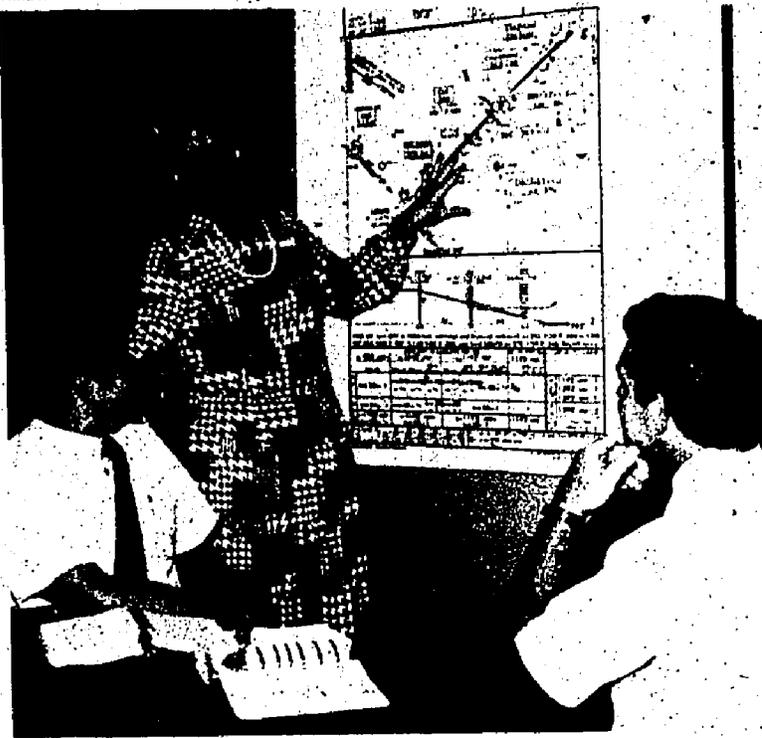
Boeing



American Telephone and Telegraph Co.



Would you enjoy piloting an air or water vehicle?



Flight training is done both in the classroom and in flight simulators.



Delta Air Lines

What skills, abilities, and interests would help you succeed in this kind of work?

To do this kind of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

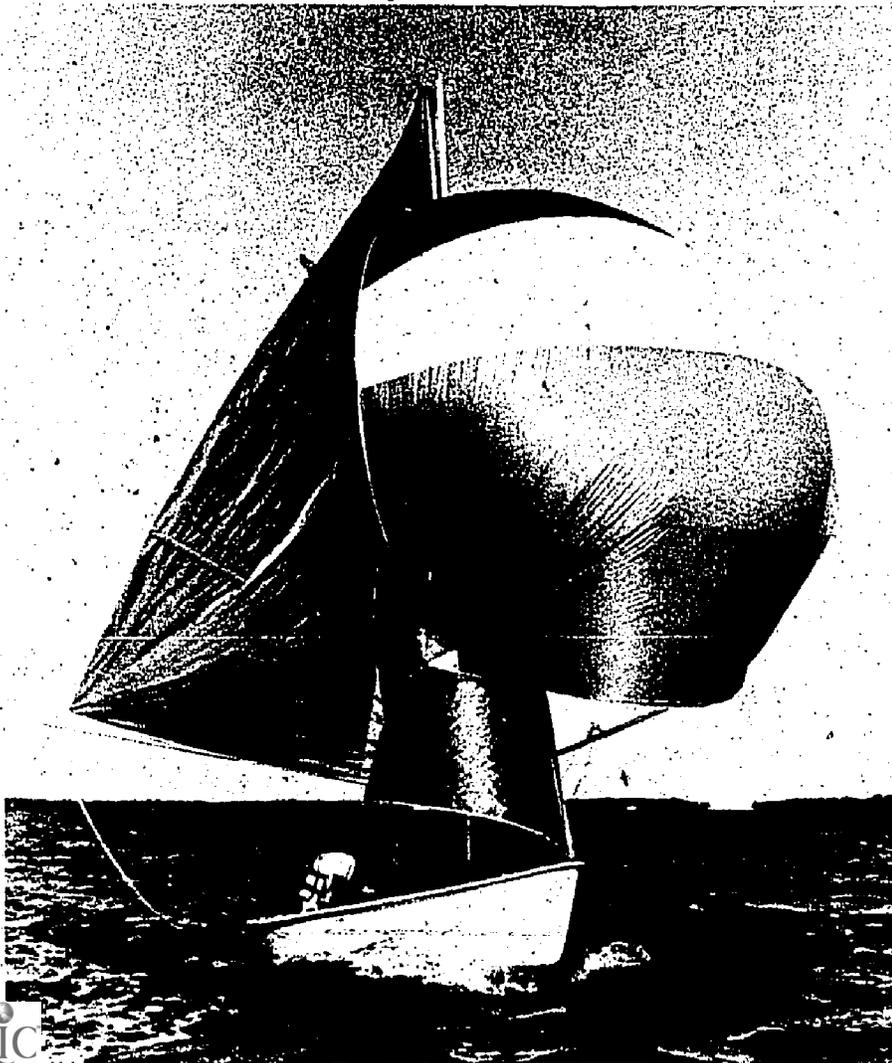
- Complete formal and on-the-job training to operate an air-plane or ship.
- Understand and follow complex operating rules and procedures, including overseas flight and shipping rules.
- Judge distances and relationships of objects in space.
- Recognize a vehicle's malfunction by sound or other indications.
- Move eyes, hands, and feet together to operate levers, push pedals, or otherwise control a vehicle.
- Read instrument panels, identify color signals, and steer a vehicle correctly and safely.
- Supervise or direct the members of a crew.
- Remain calm in face of emergencies.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Do you enjoy reading magazines or articles about airplanes and ships? Do you subscribe to such magazines?
- Have you built or operated a model airplane? Did you have any trouble reading and following the instructions?
- Have you been a member of a Civil Air Patrol unit? Did it include flight or ground training? Were you taught how to handle emergencies?
- Do you have a pilot's license? Are you studying for one?
- Do you own or can you operate a citizen's band radio? Do you understand the rules for its use? Do you know the common code words?
- Have you owned or operated a pleasure boat? Have you completed Coast Guard safety and navigation training? Can you read a compass?



You can further explore your interest in some of the group's occupations by learning how to sail a pleasure boat.

**PREPARATION****How can you prepare for and enter this kind of work?**

All airplane pilots must be licensed by the Federal Aviation Administration (FAA). They must also be rated for the number of engines and type of airplanes they fly. Commercial licenses call for 250 hours of flying experience. Captains of commercial airplanes must have special ratings for carrying freight and passengers. They must also be approved for instrument and night flying. People wishing to become pilots can learn to fly either in the armed services or in civilian flight schools approved by the FAA. Most major airlines have their own advanced pilot training programs. A high school education or its equal is needed to enter flight training. Some airlines prefer college graduates. To become an airline pilot, the trainee must have at least 1500 hours of flight time.

People become ship captains by advancing through lower officer ranks. The lowest rank is third mate. Most workers earn third mate positions by completing a training course at a marine academy.

Some marine trade unions offer programs to train seamen to become third mates. These trainees must be U. S. citizens. Their vision and general health must be approved by the U. S. Public Health Service. They must also pass Coast Guard tests on navigation, freight handling, and deck operations.

**What else should you know about these jobs?**

Airline pilots may frequently be away from home overnight due to their work schedules. Ships' officers are often away from home for long periods. Workers in this group face hazards such as severe weather conditions, mechanical failure, and possible collision. They must keep alert and ready to make quick and accurate decisions.

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**OTHER****CONSIDERATIONS****QUALIFICATIONS****PROFILE**

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 1. Activities dealing with things and objects.
- 5. Activities resulting in recognition or appreciation from others.
- 9. Activities involving processes, methods, or machines.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 3. Planning and directing an entire activity.
- 4. Dealing with people.
- 6. Working under pressure.
- 7. Making decisions using personal judgment.
- 8. Making decisions using standards that can be measured or checked.
- 10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                      | Avg.                                | High                                |                           |
|--------|--------------------------|-------------------------------------|-------------------------------------|---------------------------|
| DATA   | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Coordinating, Analyzing |
| PEOPLE | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Supervising             |
| THINGS | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Driving/Operating       |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- B Both: inside and outside.
- 6. Hazards.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                      | Levels |   |       |       |      |
|--------------------------------|--------|---|-------|-------|------|
|                                | Low    |   | to    |       | High |
|                                | 5      | 4 | 3     | 2     | 1    |
| G - General                    |        |   |       |       | 2    |
| V - Verbal                     |        |   |       | 3 - 2 |      |
| N - Numerical                  |        |   |       | 3 - 2 |      |
| S - Spatial                    |        |   |       |       | 2    |
| P - Form Perception            |        |   |       | 3 - 2 |      |
| Q - Clerical Perception        |        |   |       |       | 3    |
| K - Motor Coordination         |        |   |       |       | 3    |
| F - Finger Dexterity           |        |   | 4 - 3 |       |      |
| M - Manual Dexterity           |        |   |       |       | 3    |
| E - Eye-Hand-Foot Coordination |        |   |       |       | 3    |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply logical thinking and technical knowledge to operate airplanes, ships, or boats. They solve practical problems and make decisions based on abstract and concrete variables such as knowledge of international transportation laws and operating procedures, and radio transmitters.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

A - To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

### Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- T - Special training programs at technical schools.
- NF - Some occupations in this group have no related formal education or training programs.

### Training Time

Occupations in this group may require from over 2 years up to and including 10 years (SVP 7, 8).

### Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

#### Important Courses

- Algebra/Geometry.

#### Helpful Courses

- Geography, Earth/Space Science.

## OCCUPATIONS IN AIR AND WATER VEHICLE OPERATION

|                            |             |                    |             |
|----------------------------|-------------|--------------------|-------------|
| Airplane Pilot             | 196.263-010 | Master, Ship       | 197.167-010 |
| Airplane Pilot, Commercial | 196.263-014 | Mate, Ship         | 197.133-022 |
| Captain, Fishing Vessel    | 197.133-010 | Motorboat Operator | 411.663-010 |
| Check Pilot                | 196.263-022 | Quartermaster      | 911.363-014 |
| Helicopter Pilot           | 196.263-038 | Test Pilot         | 196.263-042 |
| Instructor, Flying I       | 196.223-010 | Tugboat Captain    | 197.133-030 |

# CRAFT TECHNOLOGY

Craft technology is highly skilled custom hand and machine work requiring mastery of a process or technique. Food preparation is also included in this group. Industries such as construction and printing employ workers in this group. Some workers provide mechanical services to people and businesses. Large restaurants hire some of these workers to oversee food preparation.

## WORK PERFORMED

What would you do as a worker in this group?

You would select and use the tools, materials, and methods needed to make, repair, install, or construct something.

You would do one or more of the following tasks.

- Plaster a new home.
- Install the plumbing in a building under construction.
- Set up and operate a metal lathe to make a part for a motor.
- Build custom cabinets and furniture.
- Install the wiring in a building.
- Lay bricks to construct walls and partitions.
- Repair car or aircraft engines.
- Make and tune pipe organs.
- Plan and oversee meal preparation in an exclusive restaurant.
- Repair, adjust, or replace parts in office machines.

Inland Steel Company



phone repairer provides services to residential commercial customers.

Would you like to learn how to set up and operate this metal lathe?

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know the uses of tools, materials, and methods for a trade or craft.
- Perform work tasks to meet strict standards of accuracy.
- Move the eyes, hands, and fingers to work with hand tools, operate machines, or do fine handiwork.
- Use arithmetic to figure dimensions with accuracy.
- Picture objects from blueprints and read scale drawings.
- See slight differences in shapes or surfaces to detect flaws.

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you repaired a lamp or extension cord? Do you like working with electrical equipment?
- Have you taken courses in machine shop or cabinet making? Do you like these types of work?
- Have you helped build or repair a house or barn? Do you like this kind of work?
- Have you customized or repaired a car or other vehicle? Do you like mechanical work?
- Have you built or put together a complicated toy which required assembling parts in a certain manner? Do you like doing tasks that require careful attention to accuracy?
- Have you planned and prepared a meal for a group? Do you like to cook?

How can you prepare for and enter this kind of work?

High school courses in math, general science, home economics, and industrial arts prepare students for this kind of work well. Vocational and technical schools offer training for many jobs in this group. Apprenticeships and on-the-job training are also available. Training requires two to five years, depending upon the craft or trade.

## WORKER REQUIREMENTS



Experience in the use of the trade's tools and materials helps this bricklayer create an intricate building design.

## CLUES

Department of Labor



Would you be willing to serve several years of apprenticeship to develop the skills of a mechanic?

## PREPARATION

Some people learn these jobs by starting as helpers and working with experienced workers. Some employers train workers to install or repair equipment. Federal and state agencies also sponsor training for some jobs in this group.

Many chefs learn the trade by working as cooks. Apprenticeship programs, technical schools, and large restaurants sometimes offer formal training for these jobs.

## OTHER CONSIDERATIONS

### What else should you know about these jobs?

Some construction workers are employed for years by a single contractor. Others must seek new employment after each project is completed. Many people prefer construction work because it permits them to be outdoors. However, the weather and the season affect these jobs.

Some craft workers have their own businesses such as cabinet shops, or car repair garages. A few become construction contractors.

Many workers in this group must wear safety glasses, hard hats, or other protective devices.

## QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

### WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
9. Activities involving processes, methods, or machines.
10. Activities involving working on or producing things.

### WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- O Outside.
- B Both: inside and outside.

### WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Coordinating       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Precision Working  |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- 3. Stooping, kneeling, crouching, and/or crawling.
- 4. Reaching, handling, fingering, and/or feeling.
- 6. Seeing.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes              | Levels |   |       |   |      |
|------------------------|--------|---|-------|---|------|
|                        | Low    |   | to    |   | High |
|                        | 5      | 4 | 3     | 2 | 1    |
| G - General            |        |   | 3     |   |      |
| N - Numerical          |        |   | 3     |   |      |
| S - Spatial            |        |   | 3 - 2 |   |      |
| P - Form Perception    |        |   | 3 - 2 |   |      |
| K - Motor Coordination |        |   | 3     |   |      |
| F - Finger Dexterity   |        |   | 3     |   |      |
| M - Manual Dexterity   |        |   | 3 - 2 |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are

six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 4.

Workers use reasoning along with skills and technical knowledge to repair, process, or make products. They carry out technical instructions presented in written, oral, or diagram form. They deal with practical problems involving concrete variables such as gages, valves, and pumps.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- T - Technical school training or formal apprenticeship program.
- V - Vocational courses in home economics or trade or industrial fields.

**Training Time**

Occupations in this group may require from over 2 years up to and including 10 years (SVP 7, 8).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

## OCCUPATIONS IN CRAFT TECHNOLOGY

|  |             |   |             |
|--|-------------|---|-------------|
| Air-Conditioning Installer-Service,<br>Window Unit | 637.261-010 | Cylinder-Press Operator                         | 651.362-010 |
| Air-Conditioning Mechanic                          | 620.281-010 | Dairy-Equipment Repairer                        | 629.281-018 |
| Airframe-and-Power-Plant Mechanic                  | 621.281-014 | Die Maker, Bench, Stamping                      | 601.281-010 |
| Alteration Tailor                                  | 785.261-010 | Dental-Laboratory Technician                    | 712.381-018 |
| Arc Cutter   | 816.364-010 | Diesel Mechanic                                 | 625.281-010 |
| Assembler, Metal Building                          | 801.381-010 | Die Sinker                                      | 601.280-022 |
| Automobile-Body Repairer                           | 807.381-010 | Dietetic Technician                             | 077.121-010 |
| Automatic-Equipment Technician                     | 822.281-010 | Dietitian, Clinical                             | 077.127-014 |
| Automotive-Maintenance-Equipment Servicer          | 620.281-018 | Dietitian, Consultant                           | 077.127-018 |
| Automobile Mechanic                                | 620.261-010 | Diver   | 899.261-010 |
| Automotive Technician, Exhaust Emissions           | 620.281-014 | Dressmaker                                      | 785.361-010 |
| Automobile Upholsterer                             | 780.381-010 | Drill-Press Set-Up Operator, Single Spindle     | 606.682-018 |
| Biomedical Equipment Technician                    | 719.261-010 | Dry-Wall Applicator                             | 842.381-010 |
| Blacksmith   | 610.381-010 | Dyer  | 364.361-010 |
| Boatbuilder, Wood                                  | 860.381-018 | Electrical-Appliance Servicer                   | 827.261-010 |
| Body Wirer   | 829.684-014 | Electrical Repairer                             | 829.281-014 |
| Boilermaker 1                                      | 805.261-014 | Electrician                                     | 824.261-010 |
| Boilermaker 2                                      | 805.381-010 | Electrician                                     | 825.281-014 |
| Bookbinder   | 977.381-010 | Electrician                                     | 825.381-030 |
| Bricklayer   | 861.381-014 | Electrician, Airplane                           | 825.281-018 |
| Bricklayer   | 861.381-018 | Electrician, Automotive                         | 825.281-022 |
| Bricklayer Supervisor                              | 861.131-010 | Electrician, Locomotive                         | 825.281-026 |
| Cabinetmaker                                       | 660.280-010 | Electrician, Powerhouse                         | 820.261-014 |
| Cabinetmaker, Supervisor                           | 660.130-010 | Electrician Supervisor                          | 829.131-014 |
| Cable Installer-Repairer                           | 821.361-010 | Electric-Meter Installer 1                      | 821.361-014 |
| Cable Splicer                                      | 829.361-010 | Electric-Meter Repairer                         | 729.281-014 |
| Cable Supervisor                                   | 829.131-010 | Electric-Meter Tester                           | 821.381-010 |
| Cake Decorator                                     | 524.381-010 | Electric-Motor Repairer                         | 721.281-018 |
| Camera Repairer                                    | 714.281-014 | Electronic-Organ Technician                     | 828.261-010 |
| Carpenter  | 860.381-022 | Electronic Assembler, Developmental             | 726.261-010 |
| Carpenter, Bridge                                  | 860.381-030 | Electronics Mechanic                            | 828.281-010 |
| Carpenter, Maintenance                             | 860.281-010 | Electrotyper                                    | 974.381-010 |
| Carpenter, Rough                                   | 860.381-042 | Elevator Constructor                            | 825.361-010 |
| Carpenter, Ship                                    | 860.281-014 | Elevator Repairer                               | 825.281-030 |
| Car Repairer                                       | 622.381-014 | Environmental-Control-System Installer-Servicer | 637.261-014 |
| Cement Mason                                       | 844.364-010 | Farm-Equipment Mechanic 1                       | 624.281-010 |
| Central-Office Installer                           | 822.361-014 | Field Engineer                                  | 828.261-014 |
| Central-Office Repairer                            | 822.281-014 | Field-Service Representative                    | 621.221-010 |
| Central-Office-Repairer Supervisor                 | 822.131-010 | Fitter 1  | 801.261-014 |
| Chef   | 313.131-014 | Fixture Maker                                   | 600.380-010 |
| Compositor   | 973.381-010 | Form Builder                                    | 693.280-010 |
| Concreting Supervisor                              | 869.131-014 | Form Builder                                    | 860.381-046 |
| Conductor, Yard                                    | 910.137-022 | Furnace Installer-and Repairer, Hot Air         | 869.281-010 |
| Construction-Equipment Mechanic                    | 620.261-022 | Furniture Finisher                              | 763.381-010 |
| Cook   | 313.361-014 | Furniture Upholsterer                           | 780.381-018 |
| Customer-Facilities Supervisor                     | 822.131-014 | Furrier   | 783.261-010 |
| Custom Tailor                                      | 785.261-014 | Gas-Main Fitter                                 | 862.361-014 |
|  |             | Gem Cutter                                      | 770.281-014 |
|  |             | Gemologist                                      | 199.281-010 |
|  |             | Gunsmith  | 632.281-010 |
|  |             | House Builder                                   | 869.281-014 |
|  |             | Instrument Maker                                | 600.280-010 |
|  |             | Instrument Mechanic                             | 710.281-026 |
|  |             | Instrument Repairer                             | 722.281-010 |
|  |             | Job Printer                                     | 973.381-018 |
|  |             | Joiner  | 860.381-050 |
|  |             | Lay-Out Worker                                  | 600.281-018 |
|  |             | Lay-Out Worker 1                                | 809.281-010 |
|  |             | Line Erector                                    | 821.361-018 |
|  |             | Line Installer-Repairer                         | 822.381-014 |
|  |             | Line Maintainer                                 | 821.261-014 |
|  |             | Line Repairer                                   | 821.361-026 |
|  |             | Line Supervisor                                 | 821.131-014 |

|   |             |  |             |
|---|-------------|--|-------------|
| Line Supervisor                             | 822.131-018 | Radio Mechanic                             | 823.261-018 |
| Locksmith                                   | 709.281-010 | Refrigeration Mechanic                     | 637.261-026 |
| Machine Builder                             | 600.281-022 | Reinforcing-Metal Worker                   | 801.684-026 |
| Machine Repairer, Maintenance               | 626.281-010 | Repairer, Heavy                            | 620.381-022 |
| Machine-Shop Supervisor, Tool               | 600.131-010 | Rigger                                     | 806.261-014 |
| Machinist                                   | 600.280-022 | Rocket-Engine-Component Mechanic           | 621.281-030 |
| Machinist, Experimental                     | 600.280-038 | Rug Repairer                               | 782.381-018 |
| Machinist, Marine Engine                    | 623.281-026 | Sample Stitcher                            | 785.361-018 |
| Machinist, Wood                             | 669.380-014 | Saw Filer                                  | 701.381-014 |
| Maintenance Machinist                       | 600.280-042 | Scientific Glass Blower                    | 006.261-010 |
| Maintenance Mechanic                        | 620.281-046 | Service Mechanic, Compressed Gas Equipment | 630.281-034 |
| Maintenance Mechanic                        | 638.281-014 | Sheet-Metal Worker                         | 804.281-010 |
| Maintenance Mechanic Supervisor             | 638.131-022 | Shipfitter                                 | 806.381-046 |
| Maintenance Mechanic, Telephone             | 822.281-018 | Shipwright                                 | 860.381-058 |
| Manager, Dental Laboratory                  | 187.167-090 | Shoe Repairer                              | 365.361-014 |
| Manager, Marine Service                     | 187.167-130 | Shop Tailor                                | 785.361-022 |
| Manufacturer's Service Representative       | 638.261-018 | Signal Maintainer                          | 822.281-026 |
| Marble Setter                               | 861.381-030 | Small-Engine Mechanic                      | 625.281-034 |
| Mechanical-Maintenance Supervisor           | 638.131-026 | Sous Chef                                  | 313.131-026 |
| Mechanical-Test Technician                  | 869.261-014 | Statistical-Machine Servicer               | 633.281-030 |
| Mechanic, Industrial Truck                  | 620.281-050 | Station Installer-and-Repairer             | 822.261-022 |
| Metal Fabricator                            | 619.360-014 | Steeple Jack                               | 869.381-030 |
| Millwright                                  | 638.281-018 | Stereotyper                                | 974.382-014 |
| Mold Maker, Die-Casting and Plastic Molding | 601.280-030 | Stonecutter, Hand                          | 771.381-014 |
| Monument Setter                             | 861.361-014 | Stonemason                                 | 861.381-038 |
| Motorboat Mechanic                          | 623.281-038 | Street-Light Servicer                      | 824.381-010 |
| Motorcycle Repairer                         | 620.281-054 | Structural-Steel Worker                    | 801.361-014 |
| Neon-Sign Servicer                          | 824.281-018 | Stucco Mason                               | 842.381-014 |
| Office-Machine Servicer                     | 633.281-018 | Superintendent, Local                      | 952.137-018 |
| Offset-Press Operator 1                     | 651.482-010 | Supervisor, Aircraft Maintenance           | 621.131-014 |
| Oil-Burner-Servicer-and-Installer           | 862.281-018 | Supervisor, Carpenters                     | 860.131-018 |
| Oil-Field Equipment Mechanic                | 629.381-014 | Supervisor, Engine-Repair                  | 625.131-014 |
| Optician                                    | 716.280-008 | Supervisor, Garage                         | 620.131-014 |
| Optician                                    | 716.280-014 | Supervisor, Machine Setter                 | 619.130-034 |
| Optician, Dispensing 1                      | 713.361-014 | Supervisor, Machining                      | 669.130-022 |
| Ornamental-Iron Worker                      | 809.381-022 | Supervisor, Press Room                     | 651.130-010 |
| Orthotics Technician                        | 712.381-034 | Supervisor, Printing-Shop                  | 659.130-010 |
| Orthotist                                   | 078.261-018 | Supervisor, Reinforced-Steel-Placing       | 801.134-010 |
| Paperhanger                                 | 841.381-010 | Supervisor, Structural-Steel Erection      | 809.131-018 |
| Parts Salvager                              | 638.281-026 | Taximeter Repairer                         | 710.281-038 |
| Patternmaker, Metal                         | 600.280-050 | Terrazzo Worker                            | 861.381-046 |
| Patternmaker, Metal, Bench                  | 693.281-018 | Tile Setter                                | 861.381-054 |
| Patternmaker, Wood                          | 661.281-022 | Timber Framer                              | 869.381-034 |
| Piano Technician                            | 730.281-038 | Tool-and-Die Maker                         | 601.280-046 |
| Piano Tuner                                 | 730.361-010 | Tool-and-Die Supervisor                    | 601.130-010 |
| Pinsetter Adjuster, Automatic               | 829.381-010 | Tool Grinder 1                             | 701.381-018 |
| Pipe Fitter                                 | 862.261-010 | Tool-Machine Set-Up Operator               | 601.280-054 |
| Pipe Fitter                                 | 862.381-018 | Tool Maker                                 | 601.280-042 |
| Pipe Fitter, Diesel Engine 1                | 862.361-018 | Tool Maker, Bench                          | 601.281-026 |
| Pipe-Fitter Supervisor                      | 862.131-014 | Tractor Mechanic                           | 620.281-058 |
| Pipe-Organ Tuner and Repairer               | 730.361-014 | Trouble Shooter 2                          | 821.261-026 |
| Plasterer                                   | 842.361-018 | Truck-Body Builder                         | 807.281-010 |
| Platen-Press Operator                       | 651.362-018 | Tune-Up Mechanic                           | 620.281-066 |
| Plumber                                     | 862.381-030 | Upholstery Repairer                        | 780.684-122 |
| Plumber Supervisor                          | 862.131-018 | Variety-Saw Operator                       | 667.682-086 |
| Press Maintainer                            | 627.281-010 | Water-and-Sewer-Systems Supervisor         | 862.137-018 |
| Private-Branch-Exchange Installer           | 822.381-018 | Web-Press Operator                         | 651.362-030 |
| Private-Branch-Exchange Repairer            | 822.281-022 | Welder, Arc                                | 810.384-014 |
| Proof-Press Operator                        | 651.582-010 | Welder-Assembler                           | 819.381-010 |
| Prosthetist                                 | 078.261-022 | Welder, Combination                        | 819.384-010 |
| Prosthetics Technician                      | 712.381-038 | Welder, Experimental                       | 819.281-022 |
| Address Servicer                            | 823.261-010 | Welder-Fitter                              | 819.261-010 |
| Servicer                                    | 630.281-018 | Welder, Gas                                | 811.684-014 |

# SYSTEMS OPERATION

Systems operation is the control and care of equipment in a mechanical system. The system may create and distribute electricity, heat and cool a building, or treat and distribute water. Jobs in this group are found in oil fields, refineries, utility companies, and large buildings.

## WORK PERFORMED

What would you do as a worker in this group?

You would operate or control the equipment in an entire system or direct the work of others. You would do one or more of the following tasks.

- Operate turbines, boilers, and generators to produce electricity.
- Maintain a cooling system to refrigerate rooms in a meat-packing plant.
- Operate equipment in a water treatment plant to purify water.
- Maintain boilers which supply heat or power to a building.
- Plan and direct the work of others.

Koppers



This operator regulates the flow of liquids and gases in an industrial setting.

This substation operator controls the flow of petroleum from the well into a pipeline.



Marathon Oil Company

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Apply the technical principles upon which a process is based.
- Use eyes, hands, and fingers to adjust or repair equipment.
- Picture shapes and sizes of objects from a drawing.
- Make quick and correct decisions to operate a system in an efficient way.
- Direct the work of others.
- Use math skills to read and interpret information from meters and gauges.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken shop courses? Do you like working with machines?
- Can you use math to figure pressure, weight, and volume of liquids?
- Have you set up and operated a model train? Can you find and correct problems?
- Have you built or repaired a radio or stereo equipment? Can you read electrical or electronic drawings?



Ask your school's boiler operator to show you what he or she does.

**How can you prepare for and enter this kind of work?**

Oil or natural gas systems operators usually start as helpers and develop the needed skills. High school courses in math, physics, and chemistry help students prepare for this kind of work. Vocational school courses such as machine shop and mechanical drawing are also helpful.

Jobs in water and sewage treatment plants are usually government positions. These jobs may require taking a civil service test.

Boiler operators usually enter the field through apprenticeship programs which last up to four years. These programs include both classroom instruction and on-the-job training. After gaining experience as an assistant, it is also possible to become a boiler operator. However, this type of preparation generally takes longer.

Operators of generating or distributing systems for electricity usually start as helpers. They may be promoted in one to four years as they become experienced.

Operators of certain types of systems are required to have state licenses. Requirements for these licenses vary from state to state.

Workers in atomic power plants must have special training. Some must be licensed by the Nuclear Regulatory Commission.

**What else should you know about these jobs?**

Many systems are operated 24 hours a day and require one or more operators to be on duty at all times. Work hours often include weekend and holiday duty.

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**PREPARATION****OTHER  
CONSIDERATIONS****QUALIFICATIONS  
PROFILE**

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
9. Activities involving processes, methods, or machines.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                                |                         |
|--------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Coordinating          |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | - Speaking/Signaling    |
| THINGS | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Operating/Controlling |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- O Outside.
- B Both: inside and outside.
5. Noise and vibrations.
6. Hazards.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |    |   |      |
|-------------------------|--------|---|----|---|------|
|                         | Low    |   | to |   | High |
|                         | 5      | 4 | 3  | 2 | 1    |
| G - General             |        |   |    |   | 3    |
| V - Verbal              |        |   |    |   | 3    |
| N - Numerical           |        |   |    |   | 3    |
| S - Spatial             |        | 4 | 3  |   |      |
| Q - Clerical Perception |        | 4 | 3  |   |      |
| K - Motor Coordination  |        | 4 | 3  |   |      |
| M - Manual Dexterity    |        | 4 | 3  |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3-4.

Workers use reasoning, technical skills, and knowledge to solve mechanical problems and operate equipment related to such systems as heating, refrigeration, or power. They interpret instructions presented in written, oral, or diagram form. These workers deal with concrete variables such as equipment used for generation and distribution of power, and natural gas flow.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

## Entry and Advancement Information

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

## Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- T - Technical school courses in machine trades, electricity, and related fields.
- V - Vocational courses in the trade and industrial fields; formal apprenticeship programs.
- NFT - Some occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from over 1 year up to and including 10 years (SVP 6, 7, 8).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

### Important Courses

- Courses required for the completion of high school.

### Helpful Courses

- Geometry/Algebra, Physics, Chemistry.

## OCCUPATIONS IN SYSTEMS OPERATION

|                                      |             |
|--------------------------------------|-------------|
| Auxiliary-Equipment Operator         | 952.362-010 |
| Boiler Operator                      | 950.382-010 |
| Boiler-Room Helper                   | 950.685-014 |
| Engineer                             | 197.130-010 |
| Firer, High Pressure                 | 951.685-010 |
| Firer, Low Pressure                  | 951.685-014 |
| Firer, Marine                        | 951.685-018 |
| Gager                                | 914.384-010 |
| Gas-Compressor Operator              | 950.382-014 |
| Gas Dispatcher                       | 953.167-010 |
| Load Dispatcher                      | 952.167-014 |
| Oil Pumper                           | 914.382-010 |
| Petroleum Inspector                  | 222.367-046 |
| Power-Plant Operator                 | 952.382-018 |
| Power-Reactor Operator               | 952.362-022 |
| Pumper                               | 914.682-010 |
| Pump-Station Operator, Waterworks    | 954.382-010 |
| Refrigerating Engineer               | 950.362-014 |
| Stationary Engineer                  | 950.382-026 |
| Stationary-Engineer Supervisor       | 950.131-014 |
| Substation Operator                  | 952.362-026 |
| Switchboard Operator                 | 952.362-038 |
| Trouble Locator, Test Desk           | 822.361-030 |
| Turbine Operator                     | 952.362-042 |
| Turbine Operator, Head               | 952.137-022 |
| Utilities-and-Maintenance Supervisor | 899.131-018 |
| Wastewater-Treatment-Plant Operator  | 955.362-010 |
| Water-Treatment-Plant Operator       | 954.382-014 |

# QUALITY CONTROL

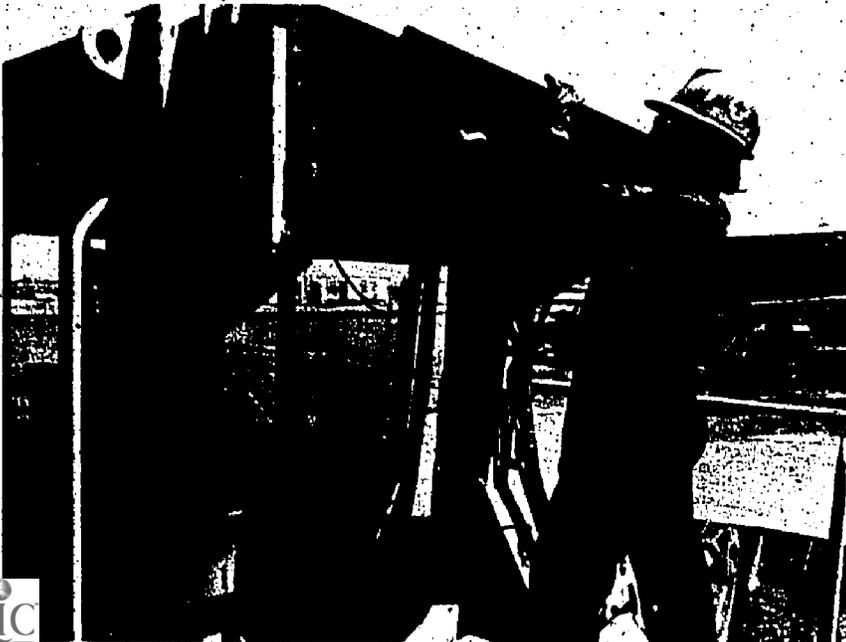
Quality control is inspecting and checking equipment, materials, and products in settings other than factories. Work may involve measuring or testing raw materials to check whether quality standards are met. Workers in this group are employed in such settings as mines, loading docks, quarries, warehouses, oil fields, and construction sites.

## WORK PERFORMED

What would you do as a worker in this group?

You would examine materials and products to see that quality standards are maintained. You would use measuring tools and testing equipment in some cases.

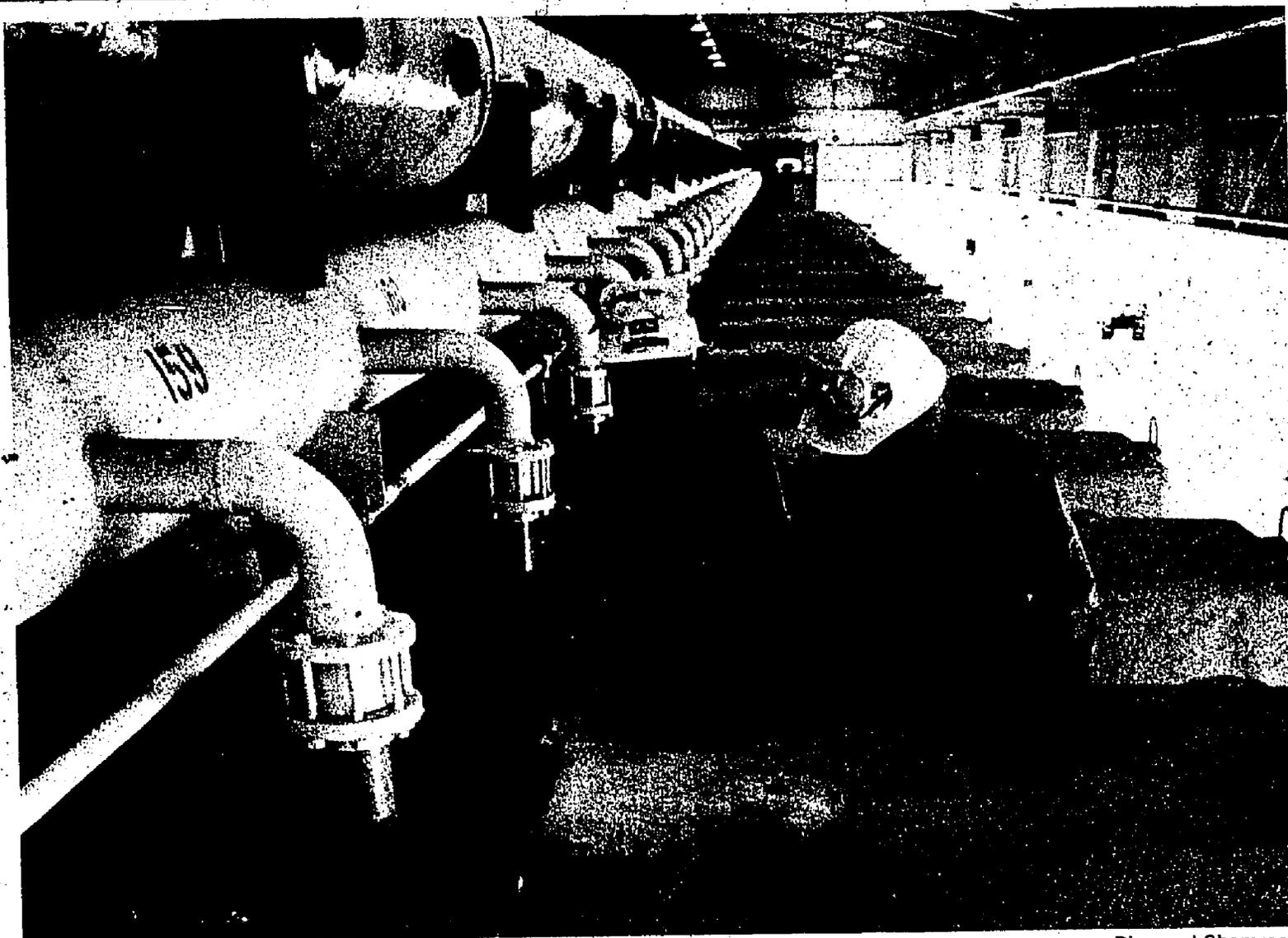
Utah International Inc.



You would perform one or more of the following tasks.

- Inspect railroad freight cars to see what repairs are needed.
- Inspect and grade coal according to its size or to the amount of impurities it contains.
- Inspect cars at a road safety check-point.
- Inspect elevators to discover safety hazards.
- Estimate the nature and cost of car repairs in an automobile service department.
- Inspect road construction materials to see that state or contract standards are met.

Large companies employ equipment inspectors to insure the workers' safety.



Diamond Shamrock

As a petroleum inspector, you would inspect samples of crude oil for quality.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use knowledge of a product, process, or material to judge quality and workmanship.
- Use the eyes, hands, and fingers to handle measuring and testing instruments or tools.
- Write clearly to keep records and make reports.
- Read and apply blueprints, diagrams, or set standards.

## WORKER REQUIREMENTS

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## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you had courses in mechanical drawing? Can you read blueprints and diagrams?
- Have you put models together? Did you have to measure and fit small parts together? Can you follow detailed directions?
- Have you taken courses such as woodworking, metalworking, sewing, or cooking? Do you notice small differences in sizes, shapes, or textures?
- Have you noticed the change in sound when a car or household appliance is not working properly? Do you like to find out what is wrong?
- Have you checked cars, appliances, or furniture for defects before buying? Do you notice small details?



This electrical inspector keeps a record of identified safety violations to later write an accurate report.

**How can you prepare for and enter this kind of work?****PRÉPARATION**

Some jobs in this group require the ability to read blueprints. High school or vocational courses in shop or mechanical drawing are helpful in developing this skill. A few jobs require experience as a worker in order to judge the quality of the products or materials involved. Most workers receive on-the-job training in order to learn inspection tasks.

**What else should you know about these jobs?**

Quality control workers usually are paid a set wage rather than being paid by the number of inspected items. Working conditions are the same as for other workers in this setting. These conditions may include dust, noise, and risk of physical injury.

**OTHER  
CONSIDERATIONS**

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**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

## WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Coordinating       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Precision Working  |

## PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

1. Light work.
3. Stopping, kneeling, crouching, and/or crawling.
4. Reaching, handling, fingering, and/or feeling.
6. Seeing.

## WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

1. Inside.
0. Outside.
- B. Both: inside and outside.
5. Noise and vibrations.
6. Hazards.

## APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes            | Levels |   |    |   |      |
|----------------------|--------|---|----|---|------|
|                      | Low    |   | to |   | High |
|                      | 5      | 4 | 3  | 2 | 1    |
| G - General          |        |   | 3  |   |      |
| N - Numerical        |        | 4 | 3  |   |      |
| S - Spatial          |        |   | 3  |   |      |
| P - Form Perception  |        |   | 3  |   |      |
| M - Manual Dexterity |        | 4 | 3  |   |      |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 4.

Workers use reasoning and technical knowledge to inspect manufactured products. They carry out instructions in written, oral, or diagram form. They deal with practical problems involving concrete variables such as testing equipment, inspection standards, and blueprints.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E – To enter some occupations workers only need the required competencies and credentials.
- A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- T – Technical school courses in the mechanical or technical fields.
- NFT – Some occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from over 6 months up to and including 10 years (SVP 5, 6, 7, 8).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for the completion of high school.

**OCCUPATIONS IN  
QUALITY CONTROL**

|  |             |
|--|-------------|
| Airplane Inspector                                 | 621.261-010 |
| Automobile-Repair-Service Estimator                | 620.261-018 |
| Automobile Tester                                  | 379.364-010 |
| Bridge Inspector                                   | 869.287-010 |
| Car Inspector                                      | 910.867-010 |
| Electrical Inspector                               | 168.167-034 |
| Elevator Examiner-and-Adjuster                     | 825.261-014 |
| Gravel Inspector                                   | 859.281-010 |
| Inspector, Aircraft Launching and Arresting System | 806.264-014 |
| Inspector, Floor                                   | 609.361-010 |
| Inspector, Tool                                    | 601.281-022 |
| Log Scaler   | 455.487-010 |
| Outside Production Inspector                       | 806.281-048 |
| Petroleum Inspector                                | 222.367-046 |
| Railroad-Car Inspector                             | 910.387-014 |
| Test Driver 2                                      | 806.283-010 |
| Water-Quality Tester                               | 539.367-014 |
| Way Inspector                                      | 910.367-030 |

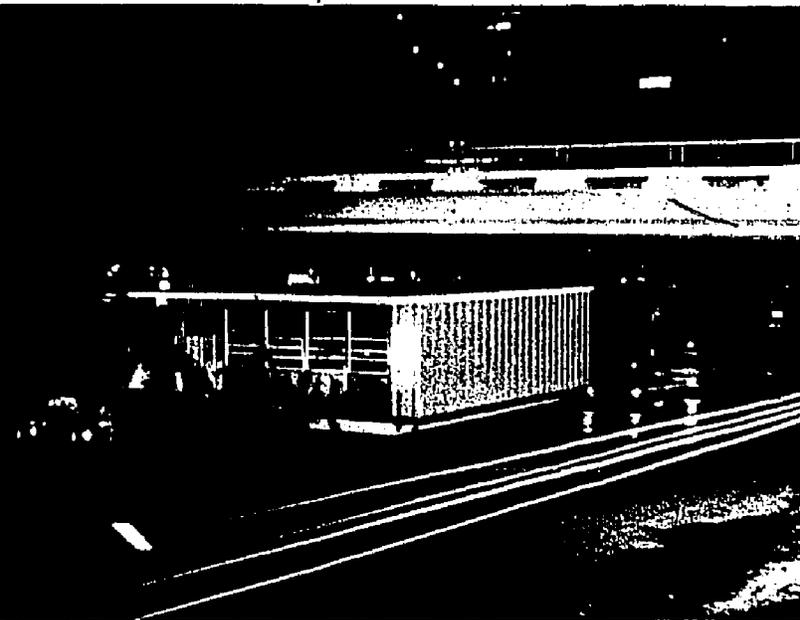
# LAND VEHICLE OPERATION

Land vehicle operators drive freight hauling vehicles or supervise others who do. Railroad companies, trucking firms, and delivery services employ workers in this group. Companies which own and operate freight carriers for their own use, also hire these workers. Jobs in this group are scattered throughout the country.

## WORK PERFORMED

What would you do as a worker in this group?

ARMCO Steel Corporation



Skillful driving and nighttime delivery help avoid the traffic problems this prefabricated structure could create.

You would drive a truck or operate a railroad locomotive or other land vehicle to transport products. To safely operate the vehicle, you would watch your surroundings carefully. You would work controls to guide the vehicle and regulate its speed. You would watch your instrument panel to make sure the vehicle is operating properly.

Your duties would include one or more of the following tasks.

- Inspect a truck to check whether it is properly loaded and in good running condition.
- Drive a truck to pick up and deliver products or supplies either locally or over long distances.
- Obtain receipts and maintain trip records to show that materials have been hauled and delivered.
- Operate a locomotive to haul freight from one city to another.
- Move railroad cars within a railroad yard or industrial plant.
- Operate a tow truck to transport wrecked or disabled vehicles.
- Drive a specially marked car behind a wide load to warn others.
- Drive a hearse in a funeral procession.



Locomotive engineers inspect their vehicles after each run to detect damaged or defective equipment.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Operate a transport vehicle and qualify for a chauffeur's license or other required credentials.
- Understand and follow federal, state, and local traffic rules.
- Recognize a vehicle's malfunction by sound or other indications.
- Judge distances and relationships of objects in space.
- Move eyes, hands, and feet together to operate levers, push pedals, and steer the vehicle.
- Keep records, collect money, make change, and prepare reports.
- Withstand the strain of driving in traffic and for hours at a time.

## WORKER REQUIREMENTS



Truck drivers must be able to follow regulations and keep accurate records on the freight they transport.

Workers in this group are usually required to pass a driving test using the vehicle to be driven on the job.



## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Do you often read automotive or trucking magazines? Do you enjoy reading this type of material?
- Have you completed a course in driver's education? Do you have a driver's or chauffeur's license?
- Have you driven much in heavy traffic? Does it bother you?
- Have you owned or operated a model train layout? Do you like to read about trains and railroads?
- Have you driven in a bicycle rodeo, car rally, or over a vehicle obstacle course? Did you receive a good score?
- Have you driven a car pulling a trailer? Could you back it safely into a narrow space?
- Have you filled out forms to order something from a mail order catalog? Can you understand and complete such forms correctly?

**PREPARATION****How can you prepare for and enter this kind of work?**

Most states require all truck drivers to have a chauffeur's license. Specific requirements vary from state to state. These licenses usually require applicants to pass physical, written, and driving tests. Knowledge of traffic laws and some truck driving experience help prepare workers for these jobs. Some training may be taken in high school and vocational schools.

The U.S. Department of Transportation sets standards for truck drivers traveling from state to state. These truck drivers must have good hearing, 20/40 vision with or without glasses, and normal blood pressure. Although some exceptions are made for handicapped workers, drivers usually must have full use of arms and legs. These truck drivers must take a written test on the motor carrier safety rules of the U.S. Department of Transportation. They must also pass a driving test using the type of truck they will drive on the job. A good driving record is also required. Some firms hire only drivers with several years of long-distance trucking experience.

Requirements for local drivers vary with the type of truck driven and the employer's business. The physical requirements are similar to those set for long haul truck drivers. Most firms want workers with good driving records. New workers may learn by riding with a veteran driver. Some firms have classes on general duties, operating and loading trucks, and company rules, forms, and records.

Experienced engineer helpers (locomotive firers) are usually promoted to locomotive engineer. Promotion is made according to seniority. Helpers ride with engineers and learn to inspect locomotives and check the gages. They also learn to watch for signals and track obstructions. Applicants must have good hearing, vision, and color perception.

**What else should you know about these jobs?**

Long-distance truck drivers may spend days or weeks at a time away from home. Their work often includes driving at night. The noise, rough ride, and heavy traffic may cause physical or nervous strain. Advancement in truck driving is limited. Some drivers become dispatchers or managers. Others with business ability may buy and operate their own trucks.

**OTHER  
CONSIDERATIONS**

Locomotive engineers often work nights and weekends. They may operate a train to a distant terminal one day and return the next. They may spend two or three nights a week away from home.

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 1. Activities dealing with things and objects.
- 3. Activities of a routine, definite, organized nature.
- 9. Activities involving processes, methods, or machines.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 8. Making decisions using standards that can be measured or checked.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                     |                                     |
|--------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| DATA   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Comparing                         |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Taking Instructions/<br>- Helping |
| THINGS | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Driving/Operating                 |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- B Both: inside and outside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                      | Levels |   |    |   |      |
|--------------------------------|--------|---|----|---|------|
|                                | Low    |   | to |   | High |
|                                | 5      | 4 | 3  | 2 | 1    |
| G - General                    |        |   | 3  |   |      |
| S - Spatial                    |        |   | 3  |   |      |
| K - Motor Coordination         |        |   | 3  |   |      |
| M - Manual Dexterity           |        |   | 3  |   |      |
| E - Eye-Hand-Foot Coordination |        |   | 3  |   |      |
| C - Color Discrimination       |        | 4 |    |   |      |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 4.

Workers use personal judgment and mechanical skills to operate motor vehicles such as trucks and locomotives. They carry out freight delivery instructions presented in written, oral, or diagram form. They deal with problems involving concrete variables such as traffic laws, vehicle controls, and freight loading.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

## Entry and Advancement Information

E - To enter some occupations workers only need the required competencies and credentials.

## Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT - Some occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from over 1 month up to and including 1 year (SVP 3, 4, 5).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for the completion of high school.

## OCCUPATIONS IN LAND VEHICLE OPERATION

|   |             |
|---|-------------|
| Ambulance Driver                        | 913.683-010 |
| Coin Collector                          | 292.483-010 |
| Concrete-Mixing-Truck Driver            | 900.683-010 |
| Conductor, Yard                         | 910.137-022 |
| Deckhand                                | 911.687-022 |
| Dump-Truck Driver                       | 902.683-010 |
| Escort-Vehicle Driver                   | 919.663-022 |
| Firer, Locomotive                       | 910.363-010 |
| Garbage Collector Driver                | 905.663-010 |
| Hostler                                 | 909.663-010 |
| Liquid-Fertilizer Servicer              | 906.683-014 |
| Locomotive Engineer                     | 910.363-014 |
| Motor Operator                          | 910.683-014 |
| Newspaper-Delivery Driver               | 292.363-010 |
| Tank-Truck Driver                       | 903.683-018 |
| Telephone-Directory-Distribution Driver | 906.683-018 |
| Tow-Truck Operator                      | 919.663-026 |
| Tractor-Trailer-Truck Driver            | 904.383-010 |
| Truck Driver, Heavy                     | 905.663-014 |
| Truck Driver, Light                     | 906.683-022 |
| Van Driver                              | 905.663-018 |
| Yard-Engineer                           | 910.363-018 |

# MATERIALS CONTROL

Materials control is the shipping, receiving, and storing of materials and products. Workers count the products, keep records, and make schedules to control the flow of materials. Firms which make, sell, distribute, or receive large quantities of materials or products employ these workers. Jobs in this group are also found in hospitals and government agencies.

## WORK PERFORMED

What would you do as a worker in this group?

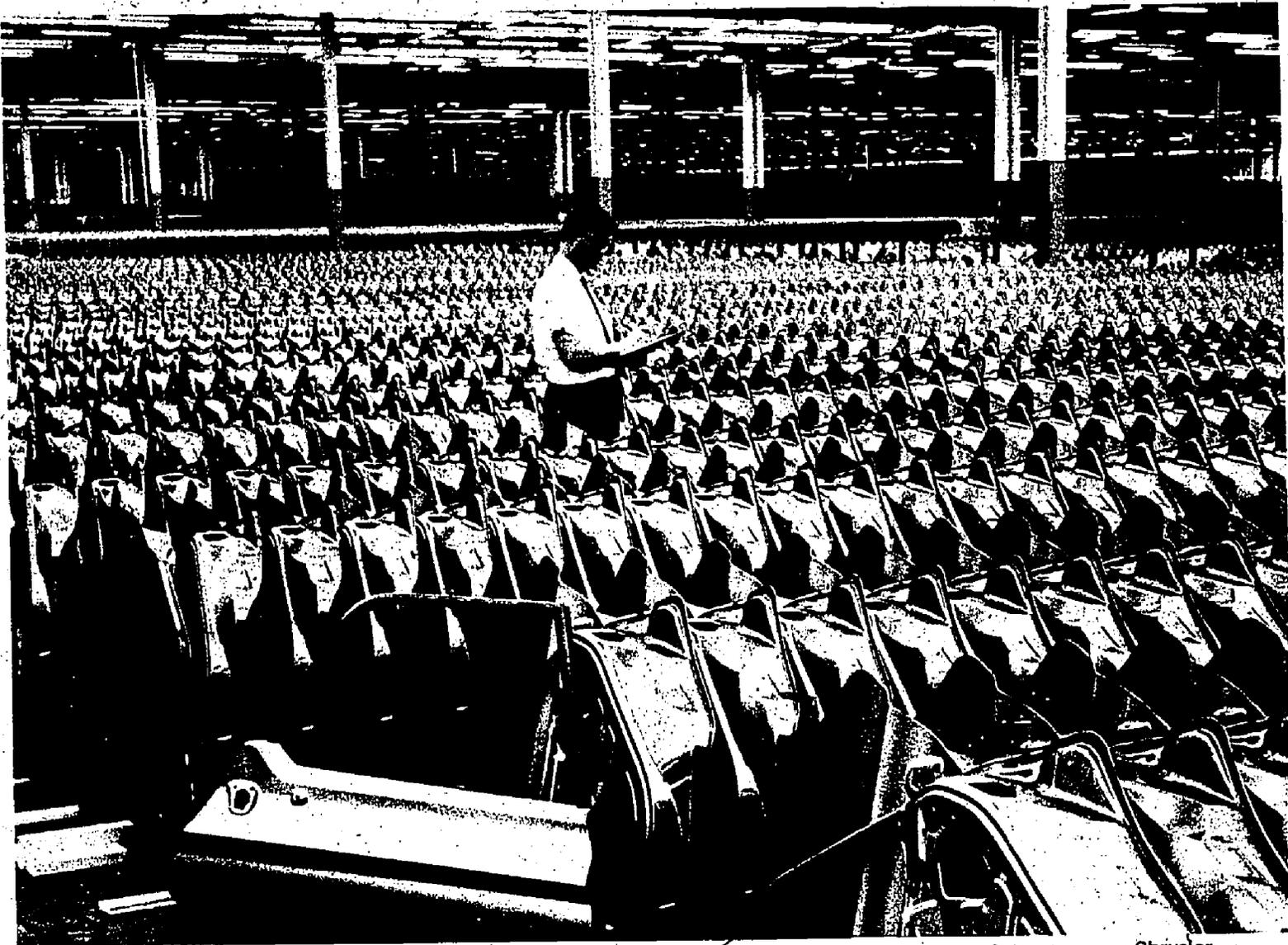
You would have direct contact with materials and products to ship, receive, or store them. You would perform one or more of the following tasks.

- Count or weigh items to check the accuracy of invoices.
- Unpack and place products on shelves.
- Issue tools, parts, and equipment to workers.
- Count and record items in a warehouse or stockroom.
- Collect tally cards from production machines and record information.
- Pack and ship items according to purchase orders received.

Western Electric



Would you enjoy counting items to check the accuracy of invoices?



Chrysler

To prepare these car doors for shipment, you would need to use math and record keeping skills.

**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use basic math skills to keep records or take inventory.
- Use hands and fingers to pack, unpack, or sort materials or products.
- Check materials received against invoices to spot errors.
- Lift, move, or handle heavy or bulky materials or products.

**WORKER  
REQUIREMENTS**

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken industrial arts or shop courses? Did you learn how to issue, store, and care for tools?
- Have you been an equipment manager for a sports team? Did you keep records as well as issue and collect the equipment?
- Have you worked as a stock clerk in a store? Did you unpack cartons and place items on shelves? Did you count or keep records of items?

Department of Labor



Shipping checkers are sometimes required to work in a cold environment.

**How can you prepare for and enter this kind of work?**

**PREPARATION**

Basic reading, writing, and math skills are required for jobs in this group. Most workers learn specific tasks and procedures through on-the-job training. As workers gain experience, they are assigned more difficult tasks and duties.

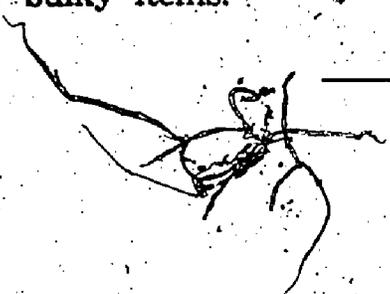
Workers who issue tools and equipment may need knowledge about care and use. Employers often select workers who have experience in using the equipment.

**What else should you know about these jobs?**

**OTHER  
CONSIDERATIONS**

Many jobs in this group require workers to be on their feet a large part of the workday. Most of the work is done indoors. However, some jobs involve working on loading platforms, in storage yards, or in cold storage rooms.

Some workers must learn to operate equipment to move heavy or bulky items.



**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        |                                     |                                     |                          |                      |
|--------|-------------------------------------|-------------------------------------|--------------------------|----------------------|
|        | Low                                 | Avg.                                | High                     |                      |
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Compiling          |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Speaking/Signaling |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Handling           |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |    |   |      |
|-------------------------|--------|---|----|---|------|
|                         | Low    |   | to |   | High |
|                         | 5      | 4 | 3  | 2 | 1    |
| G - General             |        |   | 3  |   |      |
| V - Verbal              |        |   | 3  |   |      |
| N - Numerical           |        |   | 3  |   |      |
| Q - Clerical Perception |        |   | 3  |   |      |
| M - Manual Dexterity    |        | 4 | 3  |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3-4.

Workers use reasoning and personal judgment to ship, receive, store, and inventory products and materials. They carry out instructions presented in written, oral, or diagram form. They deal with practical problems involving concrete variables such as invoices, delivery tickets, and shipping containers.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

E - To enter most occupations workers only need the required competencies and credentials.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- V - Vocational school courses in the general clerical area.
- NFT - Most occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from 30 days up to and including 2 years (SVP 2, 3, 4, 5, 6).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for the completion of high school.

## OCCUPATIONS IN MATERIALS CONTROL

|                               |             |                                   |             |
|-------------------------------|-------------|-----------------------------------|-------------|
| Assembler                     | 781.687-010 | Meter Reader                      | 209.567-010 |
| Cargo Checker                 | 222.367-010 | Order Detailer                    | 221.387-046 |
| Chart Changer                 | 221.584-010 | Order Filler                      | 222.487-014 |
| Checker                       | 369.687-014 | Parts-Order-and-Stock Clerk       | 249.367-058 |
| Complaint Clerk               | 221.387-014 | Pharmacy Helper                   | 074.387-010 |
| Custodian, Athletic Equipment | 969.367-010 | Production Coordinator            | 221.167-018 |
| Dispatcher                    | 849.137-010 | Receiving Checker                 | 222.687-018 |
| Electronics Utility Worker    | 726.361-010 | Sales Correspondent               | 221.367-062 |
| Estimator, Printing           | 221.367-014 | Sample Checker                    | 229.687-010 |
| Inventory Clerk               | 222.387-026 | Shipping and Receiving Clerk      | 222.387-050 |
| Job-Tracer                    | 221.387-034 | Shipping-and-Receiving Supervisor | 222.137-030 |
| Kitchen Clerk                 | 222.587-022 | Shipping Checker                  | 222.687-030 |
| Laboratory Clerk              | 222.587-026 | Sorter-Pricer                     | 222.387-054 |
| Laboratory-Sample Carrier     | 922.687-054 | Stock Clerk                       | 222.387-058 |
| Laborer, Stores               | 922.687-058 | Stock Clerk, Self-Service Store   | 299.367-014 |
| Laundry Worker 3              | 369.387-010 | Stock Supervisor                  | 222.137-034 |
| Linen-Room Attendant          | 222.387-030 | Supervisor, Laundry               | 361.137-010 |
| Linen-Room Supervisor         | 222.137-014 | Tailor                            | 221.587-030 |
| Mailer                        | 222.587-030 | Ticketeer                         | 229.587-018 |
| Marker                        | 209.587-034 | Tool-Crib Attendant               | 222.367-062 |
| Material Clerk                | 222.387-034 | Tool-Crib Supervisor              | 222.137-046 |
| Material Coordinator          | 221.167-014 | Warehouse Supervisor              | 929.137-022 |
| Material Expediter            | 221.367-042 | Yard Supervisor                   | 229.137-014 |
| Meat Clerk                    | 222.684-010 |                                   |             |

# skilled HAND AND MACHINE WORK

Skilled hand and machine work, as used here, is custom work requiring some knowledge of processes and techniques. Food preparation is also included in this group.

The construction and mining industries employ workers in this group in settings other than factories. Firms which repair, install, and maintain products also employ these workers. Hotels and restaurants hire workers who prepare foods.

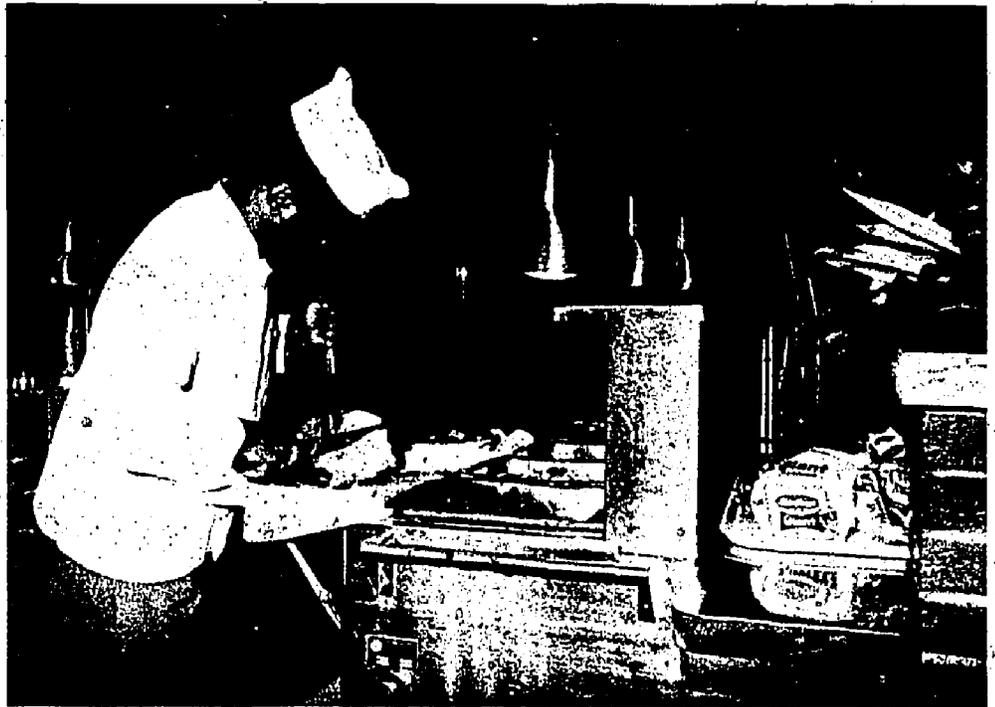
## WORK PERFORMED

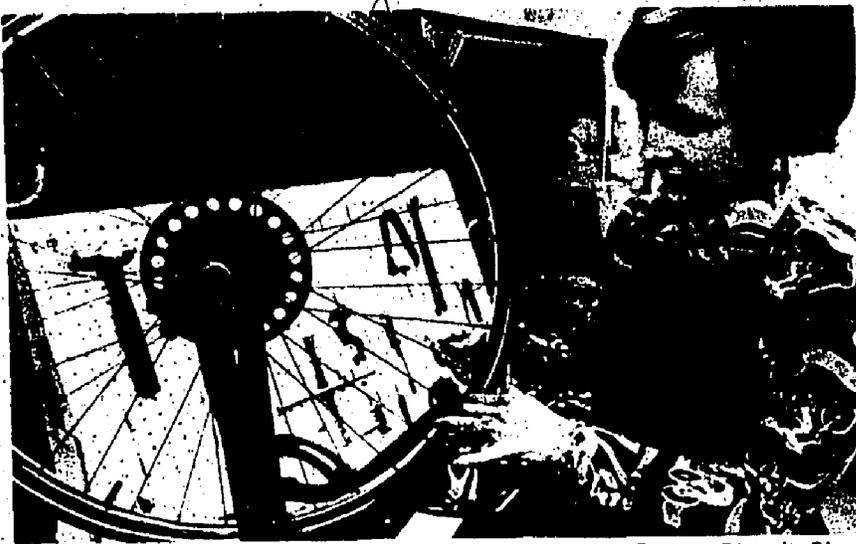
What would you do as a worker in this group?

You would use common tools and methods to make, repair, install, or service something. You would perform one or more of the following tasks.

- Cook food in a hotel or restaurant.
- Install washing machines or other household appliances.
- Install and finish dry walls in a new home.
- Repair or replace damaged metal furniture parts.
- Operate a sound control console during the filming of a motion picture.
- Install mufflers on cars.
- Repair umbrellas, bicycles, and other household items.

As a cook, you would prepare meals designed to feed a large number of people.





Greece Bicycle Shop

Do you like to make things work?

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Identify mechanical and electrical problems and make adjustments.
- Picture objects from blueprints.
- Move eyes, hands, and fingers to use hand tools or operate machines.
- Read and follow recipes and other cooking instructions.
- Use math to measure ingredients or estimate quantities.
- Lift heavy pots and kettles and withstand heat and humidity.

## WORKER REQUIREMENTS

Can you identify and solve mechanical problems?



## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you repaired a lamp or extension cord? Do you like working with electrical equipment?
- Have you taken courses in machine shop or woodworking? Do you like this kind of work?
- Have you helped build or repair a house or barn? Do you like this kind of work?
- Have you customized or repaired a car or other vehicle? Do you like mechanical work?
- Have you built or put together a complicated model which required assembling parts in a certain manner? Do you like doing tasks that require accuracy?
- Have you prepared a meal for a group? Do you like to cook?

## PREPARATION

How can you prepare for and enter this kind of work?

The amount of education and training required for jobs in this group varies. Some jobs require only on-the-job training. Other jobs require training offered at vocational and technical schools in programs lasting up to two years. Courses in electricity, electronics, chemistry, math, or blueprint reading are helpful for some jobs. High schools and vocational or correspondence schools offer these courses. A few companies provide extensive training for specific types of repair work.

Many cooks begin as kitchen helpers to get the needed experience and training. High school or post high school training in food preparation is helpful. Training programs are offered by the armed forces, some private schools, and some large hotels and restaurants. A few apprenticeships are available.

OTHER  
CONSIDERATIONS

What else should you know about these jobs?

Working conditions for cooks depend on the size of the restaurant and the kinds of food served. Heavy lifting is required for some jobs.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

- 1. Activities dealing with things and objects.
- 3. Activities of a routine, definite, organized nature.
- 9. Activities involving processes, methods, or machines.
- 10. Activities involving working on or producing things.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

- 8. Making decisions using standards that can be measured or checked.
- 10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        |                                     |                                     |                                     |                      |
|--------|-------------------------------------|-------------------------------------|-------------------------------------|----------------------|
|        | Low                                 | Avg.                                | High                                |                      |
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Compiling          |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Precision Working  |

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- H Heavy work.
- 3. Stooping, kneeling, crouching, and/or crawling.
- 4. Reaching, handling, fingering, and/or feeling.
- 6. Seeing

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes              | Levels |    |      |   |   |
|------------------------|--------|----|------|---|---|
|                        | Low    | to | High |   |   |
|                        | 5      | 4  | 3    | 2 | 1 |
| N - Numerical          | 4 - 3  |    |      |   |   |
| S - Spatial            | 3      |    |      |   |   |
| P - Form Perception    | 3      |    |      |   |   |
| K - Motor Coordination | 3      |    |      |   |   |
| F - Finger Dexterity   | 4 - 3  |    |      |   |   |
| M - Manual Dexterity   | 3      |    |      |   |   |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3.

Workers use personal judgment with skills and knowledge to adjust and repair mechanical items or prepare and cook food. They carry out instructions presented in written, oral, or diagram form. They deal with practical problems involving concrete variables such as hand tools, electrical appliances, and kitchen utensils.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

## Entry and Advancement Information

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

## Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T - Technical school training.

V - Vocational courses in the trade and industrial fields.

NFT - Some occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from over 3 months up to and including 4 years (SVP 4, 5, 6, 7).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for the completion of high school.

## OCCUPATIONS IN SKILLED HAND AND MACHINE WORK

Adjuster, Electrical Contacts  
Air-Conditioning Installer, Domestic  
Airframe and Power-Plant-Mechanic Helper  
Airport Attendant  
Appliance Repairer  
Attendant, Lodging Facilities

724.381-010  
827.464-010  
621.684-010  
912.364-010  
723.584-010  
329.467-010

Audio Operator  
Automobile-Service-Station Attendant  
Baker  
Baker, Head  
Baker, Pizza  
Bicycle Repairer

194.262-010  
915.467-010  
313.381-010  
313.131-010  
313.381-014  
639.681-010

|  |             |  |             |
|--|-------------|--|-------------|
| Blaster                                      | 859.261-010 | Mechanic, Aircraft Accessories         | 621.381-014 |
| Blaster                                      | 931.261-010 | Motion-Picture Projectionist           | 960.362-010 |
| Blueprinting-Machine Operator                | 979.682-014 | Muffler Installer                      | 807.664-010 |
| Boat Outfitter                               | 806.484-014 | Net Repairer                           | 449.664-010 |
| Brake Repairer                               | 620.281-026 | New-Car Get-Ready Mechanic             | 806.361-026 |
| Butcher, Chicken and Fish                    | 316.684-010 | Offset-Duplicating-Machine Operator    | 207.682-018 |
| Butcher, Meat                                | 316.681-010 | Offset-Duplicating-Machine Operator    | 651.682-041 |
| Carpet Layer                                 | 864.381-010 | Optician, Dispensing 2                 | 299.474-010 |
| Carpet-Layer Helper                          | 864.687-010 | Ordnance Artificer                     | 632.261-018 |
| Casting-Machine Operator                     | 654.382-010 | Painter                                | 840.381-010 |
| Coin-Machine-Servicer Repairer               | 639.281-014 | Painter, Shipyard                      | 840.381-018 |
| Color-Printer Operator                       | 976.382-014 | Painter, Spray 1                       | 741.684-026 |
| Construction Worker 1                        | 869.664-014 | Painter, Transportation Equipment      | 845.381-014 |
| Conveyor-Maintenance Mechanic                | 630.381-010 | Pantry Goods Maker                     | 317.684-014 |
| Cook   | 305.281-010 | Parking-Meter Servicer                 | 710.384-026 |
| Cook   | 315.361-010 | Photograph Finisher                    | 976.487-010 |
| Cook   | 315.381-010 | Pinsetter Mechanic, Automatic          | 638.261-022 |
| Cook, Chief                                  | 315.131-010 | Pipeliner                              | 899.684-026 |
| Cook, Head, School Cafeteria                 | 313.131-018 | Pot Liner                              | 519.664-014 |
| Cook, Mess                                   | 315.371-010 | Printer Operator, Black-and-White      | 976.682-014 |
| Cook, Pastry                                 | 313.381-026 | Radio Repairer                         | 720.281-010 |
| Cook, Railroad                               | 315.381-018 | Recording Engineer                     | 194.362-010 |
| Cook, Short Order 1                          | 313.361-022 | Repairer, Assembled Wood Products      | 769.684-038 |
| Cook, Short Order 2                          | 313.671-010 | Repairer, Manufactured Buildings       | 869.384-010 |
| Cook, Specialty                              | 313.361-026 | Repeat Chief                           | 970.361-014 |
| Cook, Specialty, Foreign Food                | 313.361-030 | Reproduction Technician                | 976.361-010 |
| Custom Ski Maker                             | 732.281-010 | Riveter                                | 800.684-010 |
| Developer                                    | 976.681-010 | Riveter, Pneumatic                     | 800.684-014 |
| Drapery Hanger                               | 869.484-014 | Roofer                                 | 866.381-010 |
| Dry-Wall Applicator                          | 842.681-010 | Roustabout                             | 869.684-046 |
| Electrical-Appliance Repairer                | 723.381-010 | Salad Maker                            | 317.384-010 |
| Electrical Repairer                          | 825.381-010 | Second Cook and Baker                  | 315.381-026 |
| Engraver, Pantograph 1                       | 704.382-010 | Section-Plotter Operator               | 194.382-010 |
| Exterminator                                 | 389.684-010 | Service Manager                        | 185.167-058 |
| Exterminator, Termite                        | 383.364-010 | Service Supervisor 1                   | 953.137-018 |
| Farm-Equipment Mechanic 2                    | 624.381-014 | Sewing-Machine Repairer                | 639.281-018 |
| Fence Erector                                | 869.684-022 | Shooter                                | 931.361-014 |
| Fence-Erector Supervisor                     | 869.134-010 | Sider                                  | 863.684-014 |
| Finish Patcher                               | 763.684-034 | Sign Erector 2                         | 869.684-054 |
| Fire-Extinguisher Repairer                   | 709.384-010 | Sports-Equipment Repairer              | 732.684-122 |
| Floor Layer                                  | 864.481-010 | Stopping Builder                       | 869.684-058 |
| Formula-Room Worker                          | 520.487-014 | Supervisor, Blueprinting-and-Photocopy | 979.130-010 |
| Frame Wirer                                  | 822.684-010 | Supervisor, Extermination              | 389.134-010 |
| Front-End Mechanic                           | 620.281-038 | Supervisor, Metal Fabricating          | 809.130-014 |
| Gas-Appliance Servicer                       | 637.261-018 | Swimming-Pool Servicer                 | 891.684-018 |
| Gas-Meter Mechanic 1                         | 710.381-022 | Taper                                  | 842.664-010 |
| Glass Installer                              | 865.684-010 | Telecine Operator                      | 194.362-018 |
| Glazier                                      | 865.381-010 | Television Installer                   | 823.361-010 |
| Household-Appliance Installer                | 827.661-010 | Television-and-Radio Repairer          | 720.281-018 |
| House Repairer                               | 869.381-010 | Thermal Cutter, Hand 1                 | 816.464-010 |
| Kitchen Supervisor                           | 310.137-014 | Tile Conduit Layer                     | 861.381-062 |
| Lather                                       | 842.361-010 | Transmission Mechanic                  | 620.281-062 |
| Laundry-Machine Mechanic                     | 629.261-010 | Trouble Shooter 1                      | 952.364-010 |
| Light Technician                             | 962.362-014 | Typesetter-Machine Tender              | 650.685-010 |
| Maintenance Repairer, Building               | 899.381-010 | Used-Car Renovator                     | 620.684-034 |
| Maintenance Repairer, Factory or Mill        | 899.281-014 | Valve Repairer                         | 630.381-030 |
| Maintenance-Repairer Helper, Factory or Mill | 899.684-022 | Water-Softener Service-and-Installer   | 862.684-034 |
| Make-Up Arranger                             | 973.381-026 | Welder, Tack                           | 810.684-010 |
| Meat Cutter                                  | 316.684-018 |  |             |

# EQUIPMENT OPERATION

Equipment operation is the use of machinery for excavating, drilling, paving, mining, hoisting, or dredging.

Jobs in this group are found in mining and construction sites, factories, warehouses, and docks.

## WORK PERFORMED

What would you do as a worker in this group?

You would move levers, pedals, and wheels to operate and control a piece of

heavy equipment. You would perform one or more of the following tasks.

- Operate a bulldozer to excavate or grade a construction site.
- Operate a horizontal earth boring machine to install pipelines.
- Operate an oil drilling rig.
- Drive an asphalt spreader in highway construction.
- Operate a crane to move materials.
- Tend equipment to load freight on ships or barges.
- Operate mining equipment.



As an equipment operator, you might work in town, in the countryside, or underground.



Bureau of Reclamation, Department of the Interior

These workers operate cranes and other heavy equipment to install a pipeline.

**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

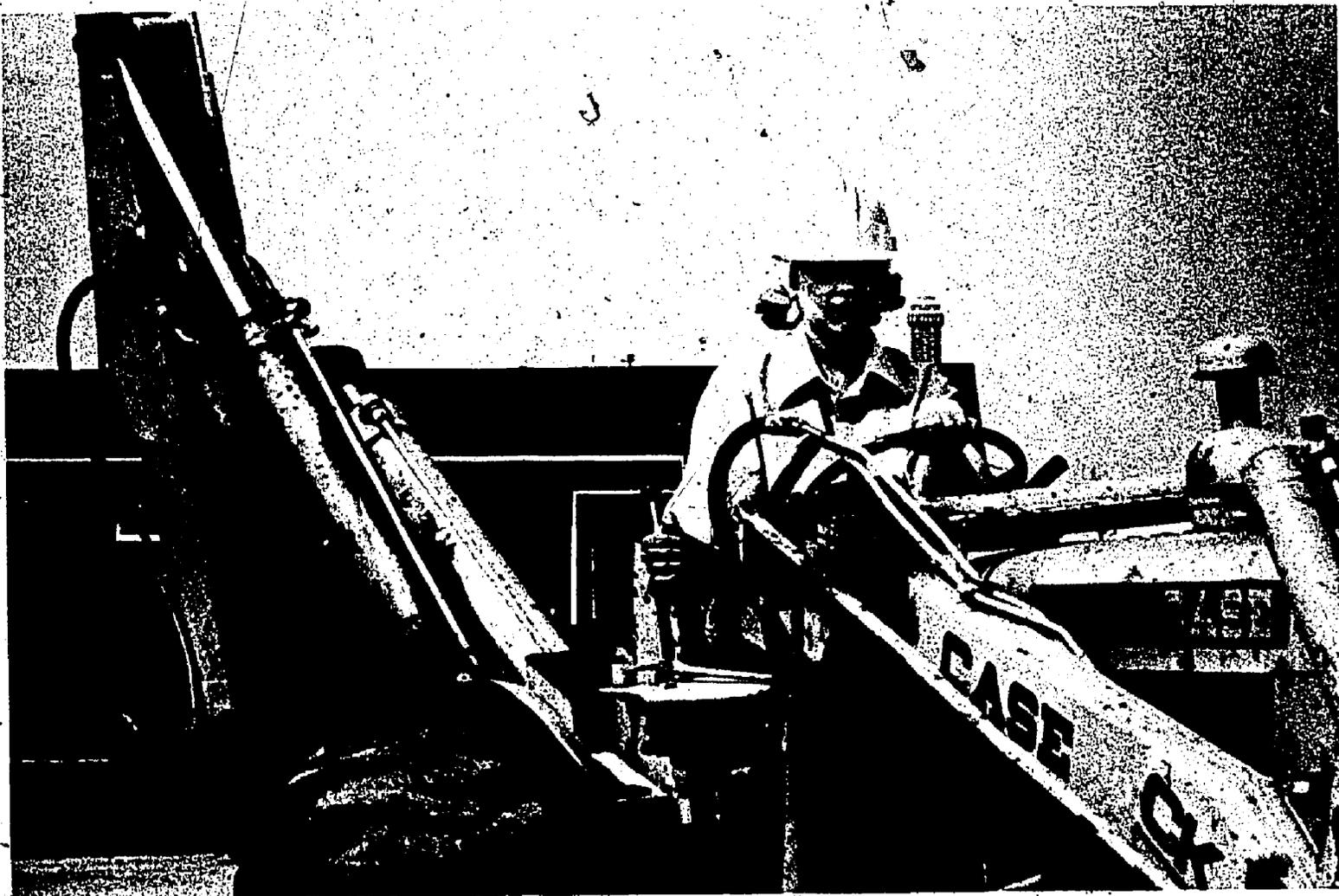
- Follow instructions on blueprints, sketches, or work orders.
- Tolerate the vibration and noise of heavy equipment.
- Repeat the same tasks day after day.
- Move eyes, hands, and feet together to use levers, pedals, and other controls.
- Stand or ride for long periods.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you held a summer or part-time job in road construction? Do you like this work?
- Have you driven a van, truck, tractor, or other large motor vehicle? Do you like to drive?
- Have you watched heavy equipment in operation at a construction site? Do you think you would like to operate such equipment?
- Have you visited a mine, quarry, or oil drilling site? Do you like this type of work setting?



Courses in driver's education can help you develop the skills needed to operate the levers, pedals, and wheels of heavy equipment.

**How can you prepare for and enter this kind of work?**

Most operators learn their jobs through three-year apprenticeship programs. These programs teach them to operate and maintain a variety of machines. Some private schools offer short courses in heavy equipment operation. Other workers learn to operate equipment through on-the-job training.

Courses in driver's education and auto mechanics are helpful to people considering jobs in this group.

Some experienced operators advance to become supervisors. Others purchase their own equipment and do contract work.

**What else should you know about these jobs?**

Work in the construction industry is seasonal in some regions of the country. Those who drive machines on public streets and roads must have state motor vehicle licenses. Some equipment operators are employed for years by a single contractor. Others must seek new employment after each project is completed. Workers who can operate a variety of equipment usually can find jobs more easily.

**PREPARATION****OTHER  
CONSIDERATIONS**

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**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                     |                         |
|--------|-------------------------------------|-------------------------------------|--------------------------|-------------------------|
| DATA   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Comparing             |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Speaking/Signaling    |
| THINGS | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Operating/Controlling |

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                      | Levels |   |     |   |      |
|--------------------------------|--------|---|-----|---|------|
|                                | Low    | 4 | 3   | 2 | High |
|                                | 5      |   |     |   | 1    |
| G - General                    |        |   | 3   |   |      |
| S - Spatial                    |        |   | 3   |   |      |
| K - Motor Coordination         |        |   | 3   |   |      |
| M - Manual Dexterity           |        |   | 3   |   |      |
| E - Eye-Hand-Foot Coordination |        |   | 4-3 |   |      |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- H Heavy work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 0 Outside.
- B Both: inside and outside.
- 5. Noise and vibrations.

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 2-3.

Workers use personal judgment and mechanical skills to operate equipment and tend machines. They carry out written or oral instructions. They deal with practical problems involving concrete variables such as machine levers, gears, and gages.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

## Entry and Advancement Information

E - To enter most occupations workers only need the required competencies and credentials.

## Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFF - Most occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from over 1 month up to and including 4 years (SVP 3, 4, 5, 6, 7).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

## OCCUPATIONS IN EQUIPMENT OPERATION

|                                    |             |
|------------------------------------|-------------|
| Asphalt-Paving-Machine Operator    | 853.663-010 |
| Auxiliary-Equipment Tender         | 869.665-010 |
| Bridge-or-Gantry-Crane Operator    | 921.663-010 |
| Bulldozer Operator 1               | 850.683-010 |
| Coke Loader                        | 921.563-010 |
| Concrete-Paving-Machine Operator   | 853.663-014 |
| Continuous-Mining-Machine Operator | 930.683-010 |
| Conveyor Operator                  | 921.683-026 |
| Cutter-Operator                    | 930.683-014 |
| Derrick Operator                   | 921.663-022 |
| Dinky Operator                     | 919.663-014 |
| Dragline Operator                  | 850.683-018 |
| Drilling-Machine Operator          | 930.482-010 |
| Dump Operator                      | 921.685-038 |
| Earth-Boring-Machine Operator      | 859.682-010 |
| Hoisting Engineer                  | 921.663-030 |
| Loading-Machine Operator           | 932.683-014 |
| Locomotive-Crane Operator          | 921.663-038 |
| Long-Wall-Mining-Machine Tender    | 930.665-010 |
| Miner                              | 850.381-010 |
| Miner 1                            | 939.281-010 |
| Motor-Grader Operator              | 850.663-022 |
| Operating Engineer                 | 859.683-010 |
| Reflector Operator, Oil Well       | 931.382-010 |
| Pile-Driver Operator               | 859.682-018 |
| Power-Shovel Operator              | 850.683-030 |
| Prospecting Driller                | 930.382-018 |
| Rigger                             | 921.260-010 |
| Road-Roller Operator               | 859.683-030 |
| Roof Bolter                        | 930.683-026 |
| Rotary Derrick Operator            | 930.382-022 |
| Rotary Driller                     | 930.382-026 |
| Sanitary Landfill Operator         | 955.463-010 |
| Scraper Operator                   | 850.683-038 |
| Septic-Tank Installer              | 851.663-010 |
| Shuttle-Car Operator               | 932.682-022 |
| Stevadore 1                        | 911.663-014 |
| Street-Sweeper Operator            | 919.683-022 |
| Supervisor, Pipe-Lines             | 862.131-022 |
| Supervisor, Reclamation            | 850.133-010 |
| Superintendent, Stevedoring        | 911.137-022 |
| Track-Laying Supervisor            | 869.134-022 |
| Tractor-Crane Operator             | 921.663-058 |
| Tractor Operator                   | 929.683-014 |
| Truck-Crane Operator               | 921.663-062 |
| Utility-Tractor Operator           | 850.683-046 |
| Well-Driller Operator              | 859.362-010 |
| Well Puller                        | 930.382-030 |
| Yarding Engineer                   | 921.663-066 |

# ELEMENTAL WORK: MECHANICAL

Elemental work: mechanical is lifting and carrying materials, tools, and equipment or keeping equipment and work areas clean. Some workers operate simple machines. Workers in this group usually follow instructions and make few job decisions. Jobs in this group are found in mining, construction, and settings other than factories.

## WORK PERFORMED

What would you do as a worker in this group?

You would work according to set procedures and instructions. You would perform one or more of the following tasks.

- Use a hand truck to move boxes.
- Operate a freight elevator.
- Grease cars, buses, and trucks.
- Remove excess dirt from a ditch with a shovel.
- Use brooms, vacuum cleaners, or shovels to clean work areas.
- Carry brick and mortar to masons at a construction site.
- Wash, peel, and cut vegetables in a restaurant.
- Operate an addressing machine in a company mailroom.

Westmoreland Coal Co.



Workers in this group may be required to wear safety clothing whether they work underground or outdoors.

Do you have the physical strength to operate a jackhammer?



Associated General Contractors

**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Lift and carry heavy objects.
- Use eyes, hands, and fingers to handle, arrange, or adjust materials and equipment.
- Keep records such as checklists.
- Follow spoken or written instructions.

**Do you have or can you develop these skills, abilities, and interests?**  
Your answers to the following questions will help you decide.

- Have you bagged groceries? Do you like jobs requiring little decision-making?
- Have you been responsible for cleaning a house or garage? Do you like cleaning work?
- Have you helped someone move their household goods? Can you lift and carry heavy objects?
- Have you shoveled snow or mowed lawns? Do you like work that keeps you physically active?

## **WORKER REQUIREMENTS**

## **CLUES**



Do you like to be physically active in any weather?

## PREPARATION

How can you prepare for and enter this kind of work?

This type of work requires only a brief explanation of job duties. When employers hire workers in this group, they mostly consider the applicants' physical ability. Experienced workers are sometimes promoted to supervise less experienced workers.

## OTHER CONSIDERATIONS

What else should you know about these jobs?

Some workers in this group are required to wear safety clothing. Employers usually provide training in safety procedures. Work locations are usually inspected to insure that working conditions meet government safety standards.

Workers may secure training to qualify for promotions to machine tending or operating. Workers with a high school education or its equal may qualify for apprenticeship programs. These programs lead to more skilled jobs.

Weather conditions can cause periods of unemployment for workers in industries such as construction.

## QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

## WORK ACTIVITIES

Workers generally prefer the following types of work activities:

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

## WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

## WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                     |                                   |
|--------|-------------------------------------|-------------------------------------|--------------------------|-----------------------------------|
| DATA   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Comparing                       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Taking Instructions/<br>Helping |
| THINGS | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Manipulating                    |

## PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

- L Light work.
- H Heavy work.
- M Medium work.
3. Stooping, kneeling, crouching, and/or crawling.
4. Reaching, handling, fingering, and/or feeling.
6. Seeing.

## WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- O Outside.
- B Both: inside and outside.

## APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes              | Levels   |   |       |   |           |
|------------------------|----------|---|-------|---|-----------|
|                        | Low<br>5 | 4 | 3     | 2 | High<br>1 |
| S - Spatial            |          |   | 4 - 3 |   |           |
| K - Motor Coordination |          |   | 4 - 3 |   |           |
| P - Form Perception    |          |   | 4 - 3 |   |           |
| M - Manual Dexterity   |          |   |       | 3 |           |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 2-1.

Workers apply common sense to do manual work around machines and equipment. They follow simple written or oral instructions. They deal with concrete variables such as hand trucks, wheelbarrows, and grease guns.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

## Entry and Advancement Information

E - To enter most occupations workers only need the required competencies and credentials.

## Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

V - Vocational school courses in home economics, office, trade and industrial fields.

NFT - Most occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from 30 days up to and including 3 months (SVP 2, 3).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

OCCUPATIONS IN  
ELEMENTAL WORK: MECHANICAL

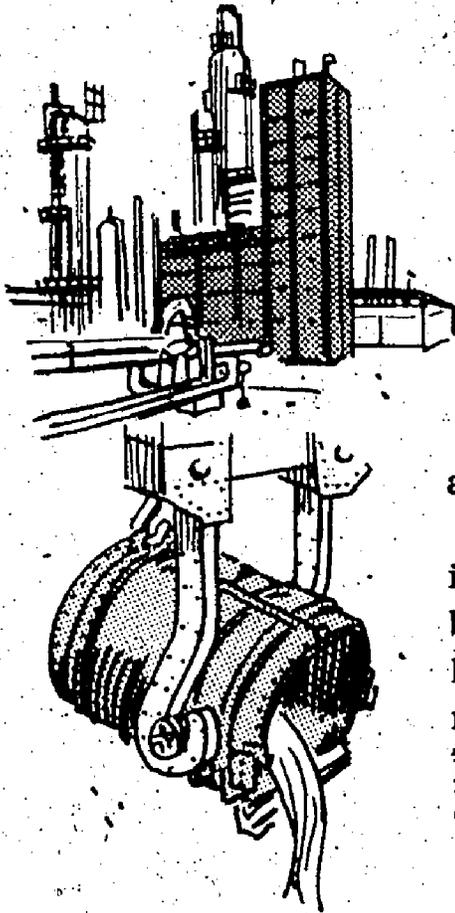
|                                      |             |
|--------------------------------------|-------------|
| Able Seaman                          | 911.364-010 |
| Addressing-Machine Operator          | 208.582-010 |
| Automobile-Mechanic Helper           | 620.684-014 |
| Automobile Wrecker                   | 620.684-010 |
| Baggage Handler                      | 910.687-010 |
| Baker Helper                         | 313.684-010 |
| Bartender Helper                     | 312.687-010 |
| Blacksmith Helper                    | 610.684-010 |
| Boatwain                             | 911.131-010 |
| Bottomer 1                           | 932.667-010 |
| Brake Adjuster                       | 620.684-018 |
| Brake Coupler, Road Freight          | 910.367-010 |
| Brake Holder                         | 932.664-010 |
| Bull-Chain Operator                  | 921.685-014 |
| Caretaker                            | 301.687-010 |
| Carpenter-Labor Supervisor           | 860.137-010 |
| Car-Retarder Operator                | 910.382-010 |
| Car-Wash Supervisor                  | 915.137-010 |
| Central-Supply Worker                | 381.687-010 |
| Chain Offbearer                      | 669.686-018 |
| Choke Setter                         | 921.687-014 |
| Cleaner 2                            | 919.687-014 |
| Cleaner, Commercial or Institutional | 381.687-014 |
| Cleaner, Hospital                    | 323.687-010 |
| Cleaner, Housekeeping                | 323.687-014 |
| Cleaner, Industrial                  | 381.687-018 |
| Cleaner, Laboratory Equipment        | 381.687-022 |
| Cleaner, Wall                        | 381.687-026 |
| Cleaner, Window                      | 389.687-014 |
| Collator Operator                    | 208.685-010 |
| Company Laborer                      | 939.687-014 |
| Construction Worker 2                | 869.687-026 |
| Cook Helper                          | 317.687-010 |
| Cook Helper, Pastry                  | 313.687-010 |
| Day Worker                           | 301.687-014 |
| Deli Cutter-Slicer                   | 316.684-014 |
| Dock Hand                            | 891.684-010 |
| Dock Supervisor                      | 891.131-010 |
| Driller Helper                       | 930.666-010 |
| Dumper                               | 921.667-018 |
| Duplicating-Machine Operator 2       | 207.682-014 |
| Electrician Helper                   | 829.684-022 |
| Elevator Operator, Freight           | 921.683-038 |
| Elevator-Repairer Helper             | 825.684-014 |
| Flagger                              | 372.667-022 |
| Food Assembler, Kitchen              | 319.484-010 |
| Furnace Cleaner                      | 891.687-014 |
| Garage Servicer, Industrial          | 915.687-014 |
| Garbage Collector                    | 909.687-010 |
| Ginner                               | 429.685-010 |
| Header                               | 911.137-018 |
| Heater Helper                        | 613.685-014 |
| Highway-Maintenance Worker           | 899.684-014 |
| Housecleaner                         | 323.687-018 |
| Housekeeper                          | 321.137-010 |
| Housekeeper, Home                    | 301.137-018 |
| House Worker, General                | 301.474-010 |

|                                    |             |   |             |
|------------------------------------|-------------|---|-------------|
| Ironer                             | 302.687-010 | Rotary-Driller Helper                         | 930.684-026 |
| Janitor                            | 382.664-010 | Rug-Dyer Helper                               | 364.687-014 |
| Key Cutter                         | 709.684-050 | Sample-Taker Operator                         | 931.361-010 |
| Kitchen Helper                     | 318.687-010 | Sandblaster                                   | 503.687-010 |
| Kitchen Steward/Stewardess         | 318.137-010 | Sandwich Maker                                | 317.684-018 |
| Laborer                            | 939.687-018 | Scullion                                      | 318.687-014 |
| Laborer, Airport Maintenance       | 899.687-014 | Sewer-Pipe Cleaner                            | 899.664-014 |
| Laborer, Construction or Leak Gang | 862.684-014 | Sexton  | 389.667-010 |
| Labor-Grew Supervisor              | 899.131-010 | Shaker Tender                                 | 934.685-018 |
| Laborer, General                   | 909.687-014 | Shipfitter Helper                             | 806.687-050 |
| Laborer, Hoisting                  | 921.667-022 | Signal Maintainer Helper                      | 822.684-018 |
| Laborer, Petroleum Refinery        | 549.687-018 | Sorting-Machine Operator                      | 208.685-030 |
| Laborer, Pipe-Lines                | 914.687-010 | Stevadore 2                                   | 922.687-090 |
| Laborer, Shipyard                  | 809.687-022 | Steward/Stewardess                            | 310.137-018 |
| Laundry Worker, Domestic           | 302.685-010 | Street Cleaner                                | 955.687-018 |
| Light-Fixture Servicer             | 389.687-018 | Supervisor, Labor Gang                        | 850.137-014 |
| Line-Service Attendant             | 912.687-010 | Supervisor, Labor Gang                        | 899.133-010 |
| Log Loader Helper                  | 921.687-022 | Supervisor, Sewer Maintenance                 | 851.137-014 |
| Lubrication Servicer               | 915.687-018 | Surveyor Helper                               | 869.567-010 |
| Lumber Handler                     | 922.687-070 | Switch Tender                                 | 910.667-026 |
| Machinist Helper, Outside          | 623.687-010 | Tank Cleaner                                  | 891.687-022 |
| Maintenance-Mechanic Helper        | 638.684-018 | Thermal Cutter, Hand                          | 816.684-010 |
| Marine Oiler                       | 911.584-010 | Tile Setter                                   | 861.684-018 |
| Material Handler                   | 929.687-030 | Tire Builder                                  | 750.684-022 |
| Material-Handling Supervisor       | 921.133-018 | Tire Recapper                                 | 750.685-014 |
| Millwright Helper                  | 638.484-010 | Tire Repairer                                 | 915.684-010 |
| Motorboat-Mechanic Helper          | 623.684-010 | Tire-Service Supervisor                       | 915.134-010 |
| Oiler                              | 699.687-018 | Toy Assembler                                 | 731.684-018 |
| Ordinary Seaman                    | 911.687-030 | Truck-Driver Helper                           | 905.687-010 |
| Painter Helper, Automotive         | 845.684-014 | Track Repairer                                | 910.682-010 |
| Painter Helper, Spray              | 741.687-014 | Truck Supervisor                              | 909.137-018 |
| Photocopying-Machine Operator      | 207.685-014 | Van-Driver Helper                             | 905.687-014 |
| Photographic-Machine Operator      | 207.685-018 | Warehouse Supervisor                          | 929.137-018 |
| Pipe-Fitter Helper                 | 862.684-022 | Warehouse Traffic Supervisor                  | 922.137-026 |
| Pond Worker                        | 921.686-022 | Wastewater-Treatment-Plant Attendant          | 955.585-010 |
| Porter, Used-Car Lot               | 915.687-022 | Water-Filter Cleaner                          | 954.587-010 |
| Produce Weigher                    | 299.587-010 | Water Tender                                  | 599.685-122 |
| Quarry Worker                      | 939.667-014 | Welder Helper                                 | 819.687-014 |
| Repairer Helper                    | 630.664-010 | Yard Coupler                                  | 910.664-010 |
| Rigging Slinger                    | 921.364-010 | Yard Supervisor, Building Materials or Lumber | 929.137-030 |
| Rock-Dust Sprayer                  | 939.687-026 |   |             |



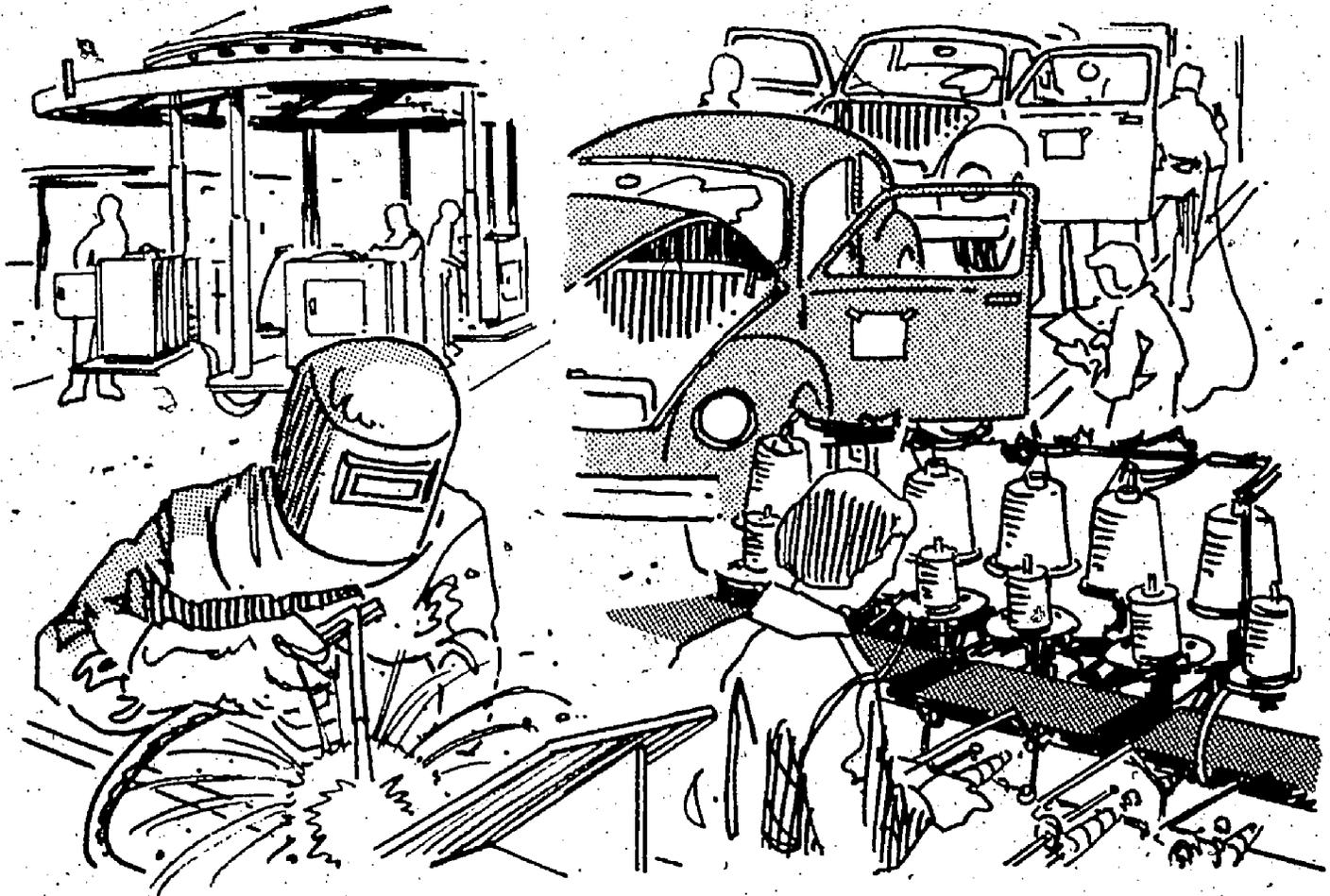
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# INDUSTRIAL



This is an interest in repetitive, concrete, organized activities in a factory setting.

You can satisfy this interest by working in numerous industries which manufacture goods on a mass production basis. You may enjoy manual work, using your hands or hand tools. Perhaps you may prefer to operate or tend machines. You may like to inspect, sort, count, or weigh products. You may prefer to use your training and experience to set up machines or supervise other workers.



# PRODUCTION TECHNOLOGY

Production technology involves a complex knowledge of a product or process to set up and operate production machines. Workers in this group also inspect products thoroughly, do precise hand work, and supervise less skilled workers. Jobs in this group are found in various industries involved in manufacturing and processing.

## WORK PERFORMED

What would you do as a worker in this group?

You would set up production machines, inspect finished products, or do tasks requiring strict attention to set standards. You would perform one or more of the following tasks.

- Set up looms to weave cloth.
- Follow blueprints and diagrams to inspect electronic assemblies.
- Set up and operate a lathe.
- Supervise workers in a manufacturing or processing department.
- Hand polish lenses for optical instruments.

Kennametal, Inc.



Supervisors show how a new piece of equipment can increase production.

The glass blower maintains a steady pressure inside the glass assembly while fusing a flask to the tubing.



Goodyear Tire and Rubber Company

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Set up and operate one or more kinds of production machines.
- Read and understand blueprints and wiring diagrams.
- Use eyes, hands, and fingers to do precise hand work.
- Use math skills to plan schedules and keep production records.
- Detect small differences in shape, size, and texture.
- Explain machine operations to workers.
- Direct and organize the work of others.

## **WORKER REQUIREMENTS**

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken an industrial arts course? Are you interested in this type of work?
- Have you taken a machine shop course? Can you use micrometers, gages, and other measuring devices?
- Have you taken a course in mechanical drawing? Can you read blueprints?
- Have you repaired or modified a car or motorcycle? Do you like working with hand tools and machines?

## PREPARATION

How can you prepare for and enter this kind of work?

One way to enter this field is through an apprenticeship program. Another method of entry is through supervised on-the-job experience. Many workers start as helpers or machine hands. These workers are promoted after they increase their knowledge and skill through experience.

Machine shop or other similar vocational courses provide good background for jobs in this group.

Western Electric



Would you like to learn how to read a printed circuit?

Organizing the production work of a classroom project would help you test your interest in this group's occupations.

What else should you know about these jobs?

Good safety habits are important to workers in these jobs. Job promotions within a plant are often based on seniority as well as skill.

**OTHER  
CONSIDERATIONS**

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 1. Activities dealing with things and objects.
- 9. Activities involving processes, methods, or machines.
- 10. Activities involving working on or producing things.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                      | Avg.                                | High                                |               |
|--------|--------------------------|-------------------------------------|-------------------------------------|---------------|
| DATA   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Compiling   |
| PEOPLE | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Supervising |
| THINGS | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Setting Up  |

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 3. Planning and directing an entire activity.
- 4. Dealing with people.
- 8. Making decisions using standards that can be measured or checked.
- 10. Working within precise limits or standards of accuracy.

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

1. Inside.
5. Noise and vibrations.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes              | Levels   |   |   |   |           |
|------------------------|----------|---|---|---|-----------|
|                        | Low<br>5 | 4 | 3 | 2 | High<br>1 |
| G - General            |          |   | 3 |   |           |
| N - Numerical          |          |   | 3 |   |           |
| S - Spatial            |          |   | 3 |   |           |
| P - Form Perception    |          |   | 3 |   |           |
| K - Motor Coordination |          |   | 3 |   |           |
| F - Finger Dexterity   |          |   | 3 |   |           |
| M - Manual Dexterity   |          |   | 3 |   |           |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3-4.

Workers apply technical knowledge to solve practical problems involving the preparation or adjustment of industrial machinery. They interpret a variety of instructions in written, oral, or diagram form. They deal with concrete variables such as hand tools, measuring instruments, and production machines.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- T - Technical school programs in machine trades.
- V - Vocational school courses in the trade and industrial fields.
- NFT - Some occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from over 1 year up to and including 10 years (SVP 6, 7, 8).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

**OCCUPATIONS IN PRODUCTION TECHNOLOGY**

|  |             |   |             |
|--|-------------|---|-------------|
| Assembler                                    | 710.681-010 | Machine Set-Up Operator                     | 600.380-018 |
| Assembler                                    | 722.381-010 | Machine Set-Up Operator, Paper Goods        | 649.380-010 |
| Assembler, Aircraft, Structures and Surfaces | 806.381-026 | Machine-Shop Supervisor, Production         | 609.130-010 |
| Assembler, Gold Frame                        | 713.384-010 | Metal Sprayer, Machined Parts               | 505.380-010 |
| Baker Supervisor                             | 526.131-010 | Milling-Machine Operator, Numerical Control | 605.380-010 |
| Bench Hand                                   | 735.381-010 | Molder                                      | 518.361-010 |
| Boring-Machine Set-Up Operator, Jig          | 606.280-010 | Nail-Making-Machine Setter                  | 616.460-010 |
| Boring-Mill Set-Up Operator, Horizontal      | 606.280-014 | Optical-Instrument Assembler                | 711.381-010 |
| Calibrator                                   | 710.681-014 | Packing-House Supervisor                    | 920.137-010 |
| Canvas Worker                                | 739.381-010 | Process Inspector                           | 736.381-018 |
| Card Grinder                                 | 680.380-010 | Refinery Operator                           | 549.260-010 |
| Cheese Blender                               | 520.487-010 | Role-Tube Setter                            | 613.360-014 |
| Chemical Operator 3                          | 559.382-018 | Rolling/Mill Operator                       | 613.462-018 |
| Cook, Kettle                                 | 526.381-026 | Router Set-Up Operator, Numerical Control   | 605.360-010 |
| Cordmaker                                    | 518.381-014 | Rubber-Goods Cutter-Finisher                | 690.680-010 |
| Diesel-Engine Tester                         | 625.261-010 | Skin Fitter                                 | 806.381-054 |
| Die Setter                                   | 612.360-010 | Solderer                                    | 700.381-050 |
| Drill-Press Set-Up Operator, Radial          | 606.380-014 | Storage Battery Inspector and Tester        | 727.381-022 |
| Electronics Inspector 1                      | 726.381-010 | Supervisor                                  | 556.130-010 |
| Electronics Tester 1                         | 726.281-014 | Supervisor                                  | 559.132-054 |
| Engine-Lathe Set-Up Operator                 | 604.380-018 | Supervisor                                  | 691.130-010 |
| Glass Blower                                 | 772.681-010 | Supervisor, Cutting-and-Sewing Department   | 780.131-010 |
| Grinder Machine Setter                       | 603.380-010 | Supervisor, Electronics Processing          | 590.130-010 |
| Grinder Operator, External, Tool             | 603.280-010 | Supervisor, Feed Mill                       | 529.132-054 |
| Grinder Operator, Tool                       | 603.280-018 | Supervisor, Garment Manufacturing           | 786.132-010 |
| Grinder Set-Up Operator, Internal 1          | 603.280-022 | Supervisor, Paint Department                | 749.131-014 |
| Inspection Supervisor                        | 609.131-010 | Supervisor, Paper Products                  | 649.130-010 |
| Inspector                                    | 559.381-010 | Supervisor, Pipe Finishing                  | 619.130-038 |
| Inspector                                    | 612.261-010 | Supervisor, Preparation Department          | 681.130-010 |
| Inspector, Aircraft Accessories              | 709.261-010 | Supervisor, Preparation Plant               | 549.131-014 |
| Inspector, Assemblies and Installations      | 806.281-022 | Supervisor, Pulp Plant                      | 539.132-014 |
| Inspector, Fabrication                       | 806.361-022 | Supervisor, Refining                        | 829.130-034 |
| Inspector, Gage and Instrument               | 601.281-018 | Supervisor, Roving Department               | 689.130-026 |
| Inspector, Mechanical and Electrical         | 710.381-038 | Supervisor, Specialty Food Products         | 529.137-062 |
| Inspector, Metal Fabricating                 | 619.261-010 | Supervisor, Spinning                        | 682.130-010 |
| Inspector, Motors and Generators             | 721.361-010 | Supervisor, Winding and Twisting Department | 681.130-014 |
| Job Setter                                   | 600.380-014 | Taster                                      | 529.281-010 |
| Knitting-Machine Fixer                       | 689.280-014 | Tester, Motors and Controls                 | 721.281-030 |
| Loom Fixer                                   | 683.260-018 | Tool-Grinder Operator                       | 603.280-038 |
| Loom-Fixer Supervisor                        | 683.130-014 | Transformer Assembler                       | 820.381-014 |
| Machine Fixer                                | 689.260-010 | Tube Assembler, Electron                    | 725.384-010 |
| Machine Operator 1                           | 616.360-018 | Turret-Lathe Set-Up Operator                | 604.380-026 |
| Machine Setter                               | 616.360-022 | Turret-Lathe Set-Up Operator, Tool          | 604.280-022 |
| Machine Setter                               | 692.260-010 | Watch Repairer                              | 715.281-010 |

# production work

Production work is hand and machine work requiring skills developed through training and experience. Workers in this group also perform a general inspection of products and supervise production workers. Jobs in this group are found in manufacturing and processing plants.

## WORK PERFORMED

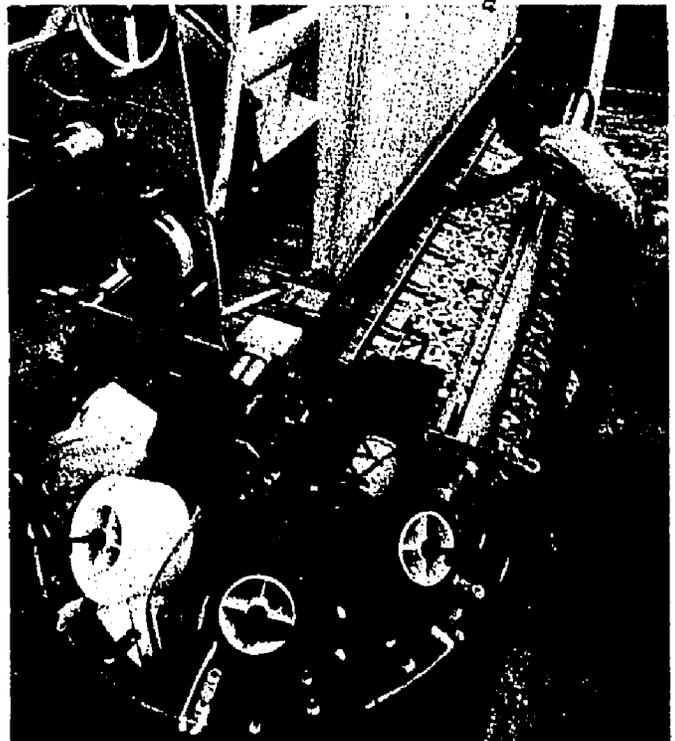
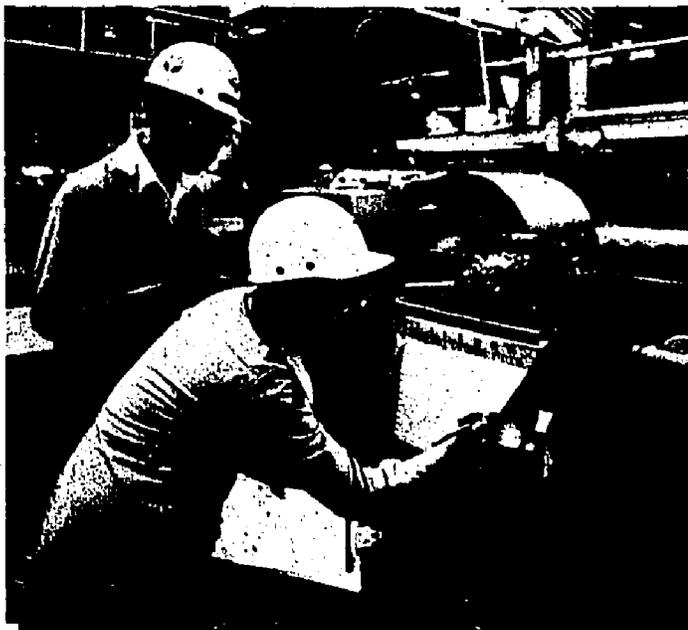
What would you do as a worker in this group?

You would use hand and machine skills to complete your work. You would perform one or more of the following tasks.

- Operate a machine to split animal hides into layers.
- Operate a battery of looms to weave cloth.
- Set up and operate a machine to cut threads on nuts and bolts.
- Sew reinforcing patches, ropes, and snaps on tents by hand.
- Set up and operate machines to make paper cartons, napkins, or envelopes.
- Operate automatic machines to weld metal parts together.
- Supervise the work of others.

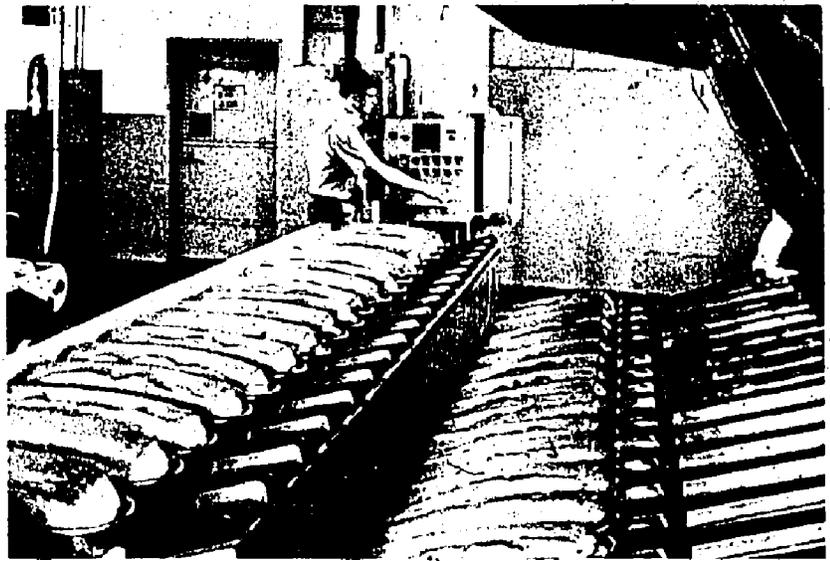
American Textiles Manufacturer's Institute, Inc.

Inland Steel Company





Sewing machine operators generally specialize in a single operation such as attaching belts or collars to the main parts of the garment.



General Foods Corporation

This automatic oven operator, following a set procedure, is about to press a control to depan the loaves.

**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Understand and apply procedures to set up and operate a production machine.
- Use eyes, hands, and fingers to adjust machine controls.
- Detect differences in shape, size, and texture.
- Follow instructions for meeting product set standards.
- Use math skills for measuring, computing, or record keeping.

**Do you have or can you develop these skills, abilities, and interests?**

Your answers to the following questions will help you decide.

- Have you read mechanical or automotive design magazines? Are you able to understand the technical articles in them?
- Have you taken courses in math or science? Do you like these classes?
- Have you built a model airplane, car, or bridge? Can you look at drawings or read directions and picture the final structure?
- Have you repaired a radio, television, or amplifier? Have you built such items, using a commercial kit?

WORKER REQUIREMENTS

CLUES

**PREPARATION**

**How can you prepare for and enter this kind of work?**

Machine shop or other similar vocational courses provide good background for jobs in this group. The common method of entry is through on-the-job training. Many workers start as helpers and work up to more responsible jobs as they gain experience and seniority.

**OTHER  
CONSIDERATIONS**

**What else should you know about these jobs?**

Tasks in these jobs change little from day to day because workers must follow set procedures. Good safety habits are important to people in these jobs.

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.
10. Activities involving working on or producing things.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

2. Performing routine tasks.
3. Planning and directing an entire activity.
4. Dealing with people.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg                                 | High                     |                             |
|--------|-------------------------------------|-------------------------------------|--------------------------|-----------------------------|
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Compiling                 |
| PEOPLE | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Supervising               |
| THINGS | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Operating/<br>Controlling |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L. Light work.
- M. Medium work.
- H. Heavy work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 1. Inside.
- 5. Noise and vibrations.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes              | Levels |   |    |   |      |
|------------------------|--------|---|----|---|------|
|                        | Low    |   | to |   | High |
|                        | 5      | 4 | 3  | 2 | 1    |
| G - General            |        |   | 3  |   |      |
| N - Numerical          |        | 4 | -  | 3 |      |
| S - Spatial            |        | 4 | -  | 3 |      |
| P - Form Perception    |        |   | 3  |   |      |
| K - Motor Coordination |        | 4 | -  | 3 |      |
| F - Finger Dexterity   |        | 4 | -  | 3 |      |
| M - Manual Dexterity   |        |   | 3  |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3.

Workers use personal judgment to set up or operate machinery by following written, oral, or diagram instructions. Some supervise others who perform these tasks.

Workers in this group deal with problems involving concrete variables such as using hand tools, adjusting dials, and inspecting products.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- T - Technical school programs in machine trades.
- V - Vocational school courses in the trade and industrial fields.
- NFT - Some occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from over 3 months up to and including 4 years (SVP 4, 5, 6, 7).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

## OCCUPATIONS IN PRODUCTION WORK

|                                       |             |                                      |             |
|---------------------------------------|-------------|--------------------------------------|-------------|
| Annealer                              | 504.682-010 | Cracker-and-Cooky-Machine Operator   | 520.482-010 |
| Anodizer                              | 500.682-010 | Crude-Oil Treater                    | 541.382-014 |
| Appliance Assembler, Line             | 827.684-010 | Cryolite-Recovery Operator           | 511.482-014 |
| Assembler                             | 706.361-010 | Cupola Tender                        | 512.662-010 |
| Assembler                             | 706.684-014 | Cut-Off-Saw Operator                 | 667.682-022 |
| Assembler                             | 710.381-010 | Cut-Off-Saw Operator, Metal          | 607.682-010 |
| Assembler                             | 869.684-010 | Cutter, Hand 1                       | 781.584-014 |
| Assembler 1                           | 723.684-014 | Cutter, Machine 1                    | 781.684-014 |
| Assembler, Aircraft Power Plant       | 806.381-022 | Cutter Operator                      | 699.682-018 |
| Assembler, Electric Accessories 2     | 729.384-010 | Cutting-Machine Operator             | 640.682-015 |
| Assembler, Electrical Wire Group      | 728.384-010 | Cylinder-Machine Operator            | 539.362-010 |
| Assembler-Installer, General          | 806.361-014 | Dairy-Processing-Equipment Operator  | 529.382-018 |
| Assembler, Internal Combustion Engine | 806.481-014 | Die Cutter                           | 699.682-022 |
| Assembler, Product                    | 706.684-018 | Digester Operator                    | 532.362-010 |
| Assembler, Subassembly                | 806.484-010 | Dipper                               | 774.684-014 |
| Assembler, Unit                       | 809.681-010 | Dough Mixer                          | 520.582-010 |
| Back Tender, Paper Machine            | 534.662-010 | Doughnut Maker                       | 526.684-010 |
| Baker                                 | 526.381-010 | Draper Operator                      | 787.682-018 |
| Balancing-Machine Operator            | 609.462-010 | Drawer-In, Hand                      | 683.684-014 |
| Balloon Maker                         | 752.684-010 | Drawing-In-Machine Tender            | 683.682-018 |
| Beater, Engineer                      | 530.662-010 | Drill-Press Operator                 | 606.682-014 |
| Bench Hand                            | 520.384-010 | Drop-Hammer Operator                 | 610.462-010 |
| Bleacher, Pulp                        | 533.362-010 | Dry Cleaner                          | 362.382-014 |
| Blender                               | 540.462-010 | Dry-Press Operator                   | 575.662-010 |
| Blocker 1                             | 979.682-010 | Dye-Range Operator, Cloth            | 582.582-010 |
| Blower and Compressor Assembler       | 801.361-010 | Electrical-Control Assembler         | 729.684-026 |
| Book-Sewing-Machine Operator 2        | 653.682-010 | Electric-Motor Winder                | 721.484-010 |
| Box Maker, Wood                       | 760.684-014 | Electronics Assembler                | 726.384-010 |
| Box Printer                           | 652.682-010 | Electronics Assembler                | 726.684-018 |
| Brake Operator 1                      | 617.360-010 | Embossing-Machine Operator 1         | 208.582-014 |
| Brake Operator 2                      | 619.685-026 | Embroiderer, Hand                    | 782.684-018 |
| Brazer, Assembler                     | 813.684-010 | Embroidery-Machine Operator          | 787.682-022 |
| Brick-and-Tile-Machine Operator       | 575.382-010 | Extruder Operator                    | 557.382-010 |
| Buffing-Machine Operator              | 603.382-010 | Extruder Operator                    | 614.482-014 |
| Bumper Operator                       | 617.682-014 | Fabricator-Assembler, Metal Products | 809.381-010 |
| Butcher, All-Round                    | 525.381-014 | Film-Casting Operator                | 559.682-022 |
| Buttermaker                           | 529.362-010 | Fitter 2                             | 706.684-054 |
| Cabinet Assembler                     | 763.684-014 | Folding-Machine Operator             | 649.685-046 |
| Cable Maker                           | 728.684-010 | Forging-Press Operator 1             | 611.482-010 |
| Candy Maker                           | 529.361-014 | Forming-Machine Operator             | 575.382-014 |
| Carpet Weaver                         | 683.682-010 | Fourdriner-Machine Tender            | 539.362-014 |
| Casket Assembler                      | 739.481-010 | Frame-Table Operator                 | 669.662-014 |
| Casket Liner                          | 780.684-030 | Fur Cutter                           | 783.381-010 |
| Caster                                | 502.482-010 | Fur Finisher                         | 782.381-014 |
| Casting Operator                      | 514.662-010 | Fur Machine Operator                 | 783.682-010 |
| Cheesemaker Helper                    | 529.682-014 | Fur Nailer                           | 783.684-014 |
| Chemical Mixer                        | 550.485-010 | Furnace Charger                      | 512.483-010 |
| Cigarette Making-Machine Operator     | 529.685-066 | Furnace Operator                     | 512.362-014 |
| Clicking-Machine Operator             | 789.382-010 | Furnace Operator                     | 613.462-014 |
| Coal Washer                           | 541.382-010 | Furniture Assembler                  | 763.684-038 |
| Cobbler                               | 788.381-010 | Gang Sawyer, Stone                   | 670.362-010 |
| Coffee Roaster                        | 523.682-014 | Glass Cutter                         | 775.684-022 |
| Coll Connector                        | 721.684-018 | Glass-Lathe Operator                 | 674.382-010 |
| Compression-Molding-Machine Operator  | 556.682-014 | Granulator-Machine Operator          | 559.382-026 |
| Compressor                            | 556.382-010 | Grinder Operator                     | 521.682-028 |
| Concrete-Stone Fabricator             | 575.461-010 | Grinder Operator, Production         | 603.685-062 |
| Contour-Band Saw Operator             | 607.382-010 | Grinder Set-Up Operator, Thread      | 603.482-026 |
| Control-Panel Operator                | 546.382-010 | Heading-Saw Operator                 | 667.682-038 |
| Corrugator Operator                   | 641.562-010 | Heater                               | 613.362-010 |

|                                    |             |                                      |             |
|------------------------------------|-------------|--------------------------------------|-------------|
| Heater                             | 619.682-022 | Slitting-Machine Operator 2          | 615.662-010 |
| Heat Treater 2                     | 504.682-018 | Smash Hand                           | 683.684-026 |
| Heavy Forger                       | 612.361-010 | Solderer-Assembler                   | 813.684-014 |
| Hosiery Mender                     | 782.684-030 | Spaghetti-Machine Operator           | 690.682-074 |
| Injection-Molding-Machine Operator | 556.382-014 | Speed Operator                       | 613.362-022 |
| Installer                          | 869.684-026 | Spotter                              | 362.381-010 |
| Jig Fitter                         | 801.684-010 | Springer                             | 780.684-106 |
| Kettle Operator                    | 558.382-038 | Steel Pourer                         | 502.664-014 |
| Kiln Operator                      | 563.382-010 | Steel-Pourer Helper                  | 502.664-018 |
| Ladle Liner                        | 519.684-010 | Sticher, Special Machine             | 690.682-078 |
| Laser-Beam-Machine Operator        | 815.682-010 | Sticher, Standard Machine            | 690.682-082 |
| Lay-Out Worker 2                   | 809.381-014 | Still-Pump Operator                  | 549.362-010 |
| Leather Worker                     | 783.684-026 | Straightening-Press Operator         | 617.482-026 |
| Machine Assembler                  | 638.361-010 | Stranding-Machine Operator           | 616.682-034 |
| Machine Molder                     | 518.682-010 | Stretcher-Leveler Operator           | 619.582-010 |
| Maple-Syrup Maker                  | 523.382-014 | Stone Polisher, Machine              | 673.382-018 |
| Manipulator                        | 613.682-010 | Supercalender Operator               | 534.682-038 |
| Marker 1                           | 781.384-014 | Supervisor                           | 500.131-010 |
| Mattress Maker                     | 780.684-074 | Supervisor                           | 684.137-010 |
| Mender                             | 782.684-042 | Supervisor                           | 750.130-010 |
| Mender                             | 787.682-030 | Supervisor                           | 788.131-010 |
| Metal Hanger                       | 809.684-030 | Supervisor                           | 789.132-018 |
| Numerical-Control-Machine Operator | 609.662-010 | Supervisor 2                         | 559.137-014 |
| Oven Tender                        | 526.685-030 | Supervisor, Abattoir                 | 525.131-010 |
| Oxygen-Furnace Operator            | 512.382-010 | Supervisor, Candy                    | 529.130-010 |
| Oxygen-Plant Operator              | 552.362-014 | Supervisor, Carton and Can Supply    | 920.132-014 |
| Paper-Novelty Maker                | 794.684-022 | Supervisor, Cured Meats              | 525.132-010 |
| Pharmaceutical Operator            | 559.382-042 | Supervisor, Line                     | 619.130-030 |
| Planer Set-Up Operator, Tool       | 605.282-014 | Supervisor, Mattress and Boxsprings  | 780.137-010 |
| Plastics Fabricator                | 754.684-042 | Supervisor, Small Appliance Assembly | 723.131-010 |
| Plater                             | 500.380-010 | Supervisor, Toy Assembly             | 731.131-010 |
| Plater, Production                 | 500.365-010 | Tanning Drum Operator                | 582.482-018 |
| Polishing-Machine Operator         | 603.682-026 | Tester, Motor                        | 806.384-026 |
| Pony Edger                         | 667.682-050 | Threader                             | 685.680-010 |
| Powder Worker, TNT                 | 737.684-030 | Timber-Sizer Operator                | 665.482-018 |
| Precision Assembler, Bench         | 706.681-010 | Tire Builder, Automobile             | 750.384-010 |
| Precision-Lens Grinder             | 716.382-018 | TNT-Line Supervisor                  | 559.131-018 |
| Press Operator, Heavy Duty         | 617.260-010 | Tool Grinder                         | 603.664-010 |
| Printer-Slotter Operator           | 659.662-010 | Trailer Assembler                    | 806.381-058 |
| Production Supervisor              | 699.130-010 | Treater                              | 549.362-014 |
| Pumper                             | 549.360-010 | Trimmer Sawyer                       | 667.482-022 |
| Punch-Press Operator 1             | 615.482-022 | Trophy Assembler                     | 735.684-018 |
| Punch-Press Operator 3             | 615.682-014 | Tube Bender, Hand 1                  | 709.684-090 |
| Ripsaw Operator                    | 667.682-066 | Tuber-Machine Operator               | 690.662-014 |
| Riveting-Machine Operator 1        | 699.482-010 | Upholsterer                          | 869.684-070 |
| Roller, Primary Mill               | 613.362-014 | Upholsterer, Inside                  | 780.681-010 |
| Rotor Casting-Machine Operator     | 502.482-018 | Upsetter                             | 611.462-010 |
| Rougher Operator                   | 613.662-014 | Valve Grinder                        | 706.684-098 |
| Router                             | 979.682-026 | Vending-Machine Assembler            | 706.684-102 |
| Rug Cleaner, Hand                  | 369.384-014 | Warp-Knitting-Machine Operator       | 685.665-018 |
| Sander, Machine                    | 761.682-014 | Water-Treatment-Plant Operator       | 551.485-010 |
| Scalper Operator                   | 605.682-022 | Weaver                               | 683.682-034 |
| Screen Printer                     | 979.684-030 | Weaver, Hand                         | 782.684-062 |
| Screen-Printing-Machine Operator   | 652.682-018 | Weaver, Needle Loom                  | 683.665-010 |
| Sewing-Machine Operator            | 787.682-046 | Welding-Machine Operator, Arc        | 810.382-010 |
| Shaper, Hand                       | 761.684-038 | Welding-Machine Tender               | 819.685-010 |
| Shear Operator 1                   | 615.482-034 | Welding Supervisor                   | 819.131-014 |
| Sign Writer, Machine               | 659.682-026 | Wire Drawer                          | 614.382-010 |
| Slasher Tender                     | 582.562-010 | Wire Drawer                          | 614.382-014 |

# PRODUCTION CONTROL

Production control means to regulate the quality and quantity of products and materials. Workers in this group inspect, test, weigh, or sort products and materials. Some workers also record data. Jobs in this group are found in manufacturing and processing plants.

## WORK PERFORMED

What would you do as a worker in this group?

You would examine or test materials and products according to set procedures. You would perform one or more of the following tasks.

- Inspect glass and plastic lens materials for defects.
- Inspect rolls of yarn and record the number and types of flaws.
- Examine rejected rubber footwear to determine what can be salvaged.
- Inspect metal furniture for flaws.
- Inspect jewelry for size, shape, and defects.
- Check metal toys for paint scratches and operation of moving parts.

Goodyear Tire and Rubber Co.



An inspector in a tire manufacturing plant checks the quality of every tire according to set standards and procedures.

Inspectors perform specialized tasks at this work station to test the quality of these telephone dials.



Western Electric

What skills, abilities, and interests would help you succeed in this kind of work?

**WORKER REQUIREMENTS**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Repeat the same tasks over and over according to set procedures.
- Use eyes, hands, and fingers to handle gages and measuring tools.
- Use math skills to count, measure, or keep inspection records.

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken an industrial arts course? Are you interested in this type of work?
- Have you taken a machine shop course? Can you use micrometers, gages, and other measuring devices?
- Have you taken a course in mechanical drawing? Can you read blueprints?
- Have you repaired or modified a car or motorcycle? Do you like working with hand tools and machines?

## PREPARATION

How can you prepare for and enter this kind of work?

Machine shop or other similar vocational courses provide good background for jobs in this group. The common method of entry is through on-the-job training. Many workers start as helpers and work up to more responsible jobs as they gain experience and seniority.



Factory inspectors use different skills and testing methods to control the quality of products.



Nabisco

**What else should you know about these jobs?**

Good safety habits are very important to workers in these jobs. Job promotions within a plant are often based on seniority as well as skill.

**OTHER CONSIDERATIONS**

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 1. Activities dealing with things and objects.
- 3. Activities of a routine, definite, organized nature.
- 9. Activities involving processes, methods, or machines.
- 10. Activities involving working on or producing things.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                     |                                   |
|--------|-------------------------------------|-------------------------------------|--------------------------|-----------------------------------|
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Compiling                       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Taking Instructions/<br>Helping |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Handling                        |

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 2. Performing routine tasks.
- 8. Making decisions using standards that can be measured or checked.
- 10. Working within precise limits or standards of accuracy.

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- 4. Reaching, handling, fingering, and/or feeling.
- 6. Seeing.

## WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

1. Inside.
5. Noise and vibrations.

## APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes              | Levels   |   |         |           |   |
|------------------------|----------|---|---------|-----------|---|
|                        | Low<br>5 | 4 | to<br>3 | High<br>2 | 1 |
| G - General            |          |   | 3       |           |   |
| S - Spatial            |          | 4 | 3       |           |   |
| P - Form Perception    |          |   | 3       |           |   |
| K - Motor Coordination |          | 4 | 3       |           |   |
| F - Finger Dexterity   |          | 4 | 3       |           |   |
| M - Manual Dexterity   |          |   | 3       |           |   |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3.

Workers use mechanical skills and personal judgment to carry out written or oral instructions dealing with standardized testing and inspection. Workers deal with practical problems involving concrete variables such as measuring instruments and production standards.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

E - To enter most occupations workers only need the required competencies and credentials.

### Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

V - Vocational school courses in drafting.

NFT - Most occupations in this group have no related formal education or training programs.

### Training Time

Occupations in this group may require from over 1 month up to and including 1 year (SVP 3, 4, 5).

### Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for the completion of high school.

OCCUPATIONS IN PRODUCTION CONTROL

|                                |             |                                 |             |
|--------------------------------|-------------|---------------------------------|-------------|
| Assembler                      | 369.687-010 | Inspector, Metal Can            | 709.367-010 |
| Aspects Examiner               | 559.687-010 | Inspector, Packaging Materials  | 920.387-010 |
| Barber                         | 689.684-010 | Inspector, Paper Products       | 649.367-010 |
| Casting Inspector              | 514.687-010 | Inspector, Slide Fasteners      | 734.687-062 |
| Cloth Examiner, Hand           | 781.687-014 | Inspector, Surgical Instruments | 712.687-026 |
| Cloth Inspector                | 685.687-010 | Inspector, Type                 | 706.687-026 |
| Cloth Tester, Quality          | 689.384-010 | Inspector, Wire                 | 691.367-010 |
| Egg Candler                    | 529.687-074 | Laboratory Tester               | 689.384-014 |
| Electronics Inspector 2        | 726.684-022 | Lumber Sorter                   | 922.687-074 |
| Electronics Tester 2           | 726.684-026 | Machine Tester                  | 706.387-014 |
| Final Inspector                | 806.687-018 | Mailing Machine Operator        | 208.462-010 |
| Finished Stock Inspector       | 763.687-029 | Marker                          | 369.687-026 |
| Garment Inspector              | 789.687-070 | Motorcycle Tester               | 620.384-010 |
| Garment Sorter                 | 222.687-014 | Nut Sorter                      | 521.687-086 |
| Grader                         | 669.687-010 | Palrer                          | 684.687-010 |
| Grader, Dressed Poultry        | 529.687-102 | Paper Sorter and Counter        | 649.687-010 |
| Grader, Meat                   | 525.387-010 | Photo Checker and Assembler     | 976.687-014 |
| Inspector                      | 369.687-022 | Pulp and Paper Tester           | 539.364-010 |
| Inspector                      | 590.367-010 | Quality-Control Inspector       | 579.367-010 |
| Inspector                      | 619.381-010 | Quality-Control Inspector       | 725.687-026 |
| Inspector                      | 732.364-010 | Quality-Control Technician      | 529.387-030 |
| Inspector                      | 739.687-110 | Roller-Bearing Inspector        | 706.687-034 |
| Inspector                      | 769.687-026 | Selector                        | 579.687-030 |
| Inspector                      | 776.667-010 | Shade Matcher                   | 582.687-022 |
| Inspector                      | 788.384-010 | Shipping and Receiving Weigher  | 222.367-058 |
| Inspector 1                    | 619.364-010 | Stocking Inspector              | 684.684-010 |
| Inspector 1                    | 729.387-022 | Tablet Tester                   | 559.667-010 |
| Inspector 3                    | 737.367-010 | Tire Inspector                  | 750.687-018 |
| Inspector and Sorter           | 589.387-010 | Transmission Tester             | 806.684-134 |
| Inspector, Eyeglass Frames     | 713.687-022 | Veneer Grader                   | 569.587-010 |
| Inspector, Fabric              | 789.567-014 | Weigher, Alloy                  | 509.687-022 |
| Inspector, General             | 609.684-010 | Yarn Sorter                     | 689.687-086 |
| Inspector, Grain Mill Products | 529.387-026 |                                 |             |

# ELEMENTAL WORK: INDUSTRIAL

Elemental industrial work is routine work requiring little training or experience. Tasks include loading and unloading machines as well as using simple hand tools. Jobs in this group are found in manufacturing and processing plants.

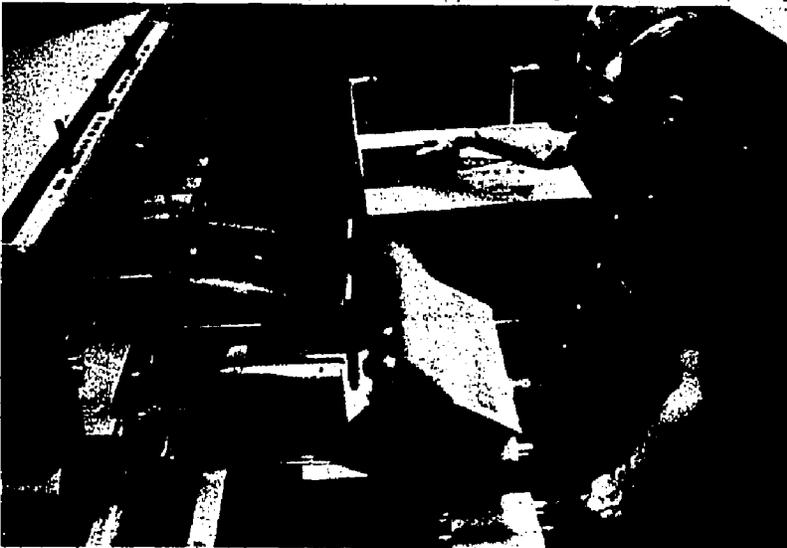
## WORK PERFORMED

What would you do as a worker in this group?

You would do simple hand or machine work according to instructions. You would perform one or more of the following tasks.

- Tend a machine that mixes large batches of bread batter.
- Use a hand truck to move supplies to workers on an assembly line.
- Wash and iron clothes in a commercial laundry.
- Smooth wooden furniture posts using sandpaper and steel wool.
- Cut candy into squares using a special knife.
- Tend a machine that seals cartons.
- Staple padding to both sides of inner-spring mattresses.
- Tend kettles that boil or soak ingredients.
- Sort pearl buttons according to shade and flaws.
- Supervise the work of others.

Libby, McNeill, and Libby



UAW Solidarity



ERIC keep pace with the machine, the operator folds and places a case on the machine every five seconds.

The worker uses a special cloth to give each car its final shine.



Workers in this group must be able to concentrate on the same tasks and follow set procedures.



Western Electric

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Follow simple instructions.
- Adjust to doing the same tasks over and over.
- Follow safety rules when tending a machine.
- Move or lift heavy objects.
- Use hands and fingers to load, unload, or tend machines.

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you taken an industrial arts course? Would you like to work in a factory setting?
- Have you helped a worker install, repair, or build something in your home? Can you follow directions?
- Have you helped a custodian at school or church? Do you like this kind of work?

## WORKER REQUIREMENTS

## GLUES

**PREPARATION**

**How can you prepare for and enter this kind of work?**

Most jobs in this group do not require specific training before employment. Employers often provide brief on-the-job training to new workers or when work assignments are changed. Industrial arts or shop courses provide useful background for jobs in this group.

**OTHER  
CONSIDERATIONS**

**What else should you know about these jobs?**

Many people accept jobs in this group as their first full-time employment. As workers develop experience and skills, they may advance to other jobs in the work setting.

Tasks change very little from day to day because workers must follow set procedures. It is important that workers follow strict safety rules when working around machines.

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.
10. Activities involving working on or producing things.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

2. Performing routine tasks.
10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                     |                                   |
|--------|-------------------------------------|--------------------------|--------------------------|-----------------------------------|
| DATA   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Comparing                       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Taking Instructions/<br>Helping |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Tending                         |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 1 Inside.
- 5. Noise and vibrations.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes              | Levels   |   |         |   |           |
|------------------------|----------|---|---------|---|-----------|
|                        | Low<br>5 | 4 | to<br>3 | 2 | High<br>1 |
| S - Spatial            | 4        |   |         |   |           |
| F - Form Perception    | 4 - 3    |   |         |   |           |
| K - Motor Coordination | 4 - 3    |   |         |   |           |
| F - Finger Dexterity   | 4 - 3    |   |         |   |           |
| M - Manual Dexterity   | 3        |   |         |   |           |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 1-2.

Workers use common sense to carry out simple one- and two-step instructions. They work under the same situations each day. For example, they mix ingredients or use buttons and switches to control machines.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

E - To enter most occupations workers only need the required competencies and credentials.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT - Most occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from 30 days up to and including 3 months (SVP 2, 3).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

## OCCUPATIONS IN ELEMENTAL WORK: INDUSTRIAL

|                                     |             |                                       |             |
|-------------------------------------|-------------|---------------------------------------|-------------|
| Ampoule Filler                      | 559.685-018 | Cigarette-Making-Machine Catcher      | 529.666-014 |
| Artificial-Flower Maker             | 739.684-014 | Cigar Maker                           | 790.684-014 |
| Assembler                           | 700.684-014 | Classifier                            | 361.687-014 |
| Assembler                           | 723.684-010 | Cleaner and Polisher                  | 709.687-010 |
| Assembler                           | 754.684-010 | Cloth Doffer                          | 689.586-010 |
| Assembler 2                         | 723.684-018 | Cloth Folder, Hand                    | 589.687-014 |
| Assembler, Automobile               | 806.684-010 | Cloth Winder                          | 689.685-046 |
| Assembler, Cards and Announcements  | 794.687-010 | Coiler                                | 613.685-010 |
| Assembler, Electrical Accessories 1 | 729.687-010 | Coil Winder                           | 724.684-026 |
| Assembler, Metal Furniture          | 709.684-014 | Colorer, Citrus Fruit                 | 529.685-070 |
| Assembler, Production               | 706.687-010 | Collator, Hand                        | 977.687-010 |
| Assembler, Production Line          | 809.684-010 | Comber Tender                         | 680.665-010 |
| Assembler, Small Parts              | 706.684-022 | Compounder                            | 550.685-050 |
| Assembler, Small Products           | 739.687-030 | Concrete-Pipe-Making-Machine Operator | 575.665-010 |
| Back Tender, Insulation Board       | 532.685-010 | Condenser-Tube Tender                 | 511.685-018 |
| Baker Helper                        | 926.686-010 | Conditioner-Tumbler Operator          | 361.685-010 |
| Bakery Worker                       | 929.686-010 | Container Washer, Machine             | 529.685-074 |
| Bagger                              | 920.687-018 | Cook, Fry, Deep Fat                   | 526.685-014 |
| Bag-Machine Tender or Operator      | 649.685-014 | Cooler Room Worker                    | 525.687-022 |
| Baler                               | 690.685-022 | Coremaker, Machine 1                  | 518.685-014 |
| Baling-Machine Tender               | 920.685-010 | Coremaker, Pipe                       | 518.684-014 |
| Band-Sawing-Machine Operator        | 690.485-010 | Core-Oven Tender                      | 518.685-010 |
| Basket Assembler 1                  | 669.685-014 | Core Setter                           | 518.684-010 |
| Batter Mixer                        | 520.685-010 | Corrugated-Fastener Driver            | 669.685-042 |
| Battery-Parts Assembler             | 727.687-038 | Crater                                | 920.484-010 |
| Beamer                              | 681.585-010 | Creeler                               | 689.687-030 |
| Beam-Warper Tender, Automatic       | 681.685-018 | Crossband Layer                       | 762.687-026 |
| Bearingnizer                        | 603.685-018 | Crusher Tender                        | 570.685-022 |
| Beater-Engineer Helper              | 530.665-010 | Cushion Builder                       | 780.684-050 |
| Bellows Assembler                   | 710.687-010 | Cushion Maker 1                       | 780.684-054 |
| Bench Grinder                       | 705.684-010 | Cutter, Hand 2                        | 781.687-026 |
| Beveler                             | 673.685-018 | Cutter, Hand 3                        | 781.687-030 |
| Bindery Worker                      | 649.685-018 | Cutter Helper                         | 781.687-022 |
| Bindery Worker                      | 653.685-010 | Cutter, Machine 2                     | 699.685-014 |
| Blast-Furnace Keeper                | 502.664-010 | Cutting-Machine Tender                | 690.685-122 |
| Blast-Furnace-Keeper Helper         | 502.687-010 | Cylinder Batcher                      | 582.665-010 |
| Block-Making-Machine Operator       | 575.685-014 | Dairy Helper                          | 529.686-026 |
| Boarding-Machine Operator           | 589.685-010 | Deburrer, Machine                     | 715.685-018 |
| Boner, Meat                         | 525.684-010 | Dipper                                | 599.685-026 |
| Boring-Machine Operator, Production | 606.685-010 | Distiller                             | 552.682-010 |
| Box Maker, Paperboard               | 794.684-014 | Distillery Worker, General            | 529.687-066 |
| Brine Maker                         | 551.687-014 | Dividing-Machine Operator             | 520.685-086 |
| Buffer                              | 690.685-046 | Doffer                                | 689.686-022 |
| Buffer 1                            | 705.684-014 | Drawer-In Helper, Hand                | 683.687-010 |
| Burnisher                           | 690.685-058 | Draw-Frame Tender                     | 680.685-034 |
| Buttoner                            | 782.687-014 | Drilling-Machine Operator, Automatic  | 606.685-030 |
| Calendering-Machine Operator        | 580.485-010 | Dry Cleaner                           | 589.685-038 |
| Candy-Maker Helper                  | 520.685-050 | Dry-Cleaner Helper                    | 362.686-010 |
| Cannery Worker                      | 529.686-014 | Dyer Helper                           | 364.687-010 |
| Carder                              | 920.685-034 | Dye-Tub Operator                      | 582.585-014 |
| Card Tender                         | 680.685-018 | Dye Weigher                           | 550.684-014 |
| Carton-Forming-Machine Operator     | 641.685-022 | Electric-Motor Assembler              | 721.684-022 |
| Carton-Packaging-Machine Operator   | 920.665-010 | Embossing-Press Operator              | 652.685-030 |
| Casing Cleaner                      | 525.686-010 | Enameler                              | 509.684-010 |
| Casing Tier                         | 529.687-034 | Envelope-Machine Operator             | 649.685-042 |
| Cementer, Hand                      | 788.687-030 | Etcher, Printed Circuits              | 590.685-030 |
| Cementer, Machine Applicator        | 690.686-018 | Extractor Operator                    | 581.685-038 |
| Charger Operator                    | 504.565-010 | Eyelet-Machine Operator               | 699.685-018 |
| Chemical Operator 2                 | 558.585-014 | Feed Mixer                            | 520.685-098 |
| Chipper                             | 564.685-014 | Feed Weigher                          | 920.685-058 |

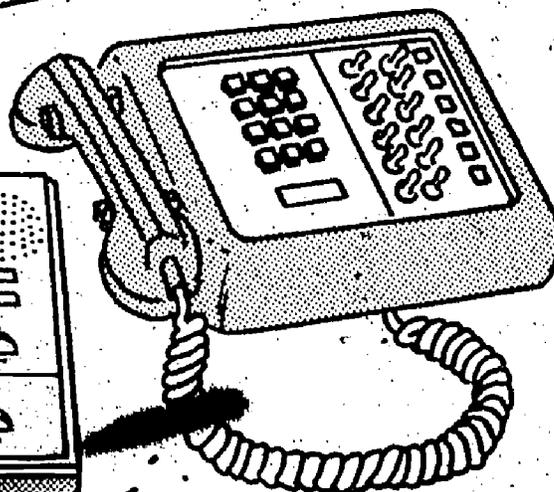
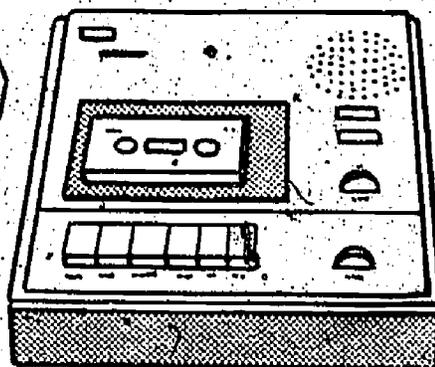
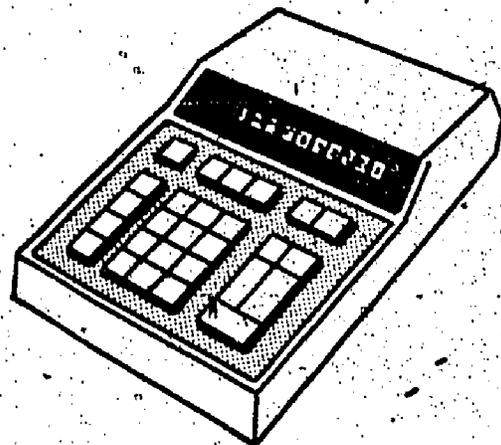
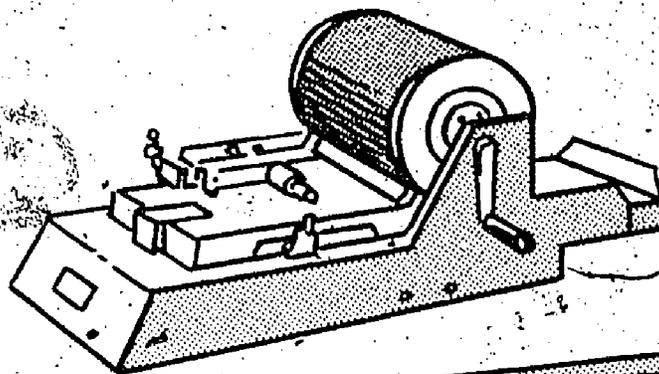
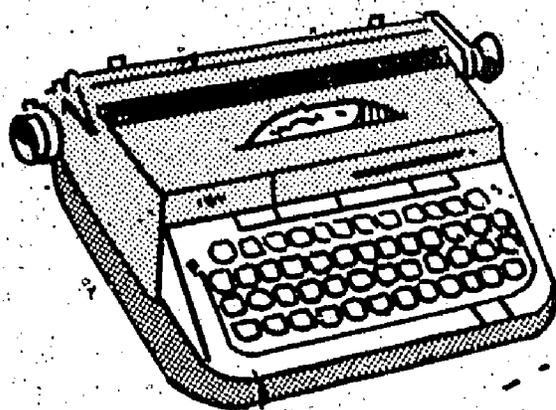
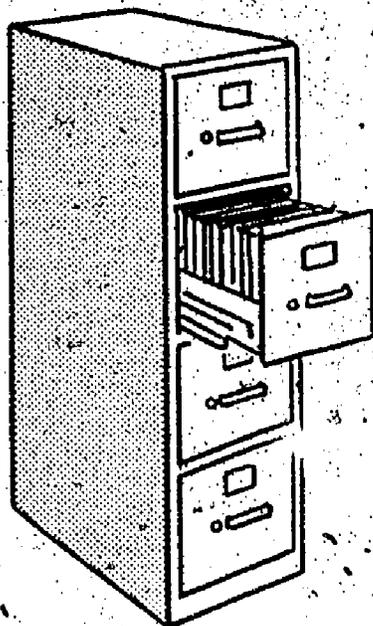
|   |             |  |             |
|---|-------------|--|-------------|
| Filler                                    | 739.687-090 | Laborer, Rags                              | 539.587-010 |
| Film Spooler                              | 692.685-082 | Laborer, Salvage                           | 929.687-022 |
| Fish Cleaner                              | 525.684-030 | Laborer, Tin Can                           | 609.686-010 |
| Flatwork Finisher                         | 363.686-010 | Lacer 1                                    | 788.687-070 |
| Floor Attendant                           | 579.687-018 | Lathe Operator, Production                 | 604.685-026 |
| Fly Tier                                  | 732.684-074 | Launderer, Hand                            | 361.684-010 |
| Folder                                    | 369.687-018 | Laundry Laborer                            | 361.687-018 |
| Folder, Hand                              | 794.687-022 | Laundry Operator                           | 369.684-014 |
| Folding-Machine Feeder                    | 653.686-014 | Laundry Worker 2                           | 361.685-018 |
| Folding-Machine Operator                  | 583.685-042 | Lead Former                                | 691.685-018 |
| Forge Helper                              | 619.666-010 | Leasing-Machine Tender                     | 681.685-054 |
| Forging-Press Operator 2                  | 611.685-010 | Leather Finisher                           | 363.682-010 |
| Foundry Supervisor                        | 519.131-010 | Light-Bulb Assembler                       | 692.685-118 |
| Foundry Worker, General                   | 519.687-022 | Loader 1                                   | 914.667-010 |
| Fruit-Press Operator                      | 521.685-146 | Log Roller                                 | 677.687-010 |
| Furnace Tender                            | 512.685-010 | Loom-Winder Tender                         | 681.685-062 |
| Garment Folder                            | 789.687-066 | Machine Cleaner                            | 699.687-014 |
| Gear-Cutting-Machine Operator, Production | 602.685-010 | Machine Feeder                             | 819.686-010 |
| General Helper                            | 529.687-094 | Machine Helper                             | 619.687-014 |
| Glass Installer                           | 865.684-014 | Machine Operator 2                         | 619.685-062 |
| Gluer                                     | 762.687-034 | Marker 2                                   | 920.687-126 |
| Gluer                                     | 795.687-014 | Marker, Machine                            | 690.685-282 |
| Glue Spreader, Veneer                     | 569.685-042 | Melter Supervisor                          | 512.132-010 |
| Golf-Club Assembler                       | 732.684-078 | Metal-Cleaner, Immersion                   | 503.685-030 |
| Grinder 1                                 | 705.684-026 | Metal-Fabricating-Shop Helper              | 619.686-022 |
| Grinder-Chipper 2                         | 809.684-026 | Metal Finisher                             | 705.684-034 |
| Grip Wrapper                              | 732.684-082 | Mexican Food Maker, Hand                   | 520.687-046 |
| Hacker                                    | 573.686-022 | Milling-Machine Operator, Production       | 605.685-030 |
| Hand Sewer, Shoes                         | 788.684-054 | Mill Operator                              | 599.685-058 |
| Hardware Assembler                        | 763.684-042 | Mirror Specialist                          | 779.684-038 |
| Heat-Treater Helper                       | 504.685-018 | Mixer                                      | 550.685-078 |
| Hot-Plate-Plywood-Press Operator          | 569.685-054 | Mixer Operator                             | 520.685-146 |
| Icer, Hand                                | 524.684-022 | Mixer Operator                             | 550.685-082 |
| Icer, Machine                             | 524.685-034 | Mold-Fitting Operator                      | 556.684-018 |
| Icing Mixer                               | 520.685-114 | Molding Cutter                             | 663.685-018 |
| Industrial-Truck Operator                 | 921.683-050 | Mold Worker                                | 514.567-010 |
| Injection-Molding-Machine Tender          | 556.685-038 | Monorail Crane Operator                    | 921.663-042 |
| Interlacer                                | 788.684-070 | Mounter, Automatic                         | 976.685-022 |
| Jet Handler                               | 557.684-010 | Multi-Operation-Forming-Machine Operator 2 | 616.685-042 |
| Jogger                                    | 659.686-010 | Nailer, Hand                               | 762.684-050 |
| Kiln Burner                               | 573.682-010 | Nailing-Machine Operator                   | 669.682-058 |
| Knitter, Full-Fashioned Garment           | 685.665-010 | Nailing-Machine Operator, Automatic        | 669.685-066 |
| Knitting-Machine Operator                 | 685.665-014 | Offset-Press Operator 2                    | 651.685-018 |
| Knitting-Machine Operator                 | 685.685-010 | Packager, Hand                             | 920.587-018 |
| Laborer                                   | 529.687-130 | Packager, Machine                          | 920.685-078 |
| Laborer                                   | 559.686-022 | Package Sealer, Machine                    | 920.685-074 |
| Laborer, Boot and Shoe                    | 788.687-066 | Packaging Supervisor                       | 920.132-010 |
| Laborer, Chemical Processing              | 559.687-050 | Painter, Brush                             | 740.684-022 |
| Laborer, Cheesemaking                     | 529.686-050 | Painter, Spray 2                           | 741.687-018 |
| Laborer, Concrete Plant                   | 579.686-010 | Painting-Machine Operator                  | 599.685-074 |
| Laborer, General                          | 509.686-010 | Paint-Line Operator                        | 599.685-066 |
| Laborer, General                          | 518.687-026 | Paint Mixer, Machine                       | 550.485-018 |
| Laborer, General                          | 519.686-010 | Panel-Machine Operator                     | 640.685-038 |
| Laborer, General                          | 559.685-110 | Parachute Rigger                           | 912.684-010 |
| Laborer, General                          | 579.667-010 | Pipe Finisher                              | 779.684-042 |
| Laborer, General                          | 589.686-026 | Plate-Take-Out Worker                      | 500.687-010 |
| Laborer, General                          | 609.684-014 | Plumbing-Hardware Assembler                | 706.684-086 |
| Laborer, General                          | 754.687-010 | Polisher                                   | 700.687-058 |
| Laborer, Grinding and Polishing           | 705.687-014 | Polisher                                   | 705.684-058 |
| Laborer, Hot-Plate Plywood Press          | 569.686-026 | Potato-Chip Frier                          | 526.685-046 |

|   |             |                                    |             |
|---|-------------|------------------------------------|-------------|
| Pot Tender                              | 512.685-018 | Skiver, Machine                    | 690.685-378 |
| Poultry Boner                           | 525.687-066 | Slasher Operator                   | 667.685-054 |
| Poultry Dresser                         | 525.687-070 | Slicing Machine Operator           | 521.685-306 |
| Poultry-Dressing Worker                 | 525.687-082 | Slitting-Machine-Operator Helper 1 | 699.587-010 |
| Poultry Eviscerator                     | 525.687-074 | Slubber Tender                     | 680.685-098 |
| Poultry Hanger                          | 525.687-078 | Smoked Meat Preparer               | 525.587-014 |
| Pourer, Metal                           | 514.684-022 | Smoking-Pipe Liner                 | 739.687-170 |
| Power-Barker Operator                   | 669.485-010 | Sock Boarder                       | 589.686-042 |
| Presser, All-Around                     | 363.682-014 | Solderer, Production Line          | 813.684-022 |
| Presser, Automatic                      | 363.685-014 | Spice Cleaner                      | 521.685-322 |
| Presser, Form                           | 363.685-018 | Spinner                            | 557.685-026 |
| Presser, Hand                           | 363.684-010 | Spinner, Frame                     | 682.685-010 |
| Presser, Machine                        | 363.682-018 | Splicer                            | 759.684-058 |
| Press Feeder                            | 583.686-030 | Spooler Operator, Automatic        | 681.686-018 |
| Press Operator                          | 363.685-010 | Spooling-Machine Operator          | 691.685-026 |
| Pretzel Twister                         | 520.587-010 | Spot Cleaner                       | 582.684-014 |
| Print Developer, Automatic              | 976.685-026 | Spreader 1                         | 781.687-058 |
| Processor, Grain                        | 521.685-254 | Spreader, Machine                  | 781.685-010 |
| Production Helper                       | 529.686-070 | Spring Assembler                   | 780.684-098 |
| Production-Machine Tender               | 609.685-018 | Spring Coiler                      | 616.485-014 |
| Progressive Assembler and Fitter        | 801.684-022 | Stacking-Machine Operator 2        | 739.685-038 |
| Pumper Helper                           | 549.684-010 | Stainer                            | 742.684-014 |
| Punch-Press Operator 2                  | 615.685-030 | Staple Cutter                      | 680.685-102 |
| Putty Glazer                            | 749.684-042 | Stapling-Machine Operator          | 692.685-202 |
| Quiller Operator                        | 681.685-070 | Stencil                            | 781.687-066 |
| Raw-Cheese Worker                       | 529.686-078 | Stencil                            | 920.687-178 |
| Reclamation Kettle Tender, Metal        | 512.685-022 | Stone Setter                       | 735.687-034 |
| Remelter                                | 502.685-014 | Stretch-Leveler-Operator Helper    | 619.686-030 |
| Record-Press Tender                     | 556.685-070 | Strip-Cutting-Machine Operator     | 686.685-066 |
| Rewinder Operator                       | 640.685-058 | Stuffer                            | 520.685-210 |
| Riveter, Hand                           | 709.684-066 | Supervisor, Blast Furnace          | 519.132-010 |
| Riveting-Machine Operator               | 616.685-058 | Supervisor, Dry Cleaning           | 369.137-010 |
| Roll Finisher                           | 920.685-090 | Supervisor, Fertilizer             | 559.132-090 |
| Rope-Laying Machine Operator            | 681.685-086 | Surfboard Maker                    | 732.684-126 |
| Rope Maker, Machine                     | 681.685-082 | Sweeping-Compound Blender          | 550.685-110 |
| Rubber                                  | 742.684-010 | Tank-House-Operator Helper         | 519.565-014 |
| Rubber-Mill Tender                      | 550.685-102 | Tapper                             | 514.664-014 |
| Rug Cleaner                             | 689.687-066 | Tenter-Frame Operator              | 580.585-010 |
| Sander, Hand                            | 761.687-010 | Thread Cutter                      | 789.684-050 |
| Sander, Portable Machine                | 761.684-034 | Thread Winder, Automatic           | 681.685-122 |
| Sausage Maker                           | 520.685-202 | Ticket                             | 652.685-098 |
| Sawmill Worker                          | 667.686-014 | Trimmer, Hand                      | 781.687-070 |
| Screen Printer                          | 979.684-034 | Trimmer, Meat                      | 525.684-054 |
| Screw-Machine Operator, Production      | 604.685-034 | Trimming-Machine Operator          | 583.685-122 |
| Sealing-Machine Operator                | 692.685-162 | Tumbler Operator                   | 599.685-110 |
| Seed-Cleaner Operator                   | 599.665-010 | Turner                             | 789.687-182 |
| Sewer, Hand                             | 782.684-058 | Twister Tender                     | 681.685-130 |
| Sewing-Machine Operator, Semi-Automatic | 786.685-030 | Wafer-Machine Operator             | 526.685-066 |
| Shear Operator 2                        | 615.685-034 | Washer                             | 599.687-030 |
| Shellfish-Processing-Machine Tender     | 529.685-214 | Washer, Machine                    | 361.665-010 |
| Shellfish Shucker                       | 521.687-122 | Warp-Tying-Machine Tender          | 683.685-034 |
| Shirt Presser                           | 363.685-026 | Welder, Gun                        | 810.664-010 |
| Shoe Cleaner                            | 788.687-122 | Welder, Production Line            | 819.684-010 |
| Shoe Packer                             | 920.687-166 | Winder Operator, Automatic         | 681.685-150 |
| Silk-Screen Printer                     | 726.687-018 | Wireworker                         | 728.687-010 |
| Sinter-Machine Operator                 | 510.685-026 | Woodworking-Shop Hand              | 769.687-054 |
| Skein-Yarn Dyer                         | 582.685-130 | Wrapping Machine Operator          | 641.685-098 |
| Skip Operator                           | 921.683-062 | Wringer-Machine Operator           | 589.685-098 |
| Skiver, Blockers                        | 585.685-110 | Yarn Winder                        | 681.685-154 |

# BUSINESS DETAIL

This is an interest in activities requiring accuracy and attention to details, primarily in an office setting.

You can satisfy this interest in a wide variety of jobs in which you can attend to the details of a business operation. You may enjoy using your math skills. Perhaps a job in billing, computing, or financial record keeping would satisfy you. You may prefer to deal with people. You would seek a job in which you meet the public, talk on the telephone, or supervise other workers. You may like to operate computer terminals, typewriters, or bookkeeping machines. Perhaps a job in record keeping, filing, or recording would satisfy you. You may prefer to use your training and experience to manage offices and supervise other workers.



# ADMINISTRATIVE DETAIL

Administrative detail is technical clerical work requiring special skills and knowledge. Workers in this group make minor decisions related to office operations. Jobs in this group are found in the offices of businesses, industries, courts, and government agencies. Doctors, lawyers, and other professionals also hire these workers.

## WORK PERFORMED

What would you do as a worker in this group?

You would perform a variety of clerical duties. You would perform one or more of the following tasks.

- Interview and investigate applicants for a low-cost housing project.
- Perform a variety of clerical duties for a local government.
- Maintain all records for a small business firm.
- Prepare legal papers for a lawyer.
- Keep records and prepare notices regarding the rental, sale, or management of real estate.
- Organize the social, business, and personal affairs of an employer.
- Prepare papers and do other tasks to close a loan.

Xerox Corporation

An office manager schedules and oversees the work of a clerical staff.





Secretaries may perform clerical tasks for their employers as well as organize their social and business affairs.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Speak and write clearly and with accuracy.
- Carry out instructions without close supervision.
- Make decisions based on set policy.
- Plan work schedules for yourself and others.
- Use hands and fingers to type, write shorthand, or record data.
- Recognize small differences in forms and shapes to record or read shorthand symbols.
- Recognize errors in spelling, grammar, and punctuation to proof copy.

## WORKER REQUIREMENTS

## CLUES

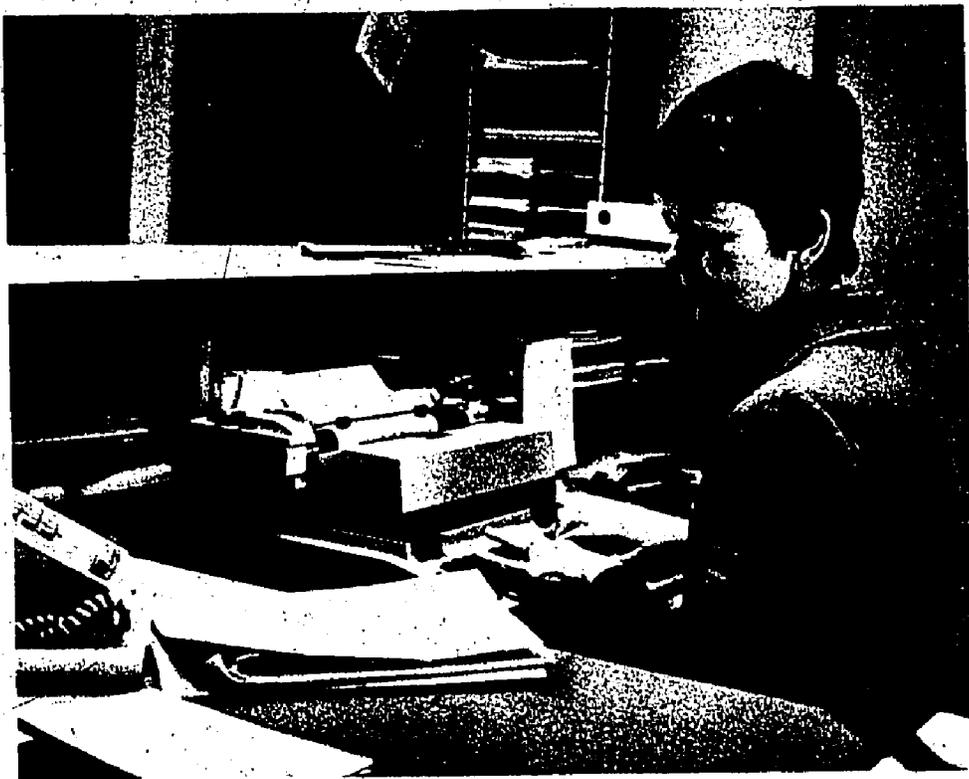
Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken courses in typing and shorthand? Can you type and write shorthand with speed and accuracy?
- Have you served as a secretary for a group or club? Did you keep minutes of the meetings? Do you enjoy this type of work?
- Have you worked in the school office or held other part-time clerical jobs? Did you work with records? Could you answer the questions of students or visitors?
- Have you been responsible for the work of others? Do you work well with others?



High school typing courses can help you develop one of the skills required by most of this group's jobs.

This school secretary handles the duties of a bookkeeper, file clerk, and receptionist.



### How can you prepare for and enter this kind of work?

Most jobs in this group require training in typing. Many require training in shorthand or in the use of dictation transcribing equipment. This training is offered by high schools and technical schools. Business and community colleges offer one- and two-year programs that are helpful for these jobs. Workers in these jobs are usually promoted from routine clerical jobs. People with above average vocabulary, grammar, and spelling skills can enter some of these jobs. They receive on-the-job training for specific tasks. Applicants usually need to take a civil service test to enter government jobs.

### What else should you know about these jobs?

Some of these jobs require workers who can be trusted to handle confidential information. Workers in small offices often do a variety of tasks. They may serve as bookkeeper, clerk, and receptionist.

## PREPARATION

## OTHER CONSIDERATIONS

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

- 2. Activities involving business contact.
- 5. Activities resulting in recognition or appreciation from others.
- 6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

- 1. Performing duties which change frequently.
- 4. Dealing with people.
- 7. Making decisions using personal judgment.
- 8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                                |                             |
|--------|-------------------------------------|-------------------------------------|-------------------------------------|-----------------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Coordinating              |
| PEOPLE | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Supervising               |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | - Operating/<br>Controlling |

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- L Light work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |    |   |       |
|-------------------------|--------|---|----|---|-------|
|                         | Low    |   | to |   | High  |
|                         | 5      | 4 | 3  | 2 | 1     |
| G - General             |        |   |    |   | 3 - 2 |
| V - Verbal              |        |   |    |   | 3 - 2 |
| N - Numerical           |        |   |    |   | 3     |
| Q - Clerical Perception |        |   |    |   | 3 - 2 |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 4-5.

Workers use logical thinking and personal judgment to perform a variety of office tasks that require specialized skills and knowledge. They carry out instructions presented in written, oral, or diagram form. They deal with concrete situations and variables such as preparing correspondence, assisting executives, and conducting interviews.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T - Technical and business college courses in the clerical and office field.

V - Vocational school business courses.

NFT - Some occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from over 6 months up to and including 4 years (SVP 5, 6, 7):

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Language Skills, Basic Math Skills.

**OCCUPATIONS IN ADMINISTRATIVE DETAIL**

|   |             |
|---|-------------|
| Admissions Evaluator                    | 205.367-010 |
| Administrative Clerk                    | 219.362-010 |
| Administrative Secretary                | 169.167-014 |
| Attendance Officer                      | 168.367-010 |
| Bond Clerk                              | 216.362-010 |
| Budget Clerk                            | 216.382-022 |
| Contract Clerk                          | 119.267-018 |
| Court Clerk                             | 243.362-010 |
| Driver's License Examiner               | 168.267-034 |
| Eligibility and Occupancy Interviewer   | 168.267-038 |
| Hospital Insurance Representative       | 166.267-014 |
| Insurance Clerk 1                       | 219.362-034 |
| Legal Secretary                         | 201.362-010 |
| Loan Counselor                          | 186.267-014 |
| Manager, Office                         | 169.167-034 |
| Manager, Statements Clerks              | 214.137-014 |
| Manager, Traffic 1                      | 184.167-098 |
| Manager, Traffic 1                      | 184.167-102 |
| Medical Secretary                       | 201.362-014 |
| Mortgage Clerk                          | 249.382-010 |
| Procurement Clerk                       | 249.367-066 |
| Real-Estate Clerk                       | 219.362-046 |
| Relocation Commissioner                 | 188.167-070 |
| School Secretary                        | 201.362-022 |
| Secretary                               | 201.362-030 |
| Securities Clerk                        | 219.362-054 |
| Social Secretary                        | 201.162-010 |
| Station Agent 1                         | 910.137-038 |
| Steward/Stewardess, Chief, Cargo Vessel | 350.137-014 |
| Test Technician                         | 249.367-078 |
| Title Examiner                          | 119.287-010 |
| Town Clerk                              | 243.367-018 |

# MATHEMATICAL DETAIL

Mathematical detail is clerical work using arithmetic skills to process numerical data related to a business operation. Work involves figuring and keeping records of quantities, costs, and charges. Jobs in this group are found in businesses, industries, and government agencies. Banks, finance companies, and accounting firms hire many of these workers.

You would compute and record numerical data. This data usually would concern the daily operation of a business office. You would perform one or more of the following tasks.

- Compute employees' wages and payroll deductions.
- Use machines to calculate or record numerical data.
- Figure the costs of labor and materials needed or used by a company.
- Compute weight, freight and shipping charges.
- Maintain complete financial records of a small business.
- Supervise accounting clerks in a large business.

## WORK PERFORMED

What would you do as a worker in this group?

IACP



Bookkeepers maintain systematic and up-to-date records of business transactions in ledgers or other accounting forms.



Do you have a knack for concentrating on details?

Audit clerks must be able to spot mathematical errors quickly as they check the figures recorded by others.



What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

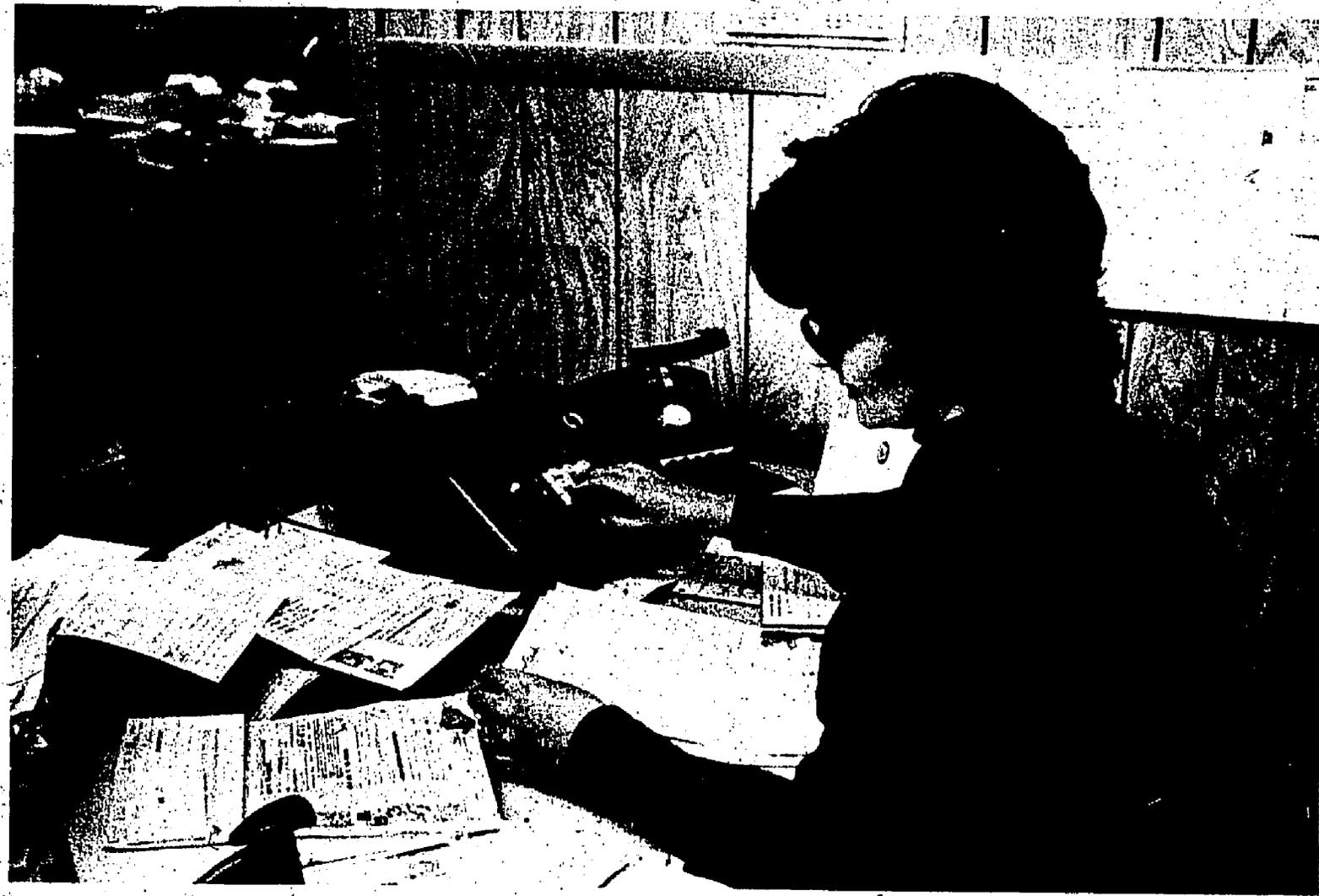
- Compute and record numerical data correctly.
- Know standard systems and procedures for keeping complete records.
- Move eyes, hands, and fingers together to use computing machines or to enter figures in a ledger.
- Adapt to routine and detailed work.
- Read and copy large amounts of numbers without error.
- Plan and oversee the work of others.

**WORKER  
REQUIREMENTS**

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you had business or general math courses? Do you like working with numbers?
- Have you taken bookkeeping or accounting courses? Are you interested in these fields?
- Have you balanced a checking account or figured interest rates? Have you helped work out a budget? Are you quick to spot errors in math?
- Have you served as treasurer for a school or local group? Did your records balance at the end of your term of office?
- Have you held a summer or part-time office job that involved working with numbers? Do you think you would like routine work of this kind?



Invoice control clerks need finger coordination to operate an adding machine as they read large quantities of numbers.

**How can you prepare for and enter this kind of work?****PREPARATION**

People able to compute basic arithmetic can enter many of these jobs. Workers receive on-the-job training for the specific tasks involved. However, some jobs require prior training in bookkeeping, accounting, or business math. High schools and business schools offer this type of training.

Federal government jobs usually require entrance tests.

**What else should you know about these jobs?****OTHER**

Workers in small offices do a variety of computing tasks. They may have to keep all numerical records for a business or agency. Prior training and experience is usually needed for these jobs.

**CONSIDERATIONS**

Large offices may divide the duties among many workers. Workers in these settings may do the same thing every day. People with little or no experience may be hired for these jobs.

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

2. Performing routine tasks.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                     |                         |
|--------|-------------------------------------|-------------------------------------|--------------------------|-------------------------|
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Compiling             |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Speaking/Signaling    |
| THINGS | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Operating/Controlling |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3-4.

Workers use personal judgment and math skills to keep financial records and compute numbers accurately. They carry out instructions presented in written, oral, or diagram form. These workers deal with a variety of concrete variables such as numerical record-keeping systems and office machines.

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S. Sedentary work.
- L. Light work.
- 4. Reaching, handling, fingering, and/or feeling
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I. Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |       |   |      |
|-------------------------|--------|---|-------|---|------|
|                         | Low    |   | to    |   | High |
| G - General             | 5      | 4 | 3     | 2 | 1    |
| V - Verbal              |        |   | 3     |   |      |
| N - Numerical           |        |   | 3     |   |      |
| Q - Clerical Perception |        |   | 3 - 2 |   |      |

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

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## Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T - Technical and business college courses in the clerical and office field.

V - Vocational school business courses.

NFT - Some occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from over 1 month up to and including 2 years (SVP 3, 4, 5, 6).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Language Skills, Basic Math Skills.

## OCCUPATIONS IN MATHEMATICAL DETAIL

|                                   |             |                            |             |
|-----------------------------------|-------------|----------------------------|-------------|
| Account Analyst                   | 214.382-010 | Insurance Clerk            | 214.382-022 |
| Accounting Clerk                  | 216.482-010 | Interest Clerk             | 216.482-038 |
| Accounting Clerk, Data Processing | 216.382-010 | Invoice Control Clerk      | 216.382-028 |
| Audit Clerk                       | 210.382-010 | Margin Clerk 2             | 216.382-046 |
| Billing Control Clerk             | 214.387-010 | Mortgage Accounting Clerk  | 216.382-026 |
| Billing Typist                    | 214.382-014 | Payroll Clerk              | 214.382-010 |
| Bookkeeper 1                      | 210.382-014 | Payroll Clerk, Chief       | 214.382-016 |
| Bookkeeper 2                      | 210.382-018 | Posting Clerk              | 216.382-018 |
| Bookkeeping Machine Operator 1    | 210.382-022 | Probate Clerk              | 216.382-031 |
| Bookkeeping Machine Operator 2    | 210.382-026 | Rater                      | 216.382-022 |
| Brewhouse Clerk 2                 | 219.362-018 | Receipt and Report Clerk   | 216.382-026 |
| Calculating Machine Operator      | 216.482-022 | Shipping Clerk             | 216.382-018 |
| Claim Examiner                    | 188.267-014 | Statistical Clerk          | 216.382-014 |
| Collection Clerk                  | 216.382-014 | Stock Transfer Clerk       | 216.382-014 |
| Coal Clerk                        | 216.382-034 | Supervisor, Machine Room   | 216.382-014 |
| Credit Card Clerk                 | 210.382-038 | Teller, Cashier and Teller | 216.382-014 |
| Demurrage Clerk                   | 214.362-010 | Timekeeper                 | 216.382-014 |
| Documentation Billing Clerk       | 214.362-014 | Traffic Clerk              | 216.382-014 |
| Exchange Clerk                    | 216.362-018 | Traffic Rate Clerk         | 216.382-014 |
| Food and Beverage Controller      | 216.362-022 | Trust Vault Clerk          | 216.382-014 |
| Foreign Clerk                     | 214.467-010 |                            |             |

# FINANCIAL DETAIL

Financial detail is work requiring math skills as well as an ability to deal with the public. Workers in this group also keep records and supervise the work of others. Jobs in this group are found where money is paid to or received from the public. Banks and other financial institutions also employ workers in this group.

## WORK PERFORMED

What would you do as a worker in this group?

You would pay or receive money and keep account of such exchanges. You would perform one or more of the following tasks.

- Receive money from customers and compute payments and interest.
- Compute airfare and sell airline tickets.
- Compute costs for items, receive cash, and make change.
- Cash winning tickets at a race track.
- Record bids for items and collect deposits at an auction.



Could you read prices, punch correct keys, make change, and smile as the customer waits?



These workers must make their records and the money received from customers balance each day.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use math skills to compute costs and make change.
- Keep records according to a set system.
- Use eyes, hands, and fingers to operate an adding machine or cash register.
- Use tact and courtesy in dealing with the public.
- Adapt to routine work and set procedures.
- Plan and oversee the work of others.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken a course in bookkeeping or accounting? Do you like working with numbers?
- Have you used a calculator or adding machine? Do you like operating such equipment?
- Have you balanced a personal checking account? Did the balance agree with the bank statement?
- Have you served as treasurer for a school, church, or club? Did your records balance at the end of your term of office?
- Have you sold anything to the public? Can you make change rapidly and correctly?

American Bankers Association



Would you enjoy the public contact required of a bank teller?

Do you like to maintain a budget and keep records on your personal financial transactions?



**How can you prepare for and enter this kind of work?**

Basic math skills are required for entering many of these jobs. Workers receive on-the-job training for specific tasks. Some jobs require formal training in bookkeeping, typing, or other business subjects. This training is offered in high schools and in commercial or business schools.

Applicants usually need to take a civil service test to enter government jobs.

**What else should you know about these jobs?**

Workers in this group often work after a firm closes to the public. They must make their cash and records balance each day.

Workers who handle money may have to be bonded to insure their honesty.

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**PREPARATION**

**OTHER CONSIDERATIONS**

**QUALIFICATIONS PROFILE**

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                     |                         |
|--------|-------------------------------------|-------------------------------------|--------------------------|-------------------------|
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Compiling             |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Speaking/Signaling    |
| THINGS | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Operating/Controlling |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |   |   |      |
|-------------------------|--------|---|---|---|------|
|                         | Low    | 4 | 3 | 2 | High |
|                         | 5      |   |   |   | 1    |
| G - General             |        |   | 3 |   |      |
| V - Verbal              |        |   | 3 |   |      |
| N - Numerical           |        |   | 3 |   |      |
| Q - Clerical Perception |        |   | 3 |   |      |
| F - Finger Dexterity    |        | 4 | 3 |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3-4.

Workers use personal judgment along with basic math skills to collect and distribute money and to keep records of monetary transactions. They interpret instructions usually presented in written form. These workers deal with concrete variables such as ticket sales, calculators, and gambling transactions.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

E – To enter most occupations workers only need the required competencies and credentials.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

V – Vocational school courses in distributive education or general clerical field.

NFT – Most occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from 30 days up to and including 2 years (SVP 2, 3, 4, 5, 6).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Basic Math Skills.

**OCCUPATIONS IN FINANCIAL DETAIL**

|                                 |             |
|---------------------------------|-------------|
| <b>Auction Clerk</b>            | 294.567-010 |
| <b>Cashier 1</b>                | 211.362-010 |
| <b>Cashier 2</b>                | 211.462-010 |
| <b>Cashier-Checker</b>          | 211.462-014 |
| <b>Cashier, Gambling</b>        | 211.462-022 |
| <b>Collector</b>                | 241.367-010 |
| <b>Coupon-Redemption Clerk</b>  | 290.477-010 |
| <b>Post-Office Clerk</b>        | 243.367-014 |
| <b>Supervisor, Ticket Sales</b> | 238.137-022 |
| <b>Teller</b>                   | 211.362-018 |
| <b>Teller</b>                   | 211.462-034 |
| <b>Teller, Note</b>             | 211.362-026 |
| <b>Ticket Agent</b>             | 238.367-026 |
| <b>Ticket Seller</b>            | 211.467-030 |

# INFORMATION PROCESSING: SPEAKING

Information processing, as used here, is speaking with people as a main job task. Some workers in this group use telephones, radios, or the telegraph. Businesses, institutions, and government agencies employ most of these workers in their offices.

You would ask questions or give information to others. You would perform one or more of the following tasks.

- Interview people and compile information.
- Give information to bus or train travelers.
- Operate a telephone switchboard.
- Register hotel guests and assign rooms.
- Receive callers at an office and direct them to the proper area.
- Use a radio to receive trouble calls and dispatch repairers.
- Register park visitors and explain rules and hazards.

## WORK PERFORMED

What would you do as a worker in this group?

American Telephone and Telegraph Co.



What do these two jobs have in common?



United Airlines

Airlines employ reservation sales agents to help customers arrange flight schedules.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use tact and courtesy in dealing with the public.
- Speak clearly.
- Give directions that are easily understood.
- Use a typewriter to complete forms.
- Change often from one type of task to another.
- Plan and oversee the work of others.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken business courses? Did you like them?
- Have you taken courses in speech? Do you have a clear speaking voice? Do you use good grammar?
- Have you worked in a school or community survey? Do you enjoy meeting and interviewing people?
- Have you operated a citizen's band radio? Do you like to use the equipment?

## PREPARATION

How can you prepare for and enter this kind of work?

People who enter these jobs usually have a good vocabulary and like contact with people. High school courses in typing or sales are helpful. Employers frequently provide on-the-job training ranging from one month to two years. General education or business training beyond high school improves chances for promotion. Applicants usually need to take a civil service test to enter government jobs.



Loan interviewers must be able to ask questions with tact and courtesy.

**What else should you know about these jobs?**

Workers in small offices may be assigned a variety of tasks.  
Jobs in large offices are often specialized.

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.
6. Activities involving the communication of ideas and information.
9. Activities involving processes, methods, or machines.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
4. Dealing with people.
8. Making decisions using standards that can be measured or checked.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                     |                             |
|--------|-------------------------------------|-------------------------------------|--------------------------|-----------------------------|
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Compiling                 |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Speaking/Signaling        |
| THINGS | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Operating/<br>Controlling |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.

## WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

## APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |    |   |      |
|-------------------------|--------|---|----|---|------|
|                         | Low    |   | to |   | High |
|                         | 5      | 4 | 3  | 2 | 1    |
| G - General             |        |   | 3  |   |      |
| V - Verbal              |        |   | 3  |   |      |
| N - Numerical           |        | 4 | 3  |   |      |
| Q - Clerical Perception |        |   | 3  | 2 |      |
| K - Motor Coordination  |        | 4 | 3  |   |      |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3-4.

Workers use personal judgment and specialized knowledge to give information to people orally. They interpret instructions presented in written, oral, diagram, and schedule form. These workers deal with concrete variables such as train and bus schedules, radio transmitters, and radar equipment.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

E - To enter most occupations workers only need the required competencies and credentials.

### Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

V - Vocational school courses in the general clerical field.

NFT - Most occupations in this group have no related formal education or training programs.

### Training Time

Occupations in this group may require from over 1 month up to and including 4 years (SVP 3, 4, 5, 6, 7).

### Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

OCCUPATIONS IN INFORMATION PROCESSING: SPEAKING

|                                    |             |                                      |             |
|------------------------------------|-------------|--------------------------------------|-------------|
| Admitting Officer                  | 205.137-010 | Hotel Clerk                          | 238.362-010 |
| Airline-Radio Operator             | 193.262-010 | Information Clerk                    | 237.367-018 |
| Central-Office Operator            | 235.462-010 | Information Clerk                    | 237.367-022 |
| Central-Office-Operator Supervisor | 235.132-010 | License Clerk                        | 205.367-034 |
| Charge-Account Clerk               | 205.367-014 | Loan Interviewer                     | 241.367-018 |
| Civil-Service Clerk                | 205.362-010 | Order Clerk, Food and Beverage       | 209.567-014 |
| Classified-Ad Clerk 1              | 247.367-010 | Police Aide                          | 243.362-014 |
| Collection Clerk                   | 241.357-010 | Policyholder-Information Clerk       | 249.262-010 |
| Communication-Center Operator      | 235.662-014 | Public Health Register               | 169.167-046 |
| Correspondence Clerk               | 209.262-010 | Radio Officer                        | 193.262-022 |
| Credit Clerk                       | 205.367-022 | Receptionist                         | 237.367-038 |
| Customer Service Representative    | 959.361-010 | Recreation-Facility Attendant        | 341.367-010 |
| Directory-Assistance Operator      | 235.662-018 | Registration Clerk                   | 205.367-042 |
| Dispatcher                         | 193.262-014 | Reservations Agent                   | 238.367-018 |
| Dispatcher                         | 932.167-010 | Service Clerk                        | 221.367-070 |
| Dispatcher, Bus and Trolley        | 913.167-014 | Skip Tracer                          | 241.367-026 |
| Dispatcher, Chief, Service or Work | 959.137-010 | Supervisor, Survey Workers           | 205.137-014 |
| Dispatcher, Maintenance Service    | 239.367-014 | Survey Worker                        | 205.367-054 |
| Dispatcher, Radio                  | 379.362-010 | Taxicab Starter                      | 913.367-010 |
| Dispatcher, Service                | 959.167-010 | Telegrapher                          | 236.562-010 |
| Dispatcher, Ship Pilot             | 248.367-026 | Telephone-Answering-Service Operator | 235.662-026 |
| Dispatcher, Traffic or System      | 919.162-010 | Telephone Operator                   | 235.662-022 |
| Election Clerk                     | 205.367-030 | Telephone Operator, Chief            | 235.137-010 |
| Employment-and-Claims Aide         | 169.367-010 | Train Dispatcher                     | 184.167-262 |
| Employment Clerk                   | 205.362-014 | Travel Clerk                         | 238.367-030 |
| Fire Lockout                       | 452.367-010 |                                      |             |

# INFORMATION PROCESSING: RECORDS

Information processing, as used here, means to compile, review, or maintain records. Workers in this group also schedule workers and check records for accuracy. Jobs in this group are found in most offices of businesses, institutions, and government agencies.

## WORK PERFORMED

What would you do as a worker in this group?

You would follow standard office procedures for working with various types of records. You would perform one or more of the following tasks.

- Prepare duty rosters for airplane flight crews.
- Review insurance claim forms for completeness.
- Read a copy of a letter or printed article and mark errors.
- Classify documents and code them for filing.
- Collect, verify, and file hospital records and prepare a summary report.
- Oversee the work of others.

American Bankers Association



Credit authorizers must know and follow bank procedures as they analyze loan applications.

Helping policyholders prepare claims is part of the daily routine of an insurance clerk.



What skills, abilities, and interests would help you succeed in this kind of work?

**WORKER REQUIREMENTS**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use a specified record keeping system.
- Analyze and classify data according to set procedures.
- Gather and record numerical data with accuracy.
- Adjust to routine work which is repeated daily.
- Plan and oversee the work of others.
- Recognize errors in punctuation, grammar, and spelling.

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken business courses? Do you like to classify and file material?
- Have you done a library report? Can you locate materials quickly using the card file?
- Have you been an officer in a school, church, or social group? Did you maintain a file of minutes or correspondence?
- Have you collected stamps or coins? Do you have them classified and arranged according to a plan?



You would use the same skills to find books in a library or patients' records in a doctor's office.



**How can you prepare for and enter this kind of work?**

**PREPARATION**

Most employers prefer workers who have a high school education or its equal. Some employers prefer workers who have completed business courses. Training for entry into many of these jobs is provided by federal or state programs for unemployed and low-skilled workers.

On-the-job training ranges from a short demonstration to a one-year program. Some employers test applicants' ability to perform or to learn job duties.

**What else should you know about these jobs?**

**OTHER**

Workers in small offices may be assigned a variety of tasks. Jobs in large offices are often specialized.

**CONSIDERATIONS**

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 2. Activities involving business contact.
- 3. Activities of a routine, definite, organized nature.
- 6. Activities involving the communication of ideas and information.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 4. Dealing with people.
- 8. Making decisions using standards that can be measured or checked.
- 10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                     |                         |
|--------|-------------------------------------|-------------------------------------|--------------------------|-------------------------|
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Compiling             |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Speaking/Signaling    |
| THINGS | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Operating/Controlling |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- L Light work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |    |       |       |      |
|-------------------------|--------|----|-------|-------|------|
|                         | Low    | to |       |       | High |
|                         | 5      | 4  | 3     | 2     | 1    |
| G - General             |        |    | 3     |       |      |
| V - Verbal              |        |    | 4 - 3 |       |      |
| N - Numerical           |        |    | 4 - 3 |       |      |
| Q - Clerical Perception |        |    |       | 3 - 2 |      |
| F - Finger Dexterity    |        |    | 4 - 3 |       |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3-4.

Workers apply personal judgment and specialized skills to process records of business transactions or to perform other clerical tasks. They carry out instructions presented in written, oral, or diagram form. These workers deal with various types of concrete variables such as truck routes, records of securities, and inventory control.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E - To enter most occupations workers only need the required competencies and credentials.
- A - To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

## Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- T - Technical school and business college courses in the clerical field.
- V - Vocational school courses in the general clerical field.
- NFT - Some occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from over 1 month up to and including 1 year (SVP 3, 4, 5).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Language Skills, Basic Math Skills.

## OCCUPATIONS IN INFORMATION PROCESSING: RECORDS

|                                  |             |                                   |             |
|----------------------------------|-------------|-----------------------------------|-------------|
| Aircraft-Log Clerk               | 221.362-010 | Medical Record Technician         | 079.367-014 |
| Assignment Clerk                 | 215.367-010 | Messenger, Bank                   | 230.367-014 |
| Checker 2                        | 209.687-010 | Order Clerk                       | 249.367-054 |
| Circulation Clerk                | 209.362-010 | Parcel-Post Clerk                 | 222.387-038 |
| Claims Clerks 1                  | 241.362-010 | Personnel Clerk                   | 209.362-026 |
| Classification Clerk             | 206.387-010 | Proofreader                       | 209.387-030 |
| Classified-Ad Clerk 2            | 247.387-022 | Property Clerk                    | 222.367-054 |
| Coding Clerk                     | 209.387-010 | Reservation Clerk                 | 238.362-014 |
| Compiler                         | 209.387-014 | Reservation Clerk                 | 238.367-014 |
| Control Clerk, Auditing          | 209.362-014 | Route-Delivery Clerk              | 222.587-034 |
| Control Clerk, Data Processing 1 | 221.382-014 | Scheduler, Maintenance            | 221.367-066 |
| Correspondence-Review Clerk 2    | 209.367-018 | Shipping-Ordering Clerk           | 219.367-030 |
| Credit Authorizer                | 249.367-022 | Shorthand Reporter                | 202.362-010 |
| Crew Scheduler                   | 215.362-010 | Stenographer                      | 202.362-014 |
| Customer-Complaint Clerk         | 241.367-014 | Stenotype Operator                | 202.362-022 |
| Diet Clerk                       | 245.587-010 | Stock-Control Clerk               | 219.367-034 |
| Disbursement Clerk               | 209.367-022 | Stock-Control Supervisor          | 221.137-038 |
| Dispatcher, Motor Vehicle        | 249.167-014 | Supervisor, Mails                 | 243.137-010 |
| Expediter                        | 222.367-018 | Supervisor, Personnel Clerks      | 209.132-010 |
| File Clerk 2                     | 206.367-014 | Supervisor, Steno Pool            | 202.132-010 |
| Insurance Checker                | 219.482-014 | Tape Librarian                    | 206.387-030 |
| Insurance Clerk 1                | 219.387-014 | Title Searcher                    | 209.367-046 |
| Insurance Clerk 2                | 205.567-010 | Traffic Clerk                     | 221.367-078 |
| Mail Carrier                     | 230.367-010 | Train Clerk                       | 219.462-014 |
| Mail Clerk                       | 209.587-026 | Transportation Agent              | 912.367-014 |
| Mail Handler                     | 209.687-014 | Travel Counselor, Automobile Club | 238.167-014 |
| Mailroom Supervisor              | 209.137-010 | Yard Clerk                        | 209.367-054 |
| Medical-Record Clerk             | 245.362-010 |                                   |             |

# CLERICAL MACHINE OPERATION

Clerical machine operation involves the use of business machines to record or process data. These machines are used to type, sort, compute, send, or receive data. These

jobs are found wherever large amounts of data are processed, sent, or received. Businesses, industries, and government agencies employ most of the workers in this group.

Standard Oil Company



The speed with which teletyped messages are sent and received helps a company operate more efficiently.

## WORK PERFORMED

What would you do as a worker in this group?

You would operate one or several machines to record, process, send or receive data. You would perform one or more of the following tasks.

- Type letters and reports.
- Set type for printed materials.
- Process financial records using a bookkeeping machine.
- Enter data onto computer punch cards or magnetic tape using a keyboard machine.
- Enter data onto a computer using a computer terminal.
- Send and receive messages using telegraphic typewriter.
- Operate a telephone switchboard.
- Supervise and plan the work of clerical machine operators.



A monotype operator needs keyboard accuracy and finger dexterity to perform well.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Move eyes, hands, and fingers together to operate a typewriter or other keyboard machine.
- Adjust to routine work.
- Maintain a high degree of accuracy.
- Know bookkeeping and billing procedures.
- Know specific systems and procedures for operating a computer terminal.
- Plan and oversee the work of others.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken courses in typing? Were you average or better in speed and accuracy? Do you like to type?
- Have you worked as an office helper at school or somewhere else? Did you type or operate any office machines? Was your work accurate?
- Have you used a pocket calculator? Was the keyboard arrangement easy to use?

U. S. Environmental Protection Agency



Computer operators learn to type commands into computer consoles in vocational and technical schools.

**How can you prepare for and enter this kind of work?****PREPARATION**

Most of these jobs require a high school education or its equal. Spelling and grammar skills are important to enter some jobs in this group. Basic math skills may also be important. Employers may prefer workers who can operate several clerical machines.

Some employers provide machine instruction and on-the-job training. Vocational and technical schools offer courses to prepare operators of keypunch machines and computer terminals. These courses are three months to one year in length. Applicants with some type of training usually have better chances for employment.

Experienced workers with leadership ability may become supervisors.

**What else should you know about these jobs?**

Large offices usually have enough work to keep machines operating all the time. In small offices, machine operators may also do a variety of other clerical tasks.

**OTHER  
CONSIDERATIONS**

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**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

2. Performing routine tasks.
4. Dealing with people.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                     |                                   |
|--------|-------------------------------------|-------------------------------------|--------------------------|-----------------------------------|
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Compiling                       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Taking Instructions/<br>Helping |
| THINGS | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Operating/<br>Controlling       |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |       |       |   |      |
|-------------------------|--------|-------|-------|---|------|
|                         | Low    |       | to    |   | High |
|                         | 5      | 4     | 3     | 2 | 1    |
| G - General             |        |       | 3     |   |      |
| Q - Clerical Perception |        |       | 3 - 2 |   |      |
| K - Motor Coordination  |        |       | 3 - 2 |   |      |
| F - Finger Dexterity    |        |       | 3     |   |      |
| M - Manual Dexterity    |        | 4 - 3 |       |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3.

Workers use basic mechanical skills to operate clerical machines that compute or copy numbers or words. They follow operating instructions which are presented in written, oral, or diagram form. These workers deal with concrete variables such as computer terminals, typewriters, and bookkeeping machines.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

E - To enter most occupations workers only need the required competencies and credentials.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- T - Technical school and business college courses in the clerical field.
- V - Vocational school business and office courses.
- NFT - Some occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from over 3 months up to and including 2 years (SVP 4, 5, 6).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Basic Math Skills, Language Skills.

**OCCUPATIONS IN CLERICAL MACHINE OPERATION**

|   |             |   |             |
|---|-------------|---|-------------|
| <b>Adding-Machine Operator</b>                | 216.482-014 | <b>Proof-Machine Operator</b>                       | 217.382-010 |
| <b>Billing-Machine Operator</b>               | 214.482-010 | <b>Supervisor, Computer Operations</b>              | 213.132-010 |
| <b>Clerk-Typist</b>                           | 203.362-010 | <b>Supervisor, Machine-Records Unit</b>             | 213.132-014 |
| <b>Computer Operator</b>                      | 213.362-010 | <b>Supervisor, Telegraphic-Typewriter Operators</b> | 203.132-010 |
| <b>Computer-Peripheral-Equipment Operator</b> | 213.382-010 | <b>Tabulating-Machine Operator</b>                  | 213.682-010 |
| <b>Data Typist</b>                            | 203.582-022 | <b>Telegraphic-Typewriter Operator</b>              | 203.582-050 |
| <b>Food Checker</b>                           | 211.482-014 | <b>Transcribing-Machine Operator</b>                | 203.582-058 |
| <b>Keypunch Operator</b>                      | 203.582-030 | <b>Transit Clerk</b>                                | 217.382-014 |
| <b>Linotype Operator</b>                      | 650.582-010 | <b>Typesetter-Perforator Operator</b>               | 203.582-062 |
| <b>Magnetic-Tape-Typewriter Operator</b>      | 203.582-034 | <b>Typist</b>                                       | 203.582-066 |
| <b>Monotype-Keyboard Operator</b>             | 650.582-014 | <b>Variety Operator</b>                             | 203.382-026 |
| <b>Phototypesetter Operator</b>               | 650.582-022 | <b>Verifier Operator</b>                            | 203.582-070 |

# CLERICAL HANDLING

Jobs in this group involve performing clerical duties requiring little specific preparation or skill. These duties are to file, sort, copy, route, or deliver data. Most large businesses, industries, and government agencies employ these workers.

## WORK PERFORMED

What would you do as a worker in this group?

You would do routine clerical work. You would often be assigned to a specific set of tasks. These tasks might vary or stay the

same. You would perform one or more of the following tasks.

- Wrap, inspect, weigh, and mail packages.
- Record cash on delivery charges or insurance rates on packages.
- Receive, sort, and route mail or messages.
- File records and documents.
- Keep office workers supplied with paper, pencils, and typewriter ribbons.
- Record information about incoming or outgoing shipments.
- Supervise the work of others.

The majority of the postal clerks employed by the government sort incoming and outgoing mail.



U. S. Postal Service



U. S. Postal Service

Large companies employ workers to sort incoming mail and messages and prepare outgoing letters and packages for shipment.



What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Perform clerical tasks that do not require special skills.
- Follow directions and set procedures.
- Keep correct records and copy numbers without error.
- Adjust to routine work.
- Work with others as a member of a team.
- Plan and oversee the work of others.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you worked as an office helper at school or somewhere else? Did you run errands for teachers or office staff?
- Have you kept a checking account for yourself or for a club or group? Did you keep correct records? Do you enjoy this type of detailed work?
- Have you helped put papers or cards in order according to the alphabet? Do you mind doing routine clerical tasks?

## PREPARATION

How can you prepare for and enter this kind of work?

Many of these jobs require basic arithmetic and English skills. Most employers provide on-the-job training. However, high school level commercial courses are helpful in getting these jobs. Federal government jobs usually require applicants to take entrance tests.

For jobs in this group, employers sometimes hire workers who have clerical training but no experience. Employers then select workers from these entry jobs to fill openings in higher level jobs. As a result, these jobs are often a starting place for promotion to other types of office jobs.

American Bankers Association



Could you follow set filing procedures and adjust to routine work?

**What else should you know about these jobs?**

Jobs in this group are a source of employment for people wanting part-time work. Although the pay is often low, experience in these jobs can be valuable for advancement.

**OTHER CONSIDERATIONS**

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 1. Activities dealing with things and objects.
- 3. Activities of a routine, definite, organized nature.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 8. Making decisions using standards that can be measured or checked.
- 10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                     |                      |
|--------|-------------------------------------|--------------------------|--------------------------|----------------------|
| DATA   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Copying            |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Speaking/Signaling |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Handling           |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- L Light work.
- 4. Reaching, handling, fingering, and/or feeling.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |       |   |      |
|-------------------------|--------|---|-------|---|------|
|                         | Low    | 4 | 3     | 2 | High |
|                         | 5      |   |       |   | 1    |
| G - General             |        |   | 4 - 3 |   |      |
| V - Verbal              |        |   | 4 - 3 |   |      |
| Q - Clerical Perception |        |   | 3     |   |      |
| F - Finger Dexterity    |        |   | 4 - 3 |   |      |
| M - Manual Dexterity    |        |   | 4 - 3 |   |      |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 2-3.

Workers use common sense to carry out instructions involving easy clerical tasks. They mail packages, receive and send messages, and collect coins from machines.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

E - To enter most occupations workers only need the required competencies and credentials.

### Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- V - Vocational school courses in the general clerical field.
- NFT - Most occupations in this group have no related formal education or training programs.

### Training Time

Occupations in this group may require from 30 days up to and including 3 months (SVP 2, 3).

### Related High School Level Courses

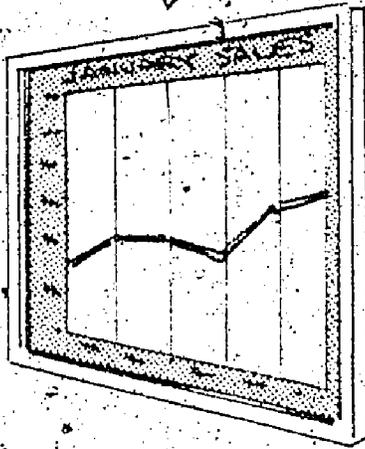
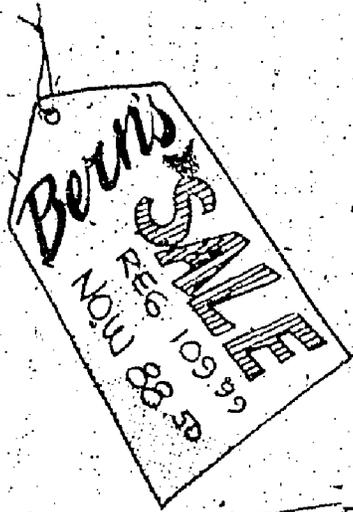
The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

## OCCUPATIONS IN CLERICAL HANDLING

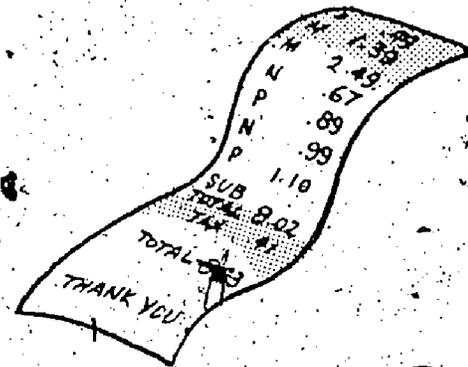
|                                  |             |
|----------------------------------|-------------|
| Addresser                        | 209.587-010 |
| Advertising-Material Distributor | 230.687-010 |
| Checker 1                        | 222.687-010 |
| Clerk, General                   | 209.562-010 |
| Collator                         | 653.687-010 |
| Deliverer, Outside               | 230.667-010 |
| Distributing Clerk               | 222.587-018 |
| File Clerk 1                     | 206.362-010 |
| Mailroom Supervisor              | 222.137-022 |
| Messenger, Copy                  | 239.677-010 |
| Office Helper                    | 239.567-010 |
| Page                             | 249.687-014 |
| Routing Clerk                    | 222.687-022 |
| Sorter                           | 209.687-022 |
| Teacher Aide 2                   | 249.367-074 |

## PERSUASIVE



This is an interest in influencing others through sales and promotional techniques.

You can satisfy this interest in a wide variety of sales jobs. You may enjoy selling technical products or services. Perhaps you may prefer a selling job which requires less background knowledge. You may enjoy dealing with business and industrial workers. You could seek a job in wholesale sales. You may like to deal with the general public. You could work in stores, sales offices, or in customers' homes. You may prefer to buy and sell products to make a profit.



# SALES TECHNOLOGY

Technical sales are the selling of technical equipment such as industrial machinery. Jobs also include the selling of insurance and services. Some workers in this group buy as well as sell. Wholesale, service, insurance, and other private firms employ workers in this group.

## WORK PERFORMED

What would you do as a worker in this group?

You would use speaking skills to buy or sell products, materials, equipment, or services. Extensive knowledge about what you buy or sell would be needed. You

would perform one or more of the following tasks.

- Call on doctors and drugstores to promote the sale and use of new drugs and medicines.
- Select and purchase goods for a department store.
- Call on industries, companies, and professionals in their places of business.
- Provide technical information about the product, material, equipment, or service sold.
- Explain the use and maintenance of construction equipment to contractors.
- Sell insurance to people.
- Advise customers of their need for the products or services you sell.

This insurance representative may have first contacted these clients in their home.





Department store buyers must be able to judge the quality of the goods they purchase.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Learn technical information about the products you sell.
- Explain technical information to others.
- Gain the trust of others through your attitude and behavior.
- Know credit rules and when it is best to buy or sell.
- Plan and prepare complex sales contracts or purchase orders.
- Note errors in figures or wording in contracts or purchase orders.
- Plan and manage your own time and work.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken business or sales related subjects in school? Did you like the courses?
- Have you attended auctions? Can you pinpoint, in advance, the items which sell for the highest bid? Do you like to estimate the cost of items?
- Have you purchased items and sold them to make money? Were your profits what you expected them to be? Do you enjoy doing this type of activity?
- Have you made speeches or been in debates? Do you enjoy presenting ideas to people?
- Have you worked as a salesperson in a store? Do you enjoy sales work?

American Textiles Manufacturer's Institute, Inc.



Sales representatives must have a thorough knowledge of the products they sell in order to inform general sales workers.

Would you enjoy traveling to call on clients?



**How can you prepare for and enter this type of work?**

The most common way to prepare for this work is to obtain a two- or four-year degree. A major in business administration, marketing, or a related field would help prepare workers for these jobs. A degree in engineering, chemistry, or physics may help workers sell technical products. Workers with related work experience and a high school education or its equal may be advanced to these jobs.

Most employers give new workers formal and informal training. This training helps workers learn the policies, methods, and details of their work. The training period may last up to one year.

Jobs in real estate or insurance often require the worker to have a state or local license. These licenses are usually obtained by passing a written test.

**What else should you consider?**

Most of the jobs in this group require workers to meet new persons. Some jobs involve traveling much of the time. Many workers are under pressure. They must make important decisions. These decisions affect sales or investments involving large sums of money.

Some workers receive a salary. Others work on a commission. This commission is usually a percent of the price of the goods or services sold. Some workers own their own businesses. Usually these owners receive little more than living expenses until the businesses show a profit.

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**PREPARATION****OTHER  
CONSIDERATIONS****QUALIFICATIONS  
PROFILE**

**WORK ACTIVITIES**

- 1. Workers generally prefer the following types of work activities.
- 2. Activities involving business contact.
- 5. Activities resulting in recognition or appreciation from others.
- 6. Activities involving the communication of ideas and information.
- 7. Activities of a scientific and technical nature.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 4. Dealing with people.
- 5. Influencing people's opinions, attitudes, and judgments.
- 7. Making decisions using personal judgment.
- 8. Making decisions using standards that can be measured or checked.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                                |              |
|--------|-------------------------------------|-------------------------------------|-------------------------------------|--------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Analyzing  |
| PEOPLE | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Persuading |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | - Handling   |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S. Sedentary work.
- L. Light work.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 1. Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |   |   |       |
|-------------------------|--------|---|---|---|-------|
|                         | Low    | 4 | 3 | 2 | High  |
| G - General             |        |   |   |   | 3 - 2 |
| V - Verbal              |        |   |   |   | 3 - 2 |
| N - Numerical           |        |   |   |   | 3 - 2 |
| P - Form Perception     |        |   |   |   | 3     |
| Q - Clerical Perception |        |   |   |   | 3     |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 4-5.

Workers apply logical thinking and knowledge of marketing and merchandising to buy, sell, or promote the use of products or services. They collect data and draw valid conclusions to solve problems involved in marketing or sales. These workers interpret technical information and carry out instructions furnished in written, oral, diagram, or schedule form. They deal with abstract and concrete variables such as supply and demand, technical facts about products, construction equipment, and chemicals.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

**E** – To enter some occupations workers only need the required competencies and credentials.

**A** – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

### Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

**C** – College degree in marketing, business management, or related field.

**T** – One- or two-year technical school program in business, marketing, or a technical field.

**V** – Vocational school courses in distributive education.

**NFT** – Some occupations in this group have no related formal education or training programs.

### Training Time

Occupations in this group may require from over 6 months up to and including 10 years (SVP 5, 7, 8).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Language Skills, Basic Math Skills.

## OCCUPATIONS IN SALES TECHNOLOGY

|  |             |
|--|-------------|
| <b>Business-Opportunity and Property-<br/>Investment Broker</b>    | 189.157-010 |
| <b>Buyer</b>   | 162.157-018 |
| <b>Buyer, Assistant</b>  | 162.157-022 |
| <b>Buyer, Grain</b>  | 162.167-010 |
| <b>Commission Agent, Livestock</b>                                 | 162.157-026 |
| <b>Comparison Shopper</b>  | 296.367-014 |
| <b>Field-Contact Technician</b>                                    | 162.117-026 |
| <b>Pawnbroker</b>  | 191.157-010 |
| <b>Pharmaceutical Detailer</b>                                     | 262.157-010 |
| <b>Sales Agent, Financial Services</b>                             | 251.257-010 |
| <b>Sales Agent, Insurance</b>                                      | 250.257-010 |
| <b>Sales Representative, Advertising</b>                           | 254.357-014 |
| <b>Sales Representative, Aircraft Equipment<br/>and Parts</b>      | 273.357-010 |
| <b>Sales Representative, Building Equipment<br/>and Supplies</b>   | 274.357-018 |
| <b>Sales Representative, Chemicals and Drugs</b>                   | 262.357-010 |
| <b>Sales Representative, Construction Machinery</b>                | 274.357-022 |
| <b>Sales Representative, Dental and Medical<br/>Equipment</b>      | 276.257-010 |
| <b>Sales Representative, Education Courses</b>                     | 259.257-010 |
| <b>Sales Representative, Electronics Parts</b>                     | 271.357-010 |
| <b>Sales Representative, Foundry and Machine<br/>Shop Products</b> | 274.257-010 |
| <b>Sales Representative, Hotel Services</b>                        | 259.157-014 |
| <b>Sales Representative, Industrial Machinery</b>                  | 274.357-038 |
| <b>Sales Representative, Livestock</b>                             | 260.257-010 |
| <b>Sales Representative, Metals</b>                                | 274.357-054 |
| <b>Sales Representative, Oilfield Supplies<br/>and Equipment</b>   | 274.357-058 |
| <b>Sales Representative, Public Utilities</b>                      | 253.357-010 |
| <b>Sales Representative, Printing</b>                              | 254.357-018 |
| <b>Sales Representative, Radio and Television Time</b>             | 259.357-018 |
| <b>Sales Representative, Telephone Services</b>                    | 253.257-010 |
| <b>Tobacco-Warehouse Agent</b>                                     | 259.357-038 |

# GENERAL SALES

General sales are the selling of products or services to businesses, industries, or persons. Jobs in this group are found wherever there is contact with people for the purpose of selling. Settings include retail and wholesale stores and businesses.

## WORK PERFORMED

What would you do as a worker in this group?

You would work in a store, call on customers in person, or contact people by telephone to sell products or services. You

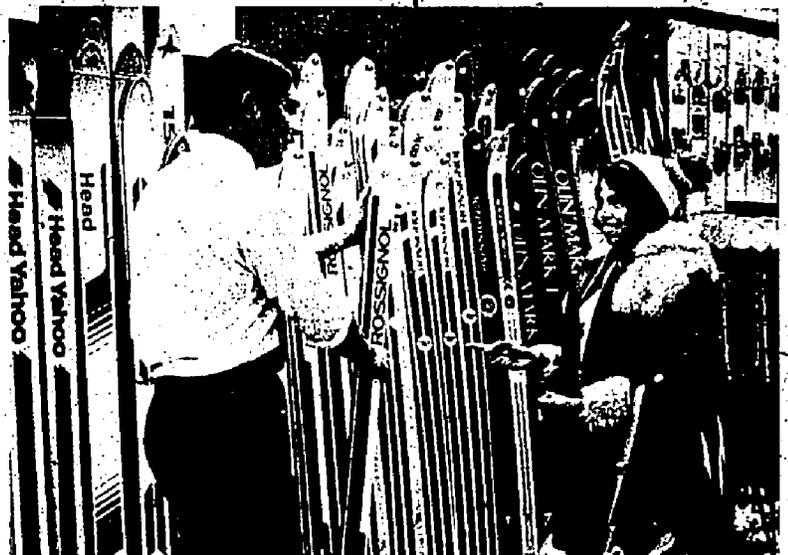
would perform one or more of the following tasks.

- Quote prices and credit terms to customers.
- Take orders or write contracts showing purchases and the method of payment.
- Help customers find the items they need.
- Take telephone orders for goods or services.
- Fill out charge slips or take cash and make change.
- Drive a truck on a route to sell to established customers.
- Keep records of sales made or travel expenses.

Beeline



A. Customer's home



B. Retail Store

Which work environment would you enjoy?

282



A pleasant voice and the ability to persuade are necessary tools for the telephone sales worker.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Speak clearly and hold the attention of others.
- Gain the trust of others through your attitude and behavior.
- Demonstrate or explain the use and special features of products sold.
- Compute numbers correctly to prepare sales contracts, figure costs, and make change.
- Keep records of sales, customers contacted, and personal expenses.
- Stay alert all day and be physically active as needed.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you had courses in sales, bookkeeping, or business math? Did you like these courses? Can you work with numbers?
- Have you worked in a grocery or other store? Do you like sales work?
- Have you sold items door-to-door for a class or civic group? Have you collected money or items for a charity? Do you like to meet people this way?
- Have you given oral reports in front of a group? Can you express your ideas easily?

## PREPARATION

How can you prepare for and enter this type of work?

Most of the jobs in this group require a high school education or its equal. Many high schools, junior colleges, and community colleges offer helpful courses in selling or retailing. Some schools provide work study programs in which students work part-time as well as attend classes. Selling experience during vacations would also help prepare for this type of work.



In retail sales, a worker is expected to keep the merchandise in order and displayed attractively.

Employers usually provide on-the-job training. New workers learn about the company policies and the products or services to be sold. These training programs may last from one week to three months. Some jobs may require workers to have extra skills such as driving a truck or playing a musical instrument. Other jobs may require workers to make minor repairs or adjustments on the equipment they sell.

### What else should you consider?

Working hours vary in many retail sales jobs. Some stores stay open to the public on Sundays, holidays, or evenings. Selling work is usually done at the customer's convenience.

Some workers are paid by the hour. Others are paid according to how much they sell. Some workers' pay may combine both of these ways. Workers with sales experience are sometimes promoted to managers' positions.

## OTHER CONSIDERATIONS

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## QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

### WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
5. Influencing people's opinions, attitudes, and judgments.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

### WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
6. Activities involving the communication of ideas and information.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg                                 | High                     |              |
|--------|-------------------------------------|-------------------------------------|--------------------------|--------------|
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Compiling  |
| PEOPLE | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Persuading |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Handling   |

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- L Light work.
- M Medium work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |   |   |      |
|-------------------------|--------|---|---|---|------|
|                         | Low    |   |   |   | High |
|                         | 5      | 4 | 3 | 2 | 1    |
| G - General             |        |   |   |   | 3    |
| V - Verbal              |        |   |   |   | 3    |
| N - Numerical           |        |   |   |   | 3    |
| Q - Clerical Perception |        |   |   |   | 3    |

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3-4.

Workers apply general knowledge of sales techniques and specific knowledge of products they sell. They interpret technical instructions presented in written, oral, or diagram form. These workers solve practical problems involving concrete variables such as keeping sales records, making change, or demonstrating a product.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

- E - To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- V - Vocational school courses in distributive education.
- NFT - Most occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from over 3 months up to and including 2 years (SVP 4, 5, 6).

## Related High School-Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

## OCCUPATIONS IN GENERAL SALES

|  |             |
|--|-------------|
| Auctioneer                                       | 294.257-010 |
| Building Consultant                              | 250.357-010 |
| Demonstrator                                     | 297.354-010 |
| Demonstrator, Sewing Techniques                  | 297.454-010 |
| Driver, Sales Route                              | 292.353-010 |
| Driver Helper, Sales Route                       | 292.667-010 |
| Manufacturers' Representative                    | 279.157-010 |
| Sales Agent, Business Services                   | 251.357-010 |
| Sales Agent, Pest Control Service                | 251.357-018 |
| Sales Agent, Real Estate                         | 250.357-018 |
| Salesperson, Automobile Accessories              | 273.357-030 |
| Salesperson, Automobiles                         | 273.353-010 |
| Salesperson, Books                               | 277.357-034 |
| Salesperson, Burial Needs                        | 279.357-042 |
| Salesperson, China and Silverware                | 279.357-018 |
| Salesperson, Corsets                             | 261.354-010 |
| Salesperson, Cosmetics and Toiletries            | 262.357-018 |
| Salesperson, Curtains and Draperies              | 270.357-022 |
| Salesperson-Demonstrator, Party Plan             | 279.357-038 |
| Salesperson, Floor Coverings                     | 270.357-026 |
| Salesperson, Florist Supplies                    | 275.357-054 |
| Salesperson, Flowers                             | 260.357-026 |
| Salesperson, Flying Squad                        | 279.357-046 |
| Salesperson, Furniture                           | 270.357-030 |
| Salesperson, General Hardware                    | 279.357-050 |
| Salesperson, General Merchandise                 | 279.357-054 |
| Salesperson, Hearing Aids                        | 276.354-010 |
| Salesperson, Horticultural and Nursery Products  | 272.357-022 |
| Salesperson, Household Appliances                | 270.357-034 |
| Salesperson, Infants' and Children's Wear        | 261.357-046 |
| Salesperson, Jewelry                             | 279.357-058 |
| Salesperson, Men's and Boys' Clothing            | 261.357-050 |
| Salesperson, Men's Furnishings                   | 261.357-054 |
| Salesperson, Millinery                           | 261.357-058 |
| Salesperson, Musical Instruments and Accessories | 277.357-038 |

|   |             |
|---|-------------|
| Salesperson, Parts  | 279.357-062 |
| Salesperson, Pets and Pet Supplies                        | 277.357-042 |
| Salesperson, Photographic Supplies and Equipment          | 277.357-050 |
| Salesperson, Shoes  | 261.357-062 |
| Salesperson, Sporting Goods                               | 277.357-058 |
| Salesperson, Stereo Equipment                             | 270.357-038 |
| Salesperson, Trailers and Motor Homes                     | 273.357-034 |
| Salesperson, Women's Apparel and Accessories              | 261.357-066 |
| Salesperson, Yard Goods                                   | 261.357-070 |
| Sales Representative, Apparel Trimmings                   | 261.357-010 |
| Sales Representative, Architectural and Engineering       | 276.357-010 |
| Sales Representative, Barber and Beauty Equipment         | 275.357-010 |
| Sales Representative, Bottles and Bottling Equipment      | 274.357-014 |
| Sales Representative, Canvas Products                     | 261.357-014 |
| Sales Representative, Commercial Equipment and Supplies   | 275.357-018 |
| Sales Representative, Door-to-Door                        | 291.357-010 |
| Sales Representative, Farm and Garden Equipment           | 272.357-014 |
| Sales Representative, Food Products                       | 260.357-014 |
| Sales Representative, Footwear                            | 261.357-018 |
| Sales Representative, General Merchandise                 | 279.357-014 |
| Sales Representative, Hardware Supplies                   | 274.357-034 |
| Sales Representative, Hobbies and Crafts                  | 277.357-010 |
| Sales Representative, Home Furnishings                    | 270.357-010 |
| Sales Representative, Hotel and Restaurant Equipment      | 275.357-026 |
| Sales Representative, Household Appliances                | 270.357-014 |
| Sales Representative, Industrial Rubber Goods             | 274.357-042 |
| Sales Representative, Jewelry                             | 279.357-018 |
| Sales Representative, Material-Handling Equipment         | 274.357-050 |
| Sales Representative, Men's and Boys' Apparel             | 261.357-022 |
| Sales Representative, Motor Vehicles and Supplies         | 273.357-022 |
| Sales Representative, Musical Instruments and Accessories | 277.357-014 |
| Sales Representative, Novelties                           | 277.357-018 |
| Sales Representative, Office Machines                     | 275.357-034 |
| Sales Representative, Paper and Paper Products            | 279.357-026 |
| Sales Representative, Petroleum Products                  | 269.357-014 |
| Sales Representative, Plastic Products                    | 279.357-030 |
| Sales Representative, Publications                        | 277.357-022 |
| Sales Representative, Recreation and Sporting Goods       | 277.357-026 |
| Sales Representative, School Equipment and Supplies       | 275.357-042 |
| Sales Representative, Textile Designs                     | 274.357-066 |
| Sales Representative, Tobacco Products and Smoking        | 260.357-022 |
| Sales Representative, Toilet Preparations                 | 262.357-014 |
| Sales Representative, Upholstery and Furniture            | 259.357-026 |
| Sales Representative, Women's and Girls' Apparel          | 261.357-038 |
| Superintendent, Sales                                     | 250.157-010 |
| Supervisor, Route Sales-Delivery Drivers                  | 292.137-014 |
| Telephone Solicitor                                       | 299.357-014 |
| Travel Agent  | 252.157-010 |
| Wedding Consultant  | 299.357-018 |

# VENDING

Vending is the peddling of inexpensive items in public buildings, at public gatherings, or on street corners. Most jobs are found in restaurants, clubs, or sports arenas.

have to add mentally the total cost of several items. You would also need to make correct change quickly. You would perform one or more of the following tasks.

## WORK PERFORMED

What would you do as a worker in this group?

You would draw attention to what you sell and make many quick sales. You would

- Move through the stands during a spectator event and sell programs, novelties, or food items.
- Sell flowers, fruit, or ice cream from a pushcart or truck.
- Shout, gesture, sing, or ring bells to draw attention to what you are selling.
- Carry a tray of cigarettes or other items for sale in a restaurant or bar.



A street corner is this worker's "store."



Could you make change quickly and correctly in the middle of a large crowd?

**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Speak clearly.
- Persuade others to buy your products.
- Add numbers mentally and make the right change.
- Walk or stand for long periods and sometimes carry the products you sell.

**Do you have or can you develop these skills, abilities, and interests?**

Your answers to the following questions will help you decide.

- Have you sold programs or food at a community carnival or fair? Do you enjoy shouting or gesturing to get the attention of a crowd?
- Have you tried to sell products to raise money for a school or civic project? Did you sell the number of products assigned to you?
- Have you sold magazines or candy door-to-door? Do you like to approach people?
- Have you worked in a bake or rummage sale? Can you figure the cost of several items rapidly and make change correctly?

## WORKER REQUIREMENTS

## CLUES

PREPARATION

How can you prepare for and enter this type of work?

Most jobs in this group are open to anyone. Formal training, education, or experience is seldom required. Workers may receive short instructions from their employers. These instructions usually include the selling price of items.



Have you helped raise money for a school project by selling candy?



Would you enjoy getting the attention of a crowd by shouting and gesturing?

**OTHER CONSIDERATIONS**

**What else should you consider?**

Jobs in this group are usually short-term. Few jobs provide permanent employment. However, large arenas and stadiums hire people for these jobs on a regular basis. These jobs provide experience that can be applied to other saleswork.

Some jobs in this group require the worker to be outside in all kinds of weather.

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 2. Activities involving business contact.
- 3. Activities of a routine, definite, organized nature.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 4. Dealing with people.
- 5. Influencing people's opinions, attitudes, and judgments.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                     |              |
|--------|-------------------------------------|-------------------------------------|--------------------------|--------------|
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Computing  |
| PEOPLE | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Persuading |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Handling   |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- B Both: inside and outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes            | Levels |   |    |   |      |
|----------------------|--------|---|----|---|------|
|                      | Low    |   | to |   | High |
|                      | 5      | 4 | 3  | 2 | 1    |
| G - General          |        | 4 |    |   |      |
| V - Verbal           |        | 4 |    |   |      |
| N - Numerical        |        | 4 | -  | 3 |      |
| F - Finger Dexterity |        | 4 | -  | 3 |      |
| M - Manual Dexterity |        | 4 | -  | 3 |      |

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 2.

Workers apply common sense to sell products. They carry out detailed but simple written or oral instructions. These workers take orders, count items, and make change.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E - To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT - Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from 30 days up to and including 3 months (SVP 2, 3).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

OCCUPATIONS IN VENDING

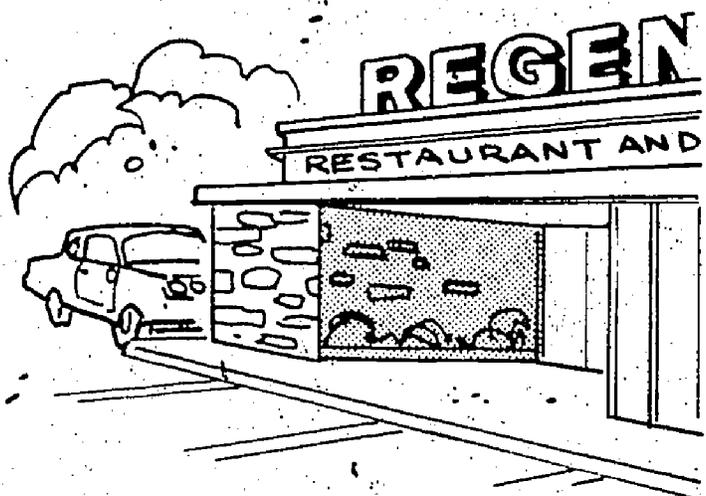
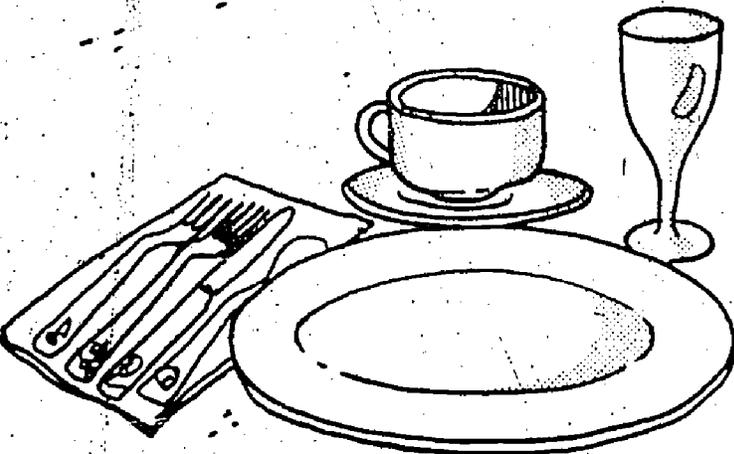
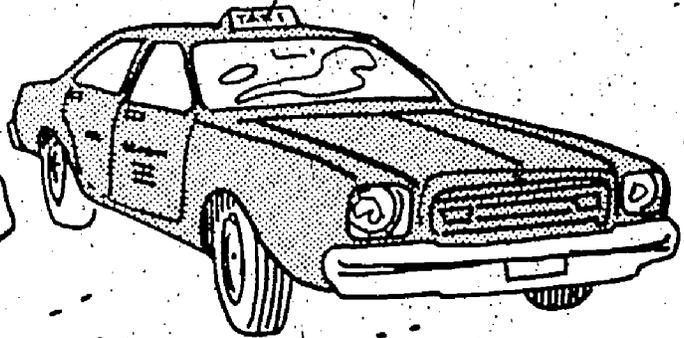
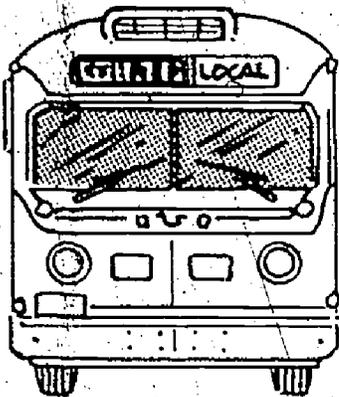
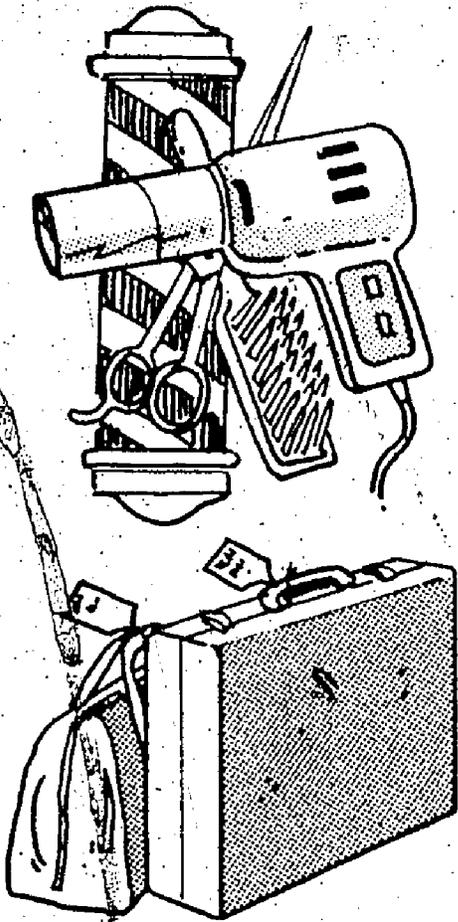
Peddler  
Photographer  
Vendor

291.457-018  
143.457-010  
291.457-022

# ACCOMMODATING

This is an interest in catering to and serving the desires of others, usually on a one-to-one basis.

You can satisfy this interest by providing services for the convenience of others. You may enjoy making others feel at ease by providing hospitality services. You may prefer to improve the appearance of others. Perhaps working in the hair and beauty care field would satisfy you. You may like to provide personal services such as taking tickets, carrying baggage, or ushering.



# HOSPITALITY SERVICES

Hospitality services help people feel at ease and enjoy themselves. These services may involve planning and directing social events or guiding people through museums, cities, or countries. Airline, railroad, ship, and escort companies, as well as resorts and hotels, employ workers in this group. Jobs also can be found in social clubs.

## WORK PERFORMED

What would you do as a worker in this group?

You would help visitors, travelers, or customers get acquainted with and feel at ease in a new setting. You would perform one or more of the following tasks.

- Welcome and seat guests in a hotel or restaurant.
- Accompany young people to concerts or sports events.
- Provide services for the safety and comfort of passengers.
- Guide clients through an industrial plant or a place of historical interest.
- Plan and direct guest activities at a resort or in a retirement home.



Restaurants often employ hosts or hostesses to make dinner reservations, greet customers, and seat guests.



Flight attendants serve meals and see to the comfort of the passengers.  
American Airlines



What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use correct grammar.
- Converse easily with others and put them at ease.
- Give clear and accurate information.
- Adapt to tasks that may change often.
- Remain calm in emergencies.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you been a member of a school or civic group?  
Do you like to socialize?
- Have you had courses in speech? Do you like to speak to groups?
- Have you planned or organized a party? Can you lead others in games and group activities?
- Have you helped others learn to dance? Did they seem to enjoy the lesson?
- Have you been treasurer or secretary for a social group?  
Can you keep accurate records?



Do you enjoy organizing a party?

**How can you prepare for and enter this kind of work?****PREPARATION**

Employers provide on-the-job training for most jobs in this group. However, airplane flight attendants need formal training before being assigned a job. This training covers subjects such as personal grooming, in-flight service, and first aid. Most commercial airlines provide training programs. Some community colleges offer related courses.

**What else should you know about these jobs?****OTHER  
CONSIDERATIONS**

Workers in this group often have to travel or live in hotels and resorts. Night or holiday work may be required. Some workers must wear uniforms.

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**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                                |                |
|--------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Coordinating |
| PEOPLE | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Supervising  |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | - Handling     |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- 1. Light work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 1. Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |    |   |   |      |
|-------------------------|--------|----|---|---|------|
|                         | Low    | to |   |   | High |
|                         | 5      | 4  | 3 | 2 | 1    |
| G - General             | 3      |    |   |   |      |
| V - Verbal              | 3      |    |   |   |      |
| Q - Clerical Perception | 4 - 3  |    |   |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 4.

Workers use personal judgment and reasoning to help people get to know a place of business, setting, or activity. They carry out a variety of instructions presented in written, spoken, or schedule form. These workers deal with the comfort and safety of others.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- T - Technical school programs for airplane flight attendants.
- V - Vocational school courses in quantity food service.
- NFT - Most occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from over 1 month up to and including 2 years (SVP 3, 4, 5, 6).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Language Skills.

## OCCUPATIONS IN HOSPITALITY SERVICES

Airplane-Flight Attendant  
Braker, Passenger Train  
Butler  
Counselor, Camp  
Guide  
Guide, Establishment

352.367-010  
910.364-010  
309.137-010  
159.124-010  
353.367-010  
353.367-014

Host/Hostess  
Host/Hostess, Dance Hall  
Host/Hostess, Restaurant  
Recreation Leader  
Steward/Stewardess  
Waiter/Waitress, Head

352.667-010  
349.667-010  
310.137-010  
195.227-014  
350.677-022  
311.137-022

# BARBERING AND BEAUTY SERVICES

Barbering and beauty services are intended to change or improve personal appearance. Barbering service includes haircuts, facial massages, scalp treatments, and shaves. Beauty service includes the care of skin and hair. Barber and beauty shops employ workers in this group. Some workers own and operate their own businesses.

## WORK PERFORMED

What would you do as a worker in this group?

You would perform tasks to change or improve the appearance of others. You would usually specialize in one kind of service. You would perform one or more of the following tasks.

- Cut, shampoo, and curl or style hair.
- Give shaves as well as face, neck, and scalp massages.
- Bleach, tint, or dye hair.

Barbershop owners often work alongside their employees.



A hair stylist studies the customer's hair and facial features to select the right style.



**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

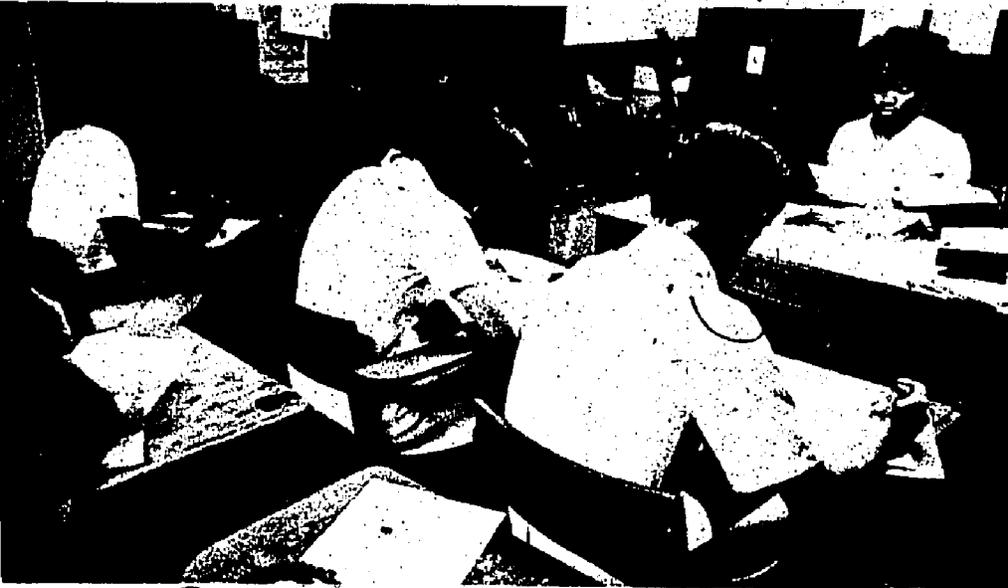
- Know skin and hair care techniques.
- Move eyes, hands, and fingers together.
- Maintain a clean and neat appearance.
- Handle customers with tact and courtesy.
- Stand for long periods.
- Distinguish between closely related colors when using tints and dyes.

**WORKER REQUIREMENTS**

**Do you have or can you develop these skills, abilities, and interests?**  
Your answers to the following questions will help you decide.

- Have you trimmed or cut a person's hair? Do you style your own hair? Do you like to try new and different hairstyles?
- Have you read health or beauty magazines? Do you like to keep informed of new grooming techniques?

**CLUES**



Avenue School of Cosmetology



Bloomington Academy of Beauty Culture

Licensing requirements include academic study as well as hours of practical training.

## PREPARATION

### How can you prepare for and enter this kind of work?

Jobs in this group require state licenses. Both public and private schools offer courses that help people fulfill licensing requirements. Sometimes high school seniors are admitted to these schools. These students receive academic credit as well as vocational training.

Persons meeting the needed requirements may obtain state and federal financial aid. Agencies providing such aid include Social Security, the Bureau of Indian Affairs, and Job Corps. Some private schools offer scholarships. Also, apprenticeship programs are available.

Training requirements vary according to the job and state involved. These requirements range between 1,600 and 2,600 hours of training. Courses may include dermatology, physiology, scalp analysis, and haircutting techniques.

Trained persons must pass written and oral tests. A license granted by a state board is required in many states. A health certificate is also required to show that the worker is free from contagious diseases.

Trained workers may apply directly to employers for jobs. Schools, employment services, or trade and labor unions may refer workers to employers. Beauty shops, in some areas, may hire people who have not completed training. These trainees may shampoo hair, remove curlers, or stock supplies.

**What else should you know about these jobs?**

Workers may be required to provide and wear uniforms. Work hours may vary, including evenings and weekends.

Workers' pay usually depends on the number of customers they service and the kind of service they give. They rarely receive a straight salary. Most employers set the prices for services offered and the worker receives a portion of what is charged. The worker's pay may vary, depending on what supplies and tools the employer provides. Employers providing all needed supplies receive a larger share of the money collected. Workers may or may not accept tips.

**OTHER  
CONSIDERATIONS**

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**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
8. Activities involving creative thinking.
9. Activities involving processes, methods, or machines.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

## WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                     |
|--------|-------------------------------------|--------------------------|-------------------------------------|---------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Analyzing         |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Serving           |
| THINGS | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Precision Working |

## APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                | Levels |   |   |   |       |
|--------------------------|--------|---|---|---|-------|
|                          | Low    | 4 | 3 | 2 | High  |
| G - General              |        |   |   |   | 3     |
| V - Verbal               |        |   |   |   | 3     |
| S - Spatial              |        |   |   |   | 3     |
| P - Form Perception      |        |   |   |   | 3 - 2 |
| K - Motor Coordination   |        |   |   |   | 2     |
| F - Finger Dexterity     |        |   |   |   | 3     |
| M - Manual Dexterity     |        |   |   |   | 3     |
| C - Color Discrimination |        |   |   |   | 3     |

## PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

1. Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 4.

## WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

1. Inside.

Workers use reasoning and personal judgment together, with special knowledge and techniques related to cosmetology and barbering. They interpret instructions presented in written, spoken, diagram, or schedule form. These workers deal with concrete variables such as hair and skin problems as well as beauty and barbering tools and supplies.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

E - To enter most occupations workers only need the required competencies and credentials.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T - Barber and beauty school training programs.

V - Vocational school courses in cosmetology.

**Training Time**

Occupations in this group may require from over 6 months up to and including 2 years (SVP 5, 6).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

**OCCUPATIONS IN BARBERING  
AND BEAUTY SERVICES**

Barber  
Cosmetologist  
Hair Stylist

330.371-010  
332.271-010  
332.271-018

# PASSENGER SERVICES

Passenger services are the transporting of people by bus, taxi, limousine, or other vehicle. The workers included in this group drive such vehicles or instruct and supervise those who do. Taxi, bus, or street railway companies hire most workers in this group. Some workers are employed by hospitals. Others work for branches of local government, such as public schools.

## WORK PERFORMED

What would you do as a worker in this group?

You would drive a bus, taxicab, ambulance, limousine, or other land vehicle to transport passengers. You would follow a set route or directions given by passengers.

You would obey set safety rules. Maintaining proper heat and ventilation for passenger comfort would be one of your duties.

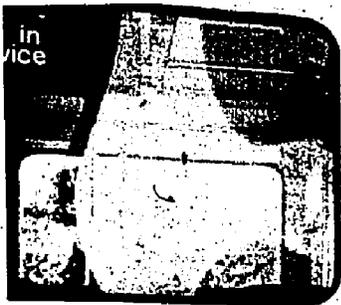
You would perform one or more of the following tasks.

- Collect fares, make change, and help passengers with baggage.
- Give directions or other information to passengers.
- Make sure children behave on the school bus you drive.
- Inspect your vehicle and check the gas, oil, and water before departure and as needed.
- Keep your vehicle clean and attractive.
- Drive a taxi or bus according to state and federal traffic and safety laws.

As a bus driver, the safety of your passengers would be your responsibility.



A bus driver greets passengers and inspects the vehicle before departure.



US



Greyhound Lines, Inc.

Department of Labor

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Operate a passenger transport vehicle and qualify for a chauffeur's license or other required credentials.
- Understand and follow federal, state, and local traffic rules.
- Judge distances and relationships of objects in space.
- Recognize a vehicle's malfunction by sound or other indications.
- Move eyes, hands, and feet together to start, stop, and steer the vehicle.
- Withstand the strain of frequent driving in traffic.
- Use courtesy and tact in dealing with people.

**WORKER REQUIREMENTS**

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you completed a driver's education course? Do you have a driver's or chauffeur's license?
- Have you driven a vehicle in heavy traffic? Does driving in traffic bother you?
- Have you taken care of your own car or one owned by your family? Can you tell when it needs tuning? Can you do minor service or repair work?
- Have you driven in a bicycle rodeo, car rally, or over a vehicle obstacle course? Did you receive a good score?
- Do you often read automotive magazines? Are you interested in work being done to improve car performance and safety?
- Have you driven a church or school bus? Do you mind driving a vehicle loaded with passengers?

Associate Taxi



Taxi drivers must know traffic laws and street locations as well as use tact and courtesy with customers.

**How can you prepare for and enter this kind of work?****PREPARATION**

Many employers require workers to have a high school education or its equal for these jobs. Intercity bus drivers must meet the following requirements set by the U. S. Department of Transportation. These workers must be able to talk with passengers and read and write to complete reports. They must also have good hearing, 20/40 vision with or without glasses, and full use of their arms and legs. Bus drivers must also take a written test about federal and state motor vehicle rules. If hired, they must take a driving test in the type of bus they will drive. Many intercity bus lines prefer workers with bus or truck driving experience. Most of these firms have their own training programs for new drivers.

Local bus drivers are usually required to have a state chauffeur's license. They also need to be of normal adult height and weight and have good eyesight and health. They are usually required to have one or two years of experience driving a large vehicle. Most local transit companies test all applicants for driving positions. These companies frequently provide training courses with both classroom and driving sessions. State departments of education set special rules for drivers of school buses.

Taxi drivers must have a state chauffeur's license. They may also need a special taxi operator's license. The local police, safety department, or public utilities commission may issue this license. Most large cities issue this license after the applicant has passed a written test on traffic laws and street locations. Many cities also require that workers have a good driving record and no criminal history.

**What else should you know about these jobs?****OTHER**

Workers in these jobs may have to work nights and weekends. They may have to report for work on short notice.

**CONSIDERATIONS**

Chances for promotion in all of these jobs are limited. Experienced bus drivers may obtain preferred routes and more pay. A few may become dispatchers or terminal managers. Taxi drivers may become garage chiefs or claims agents. Some workers buy and drive their own cabs.

### QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

#### WORK ACTIVITIES

- Workers generally prefer the following types of work activities.
- 2. Activities involving business contact.
- 3. Activities of a routine, definite, organized nature.
- 9. Activities involving processes, methods, or machines.

#### WORK SITUATIONS

- Workers are willing to adjust to the following types of work situations.
- 4. Dealing with people.
  - 7. Making decisions using personal judgment.
  - 8. Making decisions using standards that can be measured or checked.

#### WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                     |                      |
|--------|-------------------------------------|-------------------------------------|--------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Compiling          |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Speaking/Signaling |
| THINGS | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Driving/Operating  |

#### PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- 4 Reaching, handling, fingering, and/or feeling.
- 5 Talking and/or hearing.
- 6 Seeing.

#### WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

- 1 Inside.

#### APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                      | Levels |   |    |   |      |
|--------------------------------|--------|---|----|---|------|
|                                | Low    |   | to |   | High |
|                                | 5      | 4 | 3  | 2 | 1    |
| G - General                    |        |   | 3  |   |      |
| N - Numerical                  |        | 4 | -  | 3 |      |
| S - Spatial                    |        |   |    | 3 |      |
| K - Motor Coordination         |        |   |    | 3 |      |
| M - Manual Dexterity           |        |   |    | 3 |      |
| E - Eye-Hand-Foot Coordination |        |   |    | 3 |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3-4.

Workers use reasoning and personal judgment together with driving skills to transport passengers in motor vehicles. Some workers use their skills to instruct or supervise other workers. They follow instructions usually presented in oral or schedule form. These workers deal with concrete variables such as traffic regulations, meters, and schedules.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

E - To enter most occupations workers only need the required competencies and credentials.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT - Most occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from over 1 month up to and including 6 months (SVP 3, 4).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for the completion of high school.

**OCCUPATIONS IN PASSENGER SERVICES**

|                     |             |
|---------------------|-------------|
| Bus Driver          | 913.463-010 |
| Chauffeur           | 359.673-010 |
| Chauffeur           | 913.663-010 |
| Instructor, Driving | 099.223-010 |
| Supervisor, Cab     | 913.133-014 |
| Taxi Driver         | 913.463-018 |

## CUSTOMER SERVICES

Customer services involve providing people with various services in commercial settings. Tasks usually include receiving payment and making change for the services rendered. Hotels, restaurants, resorts, and stores employ workers in this group. Some of these jobs are found on board trains, airplanes, and ships.

### WORK PERFORMED

What would you do as a worker in this group?

You would assist customers by providing special services. You would perform one or more of the following tasks.

- Wait on tables in a restaurant or supper club.
- Rent bicycles, boats, fishing equipment, or trailer space in a resort area.
- Deliver newspapers and collect payment regularly from your customers.
- Serve customers in a drive-in or fast food business.
- Assign alleys, issue equipment, and receive fees at a bowling center.
- Mix and serve drinks to patrons in a bar.



A. Formal



B. Informal

Which work environment would you prefer?



You would talk to customers to identify their needs and provide the best service possible.

**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Talk and get along with all kinds of people.
- Move eyes, hands, and feet together to carry trays or drive motor vehicles.
- Add costs and make change.
- Use physical strength to carry sports equipment or newspapers.

**WORKER REQUIREMENTS**

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you sold things to raise money for clubs or local groups? Did you collect payment and keep records of sales?
- Have you given directions to anyone who was lost? Was the person able to understand your directions?
- Have you served food or beverages at a party or reception? Were you able to do so without dropping or spilling food or drinks?
- Have you had a part-time or full-time job which involved doing the same tasks? Do you enjoy this kind of work?

## PREPARATION

How can you prepare for and enter this kind of work?

Most workers in this group learn their jobs after being hired. However, some employers hire only persons with experience. Workers may get the training and experience needed by starting in a related job. For example, a person may start as a dining room attendant and become a waiter or waitress.

Some high schools offer programs in subjects related to this group, such as food services. Government training programs are also available for some jobs in this group.



Do you have the physical strength to lift and carry newspapers?





Food and beverage service workers are often required to work at night and during weekends.

**What else should you know about these jobs?**

Food and beverage service workers often have changing work hours. They may work at night and during weekends and holidays. They usually must wear uniforms. The income of these workers is often wages and tips combined.

Some jobs require the worker to adapt to specific demands. For example, a newspaper carrier may have to work very early in the morning and in all kinds of weather. A lodging attendant may have to live on the premises.

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**OTHER  
CONSIDERATIONS**

**QUALIFICATIONS  
PROFILE**

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                     |                      |
|--------|-------------------------------------|-------------------------------------|--------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Compiling          |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Speaking/Signaling |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Handling           |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |   |   |      |
|-------------------------|--------|---|---|---|------|
|                         | Low    | 4 | 3 | 2 | High |
| G - General             | 5      | 4 | 3 | 2 | 1    |
| V - Verbal              |        |   |   |   |      |
| N - Numerical           |        |   |   |   |      |
| Q - Clerical Perception |        |   |   |   |      |
| K - Motor Coordination  |        |   |   |   |      |
| F - Finger Dexterity    |        |   |   |   |      |
| M - Manual Dexterity    |        |   |   |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 2-3.

Workers use basic skills and training to provide personal services to the public. They carry out specific, simple instructions. For example, these workers take orders, serve food, and park cars.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

E – To enter most occupations workers only need the required competencies and credentials.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupa-

tions in this group in the following ways.

NFT – Most occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from 30 days up to and including 3 months (SVP, 2, 3).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Basic Math Skills.

**OCCUPATIONS IN CUSTOMER SERVICES**

|   |             |   |             |
|---|-------------|---|-------------|
| Automobile-Rental Clerk                         | 295.477-010 | Game Attendant                                  | 342.457-010 |
| Automobile-Self-Serve-Service-Station Attendant | 915.477-010 | Manager, Branch Store                           | 369.467-010 |
| Bar Attendant                                   | 312.477-010 | Manager, Food Concession                        | 185.167-022 |
| Bartender                                       | 312.474-010 | Newspaper Carrier                               | 292.457-010 |
| Car Hop   | 311.477-010 | Parking-Lot Attendant                           | 915.473-010 |
| Cashier, Courtesy Booth                         | 211.467-010 | Sales Attendant                                 | 299.677-010 |
| Conductor                                       | 910.667-014 | Sales Clerk                                     | 290.477-014 |
| Counter Attendant, Lunchroom or Coffee Shop     | 311.477-014 | Sales Clerk, Food                               | 290.477-018 |
| Curb Attendant                                  | 369.477-010 | Self-Service-Laundry-and-Dry-Cleaning Attendant | 369.677-010 |
| Customer-Service Clerk                          | 299.367-010 | Tool-and-Equipment-Rental Clerk                 | 295.357-014 |
| Deliverer, Merchandise                          | 299.477-010 | Waiter/Waitress, Dining Car                     | 311.477-022 |
| Desk Clerk, Bowling Floor                       | 340.367-010 | Waiter/Waitress, Formal                         | 311.477-026 |
| Fountain Server                                 | 319.474-010 | Waiter/Waitress, Informal                       | 311.477-030 |
| Gambling Dealer                                 | 343.467-018 |   |             |

# ATTENDANT SERVICES

Attendant services are tasks performed for the comfort and convenience of other people. Attendant services take place in a variety of public and private settings. These settings include hotels, restaurants, athletic clubs, gambling/casinos, reducing salons, and private homes. Airports, theaters, and sports arenas may employ these workers.

## WORK PERFORMED

What would you do as a worker in this group?

Jobs in this group include personal services of many types. You would perform one or more of the following tasks.

- Serve as an attendant in a laundromat.
- Serve coffee or clear tables in a restaurant.
- Usher in a theater or sports arena.
- Hand out towels or check personal belongings in a locker room.
- Operate an elevator.
- Carry baggage to and from hotel rooms.
- Keep a rest room clean and supplied with paper towels and soap.
- Carry golf clubs for golfers.



You would keep an area clear or check personal belongings for the comfort or convenience of others.

Would you enjoy answering questions, hailing taxicabs, and assisting people into cars?



What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Perform the same tasks over and over.
- Talk and get along with all kinds of people.
- Move hands and feet together to carry linens and lead people to their seats.
- Use physical strength to carry baggage or packages.
- Stand or walk most of a work day.

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you collected tickets or ushered at a school play? Are you able to stay pleasant and courteous if people are rude?
- Have you served food or beverages in a cafeteria line? Does it bother you to stand for long periods of time?
- Have you helped others carry their baggage and parcels? Do you like to help others in this way?
- Have you been in charge of sports equipment for a team? Do you like this kind of duty?

## WORKER REQUIREMENTS

## CLUES



You may want to volunteer to usher people at the next school play to test your interest.

## PREPARATION

**How can you prepare for and enter this kind of work?**

Many jobs in this group require only on-the-job training. However, formal training is available for some jobs. For example, courses in food and beverage service are offered in some vocational schools. Many employers are willing to train people without experience.

## OTHER

## CONSIDERATIONS

**What else should you know about these jobs?**

The income for these workers is often wages and tips combined. Some employers provide room and board. Weekend and evening work is required in some jobs. Most employers consider the personal appearance and attitude of the worker very important.

## QUALIFICATIONS

## PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                     |             |
|--------|-------------------------------------|--------------------------|--------------------------|-------------|
| DATA   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Comparing |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Serving   |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Handling  |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 1 Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes            | Levels |   |       |   |      |
|----------------------|--------|---|-------|---|------|
|                      | Low    |   | to    |   | High |
|                      | 5      | 4 | 3     | 2 | 1    |
| G - General          |        |   | 4 - 3 |   |      |
| V - Verbal           |        |   | 4 - 3 |   |      |
| F - Finger Dexterity |        |   | 4     |   |      |
| M - Manual Dexterity |        |   | 4 - 3 |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 2-3.

Workers use common sense to assist in helping the public. They carry out specific, simple instructions by following a routine. For example, these workers clear tables, open doors, and deliver messages.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

E – To enter most occupations, workers only need the required competencies and credentials.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT – Most occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from 30 days up to and including 3 months (SVP 2, 3).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

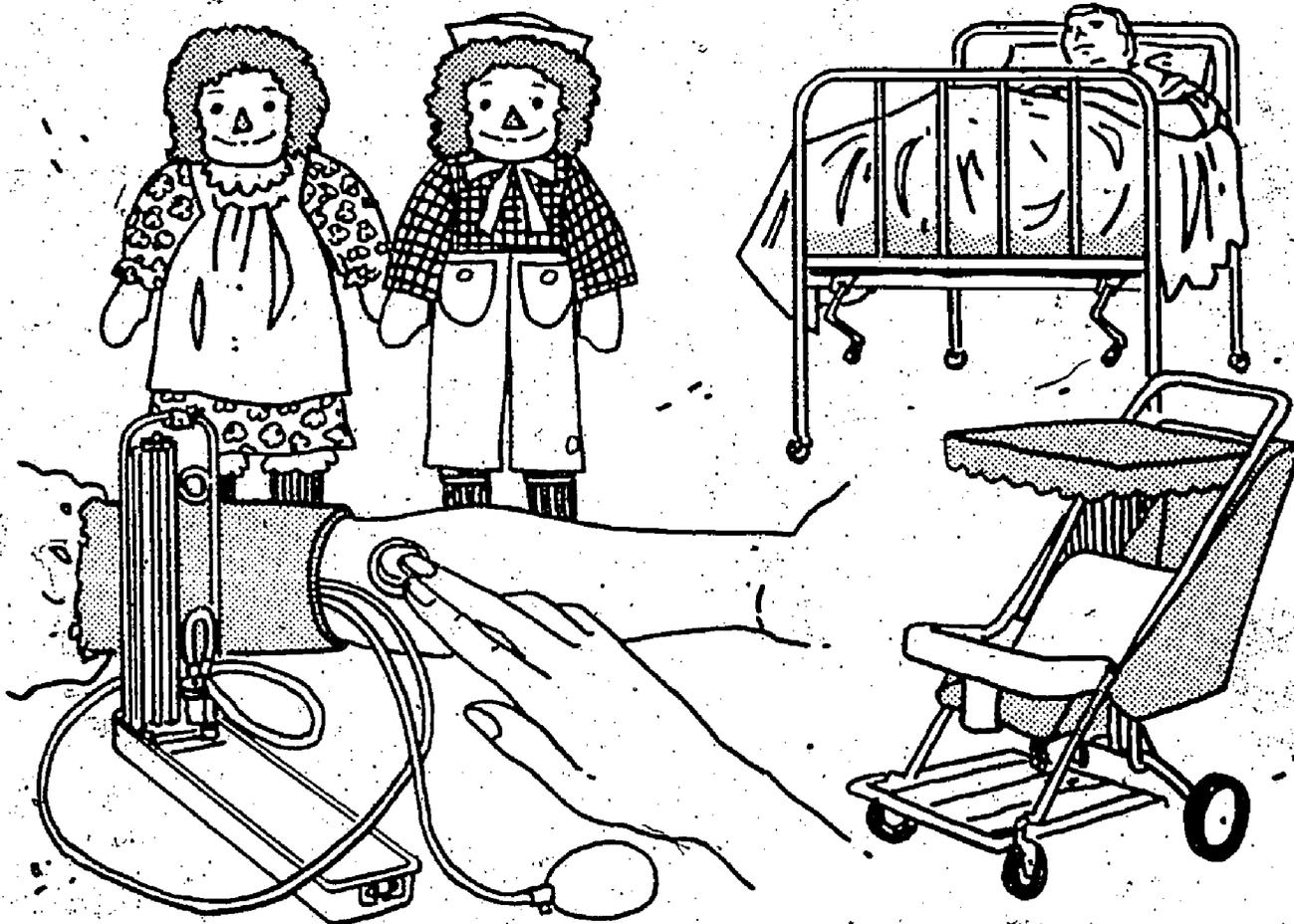
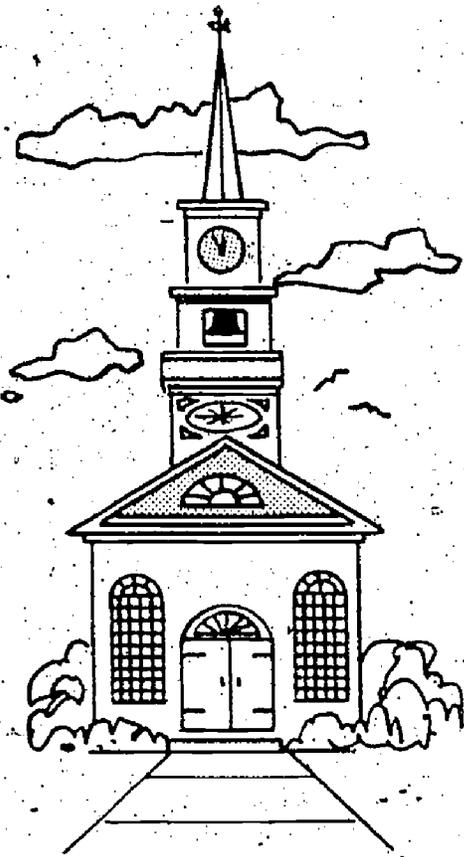
**OCCUPATIONS IN ATTENDANT SERVICES**

|                              |             |                               |             |
|------------------------------|-------------|-------------------------------|-------------|
| Baggage Checker              | 357.477-010 | Food-Service Supervisor       | 319.137-010 |
| Bagger                       | 920.687-014 | Food-Service Worker, Hospital | 355.677-010 |
| Bell Captain                 | 324.137-014 | Hospital Entrance Attendant   | 355.677-014 |
| Bellhop                      | 324.677-010 | Hot-Room Attendant            | 335.677-014 |
| Caddie                       | 341.677-010 | Locker-Room Attendant         | 358.677-014 |
| Cafeteria Attendant          | 311.677-010 | Manicurist                    | 331.674-010 |
| Caterer Helper               | 319.677-010 | Masseur/Masseuse              | 334.374-010 |
| Checkroom Attendant          | 358.677-010 | Mess Attendant                | 350.677-010 |
| Counter Attendant, Cafeteria | 311.677-014 | Porter                        | 357.677-010 |
| Counter-Supply Worker        | 319.687-010 | Racker                        | 340.477-010 |
| Dining Room Attendant        | 311.677-018 | Restroom Attendant            | 358.677-018 |
| Doorkeeper                   | 324.677-014 | Room-Service Clerk            | 324.577-010 |
| Electrologist                | 339.371-010 | Shoe Shiner                   | 366.677-010 |
| Elevator Operator            | 388.663-010 | Ticket Taker                  | 344.667-010 |
| Elevator Starter             | 388.367-010 | Usher                         | 344.677-014 |

# HUMANITARIAN

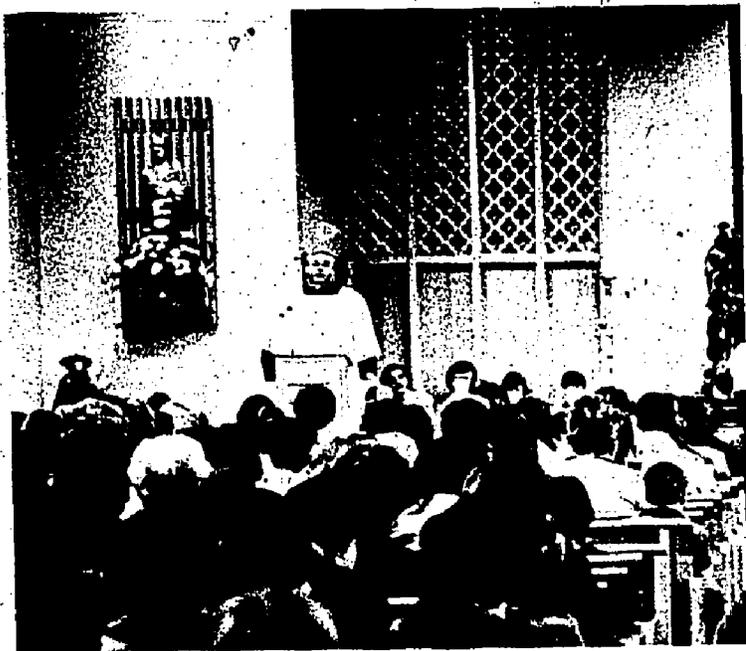
This is an interest in helping individuals with their mental, spiritual, social, physical, or vocational concerns.

You can satisfy this interest through jobs in which a concern for the welfare of others is important. Perhaps the spiritual or mental well-being of others concerns you. You could seek a job in religion or counseling. You may prefer to help others with physical problems. You could work in the nursing, therapy, or rehabilitation field. You may like to provide needed but less difficult care by working as an aide, orderly, or technician.



# SOCIAL SERVICES

Social services help people, either one person at a time or in groups. Workers in this group help people solve both day-to-day and special problems. These problems may be related to a person's social, personal, vocational, educational, or religious development. Churches, schools, guidance centers, and mental health clinics employ these workers. Agencies such as welfare, employment, vocational rehabilitation, and juvenile court also offer jobs in this group.



A minister serves the religious needs of the congregation.

## WORK PERFORMED

What would you do as a worker in this group?

You would help people or groups of people deal with their personal, educational, social, vocational, or religious problems. Your work activities would depend on your specific area of training and interest. You would perform one or more of the following tasks.

- Preach or direct religious services.
- Counsel students on problems of educational and vocational planning.
- Plan and conduct group activities to help people develop values and goals.
- Counsel and assist troubled persons or families toward social adjustment and development.
- Help people with serious mental problems through counseling and other treatment.
- Help prison parolees find jobs and adjust to society.
- Investigate home conditions and determine needs for financial, medical, or mental help.
- Counsel people with physical or mental handicaps to help them secure training and employment.

A parole officer gains trust through tact, honesty, and sincerity.



The University of Kansas

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Complete graduate level college training.
- Understand the causes and possible solutions to personal and social problems.
- Care about the welfare and needs of others and have a desire to be of help.
- Inspire trust through tact, composure, and manner.
- Work with students or adults in groups.
- Prepare sermons or speeches and present them to a group.
- Know and work with local agencies providing counseling, guidance, and welfare services.
- Plan and direct guidance programs and use available resources.
- Understand and apply welfare, parole, or college admission policies and rules.
- Keep accurate records and write technical reports.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Do you have a strong interest in helping others? Have you done volunteer work for a church group, a hospital, or a service club?
- Have you taken school courses in English composition and speech? Have you been on a debate team or in a speaking contest? Do you enjoy appearing before an audience?
- Have you taken school courses in psychology, sociology, or other social sciences? Do you like to study the behavior of people or groups of people?
- Do your friends come to you for advice or help on their personal problems? Do you enjoy trying to help them? Are you usually helpful?

Carle Foundation Hospital



Doing volunteer work in a hospital will help you test your interest in caring for and helping people.

**How can you prepare for and enter this kind of work?**

For most jobs in this group, education beyond the four-year college level is required. Social work or jobs in psychology often require two or more years of graduate study. Jobs in religion and clinical psychology also require specialized training. This training usually results in an advanced degree. School counseling jobs usually require a master's degree and one or two years of teaching experience. Many jobs in this group require certificates or other credentials.

Some workers enter this field as helpers in social, religious, or welfare groups. These workers receive on-the-job training. However, a professional worker usually needs to have specialized formal training. Some private agencies deal with problems of drug addicts, rape victims, or minority groups. These agencies accept actual experience and proven human relations skills in place of formal training.

**What else should you know about these jobs?**

Helping others may be more important than the amount of pay received for many workers in this group. Local recognition may also be important to them. Working hours may vary in some jobs. Weekend work and on call duties may be required. Some workers may deal with disturbed or highly sensitive people and handle confidential information.

Most workers must update their knowledge and skills. They read professional journals and study new policies and rules. They also attend seminars, summer schools, and workshops.

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**PREPARATION****OTHER  
CONSIDERATIONS****QUALIFICATIONS  
PROFILE**

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 4. Activities involving direct personal contact to help or instruct others.
- 5. Activities resulting in recognition or appreciation from others.
- 6. Activities involving the communication of ideas and information.
- 8. Activities involving creative thinking.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 1. Performing duties which change frequently.
- 3. Planning and directing an entire activity.
- 4. Dealing with people.
- 7. Making decisions using personal judgment.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Coordinating |
| PEOPLE | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Mentoring    |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Handling     |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- L Light work.
- 5 Talking and/or hearing.
- 6 Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes     | Levels |   |   |   |      |
|---------------|--------|---|---|---|------|
|               | Low    | 4 | 3 | 2 | High |
| G - General   |        |   |   |   | 2-1  |
| V - Verbal    |        |   |   |   | 2-1  |
| N - Numerical |        |   | 3 |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5-6.

Workers apply logical thinking to counsel others or help a person define and solve personal problems. These workers interpret and use a wide range of technical-information and instructions presented in books, manuals, and diagrams. They also deal with concrete and abstract variables such as delinquency, rehabilitation, child welfare, and specialized teaching aids.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- G - Graduate degree in counseling, psychology, or special education.
- C - Four-year degree in social work, religion, or related field.
- T - One- and two-year technical school programs in social work.

**Training Time**

Occupations in this group may require from over 2 years up to and over 10 years (SVP 7, 8, 9).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

**Important Courses**

- Courses required for entrance to post high school formal programs.
- Language Skills.

**Helpful Courses**

- Sociology.

**OCCUPATIONS IN SOCIAL SERVICES**

|                                  |             |                                       |             |
|----------------------------------|-------------|---------------------------------------|-------------|
| Case Aide                        | 195.367-010 | Psychologist, School                  | 045.107-034 |
| Caseworker                       | 195.107-010 | Residence Counselor                   | 045.107-038 |
| Caseworker Supervisor            | 195.137-010 | Social Group Worker                   | 195.107-022 |
| Christian Science Practitioner   | 129.107-014 | Social Worker, Delinquency Prevention | 195.107-026 |
| Clergy Member                    | 120.007-010 | Social Worker, Psychiatric            | 195.107-034 |
| Counselor                        | 045.107-010 | Social Worker, Medical                | 195.107-030 |
| Director of Counseling           | 045.107-018 | Social Worker, School                 | 195.107-038 |
| Director of Religious Activities | 129.107-018 | Teacher, Blind                        | 094.227-014 |
| Educational Therapist            | 094.227-010 | Teacher, Handicapped Students         | 094.224-010 |
| Group Worker                     | 195.164-010 | Teacher, Mentally Retarded            | 094.227-018 |
| Parole Officer                   | 195.167-030 | Veterans Contact Representative       | 094.227-022 |
| Probation Officer                | 195.167-034 | Vocational-Rehabilitation Counselor   | 187.167-108 |
| Psychologist, Clinical           | 045.107-022 |                                       | 045.107-042 |
| Psychologist, Counseling         | 045.107-026 |                                       |             |

# NURSING AND THERAPY SERVICES

Nursing and therapy services involve caring for and treating people to promote their physical and emotional well-being. Most workers in this group are concerned with ill and injured people. They also care for and treat people with physical handicaps. Some workers are involved in the prevention of health problems. Some workers train or supervise others engaged in the care and treatment of patients. Hospitals, nursing homes, and rehabilita-

tion centers hire workers in this group. Schools, industrial plants, doctors' offices, and private homes also offer these jobs.

## WORK PERFORMED

What would you do as a worker in this group?

You would provide nursing care or therapy services for the ill or physically handicapped. You would work to prevent health problems. You would perform one or more of the following tasks.

- Give nursing care to sick people in a hospital or nursing home.
- Assist a physician in a clinic or a doctor's office.
- Train handicapped persons to get in and out of bed, dress, prepare meals, or care for a home.
- Teach nursing students in a college or vocational school.
- Clean and X-ray teeth and give fluoride treatments.
- Plan and carry out a school health program.
- Use therapy methods and equipment to help restore patients' muscle function.
- Supervise workers who provide nursing care or therapy services.

Department of Labor



A dental hygienist educates patients to avoid future dental problems.

A nurse's duties include keeping records as well as patient care.



**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Complete nursing or therapy training program.
- Care for the welfare and needs of others and have a desire to help.
- Follow instructions exactly and keep accurate records.
- Communicate with ill or handicapped people.
- Move eyes and hands together and use fingers with skill.
- Inspire trust through tact, composure, and manner.
- Instruct, plan, and oversee the work of others.

**Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.**

- Have you taken science courses in school? Do you enjoy these courses?
- Have you worked as an aide in a hospital, nursing home, or such other setting? Do you like helping people who are ill or injured?
- Have you had school courses or other training in art, crafts, speech, or music? Would you like a job in which you use these skills to help others?

## WORKER REQUIREMENTS

## CLUES

- Have you assembled or studied a plastic model of a human body? Are you interested in human anatomy?
- Have you had a course in first aid? Have you given emergency treatment to someone ill or injured?
- Have you taken a science course which required you to dissect an animal? Did it bother you?

## PREPARATION

**How can you prepare for and enter this kind of work?**

People entering the nursing or therapy occupations must have special training beyond the high school level.

Three types of programs prepare students to become registered nurses. The diploma program, in general, is three years in length and hospital-based. In some cases, students take basic science and liberal arts courses at nearby colleges. In other cases, students receive all instruction at the hospital school. These programs include instruction and clinical experience which prepare students to give nursing care to patients.

Community colleges, technical schools, or universities offer associate degree programs. In general, these programs are two years in length.

Bachelor's degree programs are, in general, four years in length. These programs offer the student a wider variety of courses, clinical experiences, and skills directly related to patient care.



Physical therapists help disabled people regain use of their bodies.

A course in first aid can help you prepare for a job as an emergency medical technician.



Graduates of all three programs are required to pass a state board test. Only then can a graduate be licensed as a nurse.

To enter most therapy programs, students must have a two-year associate degree or a four-year bachelor's degree in a related field. Training includes course work related to the specific kind of therapy as well as supervised clinical experience. Certificate programs are offered in physical therapy, vocational therapy, and other therapy areas. These are offered to students with a bachelor's degree in a related subject such as sociology or biology.

Graduates of most therapy programs must pass a test before they can be certified to practice.

#### What else should you know about these jobs?

Jobs in nursing and therapy may involve direct patient care, supervision, research, or teaching. These jobs may also combine these activities. Students interested in these jobs should start to take the basic courses early in their training.

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

#### OTHER CONSIDERATIONS

#### QUALIFICATIONS PROFILE

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 4. Activities involving direct personal contact to help or instruct others.
- 6. Activities involving the communication of ideas and information.
- 7. Activities of a scientific and technical nature.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 1. Performing duties which change frequently.
- 4. Dealing with people.
- 7. Making decisions using personal judgment.
- 8. Making decisions using standards that can be measured or checked.
- 10. Working within precise limits or standards of accuracy.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                      | Avg.                                | High                                |                |
|--------|--------------------------|-------------------------------------|-------------------------------------|----------------|
| DATA   | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Coordinating |
| PEOPLE | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Instructing  |
| THINGS | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Manipulating |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions:

- I Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                | Levels |   |    |   |      |
|--------------------------|--------|---|----|---|------|
|                          | Low    |   | to |   | High |
|                          | 5      | 4 | 3  | 2 | 1    |
| G - General              |        |   |    |   | 2    |
| V - Verbal               |        |   |    | 3 | 2    |
| N - Numerical            |        |   |    | 3 | 2    |
| S - Spatial              |        |   |    | 3 |      |
| P - Form Perception      |        |   |    | 3 |      |
| Q - Clerical Perception  |        |   | 4  | 3 |      |
| K - Motor Coordination   |        |   | 4  | 3 |      |
| F - Finger Dexterity     |        |   |    | 3 |      |
| M - Manual Dexterity     |        |   |    | 3 |      |
| C - Color Discrimination |        |   | 4  | 3 |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 4-5.

Workers use technical knowledge and apply logical thinking to care for or administer treatment to sick or handicapped people. These workers interpret a variety of technical instructions presented in books, manuals, diagrams, or by supervisory workers. They deal with concrete and abstract factors such as prescribed medication and treatment, and patients' emotional adjustment.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

E - To enter most occupations workers only need the required competencies and credentials.

### Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- C - Four-year college degree in nursing or therapy.
- T - Two- and three-year technical school and hospital programs.
- V - Vocational school health courses.

## Training Time

Occupations in this group may require from over 1 year up to and including 10 years (SVP 6, 7, 8).

### Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

### Important Courses

- Courses required for entrance to post high school formal programs.
- Biological Sciences.

### Helpful Courses

- Sociology, Chemistry.

## OCCUPATIONS IN NURSING AND THERAPY SERVICES

|                                |             |   |             |
|--------------------------------|-------------|---|-------------|
| Art Therapist                  | 076.127-010 | Nurse, Staff, Occupational Health Nursing   | 075.374-022 |
| Dental Hygienist               | 078.361-010 | Nurse, Supervisor                           | 075.127-022 |
| Emergency Medical Technician   | 079.374-010 | Nurse, Supervisor, Community-Health Nursing | 075.127-026 |
| Hypnotherapist                 | 079.157-010 | Occupational Therapist                      | 076.121-010 |
| Industrial Therapist           | 076.167-010 | Occupational Therapy Assistant              | 076.364-010 |
| Music Therapist                | 076.127-014 | Orthoptist                                  | 079.371-014 |
| Nurse Anesthetist              | 075.371-010 | Physical Therapist                          | 076.121-014 |
| Nurse, General Duty            | 075.374-010 | Physical Therapist Assistant                | 076.224-010 |
| Nurse, Head                    | 075.127-018 | Physician Assistant                         | 079.364-018 |
| Nurse, Instructor              | 075.121-010 | Podiatric Assistant                         | 079.374-018 |
| Nurse, Licensed Practical      | 079.374-014 | Program Aide, Group Work                    | 195.227-010 |
| Nurse, Office                  | 075.374-014 | Radiologic Technologist                     | 078.362-026 |
| Nurse, Private Duty            | 075.374-018 | Recreational Therapist                      | 076.124-014 |
| Nurse, School                  | 075.124-010 | Respiratory Therapist                       | 079.361-010 |
| Nurse, Staff, Community Health | 075.124-014 |   |             |

# CHILD AND ADULT CARE

Child and adult care involves assisting in the physical care or welfare of others. Some workers assist in the care and treatment of the sick, injured, or physically handicapped. Other workers mainly care for young children or the elderly. Hospitals, clinics, day care centers, and nursery schools hire workers in this group. Treatment centers for the handicapped and private homes also provide jobs in this group.

## WORK PERFORMED

What would you do as a worker in this group?

You would assist professional health workers in treating the ill or injured. You would care for children or elderly people. You would perform one or more of the following tasks.

- Help elderly persons bathe, feed, and dress themselves.
- Supervise children in a day care center or nursery school.
- Operate medical equipment as directed by trained personnel.
- Give emergency first aid.
- Prepare patients for examination and hand instruments to physician.
- Change bed linens or serve food to patients in a hospital.

Cornell University



Nursery school attendants care for the welfare and needs of children.

To perform these tasks with patience and tact, you should have a genuine desire to help people.



Department of Labor

**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Understand and follow written or spoken instructions exactly in caring for the sick or injured.
- Move eyes, hands, and fingers skillfully to use medical equipment or instruments.
- Inspire trust through tact, composure, and manner.
- Care for the welfare and needs of children and elderly people. Have a desire to be of help.
- Talk and relate to ill or handicapped people.

**Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.**

- Have you cared for children or sick people? Are you patient with and able to relate to those who cannot care for themselves?
- Have you had courses in first aid? Have you given emergency treatment to someone ill or injured?
- Have you worked as a volunteer in a hospital or nursing home? Are you concerned with the welfare of others?
- Are you good at games? Do you have some talent in art, music, or crafts? Would you enjoy teaching these to young children?

**WORKER REQUIREMENTS**

**CLUES**

On the job training includes watching demonstrations given by experienced workers.



## PREPARATION

**How can you prepare for and enter this kind of work?**

The training required to enter this kind of work does not usually exceed one year. Many employers prefer high school graduates. If the demand is critical, employers may hire workers with less education for some jobs. Hospitals and clinics offer on-the-job training for many jobs in this group. This training usually includes classroom instruction, demonstration, and supervised practice.

Local agencies, junior colleges, and vocational schools also offer training in some jobs.

Basic skills and experience in homemaking and child and adult care are important to some jobs.

## OTHER CONSIDERATIONS

**What else should you know about these jobs?**

There is often great personal satisfaction in assisting others who need help.

Since health care is required 24 hours a day, working hours will be varied in many of the health occupations.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

- 2. Activities involving business contact.
- 3. Activities of a routine, definite, organized nature.
- 4. Activities involving direct personal contact to help or instruct others.

WORK SITUATIONS

Workers are willing to (adjust to the following types of work situations.

- 1. Performing duties which change frequently.
- 4. Dealing with people.
- 7. Making decisions using personal judgment.
- 8. Making decisions using standards that can be measured or checked.
- 10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                     |                |
|--------|-------------------------------------|-------------------------------------|--------------------------|----------------|
| DATA   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Compiling    |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | - Serving      |
| THINGS | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Manipulating |

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

- L. Light work.
- M. Medium work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

- I. Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |   |   |      |
|-------------------------|--------|---|---|---|------|
|                         | Low    | 4 | 3 | 2 | High |
|                         | 5      |   |   |   | 1    |
| G - General             |        |   | 3 |   |      |
| V - Verbal              |        |   | 3 |   |      |
| Q - Clerical Perception |        | 4 | 3 |   |      |
| K - Motor Coordination  |        | 4 | 3 |   |      |
| F - Finger Dexterity    |        | 4 | 3 |   |      |
| M - Manual Dexterity    |        |   |   | 3 |      |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3 - 4.

Workers use technical knowledge and common sense to assist with the care and treatment of sick or handicapped persons or with the care of children or elderly persons. These workers carry out instructions given to them in written or oral form. They deal with concrete variables such as hospital supplies, medical instruments, and nursery school or playroom equipment.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

## Entry and Advancement Information

E - To enter most occupations workers only need the required competencies and credentials.

## Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

V - Vocational school courses in health care or home economics.

NFT - Most occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from over 1 month up to and including 2 years (SVP 3, 4, 5, 6).

## Related High School Level Courses

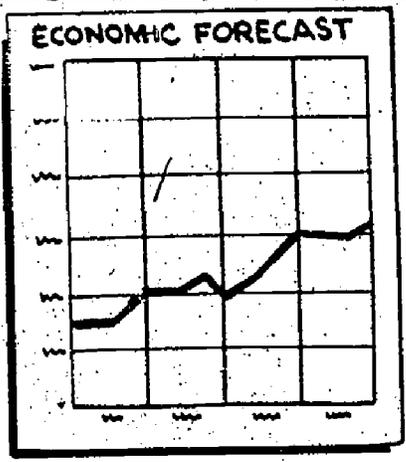
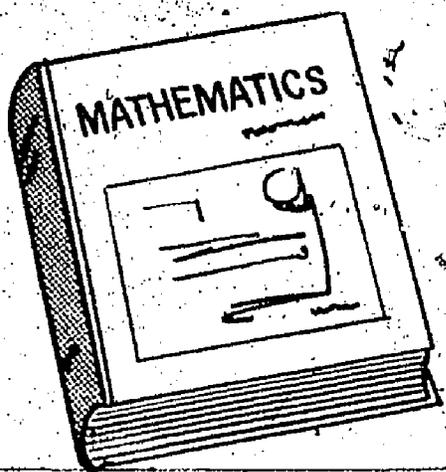
The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

## OCCUPATIONS IN CHILD AND ADULT CARE

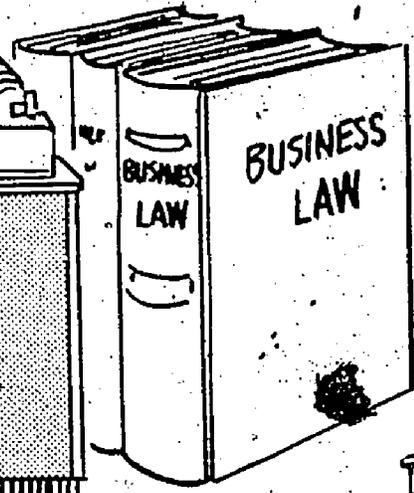
|                                      |             |                           |             |
|--------------------------------------|-------------|---------------------------|-------------|
| Ambulance Attendant                  | 355.374-010 | Home Attendant            | 354.377-014 |
| Attendant, Children's Institution    | 359.677-010 | Medical Assistant         | 079.367-010 |
| Birth Attendant                      | 354.377-010 | Nurse Aide                | 355.674-014 |
| Child-Care Attendant, School         | 355.674-010 | Nurse, Practical          | 354.374-010 |
| Child Monitor                        | 301.677-010 | Nursery School Attendant  | 359.677-018 |
| Children's Tutor                     | 099.277-010 | Occupational Therapy Aide | 355.377-010 |
| Companion                            | 309.677-010 | Orderly                   | 355.674-018 |
| Dental Assistant                     | 079.371-010 | Physical Therapy Aide     | 355.354-010 |
| Electrocardiograph Technician        | 078.362-018 | Playroom Attendant        | 359.677-026 |
| Electroencephalographic Technologist | 078.362-022 | Psychiatric Aide          | 355.377-014 |
| Foster Parent                        | 309.677-014 | Surgical Technician       | 079.374-022 |
| Guard, School-Crossing               | 371.567-010 |                           |             |

# SOCIAL-BUSINESS



This is an interest in leading and influencing others through activities involving verbal or numerical abilities.

You can satisfy this interest through study and work in a wide variety of professional fields. You may enjoy the challenge and responsibility of leadership. You could seek work in administration or management. You may prefer to work with technical details. You could find a job in finance, law, social research, or public relations. You may like to help others learn. Perhaps working in education would satisfy you.



# MATHEMATICS AND STATISTICS

Mathematics and statistics involve working with numerical data and computer systems. Workers in this group apply mathematics in theories to solve problems or

conduct research. Colleges, firms, and government agencies which use computers to conduct statistical research employ these workers.



Actuaries gather and analyze statistics to calculate the probabilities of human deaths and accidents for insurance companies.

## WORK PERFORMED

What would you do as a worker in this group?

You would analyze and interpret statistics or design computer programs and systems. You would perform one or more of the following tasks.

- Study data about human deaths, accidents, and illnesses to set premium rates for an insurance company.
- Forecast labor trends and recommend policies by studying labor supply and demand.
- Conduct studies of the birth and death rates.
- Convert business or scientific problems into numbers and symbols for computer processing.



Western Electric

Computer programmers must first analyze the problem to be solved before they can write the detailed instructions for processing the data.

**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Understand and use theories in mathematics.
- Apply principles of economics and statistics.
- Use personal judgment as well as provable facts to make decisions.
- Use computer technology to solve problems.
- Speak and write precisely.

**WORKER  
REQUIREMENTS**

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken advanced math courses? Can you understand the principles presented in these courses? Would you like to continue math studies?
- Have you used a pocket calculator? Can you use all of the basic functions built into the calculator?
- Have you worked with computer printouts? Have you had a course in computer science? Are you interested in working with computers?

## PREPARATION

How can you prepare for and enter this kind of work?

Four or more years of college study in mathematics, economics, or statistics are required to enter this type of work. Some jobs require experience in banking, insurance accounting, or a related field. Experience and training in a scientific or technical field is needed for other jobs. Government agencies usually require applicants to pass a civil service test.



You may have to work several years in a related field to gain the experience needed in some of the group's occupations.

**What else should you know about these jobs?**

Workers are expected to keep up with developments and trends in their specific area. They may attend seminars and workshops, or study for advanced degrees in the field.

**OTHER  
CONSIDERATIONS**

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 6. Activities involving the communication of ideas and information.
- 7. Activities of a scientific and technical nature.
- 9. Activities involving processes, methods, or machines.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Coordinating       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Handling           |

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 3. Planning and directing an entire activity.
- 7. Making decisions using personal judgment.
- 8. Making decisions using standards that can be measured or checked.

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- 5. Sedentary work.
- 6. Seeing.

## WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

1 Inside.

## APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |    |   |       |      |
|-------------------------|--------|----|---|-------|------|
|                         | Low    | to |   |       | High |
|                         | 5      | 4  | 3 | 2     | 1    |
| G - General             |        |    |   | 2 - 1 |      |
| V - Verbal              |        |    |   | 2 - 1 |      |
| N - Numerical           |        |    |   | 2 - 1 |      |
| S - Spatial             |        |    |   | 2     |      |
| Q - Clerical Perception |        |    |   | 2     |      |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5 - 6.

Workers apply logical thinking and scientific methods to collect, analyze, and apply numerical data and statistical concepts from which they draw valid conclusions.

They deal with abstract variables such as numerical and statistical equations, charts, and graphs and with such concrete variables as data processing equipment.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

## Entry and Advancement Information

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

## Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- G - Graduate degree in mathematics, statistics, or computer programming.
- C - Four-year college degree in mathematics, statistics, or computer programming.
- V - Vocational school courses in data processing.

## Training Time

Occupations in this group may require from over 2 years up to and over 10 years (SVP 7, 8, 9).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry, Advanced Math.

**OCCUPATIONS IN MATHEMATICS AND STATISTICS**

|                                     |             |   |             |
|-------------------------------------|-------------|---|-------------|
| Actuary                             | 020.167-010 | Programmer, Business                        | 020.162-014 |
| Consultant                          | 189.167-010 | Programmer, Chief, Business                 | 020.167-018 |
| Engineering Analyst                 | 020.067-010 | Programmer, Detail                          | 219.367-026 |
| Financial Analyst                   | 020.167-014 | Programmer, Engineering and Scientific      | 020.167-022 |
| Forms Analyst                       | 161.267-018 | Statistician, Applied                       | 020.167-026 |
| Manager, Electronic Data Processing | 169.167-030 | Statistician, Mathematical                  | 020.067-022 |
| Mathematical Technician             | 020.162-010 | Systems Analyst, Electronic Data Processing | 012.167-066 |
| Operations-Research Analyst         | 020.067-018 |   |             |

# EDUCATIONAL AND LIBRARY SERVICES

Educational and library services include teaching, counseling, and library work. Job settings are schools, colleges, libraries, and other educational agencies.

## WORK PERFORMED

What would you do as a worker in this group?

You would teach or work in a library. You would perform one or more of the following tasks.

- Teach classes in an elementary or secondary school.

- Help students explore possible career alternatives and plan for further training.
- Conduct college courses for undergraduate or graduate students.
- Teach improved homemaking practices to adults and youth.
- Teach a trade in a vocational school.
- Plan and produce audio-visual materials for education or training programs.
- Demonstrate and teach new farming methods to adult farmers.
- Order, process, and loan books in a library.

Iowa State University



Elementary school teachers have responsibilities both inside and outside the classroom.

As a college instructor, you might supervise students in a biology lab.



Cornell University

**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Understand and apply basic principles of effective teaching.
- Gain respect and trust of students.
- Develop meaningful and interesting learning materials.
- Develop special skills and knowledge in one or more academic or vocational subjects.
- Use the standard system for maintaining a collection of books and other materials in a library.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

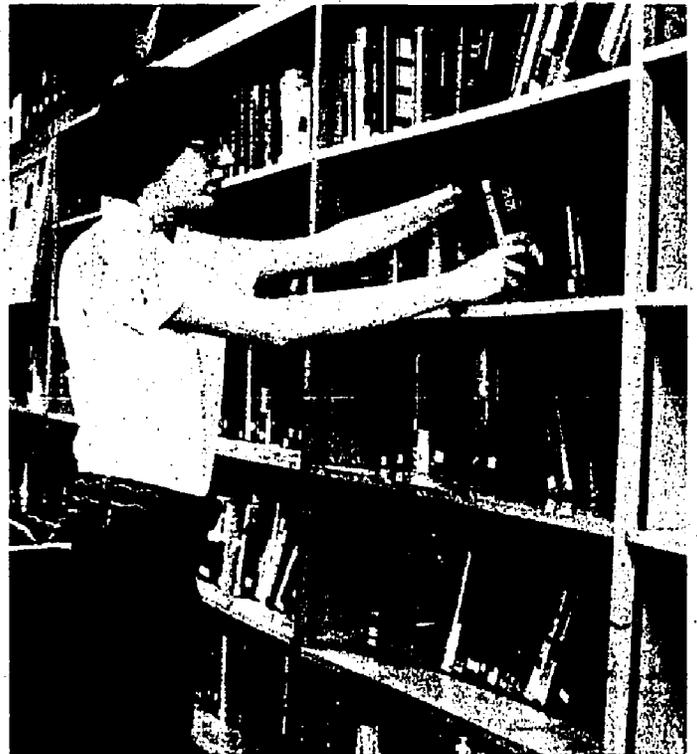
- Have you been a camp or playground instructor? Do you enjoy working with children?
- Have you helped others with their homework? Can you explain things clearly? Are you patient with those you help?
- Have you been a member of Future Teachers of America (FTA) or a similar group? Do you want to teach others?
- Have you helped a teacher grade papers or prepare teaching materials? Do you like this type of work?
- Have you helped a librarian catalog or shelve books? Do you like to work in libraries?

Department of Labor



A guidance counselor must have the respect and trust of students.

You may want to work in the school library during free periods to test your interest.



County extension agents must have several years of training and experience to help farmers solve agricultural problems.



U. S. Department of Agriculture

### How can you prepare for and enter this kind of work?

Four or more years of college study are required for most jobs in this group. School principals and college teachers must have graduate degrees. Teachers in public schools must have state certificates for the subjects or grade levels they teach. Certificate requirements vary among the states. However, certain levels of education and experience are standard. Vocational teachers usually must have several years of experience in business or industry. Counselors are usually required to have teaching experience and an advanced college degree.

### What else should you know about these jobs?

Job openings in this group usually depend on the subject area, grade level, and teaching specialty. A decline or increase in the number of school age children in an area also influences openings. Most teachers are not required to work a twelve-month year. Many seek summer employment or continue their education when not teaching.

Teachers usually work the regular school day. In addition, they plan programs, keep records, grade papers, and attend meetings. Teachers may also supervise student activities after school hours. They may receive extra pay for some of these activities.

## PREPARATION

## OTHER CONSIDERATIONS

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

- 2. Activities involving business contact.
- 4. Activities involving direct personal contact to help or instruct others.
- 5. Activities resulting in recognition or appreciation from others.
- 6. Activities involving the communication of ideas and information.

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

- S. Sedentary work.
- L. Light work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

- 1. Performing duties which change frequently.
- 3. Planning and directing an entire activity.
- 4. Dealing with people.
- 7. Making decisions using personal judgment.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

- I. Inside.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                                |               |
|--------|-------------------------------------|-------------------------------------|-------------------------------------|---------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Analyzing   |
| PEOPLE | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Instructing |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | - Handling    |

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |       |   |       |
|-------------------------|--------|---|-------|---|-------|
|                         | Low    | 4 | 3     | 2 | High  |
| G - General             |        |   |       |   | 2 - 1 |
| V - Verbal              |        |   |       |   | 2 - 1 |
| N - Numerical           |        |   | 3     |   |       |
| Q - Clerical Perception |        |   | 3 - 2 |   |       |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5-6.

Workers apply logical thinking to the principles and techniques of teaching or providing library services. They communicate educational and vocational information to others or assist in providing reference materials. They deal with a variety of abstract and concrete variables such as human growth and development, learning processes, books, and periodicals. These workers deal with subject matter ranging in difficulty from beginning reading to nuclear physics.

## PREPARATION AND TRAINING.

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

E - To enter most occupations workers only need the required competencies and credentials.

### Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G - Graduate degree in education or library science.

C - Four-year college degree in education and the subject specialty.

## Training Time

Occupations in this group may require from over two years up to and over 10 years (SVP 7, 8, 9).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Subjects related to interest.

## OCCUPATIONS IN EDUCATIONAL AND LIBRARY SERVICES

|                                       |             |
|---------------------------------------|-------------|
| Acquisitions Librarian                | 100.267-010 |
| Bookmobile Librarian                  | 100.167-014 |
| Catalog Librarian                     | 100.387-010 |
| Children's Librarian                  | 100.167-018 |
| Classifier                            | 100.367-014 |
| Community Dietitian                   | 077.127-010 |
| Counselor                             | 045.107-010 |
| County-Agricultural Agent             | 096.127-010 |
| County Home Demonstration Agent       | 096.121-010 |
| Dean of Students 1                    | 090.117-010 |
| Dean of Students 2                    | 091.107-010 |
| Dietitian, Teaching                   | 077.127-022 |
| Director, Religious Education         | 129.107-022 |
| Faculty Member, College or University | 090.227-010 |
| Film-or-Tape Librarian                | 222.367-026 |
| Four-H Club Agent                     | 096.127-022 |
| Home Economist                        | 096.121-014 |
| Homemaker                             | 309.354-010 |
| Instructor, Correspondence School     | 099.227-014 |
| Instructor, Extension Work            | 090.227-018 |
| Instructor, Physical Education        | 099.224-010 |
| Instructor, Vocational Training       | 097.227-014 |
| Librarian                             | 100.127-014 |
| Librarian, Special Collections        | 100.267-014 |
| Librarian, Special Library            | 100.167-026 |
| Library Assistant                     | 249.367-046 |
| Media Specialist, School Library      | 100.167-030 |
| Music Librarian                       | 100.367-022 |
| Teacher, Adult Education              | 099.227-030 |
| Teacher Aide 1                        | 099.327-034 |
| Teacher, Elementary School            | 092.227-010 |
| Teacher, Industrial Arts              | 091.221-010 |
| Teacher, Kindergarten                 | 092.227-014 |
| Teacher, Preschool                    | 092.227-018 |
| Teacher, Secondary School             | 091.227-010 |
| Training Representative               | 166.227-010 |
| Tutor                                 | 099.227-034 |
| Young-Adult Librarian                 | 100.167-034 |

# SOCIAL RESEARCH

Cornell University



By developing plans which meet a community's long-range needs, urban planners help solve social, economic and environmental problems.

Social research is the study and analysis of information about people and societies. This work may include researching past events and cultures or studying and solving current social problems. Museums, schools and colleges, government agencies, and private research foundations employ workers in this group.

## WORK PERFORMED

What would you do as a worker in this group?

You would collect, analyze, and interpret information about a person, a specific social group, or society as a whole. You would perform one or more of the following tasks.

- Conduct research on how people learn.
- Analyze and describe jobs and workers.
- Study a language and its function in a society or region.
- Do historical research to discover family origins.
- Study the ruins of an ancient culture.
- Conduct studies of the social and economic use of land for a city or county.



Department of Labor

This job analyst helps a company official reorganize the staff.



Department of Labor

Archivists in museums are responsible for preserving historical documents and artifacts.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Analyze, interpret, and report historical information.
- Understand and use theories and methods in fields such as history, sociology, and anthropology.
- Keep and organize detailed library research notes.
- Have an interest in history and the development of society.

**WORKER REQUIREMENTS**

## CLUES

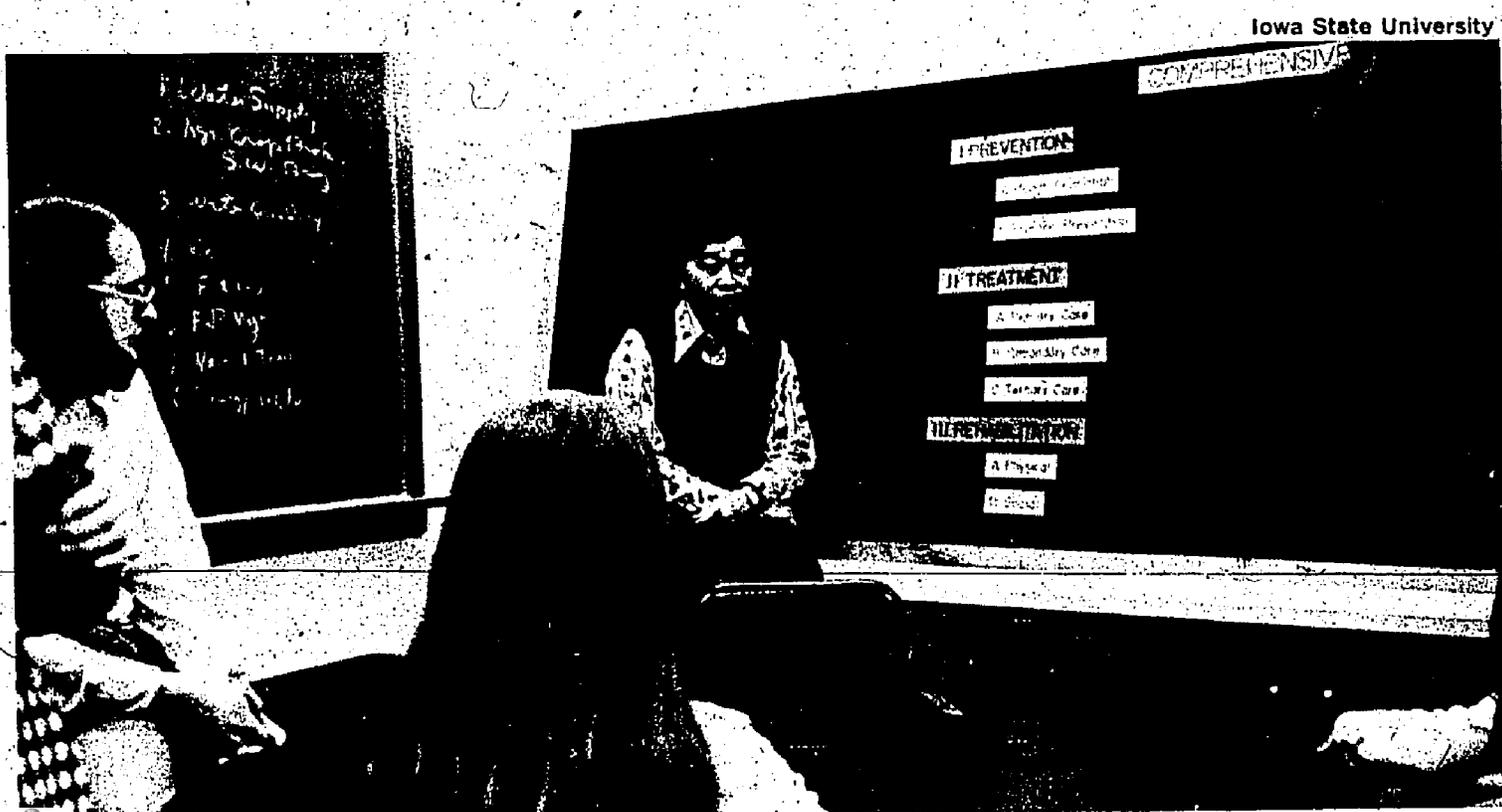
Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you read articles about the problems of society? Would you like to help solve such problems as crime and poverty?
- Have you done research projects or surveys for social science classes? Do you like to do research?
- Have you had history courses? Do you like to read historical novels?
- Have you visited museums and historical sites? Would you like to dig for artifacts? Are you interested in ancient cultures?

## PREPARATION

How can you prepare for and enter this kind of work?

Most jobs in this group require four or more years of college study in the social sciences. Advanced degrees in sociology, history, or archeology are required for many jobs. Courses in computer science or statistics are often needed to help workers process research data.



You would attend seminars and read professional journals to keep up with new trends in your specialty.

**What else should you know about these jobs?**

Workers in this group must keep up with the developments and trends in their field. They may attend workshops and seminars to keep informed in their specialty.

**OTHER CONSIDERATIONS**

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 6. Activities involving the communication of ideas and information.
- 7. Activities of a scientific and technical nature.
- 8. Activities involving creative thinking.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Synthesizing       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Handling           |

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 1. Performing duties which change frequently.
- 4. Dealing with people.
- 7. Making decisions using personal judgment.
- 8. Making decisions using standards that can be measured or checked.

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- 1 Light work.
- 5 Talking and/or hearing.
- 6 Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |    |   |      |
|-------------------------|--------|---|----|---|------|
|                         | Low    |   | to |   | High |
|                         | 5      | 4 | 3  | 2 | 1    |
| G - General             |        |   |    | 2 | 1    |
| V - Verbal              |        |   |    | 2 | 1    |
| N - Numerical           |        |   | 3  | 2 |      |
| Q - Clerical Perception |        | 4 | 3  | 2 |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5-6.

Workers apply logical thinking to the study of social theories, problems, or principles. They collect, analyze, and interpret scientific data concerned with social problems. These workers deal with abstract and concrete variables such as language origins, job classification systems, and historical documents.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- G - Graduate degree in sociology, history, anthropology, or related specialty.
- C - Four-year college degree in social work or public administration.

**Training Time**

Occupations in this group may require from over 2 years up to and over 10 years (SVP 7, 8, 9).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

**Important Courses**

- Courses required for entrance to post high school formal programs.
- Sociology, History.

**Helpful Courses**

- Biological Sciences, Government.

**OCCUPATIONS IN SOCIAL RESEARCH**

|                                    |             |  |             |
|------------------------------------|-------------|--|-------------|
| <b>Anthropologist</b>              | 055.067-010 | <b>Psychologist, Educational</b>               | 045.067-010 |
| <b>Archeologist</b>                | 055.067-018 | <b>Psychologist, Engineering</b>               | 045.061-014 |
| <b>Archivist</b>                   | 101.167-010 | <b>Psychologist, Experimental</b>              | 045.061-018 |
| <b>Employment Interviewer</b>      | 166.267-010 | <b>Psychologist, Industrial-Organizational</b> | 045.107-030 |
| <b>Ethnologist</b>                 | 055.067-022 | <b>Psychologist, Social</b>                    | 045.067-014 |
| <b>Historian</b>                   | 052.067-022 | <b>Research Assistant</b>                      | 109.267-010 |
| <b>Job Analyst</b>                 | 166.267-018 | <b>Research Worker, Social Welfare</b>         | 054.067-010 |
| <b>Occupational Analyst</b>        | 166.067-010 | <b>Scientific Linguist</b>                     | 059.067-014 |
| <b>Political Scientist</b>         | 051.067-010 | <b>Sociologist</b>                             | 054.067-014 |
| <b>Psychologist, Developmental</b> | 045.061-010 | <b>Urban Planner</b>                           | 199.167-014 |

# LAW

Law, as used here, involves applying the knowledge of laws to advise people and businesses on their rights and obligations. Workers in this group define the meaning of laws to use it in courts of law, hearings, and business activities. Law firms, government agencies, and private businesses employ these workers. Some workers may be self-employed and have their own practice. Others may be elected or appointed to public offices.

## WORK PERFORMED

What would you do as a worker in this group?

You would represent clients or preside in a court of law or hearing. You would prepare legal papers or contracts. You would perform one or more of the following tasks.

- Defend a client accused of a crime.
- Prosecute accused lawbreakers.
- Prepare an application for a patent.
- Prepare contracts and deeds for the sale of real estate.
- Represent clients who are being sued.
- Advise a business firm about tax laws.
- Serve as a judge in a court of law.

As a judge or lawyer, you would advise people about their rights and obligations.





Delta Airlines

Lawyers research and organize legal information to defend their clients effectively in court.



What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Read and understand complex laws and case histories to identify important details.
- Speak with clients, witnesses, juries, judges, and other lawyers in an effective manner.
- Use exact legal terms and ideas to prepare contracts.
- Know the details of federal, state, county, and municipal laws or how to find them.
- Use proper courtroom procedures.
- Inspire the trust and confidence of clients and jurors.
- Pass a state bar exam to get a license to practice law.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you been on a debate team? Can you argue a point in an effective manner?
- Have you taken speech courses? Do you feel at ease when speaking before a group?
- Have you taken courses in journalism or in composition? Can you organize and write information to present a point of view?
- Have you attended a trial? Does the courtroom setting interest you?
- Have you done research papers? Can you use a library card file? Can you take and use detailed notes?

Cornell University

You can develop the speaking skills needed to present a court case in speech classes.



## PREPARATION

**How can you prepare for and enter this kind of work?**

Lawyers must pass a state bar exam to get a license to practice law. Required preparation for these tests vary among states. Some states require graduation from a law school. A four-year college degree and completion of a program for law clerks are required in some states. Other states accept persons who study law with a licensed lawyer. Correspondence law courses are accepted as preparation for testing in some states.

Entry requirements for law schools vary. Some schools accept students directly from high school. Others require students to have two or more years of college credit.

To obtain the licenses necessary to practice law in some higher courts, lawyers must meet special requirements. Some jobs in this group do not require a license. In these jobs, workers use their knowledge of law, but do not practice law.

Most lawyers start as junior partners in law firms, junior executives in business or industry, or workers in government agencies. A few establish their own law practice. However, lawyers usually need to earn enough money, experience, and reputation before they can become self-employed. Workers must be elected or appointed to some jobs in this group.

**What else should you know about these jobs?**

Some workers in this group receive set salaries. Lawyers in private practice get their income from fees. Sometimes, the size of a fee depends upon the outcome of a case. Some lawyers have long-term retainers. Clients pay the fees in advance to make sure the lawyer's services are available when they need them. Retainers provide a steady source of income.

Lawyers sometimes work long or irregular hours. Some jobs require them to respond to emergency calls from clients.

## OTHER

## CONSIDERATIONS

## QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

### WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.
8. Activities involving creative thinking.

### WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
4. Dealing with people.
5. Influencing people's opinions, attitudes, and judgments.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

### WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Synthesizing |
| PEOPLE | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Negotiating  |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Handling     |

### PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- L Light work.
- 5. Talking and/or hearing.
- 6. Seeing.

### WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.

### APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |   |       |       |
|-------------------------|--------|---|---|-------|-------|
|                         | Low    |   |   |       | High  |
|                         | 5      | 4 | 3 | 2     | 1     |
| G - General             |        |   |   |       | 2 - 1 |
| V - Verbal              |        |   |   |       | 1     |
| N - Numerical           |        |   |   | 3 - 2 | 1     |
| Q - Clerical Perception |        |   |   | 3     |       |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5-6.

Workers apply logical thinking to seek out, understand, interpret, and use legal principles and procedures. They define problems, collect data, establish factors, and draw valid legal conclusions. These workers deal with abstract and concrete variables such as court decisions, legality of contracts and wills, criminal defense, strategies, and legal documents.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

## Entry and Advancement Information

E - To enter some occupations workers only need the required competencies and credentials.

A - To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

## Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G - Graduate degree in law.

## Training Time

Occupations in this group may require from over 4 years up to and over 10 years (SVP 8, 9).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

## Important Courses

- Courses required for entrance to post high school formal programs.
- Composition, Speech, History, Government.

## Helpful Courses

- Sociology.

## OCCUPATIONS IN LAW

|                     |             |
|---------------------|-------------|
| Abstractor          | 119.267-010 |
| Arbitrator          | 169.107-010 |
| Conciliator         | 169.207-010 |
| District Attorney   | 110.117-010 |
| Judge               | 111.107-010 |
| Lawyer              | 110.107-010 |
| Lawyer, Admiralty   | 110.117-018 |
| Lawyer, Corporation | 110.117-022 |
| Lawyer, Criminal    | 110.107-014 |
| Lawyer, Patent      | 110.117-034 |
| Lawyer, Real Estate | 110.117-034 |
| Legal Investigator  | 119.267-022 |
| Paralegal Assistant | 119.267-026 |
| Tax Attorney        | 110.117-038 |

# BUSINESS ADMINISTRATION

Business administration is the management of a public agency or private business. Workers in this group develop operating procedures, analyze problems, and supervise workers. Businesses, industries, government agencies, unions, and professional groups employ these workers.

## WORK PERFORMED

What would you do as a worker in this group?

You would plan, set policy, and make decisions. You would direct business activities, usually through managers or super-

visors. You would perform one or more of the following tasks.

- Set business objectives for a company.
- Identify and solve the business problems of a firm.
- Manage operations of a department or section of a large business or agency.
- Run the daily operations of a city government.
- Preside at a board of directors' meeting of a company.
- Make arrangements for a professional group's conventions and workshops.
- Direct a state, federal, or local government agency.
- Serve as an elected state official.



You might serve on the board of directors of a company to help set business objectives and policies.



A housing project manager works with complex financial data to prepare budgets.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Understand all operations of a company or department.
- Analyze a variety of problems and make decisions daily.
- Work with complex financial and statistical information.
- Direct other management staff members.
- Speak and write clearly.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you held an office in a school, church, or community group? Can you work with others to make decisions?
- Have you taken part in Junior Achievement or a similar program? Did you plan and complete a business project?
- Have you taken part in class discussions? Do you state your ideas in meetings? Are your ideas accepted and understood?
- Have you taken economics or business courses? Do you like these subjects?

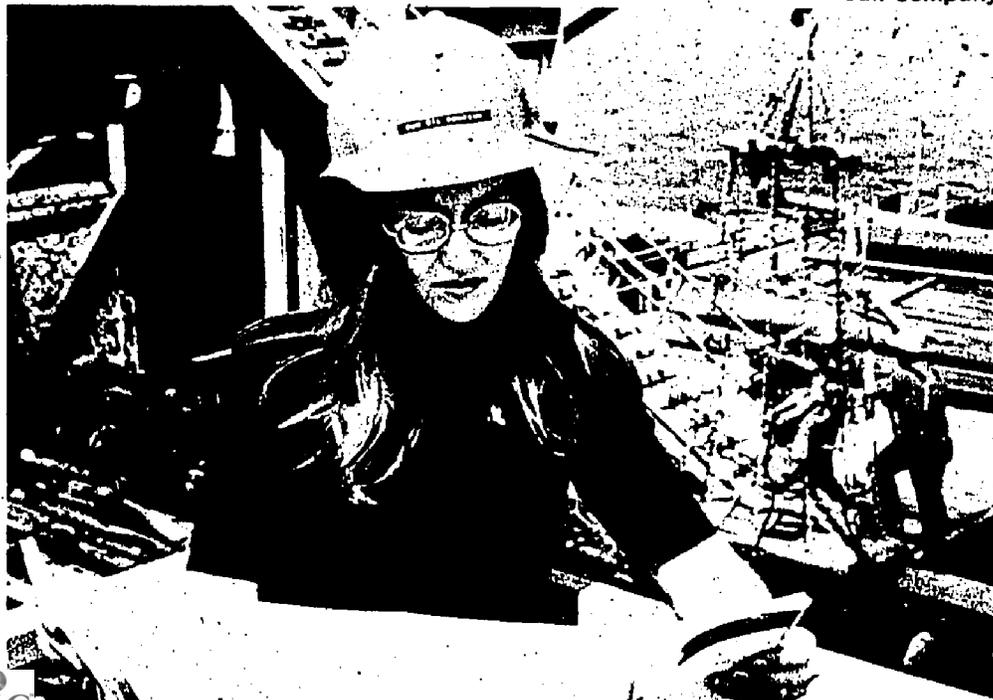
## PREPARATION

How can you prepare for and enter this kind of work?

High level administrators are selected on the basis of performance in lower level jobs. Management experience within the same company, agency, or industry is usually required. Four or more years of college work are often required to get jobs that provide this experience. Degrees in business administration or law are needed for many jobs in this group. Some jobs require training and experience in such fields as engineering, chemistry, or sociology.

Some companies offer management training programs to prepare employees for jobs in this group. Employers sometimes place college graduates without experience in these training programs.

Sun Company



Management trainees work in all the operations of a business before they are given management responsibility.

**What else should you know about these jobs?**

Workers in this group are seldom free from the pressures of responsibility. They also face constant competition from others seeking high level jobs.

**OTHER  
CONSIDERATIONS**

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 2. Activities involving business contact.
- 5. Activities resulting in recognition or appreciation from others.
- 6. Activities involving the communication of ideas and information.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Coordinating |
| PEOPLE | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Negotiating  |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Handling     |

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 1. Performing duties which change frequently.
- 3. Planning and directing an entire activity.
- 4. Dealing with people.
- 7. Making decisions using personal judgment.
- 8. Making decisions using standards that can be measured or checked.

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |       |   |   |
|-------------------------|--------|---|-------|---|---|
|                         | 5      | 4 | 3     | 2 | 1 |
| G - General             |        |   |       | 2 |   |
| V - Verbal              |        |   |       | 2 |   |
| N - Numerical           |        |   | 3 - 2 |   |   |
| Q - Clerical Perception |        |   | 3     |   |   |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5-6.

Workers apply logical thinking to business principles, policies, and decision-making. These workers interpret technical information presented in mathematical, written, or diagram form. They deal with abstract and concrete variables such as profit and loss concepts, investment procedures, credit regulations, and merchandise.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- G - Graduate degree in business law.
- C - Four-year college degree in business or a special field.
- V - Vocational school courses in distributive education.

**Training Time**

Occupations in this group may require from over 2 years up to and over 10 years (SVP 7, 8, 9).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.

**OCCUPATIONS IN BUSINESS ADMINISTRATION**

|   |             |                                       |             |
|---|-------------|---------------------------------------|-------------|
| Administrative Assistant                      | 169.167-010 | Manager, Employment                   | 166.167-030 |
| Association Executive                         | 189.117-010 | Manager, Export                       | 163.117-014 |
| Business Manager, College or University       | 186.117-010 | Manager, Financial Institution        | 186.117-038 |
| Business Representative, Labor Union          | 186.167-018 | Manager, Housing Project              | 186.167-030 |
| Civil Preparedness Officer                    | 188.117-022 | Manager, Industrial Organization      | 189.117-022 |
| Commissioner, Public Works                    | 188.117-030 | Manager, Labor Relations              | 166.167-034 |
| Dietitian, Chief                              | 077.117-010 | Manager, Merchandise                  | 185.167-034 |
| Director, Industrial Relations                | 166.117-010 | Manager, Office                       | 188.167-058 |
| Director, Operations                          | 184.167-018 | Manager, Operations                   | 184.117-050 |
| Director, Program                             | 184.167-030 | Manager, Personnel                    | 166.117-018 |
| Director, Safety Council                      | 188.167-034 | Manager, Procurement Services         | 162.167-022 |
| Director, Service                             | 189.167-014 | Manager, Sales                        | 163.167-018 |
| Director, Sports                              | 184.167-034 | Manager, Station                      | 184.117-062 |
| Director, Unemployment Insurance              | 188.117-094 | Manager, Traffic                      | 184.167-094 |
| District Adviser                              | 187.117-022 | Manager, Utility Sales and Service    | 163.167-022 |
| Editor, Managing, Newspaper                   | 132.017-010 | Postmaster                            | 188.167-066 |
| Executive Chief                               | 187.161-010 | President                             | 189.117-026 |
| Executive Vice President, Chamber of Commerce | 187.117-030 | President, Financial Institution      | 186.117-054 |
| Financial-Aids Officer                        | 090.117-030 | Purchasing Agent                      | 162.157-038 |
| Freight-Traffic Consultant                    | 184.267-010 | Registrar, College or University      | 090.167-030 |
| Manager, Airport                              | 184.117-026 | Security Officer                      | 189.167-034 |
| Manager, Benefits                             | 166.167-018 | Superintendent, Division              | 184.167-158 |
| Manager, Branch                               | 183.117-010 | Superintendent, Plant Protection      | 189.167-050 |
| Manager, Brokerage Office                     | 186.117-034 | Supervisor, Terminal Operations       | 184.167-242 |
| Manager, City                                 | 188.117-114 | Vice President                        | 189.117-034 |
| Manager, Compensation                         | 166.167-022 | Vice President, Financial Institution | 186.117-078 |
| Manager, Credit Card Operations               | 186.167-022 | Wholesaler I                          | 185.167-070 |
| Manager, Credit Union                         | 186.167-026 |                                       |             |

# FINANCE

Finance involves the design and control of financial records and the analysis of financial data. Workers in this group check financial record keeping systems for accuracy and supervise the work of others. Banks, loan companies, and investment firms employ these workers. Businesses, industries, colleges, and government agencies also hire these workers for their financial services.

## WORK PERFORMED

What would you do as a worker in this group?

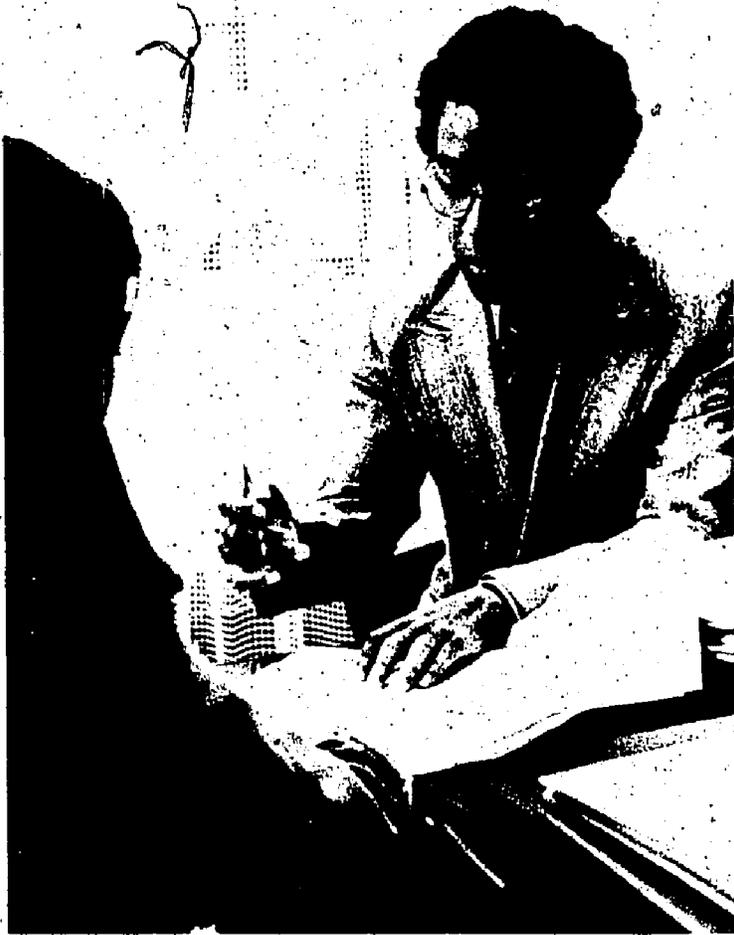
You would study and interpret financial data. You would control the financial records of a person or company. You would

perform one or more of the following tasks.

- Design the forms and methods used to keep the financial records of a company.
- Examine the financial records of a business for error or fraud.
- Judge the values of materials, equipment, and property.
- Analyze credit information to determine the risk of loaning money to a firm or person.
- Study data and recommend shipping rates for airlines or trucking companies.
- Advise people or firms about buying and selling stocks and bonds.
- Prepare a budget for the operation of a company.



Real estate appraisers judge the value of a home by examining it carefully.



Accountants advise their clients on financial matters and prepare income tax forms for them.



A company would use your financial reports to make sound business decisions.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Compute math problems with speed and accuracy.
- Speak and write clearly to report financial information.
- Plan, organize, and direct the work of others.
- See details and spot errors when working with numbers.
- Estimate the value of materials and equipment.
- Apply the principles of accounting and auditing to design and analyze a record keeping system.

WORKER  
REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Do you have a checking or savings account? Does your balance always agree with the bank statement?
- Have you made a budget for your own money? Can you spend and save within that budget?
- Have you had courses in accounting or bookkeeping? Are math problems easy for you? Do you like to work with details and numbers?
- Have you served as a treasurer of a school or community group? Can you keep accurate financial records?



Test your interest and skills in working with budgets and financial records by serving as a club treasurer.

**How can you prepare for and enter this kind of work?****PREPARATION**

Experience in keeping financial records is usually required for jobs in this group. A college degree or courses in accounting, business law, economics, and investment help prepare workers for these jobs. Some workers are promoted to these jobs within the same company. Some jobs in this group requires licenses or certificates. Requirements vary from state to state.

**What else should you know about these jobs?****OTHER**

Some workers in this group must learn the total operation of a business to interpret financial data with accuracy.

**CONSIDERATIONS**


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**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.
7. Activities of a scientific and technical nature.
9. Activities involving processes, methods, or machines.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Coordinating       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Handling           |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 1 Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |    |       |   |      |
|-------------------------|--------|----|-------|---|------|
|                         | Low    | to |       |   | High |
|                         | 5      | 4  | 3     | 2 | 1    |
| G - General             |        |    |       | 2 |      |
| V - Verbal              |        |    |       | 2 |      |
| N - Numerical           |        |    |       | 2 |      |
| Q - Clerical Perception |        |    | 3 - 2 |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply logical thinking and understanding of mathematical concepts to the operation of financial or economic systems. They interpret technical information presented in mathematical or diagram form. These workers deal with abstract and concrete variables such as financial records, record keeping systems, and computers.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- G – Graduate degree in business or finance.
- C – Four-year college degree in accounting or finance.
- T – One- or two-year technical school program in accounting or finance.
- V – Vocational school courses in accounting.

**Training Time**

Occupations in this group may require from over 2 years up to and including 10 years (SVP 7, 8).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry.

**OCCUPATIONS IN FINANCE**

|                                   |             |
|-----------------------------------|-------------|
| Accountant                        | 160.167-010 |
| Accountant, Budget                | 160.167-014 |
| Accountant, Cost                  | 160.167-018 |
| Accountant, Tax                   | 160.162-010 |
| Appraiser                         | 188.167-010 |
| Appraiser, Real Estate            | 191.267-010 |
| Auditor                           | 160.162-014 |
| Auditor, County or City           | 160.167-030 |
| Auditor, Tax                      | 160.167-038 |
| Broker and Market Operator, Grain | 162.157-010 |
| Broker's Floor Representative     | 162.157-014 |
| Budget Officer                    | 161.117-010 |
| Controller                        | 186.117-014 |
| Credit Analyst                    | 191.267-014 |
| Credit Analyst, Chief             | 160.267-010 |
| Foreign-Exchange Trader           | 186.167-014 |
| Investigator                      | 241.267-030 |
| Loan Officer                      | 186.267-018 |
| Manager, Credit and Collection    | 168.167-054 |
| Market-Research Analyst 1         | 050.067-014 |
| Operations Officer                | 186.167-050 |
| Rate Analyst, Freight             | 214.267-010 |
| Rate Reviewer                     | 214.387-014 |
| Reserve Officer                   | 186.167-054 |
| Revenue Agent                     | 160.167-050 |
| Risk and Insurance Manager        | 186.117-066 |
| Sales Agent, Securities           | 251.157-010 |
| Securities Trader 1               | 162.157-042 |
| Securities Trader 2               | 186.167-058 |
| Treasurer                         | 161.117-018 |
| Treasurer, Financial Institution  | 186.117-070 |
| Trust Officer                     | 186.117-074 |
| Underwriter                       | 169.167-058 |

# SERVICES ADMINISTRATION

Services administration is the management of agencies which provide health, welfare, education, or recreation services. Workers in this group usually supervise others who carry out the functions of a specific service. Schools, colleges, hospitals, prisons, community programs, and government agencies employ these workers.

## WORK PERFORMED

What would you do as a worker in this group?

You would plan programs, set policies, and make decisions for a social service

agency or institution. You would perform one or more of the following tasks.

- Manage the affairs of a university or a school system.
- Direct the welfare program of a city or county.
- Manage a hospital nursing service program.
- Direct a state agency providing services to the blind.
- Organize social services for a community by directing a planning council of several agencies.
- Plan and supervise the educational program of a school.

United Way of Champaign County



An agency director must be able to manage both people and funds.



This athletic director explains the new physical education program to the teaching staff.



This prison warden is considering improvements in the security system.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Speak and write in a clear and effective way.
- Analyze a variety of problems and make decisions daily.
- Organize the functions of various community and government service agencies.
- Work with complex financial and statistical information.

**WORKER  
REQUIREMENTS**

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you done volunteer work for a hospital or social agency? Do you get satisfaction from helping others?
- Have you had courses in social studies? Do you like to deal with social problems?
- Have you been active in scouting or a member of a 4-H club? Would you like to direct a program of this type?
- Have you held an office in a school, church, or community group? Can you work with others to plan and take action?
- Have you taken part in class discussions? Do you state your ideas in meetings? Are your ideas accepted and understood?

## PREPARATION

How can you prepare for and enter this kind of work?

Most jobs in this group require work experience within a specific service field, agency, or institution. Some jobs require college degrees in fields such as social work or education. Others require degrees in public administration or business management. Work experience is sometimes substituted for part of the education. Workers may transfer to different agencies or institutions.



Would you be able to explain hospital policies and procedures to new volunteers?

What else should you know about these jobs?

Workers in this group are seldom free from the pressures of responsibility. Laws and public money influence the operation of these workers' programs.

OTHER

CONSIDERATIONS

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
4. Activities involving direct personal-contact to help or instruct others.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Coordinating |
| PEOPLE | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Negotiating  |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Handling     |

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
5. Talking and/or hearing.
6. Seeing.

## WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions:

1 Inside.

## APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |   |   |      |
|-------------------------|--------|---|---|---|------|
|                         | Low    | 4 | 3 | 2 | High |
| G - General             |        |   |   | 2 |      |
| V - Verbal              |        |   |   | 2 |      |
| N - Numerical           |        |   | 3 |   |      |
| Q - Clerical Perception |        |   | 3 |   |      |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply logical thinking and supervisory skills to the planning, supervision, and direction of social service programs, agencies, or institutions. Workers in this group usually deal with concrete and abstract variables such as program design, management theory, and financial reports.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

### Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G - Graduate degree in administration or a special field.

C - Four-year college degree in business administration or a special field.

### Training Time

Occupations in this group may require from over 4 years up to and over 10 years (SVP 8, 9).

### Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Sociology.

OCCUPATIONS IN SERVICES ADMINISTRATION

|  |             |                                    |             |
|--|-------------|------------------------------------|-------------|
| Academic Dean                          | 090.117-010 | District Extension Service Agent   | 096.161-010 |
| Administrator, Hospital                | 187.117-010 | Educational Specialist             | 099.167-022 |
| Administrator, Social Welfare          | 195.117-010 | Extension Service Specialist       | 096.127-014 |
| Blood-Donor Recruiter                  | 293.357-010 | Field Representative               | 189.267-010 |
| Business-Enterprise Officer            | 188.117-014 | Library Director                   | 100.117-010 |
| Community Organization Worker          | 195.167-010 | Manager, Education and Training    | 166.167-026 |
| Curator                                | 102.017-010 | Medical-Record Administrator       | 079.167-014 |
| Department Head, College or University | 090.167-010 | Park Naturalist                    | 049.127-010 |
| Director, Athletic                     | 090.117-022 | President, Educational Institution | 090.117-034 |
| Director, Community Organization       | 187.117-014 | Principal                          | 099.117-018 |
| Director, Educational Program          | 099.117-010 | Public Health Educator             | 079.117-014 |
| Director, Institution                  | 187.117-018 | Recreation Supervisor              | 187.137-010 |
| Director, Instructional Material       | 099.167-018 | Superintendent, Recreation         | 187.117-054 |
| Director, Nursing Service              | 075.117-022 | Superintendent, Schools            | 099.117-022 |
| Director of Admissions                 | 090.167-014 | Supervisor, Education              | 099.117-026 |
| Director, Preschool                    | 092.137-010 | Welfare Director                   | 188.117-126 |
| Director, Special Education            | 094.117-014 |                                    |             |

# COMMUNICATIONS

Communications include the writing, editing, and translating of nonfictional information. Some workers also read news reports on radio or television.

Newspapers, publishing firms, and radio and television stations employ these workers. Businesses, government agencies, and professional groups usually provide some openings.

## WORK PERFORMED

What would you do as a worker in this group?

You would select and prepare information for printing or broadcasting. You would perform one or more of the following tasks.

- Collect facts and write news reports.
- Supervise workers who write news reports.
- Prepare and read news reports for a television or radio station.
- Write or edit articles for a professional or technical magazine.
- Translate speeches or remarks from one language to another.



Large newspapers often have busy, noisy newsrooms where copy editors must still be able to concentrate and meet deadlines.



Reporters use verbal and written communication skills to collect facts and write news reports.



What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use accurate grammar, punctuation, spelling, and sentence structure.
- Express ideas and information clearly.
- Plan, organize, and direct the work of others.
- Understand and use the technical language of one or more professional or scientific fields.
- Speak and write two or more languages fluently.
- Select ideas and information that would interest the public.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, interests, and abilities? Your answers to the following questions will help you decide.

- Have you written book reports or research papers? Do you enjoy writing? Do you apply the rules of grammar, punctuation, and sentence structure in your work?
- Have you had to learn scientific and technical terms? Can you use them easily?
- Have you worked for a school or community newspaper? Did you interview people and write articles? Did you do any editing?
- Have you taken courses in public speaking? Do you feel at ease when speaking before a group?
- Have you taken courses in a foreign language? Can you speak or write fluently in that language? Do you speak a second language at home?



Some reporters work in fields where specialized background knowledge is required.

Working on your school yearbook can help you explore or confirm your interest in written communications!



**How can you prepare for and enter this kind of work?****PREPARATION**

Most jobs in this group require college courses in English, journalism, or a foreign language. Some jobs require a four-year college degree. Experience and skill in writing or broadcasting is sometimes a substitute for formal education.

Some jobs require knowledge and experience in a field such as sports, agriculture, music, or political science.

**What else should you know about these jobs?**

Workers in this group may work irregular hours. Some may travel or live in a foreign country. Gathering facts for news reporting may place the worker in hazardous situations.

**OTHER  
CONSIDERATIONS****QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Synthesizing       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Handling           |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S- Sedentary work.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 1 Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |   |   |      |
|-------------------------|--------|---|---|---|------|
|                         | Low    | 4 | 3 | 2 | High |
| G - General             |        |   |   | 2 | 1    |
| V - Verbal              |        |   |   |   | 1    |
| N - Numerical           |        |   | 3 |   |      |
| Q - Clerical Perception |        |   | 3 |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply logical thinking and verbal skills to write or edit communications materials. They interpret technical instructions presented in written form. These workers deal with abstract and concrete variables such as news analysis, broadcasting, and written reports.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- C – Four-year college degree in English, journalism, or foreign languages.
- NFT – Some occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from over 2 years up to and including 10 years (SVP 7, 8).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

**Important Courses**

- Courses required for entrance to post high school formal programs.
- Composition.

**Helpful Courses**

- Foreign Language.

**OCCUPATIONS IN COMMUNICATIONS**

Columnist/Commentator  
 Director, News  
 Editorial Assistant  
 Editor, City  
 Editor, Department  
 Editor, Dictionary  
 Editor, News  
 Editor, Newspaper

131.067-010  
 184.167-014  
 132.267-014  
 132.037-014  
 132.037-018  
 132.067-018  
 132.067-026  
 132.017-014

Interpreter  
 Newscaster  
 Newswriter  
 Reporter  
 Residence Supervisor  
 Translator  
 Writer, Technical Publications

137.267-010  
 131.267-010  
 131.267-014  
 131.267-018  
 187.167-186  
 137.267-018  
 131.267-026

# PROMOTION

Promotion involves advertising products or services, raising money, or influencing the opinions of others. Some workers in this group deal directly with the public. Advertising agencies, business and industries, colleges, unions, professional groups, and government agencies employ these workers.

## WORK PERFORMED

What would you do as a worker in this group?

You would plan and conduct advertising and public relations campaigns to inform

or persuade people. You would perform one or more of the following tasks.

- Prepare product displays and give advice on how to increase sales.
- Direct a fund raising drive for a charity.
- Plan displays and demonstrations for fairs or trade shows.
- Contact legislators and public officials to promote the goals of a special interest group.
- Prepare information, pictures, and scripts for news releases and television advertising.
- Persuade radio stations to play new musical recordings.
- Plan and direct a membership drive for a chamber of commerce.



Advertising agency executives must create advertising programs that meet the client's approval.



An advertising manager supervises the preparation of an advertising campaign.

The Brown Shoe Company



As a fund raiser, you must be able to convince people to donate money for various causes.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Create original ideas for advertising campaigns.
- Speak and write in a clear and convincing way.
- Supervise the work of others.
- Influence the opinions of others.

## CLUES

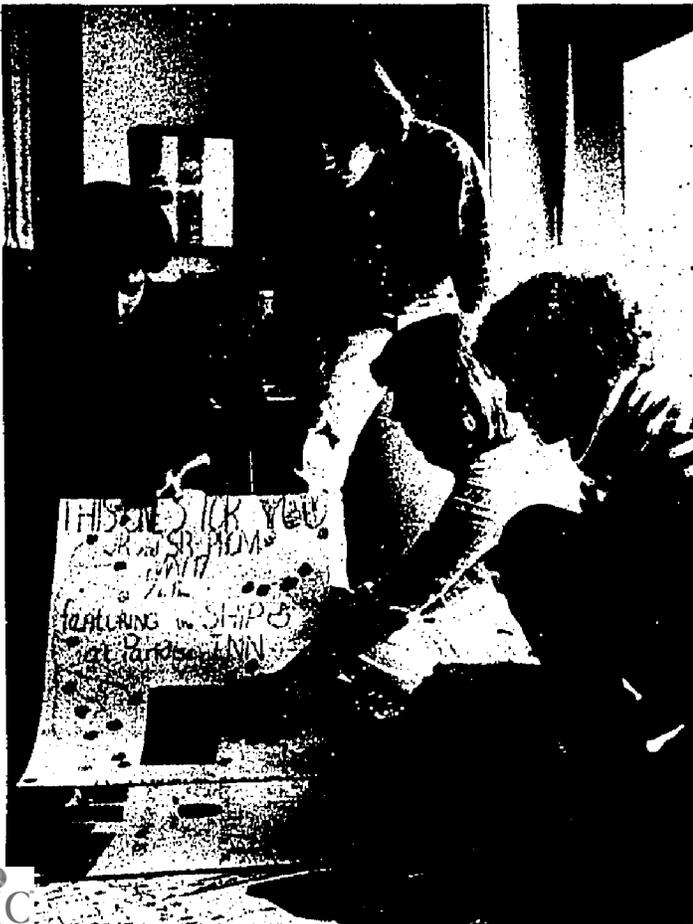
Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you organized ticket sales for a school or community event? Did you plan the publicity?
- Have you made posters for a school or community event? Did they attract attention?
- Have you written advertising copy for a school yearbook or newspaper? Do you like this kind of writing?
- Have you worked in a political campaign? Did you help think of ways to influence the opinion of the voters?
- Have you sold items to raise money for a school or community group? Can you persuade people to buy things?

## PREPARATION

How can you prepare for and enter this kind of work?

Many of the jobs in this group require a college degree in communications or public relations. Some jobs also require experience in a specific business or industry. Workers may need up to ten years to gain the education and experience required for some jobs.



Can you plan and promote school events?

**What else should you know about these jobs?**

- Long hours and weekend work may be required in these jobs.
- Workers often face strict deadlines and standards.
- Workers who build a good reputation in this field are often sought by other employers and offered better jobs.

**OTHER CONSIDERATIONS**

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

- Workers generally prefer the following types of work activities.
- 2. Activities involving business contact.
- 5. Activities resulting in recognition or appreciation from others.
- 7. Activities involving the communication of ideas and information.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Coordinating |
| PEOPLE | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Negotiating  |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Handling     |

**WORK SITUATIONS**

- Workers are willing to adjust to the following types of work situations.
- 1. Performing duties which change frequently.
- 3. Planning and directing an entire activity.
- 4. Dealing with people.
- 5. Influencing people's opinions, attitudes, and judgments.
- 7. Making decisions using personal judgment.

**PHYSICAL DEMANDS**

- Workers must be able to perform the following types of physical activities.
- S Sedentary work.
- L Light work.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 1 Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels   |     |     |   |           |
|-------------------------|----------|-----|-----|---|-----------|
|                         | Low<br>5 | 4   | 3   | 2 | High<br>1 |
| G - General             |          |     |     | 2 |           |
| V - Verbal              |          |     |     | 2 |           |
| N - Numerical           |          |     | 3-2 |   |           |
| Q - Clerical Perception |          | 4-3 |     |   |           |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply logical thinking to design and carry out programs to promote goodwill, sales, or financial assets of a business or organization. These workers collect data, establish facts, and come to valid conclusions about the image building needs of an establishment. They deal with abstract and concrete variables such as advertising copy, business reports, and fund raising ideas.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- C - Four-year college degree in advertising, communications, or marketing.
- V - Vocational school courses in distributive education.

**Training Time**

Occupations in this group may require from over 4 years up to and over 10 years (SVP 8, 9).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Composition, Speech.

OCCUPATIONS IN PROMOTION

|                         |             |  |             |
|-------------------------|-------------|--|-------------|
| Account Executive       | 164.167-010 | Manager, Advertising                   | 163.167-010 |
| Director, Fundraising   | 165.117-010 | Manager, Advertising                   | 164.117-010 |
| Fashion Coordinator     | 185.157-010 | Manager, Promotion                     | 163.117-018 |
| Foreign-Service Officer | 188.117-106 | Membership Director                    | 189.167-026 |
| Fund Raiser 1           | 293.157-010 | Police Lieutenant, Community Relations | 375.137-018 |
| Goodwill Ambassador     | 293.357-018 | Public-Relations Representative        | 165.067-010 |
| Lobbyist                | 165.017-010 |  |             |

# REGULATIONS ENFORCEMENT

Regulations enforcement is the enforcing of laws about finance, people's rights, health and safety, and similar matters. However, workers in this group are not part of a police force. These workers examine procedures, products, and services to assure that government regulations are followed. Most jobs in this group are found in government agencies. Businesses also hire workers in this group to enforce company policies.

## WORK PERFORMED

What would you do as a worker in this group?

You would investigate and inspect to make sure that regulations are being fol-

lowed. You would perform one or more of the following tasks:

- Regulate the entry of persons into the United States.
- Investigate cases of cruelty to animals.
- Investigate claims of unfair hiring practices.
- Examine bank records to see if state banking laws are followed.
- Enforce customs regulations by inspecting baggage of persons coming into the United States.
- Inspect food processing plants to enforce sanitation laws.
- Inspect a factory to see that workers' safety and health are protected.
- Pose as a shopper to investigate the honesty of clerks in a department store.

Customs inspectors examine baggage of people entering the country to insure that all products being brought in are declared.



Equal opportunity consultants advise personnel managers on hiring practices.



American Motors Corporation

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know the details of the laws or regulations that must be enforced.
- Write and speak clearly and precisely.
- Make decisions and judgments based on laws and regulations.
- Use firm but courteous behavior in a variety of situations.
- Pay attention to fine details in written or numerical information.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you been interested in consumer protection or public safety? Would you like to help solve problems in these areas?
- Have you had summer or part-time experience in a factory? Do you understand safety regulations?
- Have you been in charge of a group or class? Can you maintain order? Do you like to enforce rules?
- Have you dealt with people who disagree with you? Do you consider yourself a tactful person?

## PREPARATION

How can you prepare for and enter this kind of work?

The education and experience required vary among the jobs in this group. In some cases, clerical or other workers within a company or agency are promoted to these jobs. Other jobs require a college degree in accounting or other special fields.

Many jobs in this group are in government agencies and require workers to pass a civil service test. Some jobs are filled by political appointment.

U.S. Army



Food and drug inspectors use their technical knowledge of meat grading standards to protect the public.

**What else should you know about these jobs?**

Many of these jobs require workers to wear uniforms. Some workers must speak and write more than one language to deal with people from other countries.

**OTHER  
CONSIDERATIONS**

**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 2. Activities involving business contact.
- 6. Activities involving the communication of ideas and information.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Coordinating       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Handling           |

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 1. Performing duties which change frequently.
- 3. Planning and directing an entire activity.
- 4. Dealing with people.
- 7. Making decisions using personal judgment.
- 8. Making decisions using standards that can be measured or checked.

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- 5. Talking and/or hearing
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- B Both: inside and outside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels   |   |         |           |   |
|-------------------------|----------|---|---------|-----------|---|
|                         | Low<br>5 | 4 | to<br>3 | High<br>2 | 1 |
| G - General             |          |   | 3 - 2   |           |   |
| V - Verbal              |          |   | 3 - 2   |           |   |
| N - Numerical           |          |   | 3       |           |   |
| S - Spatial             |          |   | 4 - 3   |           |   |
| P - Form Perception     |          |   | 4 - 3   |           |   |
| Q - Clerical Perception |          |   | 3       |           |   |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply logical thinking and technical knowledge to conduct investigations and inspections. These workers collect data, establish facts, and come to valid conclu-

sions concerning the enforcement of government regulations. They deal with abstract and concrete variables such as immigration, customs and postal laws, as well as safety and fire prevention techniques.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- C - Four-year college degree in accounting, allied health, or other specialty.
- T - One- and two-year technical school programs in accounting, sanitation, and public administration.
- NFT - Some occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in the group may require from over 1 year up to and including 10 years (SVP 6, 7, 8)

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

**Important Courses**

- Courses required for entrance to post high school formal programs.
- Language Skills.

**Helpful Courses**

- Government, Health.

**OCCUPATIONS IN REGULATIONS ENFORCEMENT**

|   |                    |  |                    |
|---|--------------------|--|--------------------|
| <b>Animal Treatment Investigator</b>    | <b>379.263-010</b> | <b>Inspector, Agricultural Commodities</b> | <b>168.287-010</b> |
| <b>Customs Inspector</b>                | <b>168.267-022</b> | <b>Investigator</b>                        | <b>168.267-062</b> |
| <b>Deputy Insurance Commissioner</b>    | <b>186.117-022</b> | <b>Mine Inspector</b>                      | <b>168.267-074</b> |
| <b>Director, Consumer Affairs</b>       | <b>188.117-050</b> | <b>Revenue Officer</b>                     | <b>188.167-074</b> |
| <b>Equal-Opportunity Representative</b> | <b>168.167-014</b> | <b>Safety Coordinator</b>                  | <b>909.127-010</b> |
| <b>Fire Inspector</b>                   | <b>373.267-010</b> | <b>Safety Inspector</b>                    | <b>168.167-078</b> |
| <b>Food and Drug Inspector</b>          | <b>168.267-042</b> | <b>Safety Inspector</b>                    | <b>168.264-014</b> |
| <b>Health Officer, Field</b>            | <b>168.167-018</b> | <b>Sanitarian</b>                          | <b>079.117-018</b> |
| <b>Immigration Inspector</b>            | <b>168.167-022</b> | <b>Shopping Investigator</b>               | <b>376.267-022</b> |
| <b>Industrial Hygienist</b>             | <b>079.161-010</b> |  |                    |

# BUSINESS MANAGEMENT

Business management means to direct the activities of a company or a store. Workers in this group carry out operating policies and procedures and supervise others. All types of businesses employ these workers. These businesses include hotels, recreation centers, and stores as well as transportation and service companies. Some government agencies also hire these workers.

A restaurant manager organizes the work of others to insure the efficient operation of the business.

## WORK PERFORMED

What would you do as a worker in this group?

You would direct the affairs of a business or company. You would perform one or more of the following tasks.

- Plan and oversee services to guests in a hotel.
- Direct activities at a dude ranch.
- Manage customer services for an airline at an airport.
- Manage a private employment agency.
- Manage a furniture store.
- Operate a tool rental firm.

Cornell University





General Foods Corporation

A distribution warehouse manager takes inventory and notifies customers when the stock is low.

**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Direct activities according to the policies and procedures set by a company.
- Read charts, graphs, and reports about business affairs.
- Prepare budgets, keep financial records, and take inventory.
- Use tact and courtesy to deal with the public.
- Speak and write clearly.
- Supervise others to insure efficient operation of the business,

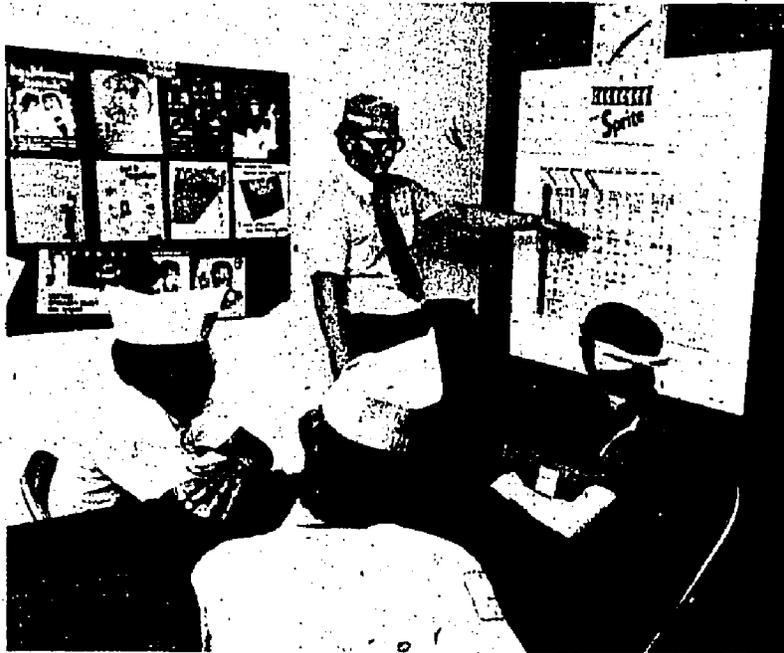
## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you been in charge of a committee or group activity?  
Can you supervise others?
- Have you been in charge of a committee or group activity?  
Can you lead others to work well together?
- Have you held an office in a school, church, or community group? Do others respect your judgment?
- Have you taken courses in business or accounting? Do you like business subjects?



Can you give clear and precise instructions to others?



In a smaller business, the manager may sometimes do the work of his or her employees.

**How can you prepare for and enter this kind of work?**

Many jobs in this group are reached by promotion within a company or store. College studies are not always required but a degree in business management is helpful. Vocational or technical school programs in hotel or restaurant management are required for some jobs. Experience is accepted as a substitute for education in some cases. Some workers transfer to other companies to get jobs in this group.

**PREPARATION****What else should you know about these jobs?**

Some workers in this group work long hours to cover staff shortages or meet emergencies. In large companies, policies are usually set by higher level administrators and approved by a board of directors. The business manager is responsible only for carrying out the policies.

**OTHER  
CONSIDERATIONS**

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**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK SITUATIONS****WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                      |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Coordinating       |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Handling           |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- S Sedentary work.
- L Light work.
- 5. Talking and/or hearing
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- B Both: inside and outside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |       |       |   |      |
|-------------------------|--------|-------|-------|---|------|
|                         | Low    |       | to    |   | High |
|                         | 5      | 4     | 3     | 2 | 1    |
| G - General             |        |       | 3 - 2 |   |      |
| V - Verbal              |        |       | 3 - 2 |   |      |
| N - Numerical           |        |       | 3     |   |      |
| P - Form Perception     |        | 4 - 3 |       |   |      |
| O - Clerical Perception |        |       | 3     |   |      |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply logical thinking and principles of business systems to insure the efficient operation of a variety of business concerns. They define problems and evaluate facts to make decisions concerning workers and their activities. Workers in this group interpret instructions presented in mathematical or diagram form. They deal with abstract and concrete variables such as operational procedures, work schedules, and work tasks.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

A - To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- C - Four-year college degree in business management.
- T - Technical school courses in hotel or restaurant management.
- V - Vocational school courses in home economics, distributive education, or quantity food areas.
- NFT - Some occupations in this group have no related formal education or training programs.

## Training Time

Occupations in this group may require from over 1 year up to and including 10 years (SVP 6, 7, 8).

## Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Language Skills, Basic Math Skills.

## OCCUPATIONS IN BUSINESS MANAGEMENT

|                                     |             |  |             |
|-------------------------------------|-------------|--|-------------|
| Commissary Manager                  | 185.167-010 | Manager, Lodging Facilities                        | 320.137-014 |
| Conductor, Passenger Car            | 198.167-010 | Manager, Machinery-or-Equipment-Rental and Leasing | 185.167-026 |
| Conductor, Road Freight             | 198.167-018 | Manager, Meat Sales and Storage                    | 185.167-030 |
| Director, Camp                      | 195.167-018 | Manager, Parts                                     | 185.167-038 |
| Director, Food Services             | 187.167-026 | Manager, Property                                  | 186.167-046 |
| Director, Funeral                   | 187.167-030 | Manager, Recreation Establishment                  | 187.117-042 |
| Director, Recreation Center         | 195.167-026 | Manager, Retail Store                              | 185.167-046 |
| Executive Housekeeper               | 187.167-046 | Manager, Sales                                     | 187.167-138 |
| Manager, Apartment House            | 186.167-018 | Manager, Service Department                        | 187.167-142 |
| Manager, Automobile Service Station | 185.167-014 | Manager, Skating Rink                              | 187.167-146 |
| Manager, Barber or Beauty Shop      | 187.167-058 | Manager, Station                                   | 184.167-082 |
| Manager, Boarding House             | 320.137-010 | Manager, Storage Garage                            | 187.167-150 |
| Manager, Bus Transportation         | 184.167-054 | Manager, Theater                                   | 187.167-154 |
| Manager, Cemetery                   | 187.167-074 | Manager, Tobacco Warehouse                         | 185.167-054 |
| Manager, Department                 | 299.137-010 | Manager, Traffic                                   | 184.117-066 |
| Manager, Distribution Warehouse     | 185.167-018 | Manager, Truck Terminal                            | 184.167-110 |
| Manager, Flight Kitchen             | 319.137-014 | Manager, Vehicle Leasing and Rental                | 187.167-162 |
| Manager, Food Service               | 187.167-106 | Manager, Warehouse                                 | 184.167-114 |
| Manager, Golf Club                  | 187.167-114 | Purser   | 197.167-014 |
| Manager, Health Club                | 339.137-010 | Superintendent, Laundry                            | 187.167-194 |
| Manager, Hotel or Motel             | 187.117-038 | Superintendent, Maintenance of Equipment           | 184.167-178 |
| Manager, Industrial Cafeteria       | 319.137-018 | Superintendent, Terminal                           | 184.167-214 |
| Manager, Insurance Office           | 186.167-034 | Yard Manager                                       | 184.167-278 |
| Manager, Liquor Establishment       | 157.167-126 |  |             |

# CONTRACTS AND CLAIMS

Contracts and claims include negotiating contracts and investigating claims for companies and people. Workers who negotiate contracts set up legally binding agreements between buyers and sellers of services, materials, or products. Workers who investigate claims gather information to determine the validity of claims. Claims involve such things as property damage or personal injury. Insurance companies, booking agencies, industries, businesses, and government agencies employ workers in this group.

## WORK PERFORMED

What would you do as a worker in this group?

You would bargain with others to agree upon a contract or a settlement of a claim. You would perform one or more of the following tasks.

- Arrange contracts with night clubs and theaters for musicians or other entertainers.
- Bargain with property owners to settle damage claims resulting from drilling for oil.
- Contact publishers to arrange for publication of writings of an author.
- Meet with public officials to arrange leases for the right-of-way of utility lines.
- Work for an insurance company to settle claims.
- Prepare and submit bids for construction projects.



Artist's managers protect the interests of their clients as they arrange contracts for them.



Illinois Agricultural Association

Car insurance companies employ claim examiners to estimate damage and settle claims.



Lease buyers negotiate prices and contracts with landowners.

**What skills, abilities, and interests would help you succeed in this kind of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know laws to prepare contracts and settle claims.
- Compute costs and prepare cost estimates.
- Read detailed technical information.
- Keep accurate records.
- Persuade others to agree to terms.
- Speak clearly and convincingly.

**WORKER  
REQUIREMENTS**

**CLUES**

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you been on a debate team? Can you persuade others to accept your opinions?
- Have you filed a claim against an insurance company? Did you fill out an accident report? Do you like detailed work like this?
- Have you read a lease or formal contract? Did you understand the details?

**PREPARATION**

How can you prepare for and enter this kind of work?

Many jobs in this group require work experience in a field such as insurance or real estate. The type and amount of education required vary among jobs. A college degree in business or management is usually needed. Courses in real estate, business law, or insurance are helpful.

**OTHER  
CONSIDERATIONS**

What else should you know about these jobs?

Some jobs in this group require the worker to travel. Pay may be based on salary, commission, or a combination of both. Workers usually need to pass a civil service test for jobs in government agencies.

**QUALIFICATIONS  
PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

- Workers generally prefer the following types of work activities.
2. Activities involving business contact.
  5. Activities resulting in recognition or appreciation from others.
  6. Activities involving the communication of ideas and information.

**WORK SITUATIONS**

- Workers are willing to adjust to the following types of work situations.
1. Performing duties which change frequently.
  3. Planning and directing an entire activity.
  4. Dealing with people.
  7. Making decisions using personal judgment.
  8. Making decisions using standards that can be measured or checked.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                     | High                                |                |
|--------|-------------------------------------|--------------------------|-------------------------------------|----------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Coordinating |
| PEOPLE | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Negotiating  |
| THINGS | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | - Handling     |

**PHYSICAL DEMANDS**

- Workers must be able to perform the following types of physical activities.
- S. Sedentary work.
  - L. Light work.
  5. Talking and/or hearing.
  6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 1. Inside.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes               | Levels |   |   |   |      |
|-------------------------|--------|---|---|---|------|
|                         | Low    | 4 | 3 | 2 | High |
|                         | 5      |   |   |   | 1    |
| G - General             |        |   |   |   | 2    |
| V - Verbal              |        |   |   |   | 2    |
| N - Numerical           |        |   |   |   | 3    |
| Q - Clerical Perception |        |   |   |   | 3    |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply logical thinking to define problems, collect facts, and make sound decisions concerning contract negotiations and claims investigation. They interpret a variety of instructions presented in mathematical or diagram form. These workers deal with abstract and concrete variables such as damage claims, contractual clauses, and leases.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to most occupations workers not only need the required competencies and credentials but also related-work experience.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- C - Four-year college degree in business management, real estate, insurance, or business law.
- T - One- or two-year technical school programs in insurance, real estate, or business law.
- V - Courses in distributive education.
- NFT - Some occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from over 2 years up to and including 10 years (SVP 7, 8).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

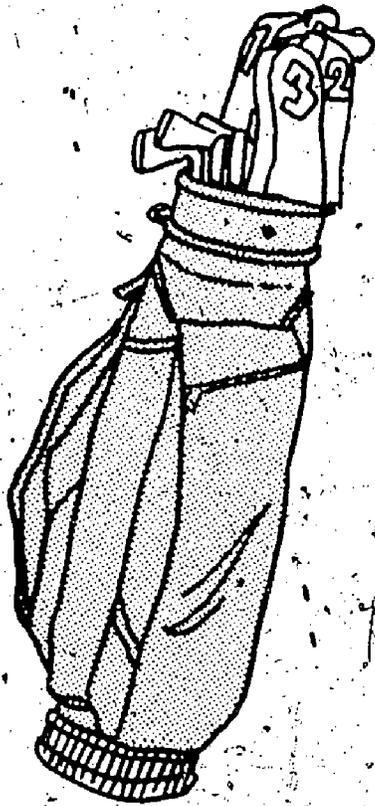
- Courses required for entrance to post high school formal programs.
- Language Skills, Basic Math Skills

**OCCUPATIONS IN CONTRACTS AND CLAIMS**

- Appraiser, Automobile Damage
- Artist's Manager
- Booking Manager
- Claim Adjuster
- Claim Examiner
- Contract Administrator
- Contract Specialist
- Contractor
- Escrow Officer
- Lease Buyer
- Literary Agent
- Manager, Customer Service
- Property-Utilization Officer
- Real-Estate Agent
- Rental Manager, Public Events Facility
- Right-of-Way Agent
- Right-of-Way Supervisor

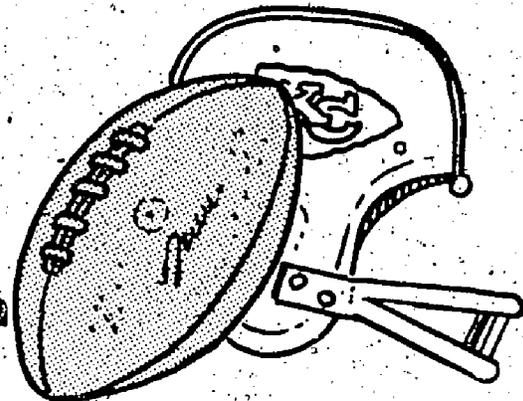
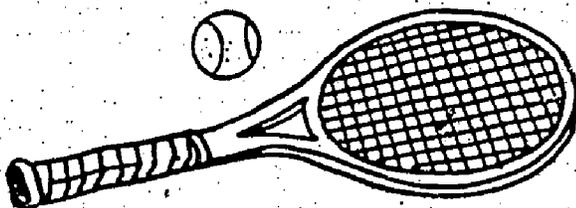
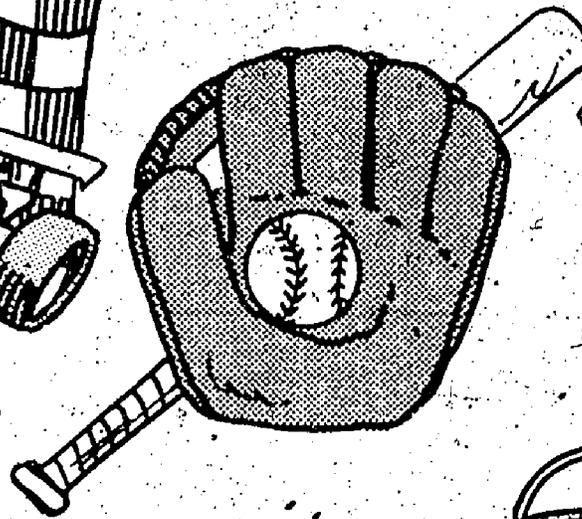
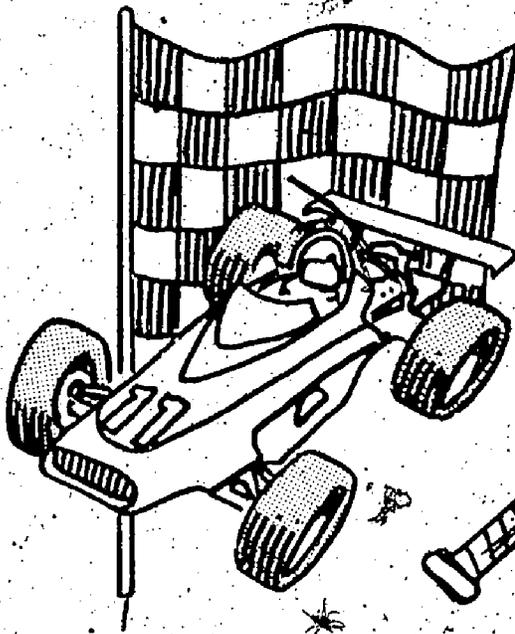
- 241 267014
- 191 17010
- 191 17014
- 241 217010
- 241 267018
- 162 117014
- 162 117018
- 162 1167010
- 179 367010
- 191 117030
- 191 117034
- 168 1167058
- 168 117122
- 166.1 17058
- 166.1 17062
- 191.1 17046
- 191.1 17050

# PHYSICAL PERFORMING



This is an interest in physical activities performed before an audience.

You can satisfy this interest through jobs in athletics, sports, and the performance of physical feats. You may enjoy sports. Perhaps a job as a professional player or official would satisfy you. You may prefer to develop and perform special acts such as acrobatics or wire walking.

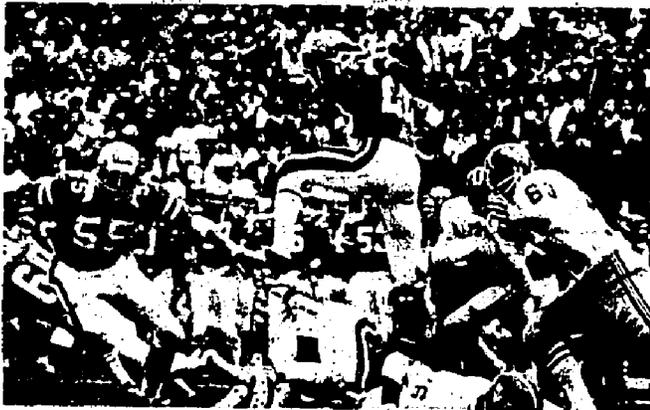


# SPORTS

Sports includes competing in professional athletic or sporting events, coaching players and officiating games. Jobs in this group are found in all types of sports. These sports include horse racing, hockey, football, baseball, basketball, golf, and track.

## WORK PERFORMED

What would you do as a worker in this group?



A. Perform



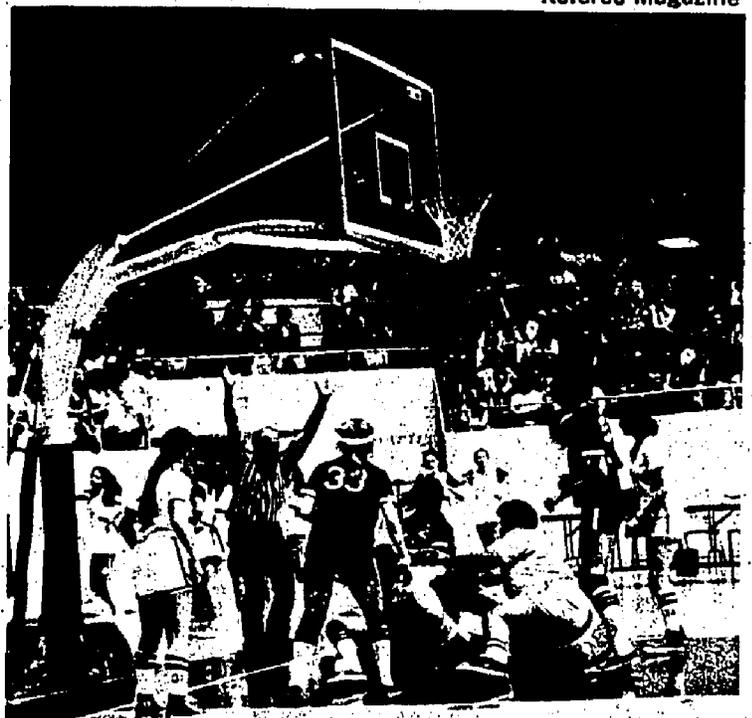
ERIC  
Full text provided by ERIC  
Coach

You would officiate, coach, or compete in professional sporting events. You would perform one or more of the following tasks.

- Coach a baseball team.
- Start, time, or certify winners in a major auto race.
- Inspect equipment to see if rules are being followed before an event.
- Practice and play on a football team.
- Stop a game and penalize players for breaking a rule.
- Ride horses in several races each day.

What would you prefer to do?

Referee Magazine



C. Officiate



Union Camp

Great athletes work under the mental pressure of maintaining their reputation.

**What skills, abilities, and interests would help you succeed in this type of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job:

- Know all the rules of the game or sport.
- Make official decisions quickly and firmly.
- Work under the physical and mental pressure of competition.
- Judge distance, speed, and movement of objects or people.
- Coach players and teach the techniques of a sport.
- Stay on a strict training schedule.
- Work under risk of physical injury.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you coached a team or a person in athletic events? Were your efforts effective?
- Have you competed in sports? Do you know the rules of any sport well enough to be a judge or umpire?
- Have you been an umpire or referee in intramural games, physical education classes, or sandlot sports? Can you make decisions quickly and firmly?
- Have you competed against others in an athletic event? Do you remain calm and alert in the heat of competition?



If you enjoy participating in school sporting events, you may want to consider a career in sports.



**How can you prepare for and enter this type of work?**

Coaches in professional sports often start as high school or college coaches. Race officials do not usually have a formal method of entry. Most people obtaining these jobs have already been involved in racing in some way. Some jobs, such as clocker and horse race starter, require at least six months in a similar job for experience. Then on-the-job training is required for the desired position.

To be hired by professional baseball leagues, umpires must graduate from one of several recognized umpire training schools. Umpires obtain their first jobs in the minor leagues. Then they attempt to earn promotions to the major leagues.

Athletes in major sports often receive training and experience as members of high school or college teams. The athletes are then recruited by professional clubs. Their training continues as long as they work in their jobs. Racing professionals must learn their jobs through experience over several years.

**What else should you know about these jobs?**

Audiences and players may not agree with the officials' decisions. Officials must be able to stand by their decisions. They must impose corrective measures and may remove a player or coach from the game.

Professional athletes must maintain or improve their skills to compete against others. The physical demands of most sports may limit the number of years a worker remains a professional.

Professional coaches are always under pressure to have winning teams. Their futures usually depend upon their win/loss records.

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**PREPARATION****OTHER  
CONSIDERATIONS****QUALIFICATIONS  
PROFILE**

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

- 5. Activities resulting in recognition or appreciation from others.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

- 4. Dealing with people.
- 5. Influencing people's opinions, attitudes, and judgments.
- 6. Working under pressure.
- 7. Making decisions using personal judgment.
- 8. Making decisions using standards that can be measured or checked.

**WORKER FUNCTIONS**

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                                 | Avg.                                | High                                |                      |
|--------|-------------------------------------|-------------------------------------|-------------------------------------|----------------------|
| DATA   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | - Analyzing          |
| PEOPLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | - Speaking/Signaling |
| THINGS | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | - Driving/Operating  |

**PHYSICAL DEMANDS**

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- H Heavy work.
- 2. Climbing and/or balancing.
- 3. Stooping, kneeling, crouching, and/or crawling.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

**WORKING CONDITIONS**

Workers need to adjust to the following physical surroundings and working conditions.

- 0 Outside.
- B Both: inside and outside.
- 6. Hazards.

**APTITUDES**

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                      | Levels   |   |     |   |           |
|--------------------------------|----------|---|-----|---|-----------|
|                                | Low<br>5 | 4 | 3   | 2 | High<br>1 |
| G - General                    |          |   | 3   |   |           |
| V - Verbal                     |          |   | 3   |   |           |
| S - Spatial                    |          |   | 4-3 |   |           |
| P - Form Perception            |          |   | 4-3 |   |           |
| Q - Clerical Perception        |          |   | 4-3 |   |           |
| K - Motor Coordination         |          |   |     |   | 2         |
| E - Eye-Hand-Foot Coordination |          |   |     |   | 1         |
| F - Finger Dexterity           |          |   |     |   | 2         |
| M - Manual Dexterity           |          |   |     |   | 2         |

**GENERAL EDUCATIONAL DEVELOPMENT (GED)**

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The

following statement explains why these workers need the GED level 4-5.

Workers apply special knowledge and logical thinking to enforce the rules and regulations of a sport or game. They interpret a variety of instructions presented in written or diagram form. During sporting events, these workers make decisions based on abstract and concrete variables such as the players' positions, readiness of racing animals, the location of balls or pucks, and fair play.

## PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

### Entry and Advancement Information

- E - To enter some occupations workers only need the required competencies and credentials.
- A - To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

### Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- C - Four-year college degree in physical education.
- NFT - Most occupations in this group have no related formal education or training programs.

### Training Time

Occupations in this group may require from over 6 months up to and including 10 years (SVP 5, 6, 7, 8).

### Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.
- Courses required for entrance to post high school formal programs.

## OCCUPATIONS IN SPORTS

|                            |             |
|----------------------------|-------------|
| Automobile Racer           | 153.243-010 |
| Guide, Hunting and Fishing | 353.161-010 |
| Head Coach                 | 153.117-010 |
| Instructor, Sports         | 153.227-018 |
| Jockey                     | 153.244-010 |
| Motorcycle Racer           | 153.243-014 |
| Professional Athlete       | 153.341-010 |
| Umpire                     | 153.267-018 |

# PHYSICAL FEATS

Physical feats, as used here, are acts of special physical strength or skill which entertain people. Workers in this group may perform alone. Circuses, carnivals, and theaters hire these workers. Booking agents often arrange performances and special events.

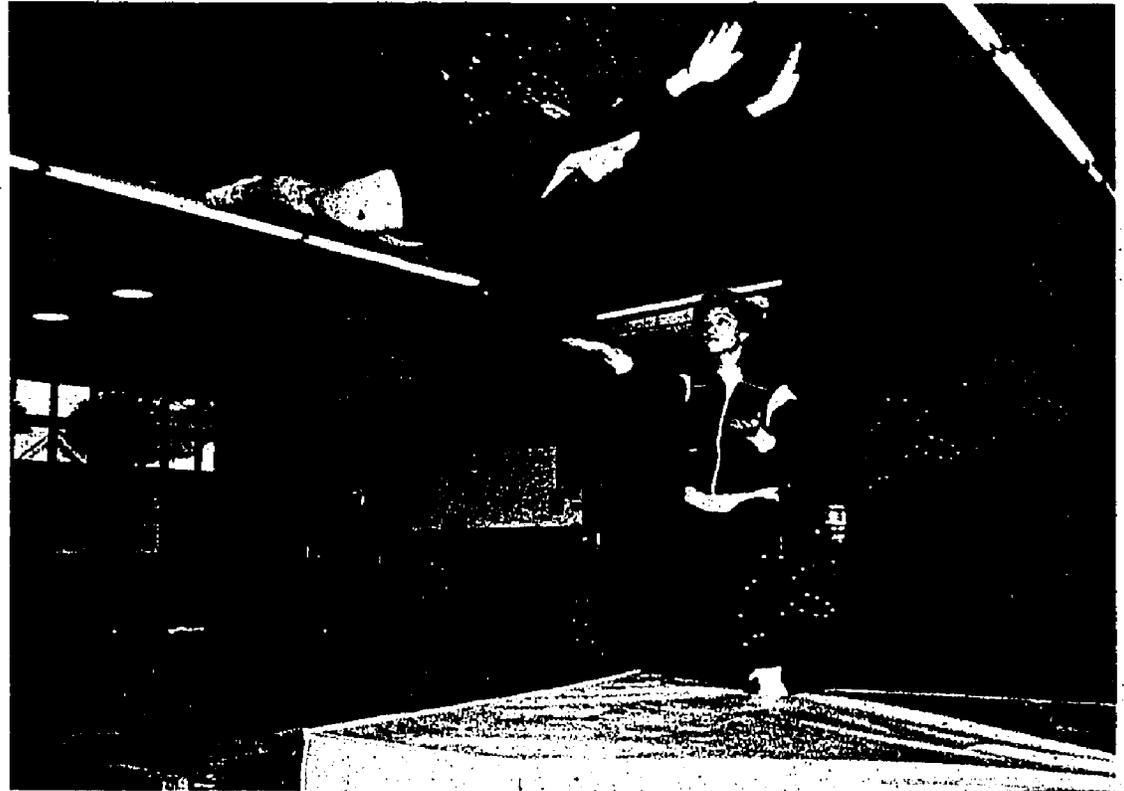
## WORK PERFORMED

What would you do as a worker in this group?

You would prepare and present special feats of physical skill to entertain audiences. You would perform one or more of the following tasks.

- Demonstrate gymnastic skill on a high wire or trapeze.
- Compete in events at rodeos.
- Juggle and balance things such as balls, knives, or plates.
- Swim in a water ballet.

To maintain and improve your physical skill, you would have to stay on a strict training schedule.





Wyoming Travel Commission

Would you enjoy working under the pressure of physical hazards and risks?



**What skills, abilities, and interests would help you succeed in this type of work?**

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Move eyes, hands, body, and feet together skillfully.
- Perform in front of an audience.
- Stay on a strict training schedule.
- Work under the pressure of physical hazards and risks.
- Judge distance, speed, and movement of objects or people.
- Develop a physical skill for a specialty act such as juggling or acrobatics.

## WORKER REQUIREMENTS

## CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken part in any sport or game involving rapid movement and high risks? Can you overcome the natural fear of injury enough to concentrate on the event?
- Have you had lessons in riding a horse? Have you competed in a horse race, horse show, or rodeo?
- Have you had a hobby or specialty act such as juggling, acrobatics, or wire walking? Do you perform well before an audience?

## PREPARATION

How can you prepare for and enter this type of work?

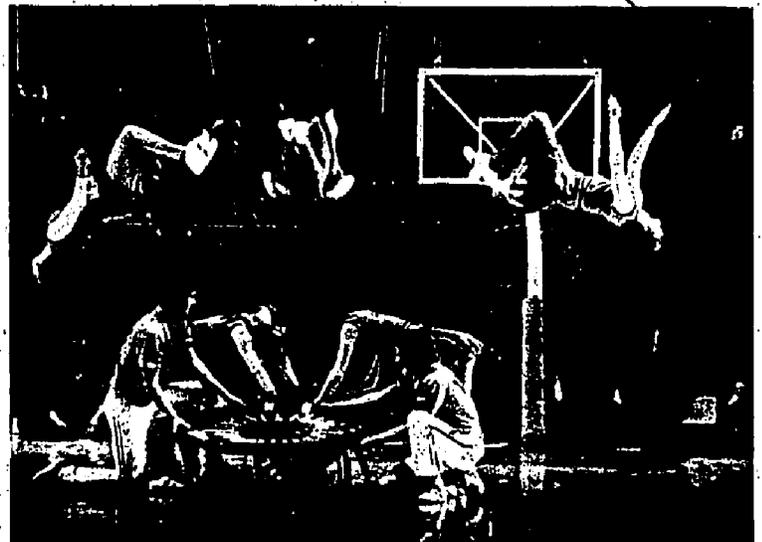
The usual method of training for these jobs is by working in a related environment. Workers learn by observing others and practicing. A common method of training is to work with and learn from a successful performer. Training periods usually last from two to ten years.

Circuses and other companies hire performers of some specialty acts and help them improve their acts. Some performers own their own equipment and contract for appearances.

New York Times



The training needed to enter horse race competitions or to be a cheerleader can help you develop physical skills.



What else should you know about these jobs?

Workers in this group must maintain or improve their skills for their own safety.

Physical requirements usually limit the number of productive years of some workers.

Workers usually travel from place to place to do their work. They might go to the same places on a regular schedule.

**OTHER  
CONSIDERATIONS**

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**QUALIFICATIONS PROFILE**

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

**WORK ACTIVITIES**

Workers generally prefer the following types of work activities.

5. Activities resulting in recognition or appreciation from others.
9. Activities involving processes, methods, or machines.

**WORK SITUATIONS**

Workers are willing to adjust to the following types of work situations.

6. Working under pressure.
7. Making decisions using personal judgment.

## WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

|        | Low                      | Avg.                                | High                     |                |
|--------|--------------------------|-------------------------------------|--------------------------|----------------|
| DATA   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Compiling    |
| PEOPLE | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Diverting    |
| THINGS | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | - Manipulating |

## PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- H Heavy work.
- 2. Climbing and/or balancing.
- 3. Stooping, kneeling, crouching, and/or crawling.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

## WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- B Both: inside and outside.
- 6. Hazards.

## APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

| Aptitudes                      | Levels |   |    |   |      |
|--------------------------------|--------|---|----|---|------|
|                                | Low    |   | to |   | High |
|                                | 5      | 4 | 3  | 2 | 1    |
| G - General                    |        |   | 3  |   |      |
| S - Spatial                    |        |   |    | 2 |      |
| F - Form Perception            |        |   | 3  |   |      |
| K - Motor Coordination         |        |   | 3  | 2 |      |
| F - Finger Dexterity           |        |   | 3  | 2 |      |
| M - Manual Dexterity           |        |   | 3  | 2 |      |
| E - Eye-Hand-Foot Coordination |        |   |    | 2 | 1    |

## GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3-4.

Workers apply special knowledge and logical thinking to perform an unusual physical feat for the purpose of entertaining others. They interpret a variety of instructions that are written, spoken, or in diagram form. These workers solve practical problems based on concrete factors such as physical condition and particular skills.

**PREPARATION AND TRAINING**

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

**Entry and Advancement Information**

E - To enter most occupations workers only need the required competencies and credentials.

**Related Formal Training Programs**

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT - Most occupations in this group have no related formal education or training programs.

**Training Time**

Occupations in this group may require from over 6 months up to and including 10 years. (SVP 5, 6, 7, 8).

**Related High School Level Courses**

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

**OCCUPATIONS IN PHYSICAL FEATS**

|                      |             |
|----------------------|-------------|
| Equestrian           | 159.344-010 |
| Instructor, Physical | 153.227-014 |
| Juggler              | 159.341-010 |
| Rodeo Performer      | 159.344-014 |

# APPENDIX A

## WORK ACTIVITIES

Everyone has preferences for certain types of activities. There are *thousands of different* occupations involving a wide variety of activities. Work activities *in these occupa-* tions can be grouped into ten broad types.

These ten types of activities are related to the 66 Worker Trait Group *you can use* these types of work activities for career exploration in two ways:

- a. You can select Worker Trait Groups to explore by knowing *the types of* activities you prefer.
- b. You can identify work activities you would do as a worker in *the group.*

### Types of Work Activities

#### 1. Activities dealing with things and objects.

Workers do physical work with materials and products. They *often use instru-* ments, tools, machines, or vehicles. They may lift, pull, and push *what they may do* more complex tasks such as adjusting and controlling things. *Workers may* use knowledge and reasoning skills to make judgments and decisions.

#### 2. Activities involving business contact.

Workers deal with others in various situations. They set up *business contacts to* sell, buy, talk, listen, promote, and bargain. To follow through *workers gather,* exchange, or present ideas and facts about the products or services.

#### 3. Activities of a routine, definite, organized nature.

Workers usually repeat the same task many times. These tasks *often be done* in a short time. Workers are usually organized to get the most work *done in the least* time. In general, assignments and methods are set up in advance. *The worker seldom* makes decisions about the work.

**4. Activities involving direct personal contact to help or instruct others.**

Workers help to maintain or improve the physical, mental, emotional, or spiritual well-being of others. Workers need to speak and listen well. They may communicate simple ideas. They may also deal with complex principles of human growth to teach, train, or help others. Some workers may care for or train animals.

**5. Activities resulting in recognition or appreciation from others.**

Workers may lead, plan, control, or manage the work of others. Some workers may be involved in acting, sports, art, or music. As a result, they gain prestige, recognition, or appreciation from others. In most cases, workers are involved at a high level with data and people.

**6. Activities involving the communication of ideas and information.**

Workers present ideas and information to others through writing, acting, music, or designing. They may inform others through radio or television. Workers may also be in direct contact with the people they inform.

**7. Activities of a scientific and technical nature.**

Workers may conduct research and analysis, evaluate, explain, and record scientific information. They may use scientific or technical methods, instruments, and equipment in their work.

**8. Activities involving creative thinking.**

Workers use complex mental skills to create new knowledge or new ways to apply what is already known. They may solve difficult problems or design projects and methods. Workers may use new ways to express ideas, feelings, and moods. They may also use imagination to create ideas and objects.

**9. Activities involving processes, methods, or machines.**

Workers may plan, schedule, process, control, direct, and evaluate data and things. There may be contact with people, but dealing with people is not important to the work.

**10. Activities involving working on or producing things.**

Workers use physical skills to work on or make products. Often tools, machines, or measuring devices are used to make or change a product. Workers may build, repair, alter, or restore products.

# APPENDIX B

## WORK SITUATIONS

The work involved in any occupation takes place under certain conditions. These conditions or situations place demands on workers. The workers must adapt to the demands of the work situation if they are to perform the work well. There are ten types of work situations. These types have been related to the 66 Worker Trait Groups to help you in career exploration.

As you explore a Worker Trait Group, try to understand how you feel about each of the work situations involved. You are more likely to find satisfying work, if you know which situations you like and to which you can most easily adapt.

### Types of Work Situations

**1. Performing duties which change frequently.**

Workers perform a variety of duties, often changing from one task to another. The variety of duties requires workers to use different skills, knowledge, and abilities. They may need to use different methods or materials. They may also have to change work locations. In changing tasks, workers must be efficient and remain calm.

**2. Performing routine tasks.**

Workers do the same tasks over and over. They may not change the tasks or the order in which they do them. Work assignments are of short duration and follow a required method or sequence. Very little judgment is required.

**3. Planning and directing an entire activity.**

Workers plan, direct, or control an entire activity, project, or program. As leaders, they coordinate, supervise, and are responsible for the work of others. They make decisions and keep up-to-date on new information about their work.

**4. Dealing with people.**

Workers deal directly with other people. They must interact with people at a higher level than giving or taking instructions. Workers must be pleasant and helpful in their contacts with people.

**5. Influencing people's opinions, attitudes, and judgments.**

Workers influence people by changing their thinking and behavior. Workers must be able to understand people and communicate with them. They influence how people feel about a product, a service, or other people. This influence is achieved by providing new information or ideas in a direct or indirect way.

**6. Working under pressure.**

Workers deal with situations involving potential danger and risk. Workers must maintain self-control and take decisive action in unexpected or critical situations. They may also be involved with tasks where speed and close attention to detail create pressure.

**7. Making decisions using personal judgment.**

Workers use personal judgment and the five physical senses to make decisions. No standard or right answers exist upon which to base the decisions. They are based upon the training, experience, or aesthetic values of the workers.

**8. Making decisions using standards that can be measured or checked.**

Workers make decisions based upon information or standards that can be measured or checked. Facts and set procedures are used rather than personal judgment.

**9. Interpreting and expressing feelings, ideas, or facts.**

Workers use creative thinking to interpret and express feelings, ideas, or facts. Some workers focus on the process they use to communicate, such as speaking, singing, or acting. Others communicate through products, such as photographs, designs, songs, or paintings.

**10. Working within precise limits or standards of accuracy.**

Workers must pay strict attention to details. Tasks must be completed with accuracy within exact standards or time limits. The quality of the product or service is directly related to the performance of the workers.

# APPENDIX C

## WORKER FUNCTIONS: DATA - PEOPLE - THINGS

All activities may be described in relation to data, people, and things. Although every activity involves each of these elements, differences occur in the kind or level of involvement. There may be a difference in the amount of contact with an element. For example, teachers spend a large part of their time working with people, but plumbers spend less time working with people and more time working with things. The amount of difficulty in dealing with an element may also vary. For example, a tollbooth operator has a large amount of contact with people, but at a simple level. A minister, however, may work with fewer people, but works with them at a more difficult level.

The U. S. Department of Labor has classified occupations based on their differences in the difficulty of involvement with data, people, and things. For example, it is easier to copy a math problem (a simple data activity) than to work the problem (a more difficult data activity). It is easier to follow instructions to help perform a task (a simple people activity) than to give these instructions (a more difficult people activity). It is easier to place dishes in a dishwasher (a simple things activity) than to repair the dishwasher (a more difficult things activity).

A worker who can deal with difficult data activities, for example, can probably also deal with less difficult data activities. Therefore, only the most difficult level at which the worker would have to perform needs to be identified. Successful performance at all lower levels can be taken for granted.

Each occupation has been rated according to the worker's most difficult involvement with each of the three elements — data, people, and things.

The various kinds of involvement with data, people, and things have been identified and rated from high to low according to the level of difficulty.

### DATA

#### Definition

Data include information, knowledge, and ideas about known facts, people, animals, or objects such as materials, machines, and products. Data may be gathered, observed, investigated, interpreted, thought about, or imagined. Data cannot be touched or handled. However, data can be expressed in numbers, spoken and written words, symbols, or in the form of thoughts and ideas.

## Levels of Involvement with Data

Levels are rated on a 0 to 6 scale : most difficult (0) to simplest (6).

- 0 **Synthesizing:** Discovering facts and/or developing logical conclusions or interpretations of ideas as a result of examining and evaluating information.
- 1 **Coordinating:** Determining the time, place, and order of operations or actions to be performed as a result of analyzing data. Carrying out and/or reporting on actions decided upon.
- 2 **Analyzing:** Examining and determining the value of data, which sometimes results in a need to choose the best course of action to be taken.
- 3 **Compiling:** Gathering information about data, people, or things and putting it together in proper order. Frequently involves reporting and/or carrying out activities indicated by the information.
- 4 **Computing:** Performing arithmetic operations, reporting results, or carrying out activities as indicated by the results.
- 5 **Copying:** Transcribing data (rewriting from another copy or from shorthand notes), or posting data (entering it in ledgers or account books).
- 6 **Comparing:** Judging data, people, or things according to what can be readily observed such as actions, appearances, and differences from the usual.

## PEOPLE

### Definition

**People**, as used here, also include animals when they are given care and consideration similar to that given human beings.

### Levels of Involvement with People

Levels are rated on a 0 to 8 scale : most difficult (0) to simplest (8).

- 0 **Mentoring:** Dealing with people in terms of their total personality to advise or counsel them on problems. This is accomplished by using principles of law, science, medicine, or religion.
- 1 **Negotiating:** Exchanging ideas, information, and opinions with others to make policies, plan programs, and/or arrive jointly at decisions, conclusions, or solutions.
- 2 **Instructing:** Teaching subject matter to others or training others (including animals) through explaining, demonstrating, or supervised practice using knowledge gained through specialized training.
- 3 **Supervising:** Determining or explaining work procedures for a group of workers and assigning tasks to them. Encouraging workers to get along well with each other and to do their best work.
- 4 **Diverting:** Amusing others.
- 5 **Persuading:** Influencing others in favor of a product, service, or opinion.
- 6 **Speaking - Signaling:** Talking with and/or signaling people to give or exchange information. Assigning tasks or giving directions to helpers or assistants.

- 7 **Serving:** Attending to the requests or needs of people or animals. Carrying out the wishes of people, either expressed or understood without being expressed. Immediate response is involved.
- 8 **Taking Instructions:** Carrying out work instructions or orders of supervisor. No immediate response is involved.

## THINGS

### Definition

**Things**, as used here, are lifeless objects as distinguished from people or animals, such as substances or materials, machines, tools, equipment, or products. They have a shape, form, weight, and texture and can be touched or handled.

### Levels of Involvement with Things

Levels are rated on a 0 to 7 scale: most difficult (0) to simplest (7).

- 0 **Setting Up:** Adjusting machines or equipment by replacing or altering tools, jigs, fixtures, and attachments. Adjusting is done to prepare machines or equipment to perform their functions, change their performance, or restore their proper functioning if they break down. Workers set up machines for other workers or set up and personally operate a variety of machines.
- 1 **Precision Working:** Using parts of the body and tools to work, guide, or place objects or materials in such a way that rigid standards for the product or process will be met. The precision worker uses considerable judgment to select the right tools, objects, or materials and to correctly apply the tool to the task.
- 2 **Operating - Controlling:** Starting, stopping, controlling, and adjusting the progress of machines or equipment designed to manufacture and/or process objects or materials. Operating involves setting up and adjusting the machine or the material as the work progresses. Controlling equipment involves watching gages and dials and turning valves and other devices to control temperature, pressure, flow of liquids, speed of pumps, and reactions of materials. Frequent adjustments of the equipment may be needed.
- 3 **Driving - Operating:** Starting, stopping, and controlling the actions of machines or equipment which must be steered or guided to manufacture, process, and/or move things or people. It involves watching gages and dials; estimating distances; determining speed and direction of other objects; turning cranks and wheels; pushing clutches or brakes; and pushing or pulling gear lifts or levers. Machines such as cranes, conveyor systems, tractors, paving machines, hoisting machines, and equipment for loading large industrial furnaces are included. Machines powered by hand such as handtrucks and dollies, or machines such as electric wheelbarrows or handtrucks are not included.

- 4 **Manipulating:** Using tools, special devices, or parts of the body to work, move, guide, or place objects or materials. Workers use some judgment to maintain the needed degree of accuracy and to select the proper tool, object, or materials. However, such judgments are usually not difficult to make.
- 5 **Tending:** Starting, stopping, and watching the operation of machines and equipment. It involves adjusting materials or controls of machines. Activities include changing guides, adjusting timers and temperature gages, turning valves to allow flow of materials, and flipping switches in response to lights. Little judgment is involved in making these adjustments.
- 6 **Feeding - Offbearing:** Throwing, dumping, putting, or feeding materials into or removing them from machines or equipment. These machines or equipment may be automatic or may be tended or operated by other workers.
- 7 **Handling:** Using parts of the body, handtools, and/or special devices to work, move, or carry objects or materials. Little or no judgment is involved in meeting standards or in selecting the proper tool, object, or material.

The occupations listed in the **Dictionary of Occupational Titles (DOT)** have a nine-digit code number. The **middle three digits** show how each occupation is related to **Data, People, and Things**. These numbers always indicate the **highest level of involvement** with Data, People, and Things. Thus, if a code number shows the level of involvement with Data as 4, it means that activities at lower levels (5 and 6) may also be included in the occupation. The following table shows how the levels of involvement with **Data, People, and Things** are represented in the DOT nine-digit code.

| <b>DATA— PEOPLE — THINGS STRUCTURE</b>   |  |   |   |
|--|--|---|---|
|  | <b>DATA (4th digit of DOT code)</b>                                  | <b>PEOPLE (5th digit of DOT code)</b>   | <b>THINGS (6th digit of DOT code)</b>   |
| <b>Difficult</b> <b>High</b><br><br><b>Average</b><br><b>Low</b> | <b>0 Synthesizing</b><br><b>1 Coordinating</b><br><b>2 Analyzing</b> | <b>0 Mentoring</b><br><b>1 Negotiating</b>  | <b>0 Setting-Up</b><br><b>1 Precision Working</b>   |
|  | <b>3 Compiling</b><br><b>4 Computing</b>                             | <b>2 Instructing</b><br><b>3 Supervising</b><br><b>4 Diverting</b><br><b>5 Persuading</b> | <b>2 Operating - Controlling</b><br><b>3 Driving - Operating</b><br><b>4 Manipulating</b> |
|  | <b>5 Copying</b><br><b>6 Comparing</b>                               | <b>6 Speaking-Signaling</b><br><b>7 Serving</b><br><b>8 Taking Instructions - Helping</b> | <b>5 Tending</b><br><b>6 Feeding - Offbearing</b><br><b>7 Handling</b>                    |

# APPENDIX D

## PHYSICAL DEMANDS

Physical demands, as used here, are the physical requirements of an occupation. They are also the physical capacities a worker must have to perform the major tasks of an occupation. For example, "seeing" (becoming aware of something through the sense of sight) is a physical demand required by many occupations. It is also a physical capacity (the sense of sight) possessed by most people. A worker must have physical capacities at least in an amount equal to the physical demands required by the occupation.

### Types of Physical Demands

#### Type No. 1. Lifting, Carrying, Pushing, and/or Pulling.

These are the most important "strength" activities. In general, a person who is able to do one can do them all. They are defined as follows:

- (1) **Lifting.** Raising or lowering an object from one level to another. This activity includes upward pulling.
- (2) **Carrying.** Moving an object from one place to another, usually holding it in the hands or arms or on the shoulder.
- (3) **Pushing.** Using force upon an object to move it away from the force. This activity includes slapping, striking, kicking, and treadle actions.
- (4) **Pulling.** Using force upon an object to move it toward the force. This activity includes jerking actions.

Type No. 1 may be divided into the following levels of work requirements.

#### S — Sedentary Work

Sedentary work usually involves sitting but may also involve walking and standing. Objects lifted and/or carried, such as record and account books or small tools, may weigh no more than 10 pounds (4.5 kg).

#### L — Light Work

Light work means lifting objects weighing no more than 20 pounds (9 kg). It involves frequent lifting and carrying objects weighing up to 10 pounds (4.5 kg). Jobs may be considered light work even if they require a lot of walking or standing. These jobs may involve sitting most of the time while using arms and legs for pushing and pulling.

### **M – Medium Work**

Medium work means lifting objects weighing no more than 50 pounds (22.5 kg). It involves frequent lifting and carrying of objects weighing no more than 25 pounds (11.4 kg).

### **H – Heavy Work**

Heavy work means lifting objects weighing no more than 100 pounds (45 kg). It involves frequent lifting and carrying of objects weighing no more than 50 pounds (22.5 kg).

### **V – Very Heavy Work**

Very heavy work means lifting objects weighing more than 100 pounds (45 kg). It involves frequent lifting and carrying of objects weighing 50 pounds (22.5 kg) or more.

### **Type No. 2. Climbing and/or balancing.**

- (1) **Climbing.** Going up or down ladders, stairs, scaffolding, ramps, poles, ropes, and the like using the feet and legs and/or arms.
- (2) **Balancing.** Maintaining control of the body to keep from falling when walking, standing, crouching, running, or performing gymnastic feats. This activity is done on narrow, slippery, or moving surfaces.

### **Type No. 3. Stooping, Kneeling, Crouching, and/or Crawling.**

- (1) **Stooping.** Curving the body downward and forward by bending the spine at the waist.
- (2) **Kneeling.** Getting down on the knee or knees.
- (3) **Crouching.** Curving the body downward and forward by bending the legs and spine.
- (4) **Crawling.** Moving about on the hands and knees or hands and feet.

### **Type No. 4. Reaching, Handling, Fingering, and/or Feeling.**

- (1) **Reaching.** Stretching out the hands and arms in any direction.
- (2) **Handling.** Taking hold of an object, turning it, or otherwise working with the hand or hands. It does not include fingering.
- (3) **Fingering.** Picking, pinching, or otherwise working mostly with the fingers rather than with the whole hand as in handling.
- (4) **Feeling.** Becoming aware of the size, shape, temperature, or texture of objects and materials by using the hands and fingertips.

### **Type No. 5. Talking and/or Hearing.**

- (1) **Talking.** Expressing or exchanging ideas by means of the spoken word.
- (2) **Hearing.** Perceiving sounds and/or information by means of the ear.

## **Type No. 6. Seeing.**

Becoming aware of the shape, size, distance, motion, or color of objects by using the eyes. The major functions of the eyes are defined as follows:

- (1) **Acuity.** Far — having a clear vision at 20 feet or more: Near — having a clear vision at 20 inches or less.
- (2) **Depth perception.** Recognizing the length, width, or thickness of objects. Judging distance and space relationship so as to see objects where and as they actually are.
- (3) **Field of vision.** Seeing the surrounding area, up and down and right and left, while the eyes are fixed on a given point.
- (4) **Accommodation.** Adjusting the eye's lens to bring an object into sharp focus. This is especially important when doing close work at varying distances from the eye.
- (5) **Color vision.** Seeing likenesses and differences among colors.

# APPENDIX E

## WORKING CONDITIONS

Working conditions, as used here, are the physical surroundings of a worker in a job. Working conditions make specific demands upon the worker's physical capacities. The Department of Labor has identified seven different types of working conditions.

### Types of Working Conditions

#### Type No. 1. Inside, Outside, or Both.

- I — **Inside.** Protection from weather conditions but not always from temperature changes. Workers spend about 75 percent or more of their time inside.
- O — **Outside.** No effective protection from weather conditions. Workers spend about 75 percent or more of their time outside.
- B — **Both.** Inside and outside. Workers spend about 50 percent of their time inside and 50 percent of their time outside.

#### Type No. 2. Extremes of Cold Plus Temperature Changes.

- (1) **Extremes of cold.** Temperatures low enough to cause noticeable bodily discomfort unless the worker is provided with exceptional protection.
- (2) **Temperature changes.** Variations in temperature which are marked and abrupt, causing noticeable bodily reactions.

#### Type No. 3. Extremes of Heat Plus Temperature Changes.

- (1) **Extremes of heat.** Temperature high enough to cause noticeable bodily discomfort unless the worker is provided with exceptional protection.
- (2) **Temperature changes.** Variations in temperature which are marked and abrupt, causing noticeable bodily reactions.

#### Type No. 4. Wet and Humid.

- (1) **Wet.** Contact with water or other liquids.
- (2) **Humid.** Moisture content of the atmosphere high enough to cause noticeable bodily discomfort.

### **Type No. 5. Noise and Vibrations.**

Enough noise, either constant or at intervals, to cause noticeable distraction or possible injury to the sense of hearing. Enough vibrations to cause bodily harm if endured day after day. These vibrations produce movement or strain on the body or its extremities from repeated motion or shock.

### **Type No. 6. Hazards.**

Situations in which the worker is exposed to the certain risk of bodily injury.

### **Type No. 7. Fumes, Odors, Toxic Conditions, Dust, and Poor Ventilation.**

- (1) **Fumes:** Smoke or vapors, usually strong smelling, thrown off as the result of combustion or chemical reaction.
- (2) **Odors:** Foul smells, either toxic or nontoxic.
- (3) **Toxic conditions:** Exposure to poisoning dust, fumes, gases, vapors, mists, or liquids causing general or local disabling conditions. These conditions happen as a result of breathing the substance or its action on the skin.
- (4) **Dust:** Air filled with small particles of any kind. The particles may include textile dust, flour, wood, leather, feathers, silica, asbestos, etc. This condition makes the place of work unpleasant or the source of diseases.
- (5) **Poor Ventilation:** Not enough movement of air, causing a feeling of suffocation or exposure to drafts.

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# APPENDIX F

## APTITUDES

Aptitude is the quickness or ease with which you can learn to do something. There are different types of aptitudes. Some aptitudes can help you understand a novel or solve math problems. Others can help you do very fine work with your hands or fingers. Some other aptitudes can help you do tasks requiring fast and accurate body movements. Still other aptitudes can help you see differences in size or shape.

People differ from one another in aptitude just as they differ in looks, height, weight, or interests. You may be able to learn some things quite easily. Other things may be more or extremely difficult for you to learn. For example, only a few people become basketball stars, get the lead in a class play, or an "A" in physics. Knowing as much as possible about your aptitudes can help you in career exploration and planning.

The U. S. Department of Labor job analysts have defined eleven different aptitudes. These aptitudes have been related to the Worker Trait Groups. The aptitudes significant to job performance in each Worker Trait Group have also been identified. The following statements describe the eleven aptitudes.

- G — General.** Understanding instructions, facts, and underlying reasoning. Being able to reason and make judgments. Closely related to school achievement.
- V — Verbal.** Understanding meanings of words and ideas. Using them to present information or ideas clearly.
- N — Numerical.** Doing arithmetic operations quickly and correctly.
- S — Spatial.** Looking at flat drawings or pictures of objects. Forming mental images of them in three dimensions — height, width, and depth.
- P — Form Perception.** Observing detail in objects or drawings. Noticing differences in shapes or shadings.
- Q — Clerical Perception.** Observing details and recognizing errors in numbers, spelling, and punctuation in written materials, charts, and tables. Avoiding errors when copying materials.
- K — Motor Coordination.** Moving the eyes and hands or fingers together to perform a task rapidly and correctly.
- F — Finger Dexterity.** Moving the fingers to work with small objects rapidly and correctly.
- M — Manual Dexterity.** Moving the hands with ease and skill. Working with the hands in placing and turning motions.
- E — Eye-Hand-Foot Coordination.** Moving the hands and feet together in response to visual signals or observations.
- C — Color Discrimination.** Seeing likenesses or differences in colors or shades. Identifying or matching certain colors. Selecting colors which go well together.

## **Aptitude Levels**

The different levels of an aptitude a person could have have been identified for each Worker Trait Group. The following statements describe the different levels of aptitudes in terms of adult workers. You can use these statements to help you estimate your own aptitude levels.

**Level 1** — The top ten percent of the population — a very high degree of aptitude.

**Level 2** — The highest third of the population, not including the highest ten percent — an above average or high degree of the aptitude.

**Level 3** — The middle third of the population — an average or medium degree of the aptitude.

**Level 4** — The lowest third of the population, not including the lowest ten percent — a below average or low degree of the aptitude.

**Level 5** — The lowest ten percent of the population — a very low degree of the aptitude.

# APPENDIX G

## GENERAL EDUCATIONAL DEVELOPMENT

General Educational Development (GED) refers to education which helps increase a worker's reasoning skills and ability to follow instructions. It is education of a general rather than specific nature. This education may be acquired in elementary school, high school, college, or from experience or self-directed study.

Variables, as used here, are factors which help determine the difficulty of job performance. The words "abstract variable," as used in the following GED levels, refer to ideas, concepts, formulas, and theories. The words "concrete variable," as used in the following GED levels, refer to what can be seen, touched, handled, or manipulated.

### GED Levels

Reasoning development is defined in terms of six levels of difficulty ranging from the most difficult (level 6) to the simplest (level 1).

6. Apply logical thinking and scientific knowledge to solve a wide range of very complex problems. Use and understand such nonverbal symbols as formulas, scientific equations, or graphs. Deal with such abstract variables as music theory or chemical reactions. Deal with such concrete variables as surgical instruments or equipment used to monitor space exploration rockets.
5. Apply logical thinking and scientific knowledge to define problems, collect data, establish facts, and reach valid conclusions. Understand and follow a wide variety of technical instructions presented in mathematical or diagram form. Deal with such abstract variables as repair techniques. Deal with such concrete variables as testing equipment.
4. Apply principles of rational systems such as bookkeeping, navigation, or farm management. Understand and follow instructions presented in written, oral, diagram, or schedule form. Deal with fairly standardized situations involving concrete variables such as office machines, farm or construction equipment, or navigational aids.
3. Use common sense to carry out instructions presented in written, oral, or diagram form. Deal with standardized situations involving concrete variables such as hand tools or cooking equipment.

2. Use common sense to carry out detailed but fairly simple written or oral instructions. Deal with standardized situations involving a few concrete variables such as making change or operating machine levers or switches.
1. Use common sense to carry out one- or two-step instructions. Deal with standardized situations involving few or no variables to do such tasks as carrying messages or moving materials.

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# APPENDIX H

## PREPARATION AND TRAINING

Preparation and training are important considerations in career planning. This section of the Qualifications Profile describes the education, training, and experience workers need to enter and perform well in the occupations of the Worker Trait Group. The following types and levels of preparation and training are used to describe the requirements of each Worker Trait Group.

### Entry and Advancement Information

**E — Entry.** The Worker Trait Group contains occupations which are open to anyone with the necessary education and training. These requirements may vary from a general education to advanced college degrees.

**A — Advancement.** The Worker Trait Group contains occupations which are open only to persons with related work experience as well as the necessary education and training. Some occupations require knowledge and skills that can be developed only through experience in a related job. Occupations involving managing and planning duties are among those in this category.

### Related Formal Training Programs

The following educational programs are directed toward developing the specific knowledge and skills required by the occupations in a Worker Trait Group. These programs are usually associated with a specific institution and involve a set period of time for completion.

**G — Graduate.** The Worker Trait Group contains occupations which require college studies at the graduate level. A master's or doctor's degree involving one to four years of study beyond the baccalaureate degree may be required.

**C — College.** The Worker Trait Group contains occupations which require undergraduate studies leading to a four-year baccalaureate degree.

**T — Technical.** The Worker Trait Group contains occupations for which technical programs beyond the high school level may be offered. These programs usually focus on specific occupations or skills and lead to an associate degree (two years) or a certificate of completion (six months to two years). Technical schools, junior colleges, community colleges, and four-year colleges and universities offer such programs.

**V — Vocational.** The Worker Trait Group contains occupations for which high school level vocational programs may be offered. These programs usually focus on specific occupations or skills and involve the last two or three years of high school. Programs may be offered in the vocational department of the local high school or at a vocational high school in the community.

**NFT — No Formal Training.** The Worker Trait Group contains occupations which require no formal education and training other than a general education.

### **Training Time**

The total time required to prepare for an occupation is an important consideration in career planning. Occupations require varying amounts of training time. The following statements show the range of time needed to obtain the specific vocational preparation (SVP) required by occupations.

**SVP 1 —** Short demonstration only.

**SVP 2 —** Anything beyond short demonstration up to and including 30 days.

**SVP 3 —** Over 30 days up to and including 3 months.

**SVP 4 —** Over 3 months up to and including 6 months.

**SVP 5 —** Over 6 months up to and including 1 year.

**SVP 6 —** Over 1 year up to and including 2 years.

**SVP 7 —** Over 2 years up to and including 4 years.

**SVP 8 —** Over 4 years up to and including 10 years.

**SVP 9 —** Over 10 years.

The range of training time required by most occupations in each Worker Trait Group is described under the "Training Time" heading in the Qualifications Profile.

Specific vocational training may be obtained in any of the following ways:

- **Vocational education** (such as high school business or shop training, business college, technical school, art school, military training programs, or college courses related to specific vocational preparation).
- **Apprentice training** (on-the-job training and related instruction usually lasting from one to four years).
- **On-the-job training** (serving as a learner or trainee under the instruction of a qualified worker).
- **Experience in related jobs** (working in less responsible jobs or in others which lead to the job in question).

### **Related High School Level Courses**

The high school courses listed in this section are related to the occupations of the Worker Trait Group. Students should consider these courses as they plan their career and select high school courses and programs. They can use their interest and ability in these courses as clues to their interest in the group's occupations.

### **Important Courses**

Subjects which develop the knowledge and skills needed for successful performance in the occupations of the Worker Trait Group are listed in this section. If post high school academic programs are alternate preparation routes for the group, a reminder is noted here to select high school courses needed to meet entrance requirements. When no specific subject can be identified as important preparation, a reminder is noted here to select courses required for completion of high school.

### **Helpful Courses**

Subjects which develop knowledge and skills that may be helpful for successful performance in the occupations in the Worker Trait Group are listed in this section. This section is left blank when no helpful subjects can be identified.

# APPENDIX I

## HOW TO USE THE DICTIONARY OF OCCUPATIONAL TITLES

As you explore Worker Trait Groups, you may discover that you need more information about a specific occupation or group of occupations. You can find this type of information by using the **Dictionary of Occupational Titles (DOT)** and its **Supplement**. The DOT contains occupational descriptions organized into a structure called the Occupational Group Arrangement (OGA). The **Supplement** contains complete occupational listings for each of the Worker Trait Groups.

### Using the Dictionary of Occupational Titles

To locate information about a specific occupation, use the DOT code, a nine-digit number which is shown with each occupational title listed in the Worker Trait Group Guide. In the DOT, the occupational descriptions are sequenced by the nine-digit numbers.

You may also use the DOT to identify and explore groups of occupations that are similar. You can do this using the first three digits of the DOT code. When all three digits are the same, the occupations belong to the same **Group**. When the first two are the same, the occupations belong in the same **Division**. The first digit indicates the occupational **Category**. After you read the description of the occupation which interests you, you may want to scan the related occupations within the **Group**, the **Division**, and **Category**.

### Using the Supplement to the Dictionary of Occupational Titles

The **Worker Trait Group Guide** does not contain a complete listing of the occupations in each Worker Trait Group. To locate a complete listing of these occupations, use the **Supplement** to the DOT. The four-digit Worker Trait Group numbers used in this **Guide** and in the **Supplement** are the same. Use them to locate the pages in the **Supplement** where the occupational lists may be found.