The teacher's guide is intended for use in conjunction with 15-minute instructional television lessons featuring occupational clusters (construction, communications and media, business and office, health, industrial, transportation, public and personal services, consumer and homemaking, marketing and distribution), for fourth, fifth, and sixth grades and contains materials for classroom preparation and follow-up activities. Each lesson guide includes a brief summary of the film, specifies what children should know about it, and outlines related projects. Preparation materials are vocabulary words, posters, and related math or science problems. Hands-on projects using tools and materials available to classroom teachers are emphasized; they are accompanied by detailed instructions. The guide is heavily illustrated with drawings which may also be used with a K-6 curriculum guide developed by Project SPAN (Start Planning Ahead Now or Accelerated Project for a Systems Program Approaching Non-unemployment of Vocational Students), CE 004 045. (MDW)
"CAREER AWARENESS" IN THE ELEMENTARY GRADES

INSTRUCTIONAL TELEVISION TEACHERS GUIDE FOR GRADES FOUR, FIVE AND SIX

Department of Instruction
Division of Vocational Education
Memphis City Schools
SPAN is an Accelerated Project for a Systems Program Approaching Non-Unemployment of Vocational Students. This exemplary project in Vocational Education is funded under Part D of Public Law 90-576, Project Number 0-361-0115 and Contract Number OEC-70-5181.
FORWORD

The elementary phase of the SPAN Project is primarily concerned with introducing upper elementary children to the world of work. It is designed to familiarize them with the "cluster" of occupations, the titles of various jobs, and the tools generally associated with each worker. In addition, this phase of the project is developed around the concepts that there is dignity in working, that there is satisfaction - both monetary and ascetic-derived from working, that the longer a child stays in school the better are his chances for a rewarding job, and that there is a realistic place for a child in the world of work.

To achieve these goals, our approach is three fold: classroom preparation for the telecast lesson, the ITV lesson itself and the ensuring discussion and/or questions, and the follow-up classroom activities "hands-on" projects. The classroom preparation should include the working with the vocabulary words for the lesson, displaying the posters of the workers to be shown, completing the various math or science problems accompanying the lesson, and general preparation for the telecast. The lesson guide for each telecast will include a brief summary of the film, what the children should know about the film, and suggestions for further classroom activities. To carry out the theme of occupational awareness, in each lesson guide an attempt has been made to utilize words generally associated with the cluster of occupations featured in each film in substitution for generally accepted labels such as "summary", "vocabulary words", "objectives", "preparation", and "books to read".

The telecast lesson will be shown on WKN0-TV at various times. These times will be in the schedule from the station. Each lesson will be fifteen minutes in length and will feature a cluster of occupations (that is occupations that are generally related - as construction trades, health occupations, transportation occupations, etc.). It would be good to watch the lesson at a time when follow-up questions and discussion take place immediately. Telecast lessons that conflict with your schedule or that you miss may be checked out of the area offices or the film library of the Memphis City Schools.

Accompanying each lesson guide will be suggestions for follow-up activities, coordinated with the various elementary curriculum guides. In addition to the activities, there will be three of four "hands-on" projects. The projects are designed to allow the children to use (or put his "hands-on") many of the tools he saw the workers using in the telecast lesson. The instructions are printed in detail and uses materials easily available to the classroom teacher.
TEACHER'S GUIDE

TO

CAREER EDUCATION

Project SPAN
Memphis City Schools
1973
ACKNOWLEDGMENT:

SPAN OVERALL ADVISORY COMMITTEE

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Memphis Area Vocational School
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Secondary Instructional Consultant Southwest Area
Curriculum Specialist SPAN Staff
Assistant Superintendent, North Area
Elementary Consultant Counselor, Southwest Area
At this point it is obvious that the most important link in the chain of communication to the children is YOU, the classroom teacher. It is you who will pave the way for the teTeCast lesson, and it is you who will lead the follow-up activities and discussions. The successful completion of this project is in your hands. Any suggestions or ideas for improvement will be welcomed. Any assistance you need will be forthcoming.

Developed and Revised by

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WHO BUILDS OUR HOUSES?

A TEACHER'S GUIDE
TO
CONSTRUCTION OCCUPATIONS

Grades
4 5 6
ACKNOWLEDGMENTS

CONSTRUCTION OCCUPATIONS

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Mr. James Tutton, Carpenter Apprentice, Memphis City Schools
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Mr. Ray Young, Vice-President, Martin and Herring Construction
Mr. Clyde Nankin, Director, Maintenance Department, Memphis City Schools
Miss Nancy Ayers, Guidance, Cypress Junior High School
Mr. and Mrs. John Russum, Russum Construction Company

*Committee Chairman(s)
Children investigate the cluster of workers in the building occupations and observe the lifestyle of a craftsman. They also meet people working at occupations other than those under direct investigation. The way each worker uses his tools is noted.

**SPECIFICATIONS FOR VIEWING**

Children should be able to:

1. List all the workers in the film and describe the work each one was doing.
2. Point out actions which show or tell how the people feel about their work.
3. Explain ways in which the people in the film work together.
4. Judge whether people in the building trades make a good living for their families.

**BLUEPRINTS FOR LEARNING**

When shown a picture of a building trades craftsman, pupils should be able to: a) name him, b) describe generally the work he does, c) match him with pictures of the tools he uses.

Through class discussion of the building trades craftsmen, the pupils should determine: a) whether the workers are happy with their work, b) whether they earn an adequate living, c) that the workers work together.

**TRADE TALK**

- **apprentice**
- **brickmason**
- **carpenter**
- **draftsman**
- **plumber**
- **roofer**
- **secretary**

- **compass**
- **concrete**
- **drill**
- **framing**
- **hacksaw**
- **hammer**
- **level**
- **mortar**
- **plane**
- **plans**
- **plunger**
- **typewriter**

**BUILDING IN THE CLASSROOM**

**Books**

- Adamson, Gareth. *Mr. Budge Builds a House*
- Reneson, Lawrence A. *How a House Is Built*
- Goodspeed, J.M. *Let's Go Watch a Building Go Up*
- Greene, Carla. *I Want to Be a Carpenter*

**Films**

*Available to Memphis City Schools*

- "The New House - Where It Comes From"
- "Making Bricks for Houses"
Have the children.

1. Discuss the SPECIFICATIONS FOR VIEWING
2. Cut out pictures of workers and tools similar to those in the film. Place these in their scrapbooks and label them
3. LANGUAGE ARTS: Write a story about one of the following: a) what would happen if all the carpenters, all the plumbers, or all the secretaries stopped working, b) a funny thing happened when I tried to build a
4. Divide into groups and make up and act out a play about the workers needed to produce a house. (Don't forget the lumberjack!)
5. Using the vocabulary words, work the crossword puzzles.
6. SOCIAL STUDIES: Compare the tools the workers in the film used with the tools used by the early settlers in our country
7. MATH: Work the attached problem involving the area of a house and its total cost.
8. Use any or all of the four building projects included. Obtaining materials for these projects is left up to the resourcefulness and ingenuity of the individual teacher.
CONSTRUCTION OCCUPATIONS

Spelling Bee: From the nineteen words in "Trade Talk" have a spelling bee. Other words pertaining to construction occupations may be added if they are not too difficult for the students.

TRADE TALK

Apprentice Framing
Brickmason Hacksaw
Carpenter Hammer
Draftsman Level
Plumber Mortar
Roofer Plane
Secretary Plans
Compass Plunger
Typewriter Concrete
Drill
VOCABULARY CROSSWORD PUZZLE

DOWN
1. The plumber uses a ______ to clear waste from the drain of a sink.
2. A brick mason uses a ______ to be sure the wall does not dip.
4. A ______ is used to cut through a pipe.
5. ______ holds the bricks together to form a wall.
6. The draftsman uses a ______ to draw a circle.
9. A ______ is used to make holes.

ACROSS
3. The carpenter uses a ______ to smooth the rough edges of wood.
4. A ______ is a pounding tool.
7. ______ is poured into forms for the floor of a house.
8. A carpenter is ______ a house when he puts in the studs and rafters.
10. The secretary uses a ______ to write letters.
11. ______ are the same thing as blueprints.
Use the occupations seen in the film to work this puzzle.

ACROSS

2. A ________ serves food in the restaurant.

5. All the workers in the building trades work for a ________.

8. An ________ is a person who is learning a trade.

9. A ________ does the wood work on the house.

11. The ________ installs the bathroom fixtures in the house.

12. The ________ works through the church to help the community.
OCCUPATIONS CROSSWORD PUZZLE (continued)

DOWN

1. A ______ works with the trowel and mortar.
2. The ______ designs a house and then instructs the draftsman in drawing up the plans.
4. A ______ measures the lot and the location of the house on the lot.
6. The ______ types and takes dictation.
7. The ______ draws in the details of the blueprint.
10. The ______ puts the shingles on a house.
Circle the words as you find each one.

The following words are hidden above. They may be diagonally, forwards, and backwards.
MATH PROBLEM

CONSTRUCTION OCCUPATIONS

A carpenter needs to know how much floor space is in a house. By using the math you have learned in class, you can figure the floor space, or area, of a room or a house, too. Look at the drawing of the house. The dimension of Porch II is 4'x11' which means it is 11 feet long and 4 feet wide. To obtain the area multiply 11 feet by 4 feet; the answer is 44 square feet. So the area of the porch is 44 square feet.
1. Look at the scale drawing. How many square feet of space are in each room?
   - Living Room
   - Dining Room
   - Kitchen
   - Bathroom
   - Bedroom I
   - Bedroom II
   - Bedroom III
   - Hall

2. By adding the number of square feet in each room, determine how many square feet there are in the entire house. (Don't include the porches.)

3. If the average cost to build a house is $15 for each square foot, how much will this house cost?
   Answer
MAKING PAPER MACHE' BRICKS OR STONES

If the teacher cannot obtain bricks for the Brick Mason's Project, the children may want to make them from paper mache'.

Materials:
Newspapers, a large bowl, wheat paste

Procedures:
1. Soak torn bits of newspaper in hot water until soggy (preferably over night).
2. Squeeze excess water out of the pulp.
3. Mix 3 parts pulp to one part wheat paste.
4. Knead this mixture thoroughly until free of lumps.
5. Mold the mixture into the shape of a brick or a stone and allow to dry.
6. When completely dry, paint the bricks red and the stones brown.
7. Now you are ready to assemble these to make a wall.
BUILDING A TRADESMAN'S NOTEBOOK

OBJECTIVE: Following the instructions on the kit, the students should be able to construct a wooden cover for a scrap book.

MATERIALS: Two 9"x12"x¹/₂" plywood, two 2" hinges and screws, 24" strip of leather, saw, hammer, ruler, pencil, paint, sandpaper, files, ¼" drill, two 3" C-clamps, steel wool, newspapers.

PROCEDURE:

1. Assemble all tools and materials needed for the project.

2. Acquire 2 pieces of board (9"x12") and place group number on the inside of each piece.

3. On each piece of wood make a pencil mark to indicate the places to drill the holes. Locate them as shown in illustration #1.

4. Drill ¼" holes in these locations on each board.
5. With a ruler, make a saw line on 1 only of the boards. This will be the front of the notebook, or part A. Place the saw line as shown in illustration #2.

6. Clamp a board fence along the right side of the saw line and saw down the fence. Sand the sawed edges until smooth. Round the outside edges with a file and sandpaper. See illustration #3.
7. Locate hinges on part A and A2 between the sawed edges and fasten with brads, using a hammer. See illustration #4.

Cut holder (leather, ribbon, string) to correct width and length (3/16" x 24").

9. Sand entire project smooth.

10. Spread newspapers. Paint and decorate.

11. Add unlined paper to use for pictures of workers and tools.
BRICK LAYING PROJECT

OBJECTIVE: With the use of this guide, a student should be able to simulate the construction of a return brick corner, common bond, three courses high.

MATERIALS: Mortar, water, trowel, plumbline, square, level

PROCEDURE:

1. Assemble all tools, and materials needed for the job.

2. Mix mortar.

3. Lay out 6 bricks, dry and square them with the tri-square. Separate them evenly by using your forefinger as a spacer.

4. Holding the trowel with the fingers under the handle and thumb on top, cut mortar and place it under bricks #1, 2, and 3.

5. Bed up in mortar bricks #1, 2, and 3 before disturbing the others. Level all three.

6. Lift brick #4 and place small amount of mortar under it and scrape some mortar between bricks #1 and #4. Repeat procedure for bricks #5 and #6.

7. Make sure the bricks are level and square.
8. With trowel, place a line of mortar on top of the bricks.

9. Place the bricks on the mortar in this manner.

10. As in step 5, bed up in mortar bricks 7, 8, and 9. Level them.

11. Lift brick 10, place mortar under it, bed it up as in step 6. Repeat the procedure for brick 11.

12. Using the trowel, scrape away any extra cement from the bricks so that the wall is smooth.
13. Repeat the procedure used in steps 5 and 10 for the 3rd course.

14. Be sure the top is level and the sides are square.
DRAFTSMAN'S PROJECT

OBJECTIVES: Using the tools provided in this kit, the student should be able to draw to scale a room or a ball diamond. Also they should be able to construct a perpendicular line and a five point star.

MATERIALS: #4 pencil, paper, eraser, compass, ruler.

PROCEDURE:

1. Assemble all tools needed.

2. Using the ruler, measure the classroom and write down the exact measurements. Instructions for drawing a room are under A; instructions for drawing a softball and a baseball diamond are under B; and instructions for drawing a pentagon and a 5-point star are under C. You may want to draw one or all of these.

A. A Classroom

1) For a room, measure each side as shown.

24'

16'

This scale drawing indicates that the room is 16 feet wide and 24 feet long.
3) When drawing a room to scale, let ¼ of an inch on the ruler represent 1 foot. According to our measurements, our scale drawing room will be 6 inches long and 4 inches wide. (6 inches would be 24 - ¼ inches; 4 inches would be 16 - ¼ inches)

4) To draw the room place the steel point of the compass on 0 and open the compass until the pencil point touches the correct mark (in our case 6 inches.)
B. A softball and baseball diamond

1) When drawing a ball field to scale, use 1/16 of an inch to represent 1 foot.
2) The measurements of the softball field are as follows:

3) Construct the ball field in the same manner as the room, being sure the lines are perpendicular to each other.

4) Can you put the pitcher's mound? The batter's box? (Use the World Book Encyclopedia for reference.)
6) With the compass, measure the scale length of your second wall. Place the point at A and mark an arc C. Line AC then becomes the width of your room as line AB is the length.

7) At point C construct a perpendicular line to become the other length wall. (Use same procedure as in step 5).

8) Connect points D and B. Erase all unnecessary lines. You have a scale drawing of your classroom. Why don't you try to do scale drawings of the desks within your classroom?

NOTE: Carpenters make a square corner by measuring 3" on side AB; estimating a perpendicular line BC 4" long; and joining the two where 5" meets AC. You try it.
5) Now to make the second wall we must use our compass to construct a line perpendicular to the first wall (A B).

Put the compass at any setting which will not go off the page. Then with the steel point at A make an arc cut line AB on either side of A. These arcs are 1 and 2.

Open the compass slightly, put the steel point on 1, and make an arc above and below A. Leaving the compass on the same setting, place the point on 2 and repeat the procedure. Where these arcs cross are point 3 and 4. Connect points 3 and 4 through A and you have a perpendicular line.
C. Constructing a pentagon and a 5-point star:

1) Draw a circle equal to the size of pentagon desired.

2) Construct diameter, AB and radius OC perpendicular to AB.

3) Bisect line AO to find center point D.

4) Draw CE using point D as the center.

5) Draw arc EF from center point C.

6) Draw the line CF.

7) Lay off the four remaining sides, equal to CF, around the circle.

8) Connect the points around the circumference to form a pentagon.

To form a 5-point star locate the five points as above and connect the points as shown below.
PLUMBING PROJECT

OBJECTIVE: Following the set of instructions, the students should be able to replace a washer in a compression type faucet.

MATERIALS: Regular screwdriver, phillips screwdriver, wrench, seat tool, cloth, masking tape.

PROCEDURE:

1. Assemble all tools and materials needed.
2. Shut off water (main supply)
   Check points:
   a. Valve handle underneath faucet.
   b. Valve under house or just outside house where water line enters house.
   c. Main valve near the street inside the water meter.
3. Turn faucet handle to make sure water is shut off.
4. Place tape or cloth around packing nut (see A in illustration) Using wrench, unscrew nut loose from threads.
5. Using off and on handle, unscrew valve faucet stem (see B in illustration) and remove it from water faucet housing.
6. Using screwdriver, remove faucet screw at washer end (see C in illustration). If damaged, use a hacksaw and reslot the screw slot.
7. Remove and discard old worn washer (see D in illustration).
8. Select proper size new washer that fits inside rim of stem. Always place flat side down against rim.
9. Replace faucet screw with screw driver.
10. Remove seat (see E in illustration) with a seat tool and wrench.
11. Check seat rim for worn places or grooves.
12. If seat is scarred or grooved:
    a. Discard and purchase a new one.
    b. Reseat worn seat using emery cloth, shaping stone or file.
    c. Buy an inexpensive valve seat grinder. (not recommended)
       If seat threads are worn, you will have to purchase a pipe joint putty or ribbon to fill in the space.
13. Replace new seat or repair seat.

14. Replace packing if water has been spurting around stem.

15. Using a rag or old toothbrush, clean all parts. Make sure you leave no metal particles or grit on threaded parts where seat and washer meet.

16. Replace stem (see B in illustration) in faucet, using your hands.

17. With wrench protected with tape or cloth, tighten packing nut (see A in illustration). (You may have to use screwdriver to push packing in place first.)

18. Turn handle to "off" position.

19. Turn on water at the main meter cutoff valve.

20. Return to the faucet and open and close the flow of water several times to see if the job is complete.

21. If it still leaks, repeat disassembling and assembling steps.

22. If leak is corrected, let water flow a few minutes out of the spout to force air out of the water line. This is what causes the pipes to pop and caugh. This causes water to flow uneven at first through the faucet.
WHO USES THESE INSTRUMENTS AND MATERIALS?

(Match the tools with the workman)

TOOLS

T square

45 degree angle

30-60 degree angle

triangle scale

compass

ruling pen

slide rule

MATERIALS

drafting table

eraser

ink

blue prints

pencil

drawing ink
WHICH WORKER USES THESE INSTRUMENTS AND MATERIALS?

(Match the tools with the workman)

EQUIPMENT

- adding machine
- typewriter
- file cabinet
- telephone
- blue print stand
- stapler

SUPPLIES

- hole punch
- scotch tape
- stamp and ink pad
- typing paper and carbon
- stenographer's pad
- pencil
WHO USES THESE TOOLS AND MATERIALS?
(Match the tools with the workman)

TOOLS

- Hand saw
- Sheet rock knife
- Folding rule
- Power saw
- Square
- Tape rule

MATERIALS

- Work apron
- Cabinets
- Planks
- Nails (finishing, common)
- Screws (roundhead, flathead)
- Power saw
- Work apron
WHICH WORKER USES THESE TOOLS AND SUPPLIES?
(Match the tools with the workman)

TOOLS
- pipe wrench
- pipe cutter
- propane torch
- bar clamp
- soldering gum
- tin snips
- vice grips

MATERIALS
- copper tubing
- pipe fittings
- sink traps
- faucet
- pipes
HOW DO WE KEEP IN TOUCH?

A TEACHER'S GUIDE
TO
COMMUNICATIONS AND MEDIA OCCUPATIONS

Grades
4 5 6
ACKNOWLEDGEMENTS

COMMUNICATIONS AND MEDIA OCCUPATIONS

* Mr. Franklin Schroer, Supervisor, Vocational Division, Memphis City Schools

Mr. Bob Webber, Program Director, WMC Radio

Mr. R. L. Chapman, Public Relations Manager, South Central Bell

Miss Emily N. Beebe, Consultant, Elementary Education, Memphis City Schools

Mr. George Gunter, Graphic Communications, Northside High School

Mr. Jerry Turpin, Elementary Curriculum Specialist, Project SPAN

Mr. Joseph Neel, Memphis Publishing Company

*Committee Chairman(s)
PROGRAM GUIDE

What is communications? Why do we need to communicate? Who helps us communicate? The answers to these questions and more will be found as we see how, the telephone exchange operates, the newspaper is published, and the radio and television station operates.

TECHNICAL TERMS

audio  printing
broadcast printing press
camera  radio
code receiver
cold type reporter
deliveryman telegraph
director telephone
director television
equipment film
film type
hot type video
microphone
operator
photographer
pressman

TECHNICAL REPAIRS

When shown a picture of a worker in the communications industry, pupils should be able to: a) name him, b) describe generally the work he does, c) name some of the other workers that he helps.

In a classroom discussion of the communications industry, the pupils should point out:

a) ways in which the workers help each other
b) various kinds of working conditions
c) differences in length of training for the various jobs.
AUDIO-VISUAL AIDS

Animals - How The Communicate

Communications - Story Of Its Development
Coronet Films, 11 minutes, B/W, 1960.

Getting The News
Encyclopedia Britannica, 16 minutes, color, 1967.

Letter To Grandmother
Coronet Films, 19 minutes, B/W, 1942.

Our Post Office
Encyclopedia Britannica Films, 11 minutes, B/W, 1956.

Telegram For America
National Film Board of Canada, 22 minutes, B/W, 1953.

Television Serves Its Community
Gary Goldsmith Productions, 15 minutes, color, 1960.

Your Voice And The Telephone
Bell Telephone Films, 7 minutes, B/W, 1959.
SCRAMBLED TERMS FOR COMMUNICATIONS OCCUPATIONS

VOCABULARY LIST

<table>
<thead>
<tr>
<th>Audio</th>
<th>Microphone</th>
<th>Reporter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio Engineer</td>
<td>Hot Type Operator</td>
<td>Speaker</td>
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<tr>
<td>Broadcast</td>
<td>Operator</td>
<td>Telegraph</td>
</tr>
<tr>
<td>Camera</td>
<td>Photograph</td>
<td>Telephone</td>
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<td>Code</td>
<td>Pressman</td>
<td>Televise</td>
</tr>
<tr>
<td>Cold Type Operator</td>
<td>Printing</td>
<td>Television</td>
</tr>
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<tr>
<td>Engineer</td>
<td>Receiver</td>
<td>Video</td>
</tr>
<tr>
<td>Film</td>
<td></td>
<td>Video Engineer</td>
</tr>
</tbody>
</table>
Find the scrambled vocabulary in the following sentences that are about "printing".

1. The photographer puts film in the amcera _____________.
2. A hotpographer ___________ took pictures with his camera.
3. The pictures that the photographer took were given to the peroterr _____________.
4. Our newspaper was printed on the new rintpgni spres _____________.
5. A oht ytep poretaro ____________ made a metal plate that is used for printing newspapers.
6. The clod ytep poretaro ____________ uses a computer to set type.

Find the scrambled terms in the following sentences that are about television broadcasting.

1. The television macear ____________ is used to show live action.
2. A drcetior ____________ is in charge of the television show.
3. An geinmeer ____________ controls the television signal that reaches your home.
4. udaoi ____________ means the sound part of a television broadcast.
5. vdeo1 ____________ means the picture of the television broadcast.
Find the scrambled vocabulary in the following sentences that are about the Radio Broadcasting Industry.

1. The disc-jockey talked into the ipchmorneo ____________ ________.
2. A radio is really a radio ecerierv ____________________.
3. The duioa ngelnere __________ controls the sound that is broadcast.
4. Sound from a radio comes from the rkeepas ________________.
5. adrio _______ is used to send voice and music.

Now let's see if you can list some scrambled words.

1. __________________________________________
2. __________________________________________
3. __________________________________________
4. __________________________________________
5. __________________________________________
Radios, televisions, and telegraphs all depend on electrons moving. Since electrons move at the same speed that light travels, it is important for scientists and engineers to know:

**HOW TO FIND THE SPEED OF LIGHT**

I. It is about 90,000,000 miles from the earth to the sun. It takes the light about 8 minutes to get from the sun to the earth.

II. Divide the distance from the earth to the sun by the number of minutes it takes light to reach the earth from the sun.

\[
\frac{890,000,000}{8} = 111,250,000
\]

III. Divide the results by the number of seconds in a minute.

\[
\frac{111,250,000}{60} = 1,854,167
\]

IV. This answer will give you the speed of light in seconds. Did it come close to 186,000 miles per second?
Since the beginning of written languages, man has invented ways to communicate with others using codes and ciphers. One of the easiest ways to send and receive codes is to use a code wheel.

To assemble your secret code wheel, cut the circles from the two sheets. Punch a small hole in the centers of the two wheels and connect them using the brad. You should be able to read both alphabets at one time. Notice that by holding the larger wheel, you can turn the smaller wheel with your thumbs.

To decode words using your wheel, you move the small wheel only once. Let's try to decode a word.

code letter (B)    S B E J P

To decode the above word, move the code letter (B) on the small wheel under the A on the larger wheel. Hold the two wheels in place. Find the "S" on the wheel; above it is the letter "R". Find the letter "B" on the small wheel; above it is "A". Find the remaining letters on the small wheel and the actual letters are above the large wheel. SBEJP become RADIO.

Now see if you can decode the following words using the secret code wheel and the code letters given.
<table>
<thead>
<tr>
<th>CODE LETTER</th>
<th>CODE WORD</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>JVTIVKRP</td>
</tr>
<tr>
<td>M</td>
<td>OXODW</td>
</tr>
<tr>
<td>P</td>
<td>INETIGXIER</td>
</tr>
<tr>
<td>S</td>
<td>LWDWNAKAGF</td>
</tr>
<tr>
<td>V</td>
<td>OZGZBMVKC</td>
</tr>
<tr>
<td>F</td>
<td>YJOJUMTSJ</td>
</tr>
<tr>
<td>Q</td>
<td>ZBSXDSNG</td>
</tr>
<tr>
<td>O</td>
<td>ZPOCC</td>
</tr>
<tr>
<td>Q</td>
<td>XUZQYMZ</td>
</tr>
<tr>
<td>C</td>
<td>DPYKCKYL</td>
</tr>
<tr>
<td>P</td>
<td>ZAPCLEZC</td>
</tr>
<tr>
<td>I</td>
<td>KWAJNAUE</td>
</tr>
<tr>
<td>K</td>
<td>JWHJWKWFLSLANW</td>
</tr>
<tr>
<td>N</td>
<td>YDJOBBUH</td>
</tr>
<tr>
<td>S</td>
<td>CEVAGRE</td>
</tr>
<tr>
<td>W</td>
<td>KIUMZIUUT</td>
</tr>
<tr>
<td>Z</td>
<td>JPSSVQER</td>
</tr>
<tr>
<td>G</td>
<td>BVEJJP</td>
</tr>
<tr>
<td></td>
<td>YHACHYYL</td>
</tr>
</tbody>
</table>
CUT ALONG THE OUTER CIRCLE
The following words are hidden above. They may be backwards, forwards, diagonal, or even diagonally backwards. See how many you can find. Circle the words as you find each one.

Radio Engineer Telephone Print
Video Television Cameraman Audio
Press Director Microphone Ink
Camera Telegraph
ACROSS

1. The music or voice part of a television broadcast.
5. A device that receives voice and music only.
6. A device that takes pictures.
8. The metal mold used for printing.
9. Used in cameras to record images.

DOWN

2. The person in charge of a radio or television production.
3. A radio is also called a ________.
4. A picture is called a ________.
7. Newspapers are printed on a ________.
The first real printing took place in China. A skilled stone cutter cut each character into a flat stone, then soot was sprinkled over the carvings. Finally, the stone was pressed onto a piece of paper. The soot was deposited on the paper.

Later, a block of wood replaced the stone. Wood was easier to carve and held the soot better. There are pieces of Chinese printing that were done with wood blocks over 1200 years ago, in museums today. For centuries the only method of printing was using wood blocks.

About 800 years ago, Pi Sheng, a Chinese printer decided that he could save time by carving each character separately and putting them into a wooden frame. He would then use the wooden frame to print on paper. Instead of using each block once and throwing it away, Pi Sheng could now take a frame apart and rearrange the characters to be used again.

The next improvement was made in Korea. After the frame was made, it was pressed into fine wet sand. The wet sand held the impression until hot liquid lead was poured over it. When the metal cooled, the entire sheet of raised letters was used to print a page. This was easier to use than a frame full of single letters.
During the early years of the nineteenth century, scientists the world over began experiments with the newly discovered electricity. They found that it could make a spark, like lightning. They also discovered that a coil of wire with electricity passing through it became magnetized. For a long time, scientists wondered what they could do with this new magnet that could be turned on and off.

For almost one hundred years, scientists attempted to put this new discovery to work, but failed. In the eighteen thirties, an electric telegraph was finally constructed in England, but it was not until a few years later that an American, Samuel Morse, invented a code of dashes and dots that the electric telegraph began to be practical. To begin with, the telegraph operators did not listen to the dots and dashes, but they were recorded on a sheet of paper that moved under the telegraph. As telegraph operators became more used to the sounds of the clicking machine, they began to write the message as they heard the clicks instead of waiting for the sheet with the dots and dashes marked. Before long, telegraph lines were strung across the country side, between cities. At last instant communication was possible.
By the year 1900, the entire world was criss-crossed with telegraph wires, some even running under the large oceans. Today instead of listening to dots and dashes, machines change the code into letters automatically. The teletype looks like a big typewriter, but is really an automatic telegraph operator. Even in our modern times, the telegraph is still used.

**INTERNATIONAL MORSE CODE**

<table>
<thead>
<tr>
<th>Letter</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>-.</td>
</tr>
<tr>
<td>B</td>
<td>-...</td>
</tr>
<tr>
<td>C</td>
<td>-.-.</td>
</tr>
<tr>
<td>D</td>
<td>-..</td>
</tr>
<tr>
<td>E</td>
<td>.</td>
</tr>
<tr>
<td>F</td>
<td>..-.</td>
</tr>
<tr>
<td>G</td>
<td>---</td>
</tr>
<tr>
<td>H</td>
<td>......</td>
</tr>
<tr>
<td>I</td>
<td>.</td>
</tr>
<tr>
<td>J</td>
<td>.---</td>
</tr>
<tr>
<td>K</td>
<td>-.-</td>
</tr>
<tr>
<td>L</td>
<td>---</td>
</tr>
<tr>
<td>M</td>
<td>--</td>
</tr>
<tr>
<td>N</td>
<td>-.</td>
</tr>
<tr>
<td>O</td>
<td>---.</td>
</tr>
<tr>
<td>P</td>
<td>.-.</td>
</tr>
<tr>
<td>Q</td>
<td>---.</td>
</tr>
<tr>
<td>R</td>
<td>.-.</td>
</tr>
<tr>
<td>S</td>
<td>...</td>
</tr>
<tr>
<td>T</td>
<td>-</td>
</tr>
<tr>
<td>U</td>
<td>.----</td>
</tr>
<tr>
<td>V</td>
<td>.----</td>
</tr>
<tr>
<td>W</td>
<td>--.</td>
</tr>
<tr>
<td>X</td>
<td>-.----</td>
</tr>
<tr>
<td>Y</td>
<td>-.----</td>
</tr>
<tr>
<td>Z</td>
<td>--...</td>
</tr>
</tbody>
</table>
CODE OF SIGNALS FOR FOOTBALL OFFICIALS

At major college football games there are usually five officials. They are the referee, umpire, linesman, field judge, and back judge.

The signals shown on these two pages are used by the officials.

1. First Down
2. Ball Dead;
   If hand is moved from side to side:
   Touchback
3. Personal Foul
4. Unsportmanlike Conduct
5. Forward Pass or kick catching interference
6. Ball illegally touched, kicked, or batted

Notice that some of the signals look pretty much alike. For example, the signal for a "First Down" and the signal for a "Personal Foul" might be mixed up by someone who was not watching carefully.
7. Offside  
8. Delay of Game  
9. Illegal Procedure, Position, or Substitution

10. Touchdown or Field Goal  
11. Time Out  
12. Safety

13. Illegal Motion  
14. Illegally Passing or Handing Ball Forward  
15. Illegal Use of Hands and Arms

If you do not know what all the football terms on these pages mean, you can find out by looking in a football rule book. Or you might ask a football coach or player to tell you what they mean.
MAKING PAPER

OBJECTIVES:

The student will simulate the making of paper.

MATERIALS:

Fine meshed wire screen, a flat pan, a forming rack or mold, a 10 quart basin, 30 facial tissues (newspaper torn in strips and not wet strength), 2 sheets of blotting paper (news print), laundry starch, 1 tablespoon, an egg beater, a rolling pin, an electric iron.

PROCEDURE:

1. Tear sheets of tissue (or newspaper) and place in basin. Pour in starch and additional water to make about 10 quarts. Beat until thoroughly mixed.

2. Prepare the paper machine, consisting of pan (a biscuit pan, refrigerator tray, aluminum frozen food container can be used), screen and forming rack. Trim the screen to fit inside the pan. Then cut out the bottom of the pan, leaving a ledge of about one-half inch wide to support the screen. The forming rack can be made from a second pan that will fit inside the first. Cut out the entire bottom, leaving only the sides. This pan and rack came from an old refrigerator tray.
3. Holding forming rack firmly on the screen and dip sidewise into the pulp mixture.

4. Clean off the excess pulp outside forming rack. Lift out the screen on which the pulp has formed.

5. Dry the screen and wet sheet of pulp between two pieces of blotting paper. The sheet will stick to them. Press out excess water with rolling pin.
6. Finally, iron-dry (not too hot) the sheet, still between the blotters. Trim the edges with scissors. You now have a sheet of hand made paper.

7. Allow each child to print a card from a piece of the paper.
OBJECTIVES:
Using the materials provided, the student should be able to duplicate the discovery made by Samuel Morse when he built his first working telegraph.

MATERIALS:

- 1 block of wood 2" x 4" x 6"
- 1 dry cell battery (D-cell)
- 1 tin can (not aluminum)
- 50 feet #22 enameled wire
- 6 large nails
- 2 small nails
- Wire pliers
- Hammer

PROCEDURE:

1. Nail the six large nails into the block of wood as shown.

   ![Diagram](image)

   A. Two nails are placed one inch down and 3/4 inches in both (A & B). Nail these in until 3/4 inches from the board.

   B. Put 2 nails close together 2 1/2 inches down and 3/4 inches inside on the right (C & D). Leave 2 inches of the nail above the board.

   C. Put 2 nails centered 1 inch from the bottom. Nail until the head is 1/4 inch from the board (E & F).
II. Cut two pieces from the tin can as shown below:

A. Cut two pieces 1 inch wide and 3 inches long.
B. Check the metal for any loose, sharp pieces.

III. Form the pieces of metal as shown.

IV. Clean 5 inches off the end of the wire until it appears shiny.

A. Wrap this around the nail B. Begin wrapping the wire around nails A & B. When there is about 6 inches left, cut the wire and clean the end.
B. Clean the ends of the 12 inch piece of wire.
C. Leave the end of the wire from the coil free, we will connect this later.
D. Take the 6 inch piece of wire and wrap one end around nails E & F and wrap the other end around nail A.

V. Place the piece of metal "A" to the left of nails C & D so that the top is above C & D. If the nails are too tall, hammer them further into the board.

A. Using a small nail, attach this piece into place.

VI. Place metal strip B so that the end of the long side is above nails E & F.

A. Take the other small nail and nail it half way in.
B. Wrap the piece of clean wire from the coil around this nail and finish hammering it in.

VII. Insert the battery (either way) between nails A & B.

A. By pressing the metal strip "B", the tapper should move.

B. Adjust the strip so that it hits the nail when the key is pressed and pulls away when it is released.
SUGAR BOX TELEPHONE TRANSMITTER

OBJECTIVES:

The students should be able to employ their knowledge of science to construct a simple telephone transmitter.

MATERIALS:

Two pound sugar box, aluminum-foil tie plates, pencil leads, two paper clips, earphone, bell wire, tape, and dry cells.

PROCEDURES:

Place the aluminum pieces on the top of the box, and fasten them with the two paper clips. (Be sure they are not separated by more than 3 inches.) Connect one wire to one side of the receiver and the other wire to one side of the batteries. Connect the other side of the battery to the unconnected terminal on the receiver.

Now place two pencil leads across the pieces of metal. By speaking into the box, your voice should now be heard on the receiver.
WHO WORKS IN OFFICES?

A TEACHER'S GUIDE
TO
BUSINESS AND OFFICE OCCUPATIONS

Grades
4 5 6
ACKNOWLEDGEMENTS

BUSINESS AND OFFICE OCCUPATIONS

* Mr. Bill Wilhelm, Consultant, Special Programs, Vocational Division, Memphis City Schools

Mrs. Brooks Culp, Secretary, Life Insurance Company

Mrs. Ester Rice, Hyde Park Elementary

Miss Janice Wright, Student, Hyde Park Elementary

* Mr. Ed. French, Consultant, Office Occupations, Vocational Division, Memphis City Schools
Filina System--
Children should be able to:
1. Name at least five of the office workers.
2. Tell how the office workers help each other.
3. Describe the different surroundings of the various kinds of workers.

SHORTHAND
As two boys talk about registering for school, we get a close look at how office employees work. We see what kind of surroundings they work in and how they cooperate with each other to make the office run effectively.

DICTATION

<table>
<thead>
<tr>
<th>Adding Machine</th>
<th>Files</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alphabetical Order</td>
<td>File Clerk</td>
</tr>
<tr>
<td>Clerk</td>
<td>Mailroom</td>
</tr>
<tr>
<td>Clerk-typist</td>
<td>Mailroom Employees</td>
</tr>
<tr>
<td>Computer</td>
<td>Program</td>
</tr>
<tr>
<td>Computer Operator</td>
<td>Secretary</td>
</tr>
<tr>
<td>Computer Programmer</td>
<td>Shortland</td>
</tr>
<tr>
<td>Bookkeeper</td>
<td>Typewriter</td>
</tr>
<tr>
<td>Dictation</td>
<td>Typist</td>
</tr>
</tbody>
</table>
BUSINESS FOLLOW-UP

1. Use the vocabulary words in a sentence of your own.
2. Work the puzzles on pages 4 - 10.
3. Write a story about the office worker you would like to be.
4. Language Arts: Play What's My Name? Write the occupations shown on the film on slips of paper. Allow a student to select a slip of paper. The student will imitate the duties of the person on the slip of paper. The student who guesses the correct name gets to choose the next slip of paper and imitate the occupation.
The following words are hidden above. They may be backwards, forwards, diagonal or even diagonally backwards. See how many you can find. Circle the words as you find each one.

Secretary  Computer  Mailroom  Pencil  File
Typist      Programmer  Keypunch  Pen
Clerk       Office boy  Paper Clip  Type
**LANGUAGE ARTS**

Computers think in numbers instead of letters, they can read and write numbers—see if you can decode the message below from this code.

<table>
<thead>
<tr>
<th>Code</th>
<th>Letter</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>A</td>
</tr>
<tr>
<td>02</td>
<td>B</td>
</tr>
<tr>
<td>03</td>
<td>C</td>
</tr>
<tr>
<td>04</td>
<td>D</td>
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<tr>
<td>05</td>
<td>E</td>
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<td>06</td>
<td>F</td>
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<td>07</td>
<td>G</td>
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<td>08</td>
<td>H</td>
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<td>09</td>
<td>I</td>
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<tr>
<td>10</td>
<td>J</td>
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<tr>
<td>11</td>
<td>K</td>
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<tr>
<td>12</td>
<td>L</td>
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<td>13</td>
<td>M</td>
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<tr>
<td>14</td>
<td>N</td>
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<tr>
<td>15</td>
<td>O</td>
</tr>
<tr>
<td>16</td>
<td>P</td>
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<tr>
<td>17</td>
<td>Q</td>
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<tr>
<td>18</td>
<td>R</td>
</tr>
<tr>
<td>19</td>
<td>S</td>
</tr>
<tr>
<td>20</td>
<td>T</td>
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<tr>
<td>21</td>
<td>U</td>
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<td>22</td>
<td>V</td>
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<tr>
<td>23</td>
<td>W</td>
</tr>
<tr>
<td>24</td>
<td>X</td>
</tr>
<tr>
<td>25</td>
<td>Y</td>
</tr>
<tr>
<td>26</td>
<td>Z</td>
</tr>
</tbody>
</table>

Write your decoded message here:

Write your decoded message here:

Write your decoded message here:

Write your decoded message here:
Did you get the message? If you did, see if you can encode this message.

"We have captured the spy; his name is Fred Caldwell."

Write your secret coded message here:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Novembre 16, 1972

Dear Students,

Somewhere in this letter are ten spelling errors. See if you can find all ten. Most of them are easy to find; some are very hard to find.

If you can find all ten, you are very good at locating spelling errors.

Sincerely,

Jerry Turpin
Projet SPAM
File clerks must be able to alphabetize words quickly and accurately. Take just a few moments and see if you can put these words in alphabetical order.

1. secretary  4. typewriter  7. manager
2. clerk  5. adding machine  8. accountant
3. office  6. keypunch  9. bookkeeper

How well did you do? If you thought those were easy, try these. They are a little harder.

1. Secretary  4. typing  7. Programmer
2. computer  5. clerk  8. office
3. typewriter  6. typist  9. employee

The following are even harder. See how well you do.

1. employee  4. typist  7. dictate
2. encode  5. employer  8. typewriting
3. typewrite  6. decode  9. dictation
1. A clerk-typist uses a yertwitper ______ to type letters.

2. A elif _______ is where records for the office are kept.

3. An dinagd achmien ________ is used by the bookkeeper to add columns of numbers.

4. The ekpuychn ________ machine punches holes in computer cards.

5. A opcumert ________ uses key-punched cards to get its information.

6. A lcrek-tpisy _______ types letters, files information and performs other duties in the office.

7. The omcpteur-pogarrmemr ___________ makes the computer work.

8. The aimlorom ________ workers sort and deliver mail to the offices.

9. The very earliest type of office equipment was pne and appre ___________ ___________.

10. ilfes ________ are arranged in alphabetical order.
I. It takes Judy 35 minutes to type a report for her boss Mrs. Johnson. She then types fifteen letters that require 7 minutes each. If she started to work at 9:00 A.M., what time did she finish her morning work?

II. If Judy makes $3.00 per hour and she works 8 hours per day, how much does she make each week? (5 days)

III. Judy made $120.00 last week. The government took $20.00 for taxes and $15.00 for her Social Security. How much did she have left to spend?
Puzzle Flow Chart

Computer programmers write out a flow chart that shows how the computer is to work. See if you can follow directions to finish this puzzle.

Begin at the top and find your way to the outlet at the bottom. Keep a record of the letters you pass. What do they spell?  

\[ \text{H} \quad \text{G} \quad \text{I} \quad \text{J} \quad \text{K} \quad \text{L} \quad \text{M} \quad \text{N} \quad \text{O} \quad \text{P} \quad \text{Q} \quad \text{R} \quad \text{S} \quad \text{T} \quad \text{U} \quad \text{V} \quad \text{W} \quad \text{X} \quad \text{Y} \quad \text{Z} \]
CONSTRUCTING OCCUPATION CARDS

OBJECTIVES:

Making use of the proper materials, the students should be able to develop a method of storing information which can be retrieved upon demand. This system which is also commercially available, will demonstrate logical sequences and elementary computer techniques.

MATERIALS:

Materials needed will be: 200 4" x 6" index cards, list of occupational words, dictionary, pen or pencil, hole puncher, and scissors.

PROCEDURE:

Using the two hundred cards provided, make ten cards for each occupational grouping. The list on page 13 gives the two hundred basic words. More may be added by using 4" x 6" index cards. Each card must be similar to the example below.

---

Carpenter

A workman who uses wood and tools to help build a house.

The carpenter sawed the board
Business and Office Occupations

How to mark the occupational cards using the occupational Template.

1. Lay the template carefully on the card that you have written. Make sure that the ten holes are at the top.

2. Decide which occupation this card belongs to.

3. Mark the hole that corresponds to the occupation of the card.

4. Decide if the card describes a worker or a tool that a worker uses.

5. Mark the corresponding hole--worker or tool.

6. Now, using the template as a guide, draw a circle in all of the unused holes. (The marked holes should be completely marked in)

   ![Diagram of marked holes]

   - Carpenter
   - A workman who uses wood and tools to help build a house.
   - The carpenter sawed the board

7. Using a hole punch, carefully punch every circle, including the holes completely marked in.

8. Using the scissors, cut a 'V' at each of the marked holes.

9. The cards are now ready to be used in the first Hands-on activity.
<table>
<thead>
<tr>
<th>OCCUPATIONAL LIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cook</td>
</tr>
<tr>
<td>2. Chef</td>
</tr>
<tr>
<td>3. Salad Girl</td>
</tr>
<tr>
<td>4. Waitress</td>
</tr>
<tr>
<td>5. Waiter</td>
</tr>
<tr>
<td>6. Maitre d' hotel</td>
</tr>
<tr>
<td>7. Oven</td>
</tr>
<tr>
<td>8. Dishwasher</td>
</tr>
<tr>
<td>9. Refrigerator</td>
</tr>
<tr>
<td>10. Temperature</td>
</tr>
<tr>
<td>11. White Blood Cells</td>
</tr>
<tr>
<td>12. Red Blood Cells</td>
</tr>
<tr>
<td>13. Doctor</td>
</tr>
<tr>
<td>14. Registered Nurse</td>
</tr>
<tr>
<td>15. Licensed Practical Nurse</td>
</tr>
<tr>
<td>16. Nurse's Aide</td>
</tr>
<tr>
<td>17. Attendant</td>
</tr>
<tr>
<td>18. X-ray technician</td>
</tr>
<tr>
<td>19. Laboratory Technician</td>
</tr>
<tr>
<td>20. Resusitator</td>
</tr>
<tr>
<td>21. Surgery</td>
</tr>
<tr>
<td>22. Antidote</td>
</tr>
<tr>
<td>23. Gause Pads</td>
</tr>
<tr>
<td>24. Pilot</td>
</tr>
<tr>
<td>25. Bus Driver</td>
</tr>
<tr>
<td>26. Cab Driver</td>
</tr>
<tr>
<td>27. Truck Driver</td>
</tr>
<tr>
<td>28. Navigator</td>
</tr>
<tr>
<td>29. Stewardess</td>
</tr>
<tr>
<td>30. Train Engineer</td>
</tr>
<tr>
<td>31. Conductor</td>
</tr>
<tr>
<td>32. Chauffer</td>
</tr>
<tr>
<td>33. Ambulance Driver</td>
</tr>
<tr>
<td>34. Tractor</td>
</tr>
<tr>
<td>35. Diesel Fuel</td>
</tr>
<tr>
<td>36. Oil</td>
</tr>
<tr>
<td>37. Circulating Nurse</td>
</tr>
<tr>
<td>38. Dietician</td>
</tr>
<tr>
<td>39. Scrub Nurse</td>
</tr>
<tr>
<td>40. Nursing Assistant</td>
</tr>
<tr>
<td>41. Operating Room Technician</td>
</tr>
<tr>
<td>42. Inhalation Therapist</td>
</tr>
<tr>
<td>43. Hospital Housekeeper</td>
</tr>
<tr>
<td>44. Food Services Worker</td>
</tr>
<tr>
<td>45. Suture</td>
</tr>
<tr>
<td>46. Shock</td>
</tr>
<tr>
<td>47. Forceps</td>
</tr>
<tr>
<td>48. Scapel</td>
</tr>
</tbody>
</table>
WORKER ● ● TOOL
BUILDING TRADES ●
TRANSPORTATION OCCUPATION ●
HEALTH SERVICES ●
OFFICE OCCUPATIONS ●
COMMUNICATIONS OCCUPATIONS ●
INDUSTRIAL OCCUPATIONS ●
GENERAL SERVICES ●
DISTRIBUTIVE SERVICES ●
FOOD SERVICES ●
OTHERS ●

OCCUPATIONAL CARD TEMPLATE
Business and Office Occupations

Occupational List
(Continued)

50. Face Mask
51. Scrub Brush
52. Surgical Gloves
53. Centrifuge
54. Microscope
55. Forklift
56. Stethoscope
57. Bandages
58. Compress
59. Surgical Scissors
60. Syringe
61. Thermometer
62. Sling
63. Splint
64. Tweezers
65. Tourniquet
66. Balanced Diet
67. Modified Diet
68. Pulse
69. Blood Pressure
70. Trowel
71. Hammer
72. Shovel
73. Wrench
74. Faucet
75. Saw
76. Roofer
77. Brickmason
78. Apprentice
79. Carpenter
80. Secretary
81. Plumber
82. Draftsman
83. Level
84. Hinge
85. Typewriter
86. Rule
87. File
88. Area
89. Motor Mixer
90. Astronaut
91. Air Traffic Controller
92. Service Station Attendant
93. Mechanic
94. Delivery Man
95. Motor
96. Transmission
97. Brakes
98. Boat Pilot
99. Traffic Signals
100. Railroads
101. Runways
102. Shipping Lanes
103. File clerk
OFFICE CLERK KIT

OBJECTIVES:

Using the materials provided, the students should be able to demonstrate the workings of an office filing and sorting system.

MATERIALS:

200 occupation cards, 2 hole puncher, 2 scissors, 1 sorting rod.

PROCEDURES:

1. Begin by mixing the cards in random order.

2. Observe the punched holes. Each hole is important. Some holes are notched.

3. To remove all cards about a certain field such as transportation, insert the sorting rod into the cards at the hole labeled "transportation". Lift the rod while shaking it gently. The transportation cards will fall free. The same procedure follows with each field.

4. To remove all transportation cards that describe tools, insert the sorting rod first into the transportation hole and remove them, then taking these cards, insert the rod into the "tool" hole and lift. The cards that fall free are the transportation cards describing tools.

5. The same procedure applies to any subject. Always, the cards that fall free are the ones being sought.

6. If the pack of cards is dropped, they may be reassembled into the correct position for sorting by using the three corner holes marked corner. The fourth corner of each card is notched. Insert the rod into each of the three holes. As each set of cards falls free, stack them with the notch in the upper right hand corner. The pack should now be in the proper position for sorting.
OBJECTIVE:

The students should be able to use a typewriter to construct pictures by typing a series of letters and symbols.

MATERIALS:

1 typewriter, typing paper

PROCEDURE:

1. Insert the paper into the typewriter and roll it until it appears in front. Then, turn the roller the number of times shown on the directions sheet.

2. Set the margins as directed on each direction sheet.

3. Engage the shift lock key on the typewriter and follow the directions below.

   "sp" means strike the space bar. 63 "sp" would mean to strike the space bar 63 times.

   "X" means strike the X. 15 "X" means strike the X 15 times.

   ":" means strike the :. 19 ":" means strike the : 19 times.

4. When you finish one line return the carriage and begin next. Follow the directions carefully.
Business and Office Occupations
Project #3
(Continued)

TYPEWRITER MYSTERY

DIRECTIONS: Go down 21 spaces from the top. Set the left margin at 9 and the right margin at 78.

Line
1 - 63sp 2X
2 - 61sp 3X
3 - 7sp 4X 12sp 2X 8sp 2X 10sp 2X 12sp 3X
4 - 11sp 1X 11sp 2X 6sp 3X 11sp 2X 8sp 6X
5 - 11sp 1X 11sp 10X 10sp 18X
6 - 11sp 1X 9sp 12X 10sp 17X
7 - 9sp 2X 9sp 13X 9sp 16X
8 - 7sp 2X 10sp 13X 9sp 16X
9 - 5sp 5X 7sp 16X 7sp 17X
10 - 3sp 8X 4sp 20X 4sp 16X
11 - 2sp 1X 2sp 48X
12 - 1sp 1X 3sp 48X
13 - 1X 6sp 48X
14 - 1X 8sp 48X
15 - 1X 15sp 1X 17sp 1X 19sp 1X
16 - 1X 15sp 1X 17sp 1X 19sp 1X
17 - 1sp 1X 11sp 4X 16sp 3X 16sp 4X
18 - 2sp 1X 8sp 2X 3sp 1X 13sp 2X 2sp 1X 14sp 2X 3sp 1X 7sp 1X
19 - 3sp 8X 5sp 1X 11sp 2X 4sp 1X 12sp 2X 5sp 1X 7sp 1X
20 - 5sp 2X 10sp 2X 7sp 2X 7sp 2X 8sp 2X 8sp 2X 5sp 1X
21 - 7sp 4X 8sp 7X 11sp 8X 12sp 5X
22 - 11sp 54X
**TYPEWRITER MYSTERY**

DIRECTIONS: Go down 9 spaces from the top. Set the left margin at 12 and the right margin at 75.

<table>
<thead>
<tr>
<th>Line</th>
<th>Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 27sp 1: 3sp 1:</td>
<td>31 - 4sp 51X</td>
</tr>
<tr>
<td>2 - 27sp 1: 3sp 1:</td>
<td>32 - 6sp 47X</td>
</tr>
<tr>
<td>3 - 27sp 1: 3sp 1:</td>
<td>33 - 10sp 39X</td>
</tr>
<tr>
<td>4 - 27sp 1: 3sp 1:</td>
<td>34 - 15sp 29X</td>
</tr>
<tr>
<td>5 - 27sp 1: 3sp 1:</td>
<td>35 - 19sp 21X</td>
</tr>
<tr>
<td>6 - 27sp 1: 3sp 1:</td>
<td>36 - 22sp 15X</td>
</tr>
<tr>
<td>7 - 27sp 1: 3sp 1:</td>
<td>37 - 24sp 11X</td>
</tr>
<tr>
<td>8 - 28sp 1: 1sp 1:</td>
<td>38 - 25sp 9X</td>
</tr>
<tr>
<td>9 - 28sp 1: 1sp 1:</td>
<td>39 - 26sp 7X</td>
</tr>
<tr>
<td>10 - 28sp 1: 1sp 1:</td>
<td>40 - 27sp 5X</td>
</tr>
<tr>
<td>11 - 27sp 5X</td>
<td>41 - 27sp 5X</td>
</tr>
<tr>
<td>12 - 26sp 1X 5sp 1X</td>
<td>42 - 27sp 5X</td>
</tr>
<tr>
<td>13 - 26sp 1X 5sp 1X</td>
<td>43 - 28sp 3X</td>
</tr>
<tr>
<td>14 - 27sp 5X</td>
<td>44 - 28sp 3X</td>
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<td>15 - 28sp 3X</td>
<td>45 - 28sp 3X</td>
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<tr>
<td>16 - 28sp 3X</td>
<td>46 - 29sp 1X</td>
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<td>17 - 28sp 3X</td>
<td>47 - 28sp 3X</td>
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<tr>
<td>18 - 27sp 5X</td>
<td>48 - 28sp 3X</td>
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<td>19 - 20sp 19X</td>
<td>49 - 28sp 3X</td>
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<td>20 - 12sp 35X</td>
<td>50 - 28sp 3X</td>
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<td>21 - 7sp 45X</td>
<td>51 - 28sp 3X</td>
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<td>22 - 5sp 49X</td>
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<td>23 - 3sp 53X</td>
<td>53 - 28sp 3X</td>
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<td>24 - 1sp 57X</td>
<td>54 - 28sp 3X</td>
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<tr>
<td>25 - 1X 57sp 1X</td>
<td>55 - 28sp 3X</td>
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<tr>
<td>26 - 1X 57sp 1X</td>
<td>56 - 28sp 3X</td>
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<td>27 - 1X 57sp 1X</td>
<td>57 - 28sp 3X</td>
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<td>28 - 1X 57sp 1X</td>
<td>58 - 28sp 3X</td>
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<tr>
<td>29 - 1sp 57X</td>
<td>59 - 28sp 3X</td>
</tr>
<tr>
<td>30 - 2sp 55X</td>
<td>60 - 28sp 3X</td>
</tr>
</tbody>
</table>
Business and Office Occupations
Project #3
(Continued)

TYPEWRITER MYSTERY

DIRECTIONS: Go down 10 spaces from the top. Set the right margin at 5 and the left margin at 78.

Line

1 - 31sp 6X
2 - 31sp 5X
3 - 30sp 5X 20sp 1X 2sp 1X 2sp 1X
4 - 30sp 5X 19sp 1X 2sp 1X 2sp 1X 2sp 1X
5 - 17sp 2X 11sp 4X 18sp 2X 2sp 1X 2sp 1X 2sp
6 - 16sp 3X 1sp 3X 17sp 7X 1sp 1X 2sp 1X 2sp 1X
7 - 15sp 5X 10sp 3X 14sp 11X 1sp 2X
8 - 13sp 7X 4sp 2X 4sp 2X 12sp 15X
9 - 11sp 10X 3sp 3X 3sp 3X 7sp 15X
10 - 9sp 13X 1sp 27X
11 - 8sp 24X 5sp 8X
12 - 7sp 24X
13 - 8sp 23X
14 - 8sp 21X
15 - 9sp 18X
16 - 13sp 20X
17 - 14sp 3X 2sp 17X
18 - 19sp 19X
19 - 19sp 19X
20 - 19sp 19X
21 - 17sp 22X
22 - 16sp 25X
23 - 15sp 9X 1sp 17X
24 - 14sp 8X 4sp 16X
25 - 13sp 5X 9sp 16X
26 - 12sp 5X 6sp 21X
27 - 11sp 5X 4sp 27X
28 - 10sp 5X 4sp 31X
29 - 10sp 5X 4sp 15X 3sp 16X
30 - 10sp 3X 5sp 11X 8sp 17X
31 - 18sp 9X 13sp 17X
32 - 18sp 8X 18sp 14X
33 - 17sp 8X 22sp 11X
34 - 16sp 9X 24sp 11X
35 - 16sp 9X 28sp 9X 3sp 2X
36 - 17sp 7X 29sp 13X
37 - 17sp 6X 31sp 5X 3sp 2X
38 - 16sp 7X 30sp 9X
39 - 14sp 8X 32sp 2X 2sp 2X
40 - 12sp 11X 31sp 1X 1sp 2X
41 - 8sp 1X 1sp 2X 4sp 1X 5sp 1X 31sp 2X
42 - 9sp 5X 2sp 1X 6sp 3X 26sp 3X
43 - 9sp 18X
44 - 12sp 2sp 15X 2sp 15X 2sp 14X 2sp 11X
DIRECTIONS: Go down 1 line from the top. Set the left margin at 1 1/2 and the right margin at 70.

<table>
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<tr>
<th>Line</th>
<th>Line</th>
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<tbody>
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<td>20 - 16sp 10X</td>
</tr>
<tr>
<td>2 - 32sp 10X</td>
<td>21 - 16sp 5AX</td>
</tr>
<tr>
<td>3 - 32sp 10X</td>
<td>22 - 16sp 46X</td>
</tr>
<tr>
<td>4 - 34sp 6X</td>
<td>23 - 13sp 6X</td>
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<tr>
<td>5 - 28sp 18X</td>
<td>24 - 13sp 66X</td>
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<tr>
<td>6 - 26sp 22X</td>
<td>25 - 13sp 10X</td>
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<tr>
<td>7 - 22sp 36X</td>
<td>26 - 13sp 10X</td>
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<tr>
<td>8 - 20sp 32X</td>
<td>27 - 1sp 10X</td>
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<tr>
<td>9 - 20sp 34X</td>
<td>28 - 1sp 10X</td>
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<tr>
<td>10 - 20sp 34X</td>
<td>29 - 1sp 10X</td>
</tr>
<tr>
<td>11 - 20sp 34X</td>
<td>30 - 1sp 10X</td>
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<td>13 - 20sp 34X</td>
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<td>14 - 20sp 34X</td>
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<td>19 - 18sp 38X</td>
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<td>39 - 1sp 10X</td>
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<td>21 - 18sp 38X</td>
<td>40 - 1sp 10X</td>
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<td>22 - 18sp 38X</td>
<td>41 - 1sp 10X</td>
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<td>23 - 18sp 38X</td>
<td>42 - 1sp 10X</td>
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<tr>
<td>24 - 16sp 42X</td>
<td>43 - 1sp 10X</td>
</tr>
<tr>
<td>25 - 16sp 42X</td>
<td>44 - 1sp 10X</td>
</tr>
</tbody>
</table>
SPIRIT MASTER OPERATION

OBJECTIVES:

After participating in this project, the pupils will be able to explain the process of duplicating materials in quantity and in color.

MATERIALS:

1 each of the purple, blue, red, green, and black master sheets; spirit master duplicating paper; a sharp semi-hard leaded pencil.

PROCEDURES:

1. Separate the top sheets from the inked back.
2. Trace the pattern on to this top sheet and go over it in pencil.
3. Place the top sheet on the inked back of the desired color (i.e., red).
4. Repeat this process with each color.
5. Place the master sheet in the duplicating machine (allow an adult to assist you) and make one copy for each person in the classroom.
6. Be sure to note that the ink appears to be entirely black, but changes colors as it is transferred to the paper.

Illustration #1
A - Purple
B - Blue
C - Red
D - Green
E - Black
A - Purple
B - Blue
C - Red
D - Green
E - Black
A - Purple
B - Blue
C - Red
D - Green
E - Black
HEALTH OCCUPATIONS

* Mrs. Dorris Dacius, Consultant, Health Occupations, Vocational Division
Mrs. Sara Brumley, Nursing Assistant, Instructor Adult Education Center
Mrs. Alva McCommon, Hospital Housekeeping Instructor, Adult Education Center
Mrs. Carleta Williams, Operating room Technician Instructor, Adult Education Center
Mr. Maurice Elliott, Assistant Administrator, Baptist Hospital,
Michael Farrish, Student, Cromwell Elementary

* Committee Chairman(s)
**DIAGNOSIS**

A boy gets an inside view of the health occupations when he is rushed to the hospital in a helicopter ambulance. During his stay, he observes the various workers and the instruments each uses. Their cooperation in making him well is also noted.

**PRELIMINARY EXAMINATION**

Children should be able to:

1. Name at least ten of the hospital personnel and the duties of each.
2. Explain how the people in the television lesson work together.
3. Recognize the surroundings in which the health occupations team works.

**ORAL MEDICATION**

<table>
<thead>
<tr>
<th>Terms</th>
<th>Attendant</th>
</tr>
</thead>
<tbody>
<tr>
<td>admission</td>
<td>circulating nurse</td>
</tr>
<tr>
<td>antidote</td>
<td>dietitian</td>
</tr>
<tr>
<td>gauze</td>
<td>doctor</td>
</tr>
<tr>
<td>microscope</td>
<td>food services worker</td>
</tr>
<tr>
<td>modified diet</td>
<td>hospital housekeeper</td>
</tr>
<tr>
<td>pulse</td>
<td>inhalation therapist</td>
</tr>
<tr>
<td>resuscitator</td>
<td>laboratory technician</td>
</tr>
<tr>
<td>scalpel</td>
<td>licensed practical nurse</td>
</tr>
<tr>
<td>scrubbing up</td>
<td>nursing assistant</td>
</tr>
<tr>
<td>shock</td>
<td>operating room technician</td>
</tr>
<tr>
<td>splint</td>
<td>registered nurse</td>
</tr>
<tr>
<td>stethoscope</td>
<td>scrub nurse</td>
</tr>
<tr>
<td>surgery</td>
<td>x-ray technician</td>
</tr>
</tbody>
</table>

**TREATMENT OF SYMPTOMS**

When shown a poster of a worker in health occupations, pupils should be able to: a) name him, b) describe generally the work he does, c) match him with pictures of the instruments he uses.

In a classroom discussion of the health occupations, the pupils should point out:

a) ways in which the personnel work together
b) working conditions in the hospital
c) differences in length of training for each position

**Books:**

- Elting, Mary. *The First Book of Nurses.*
- Hammond, Diana. *Let's Go To A Hospital.*
- Lerner, Margaret Rush, M.D. *Doctor's Tools.*

**Films:**

- "The Doctor" #18480
- "Health - You and Your Helper" #29020
- "Your Friend the Doctor" #77060
FURTHER THERAPY

1. Use the vocabulary words in the sentences of your own. Work on these in a group.
2. Work the science problem.
3. Language Arts: Put the list of vocabulary words in alphabetical order.
4. MATH - Learn to read both a Fahrenheit and a Centigrade thermometer.
5. LANGUAGE ARTS: Write in sequence the events which lead up to going to a hospital, have your tonsils removed, and going home. For example write the very first thing that happens next, and next, etc. See how many events you can include in your list. Maybe your teacher will let you work in groups on this activity.
6. LANGUAGE ARTS: Play What's My Name. Write the occupations shown on the film on slips of paper. Allow a student to select a slip of paper. The student will imitate the duties of the person on the slip of paper. The student who guesses the correct name gets to choose the next slip of paper and imitate the occupation.
VOCABULARY

Can you make a word from the scrambled letters? Make the right words and put it in the blank. Then the sentence will make sense and you will have a fact about someone in the cluster of health occupations.

OCCUPATIONS:

1. The (niporega omro echnniltac) ___________ ___________ works to get the operating room ready for surgery.

2. A patient is fed and bathed by the (iugnnsr stantssai) ___________.

3. A (aopshtli kpeeuesuroh) ___________ ___________ keeps the hospital rooms clean and sanitary.

4. The (teiditnia) ___________ sees that food trays are prepared for the patients.

5. One duty of the (urcscr sneur) ___________ ___________ is to help put gloves on the surgeon.

6. All the people in health occupations help the (toocrd) ___________ to make the patient well.

7. The (iiclracgtn ensru) ___________ ___________ keeps fresh supplies ready for the operating team.

8. A blood count is performed by the (brryloatao ttaasssin) ___________ ___________.

9. The (neieldsc ltpcaarci reusn) ___________ ___________ takes temperatures and gives shots.

10. The oxygen tent is adjusted by the (aaniihnito streiahpt) ___________ ___________.

11. A (gristeeedr esrun) ___________ ___________ must have three years of training after high school graduation.

12. In a hospital, the food for the patients is prepared and served by the (ofod resssive krorew) ___________ ___________.
The following words are hidden above. They may be backwards, forwards, diagonal or even diagonally backwards. See how many you can find. Circle the words as you find each one.

Nurse
Chart
Scapel
Microscope
Therapist
Technician
Hospital
Surgery
Doctor
Blood
Suture
Pulse

106
SCIENCE PROBLEM

Use the encyclopedia to color the red cell and the white cell.

RED BLOOD CELL

WHITE BLOOD CELL
BULLETIN BOARD IDEAS

1. Prepare a "I Can Help, Too" board. This may show tasks the students may perform in the home or in the neighborhood to aid in safety and health. The free forms on this page represent pictures the students cut out of magazines.

- Stay away from people when I have a cold.
- Keep knives and sharp objects put away.
- Store cleaning agents and poisons in safe places.
- Pick up objects which would trip you.
- Keep trash picked up.
- Keep matches put away.
- Wipe spills from floor.
- Keep stairways well lighted.
II. Keep a health chart for each child on the bulletin board so he can check it off each day.

Name ___________________________ Grade ______

School ___________________________ Age _______ sex ______

Today I have:

1. Had plenty of sleep
2. Eaten a nourishing breakfast
3. Brushed my teeth
4. Had plenty of exercise outdoors
5. Kept objects out of my mouth and ears
6. Washed my hands before meals
7. Eaten a nourishing lunch
8. Rinsed out my mouth after lunch
9. Tried not to spread germs when I'm sick
10. Controlled my temper when things didn't suit me
11. Tried to help and please people
12. Tried to make friends
LABORATORY ASSISTANT KIT

OBJECTIVE: The student should be able to adjust the microscope so that they can see the cells and describe them.

MATERIALS: L microscope, various slides of cells*, a pad of paper, pencil

PROCEDURE:

1. Show the students how to adjust the microscope.
2. Explain simply what the functions of the microscope are.
3. Allow the student to place the slide in the microscope and adjust it.
4. Let the student locate the cell and attempt to draw it on the sketch pad.
5. Repeat these steps for each student.

*You can make your own slide from stagnant water or on onion skin. For the onion skin, peel off the filmy layer which will fit under the microscope.
LICENSED PRACTICAL NURSE KIT

OBJECTIVE: The student should be able to take and to record temperature, to find and count the pulse, and to operate a stethoscope.

MATERIALS: alcohol, cotton balls, thermometer, stethoscope, blood pressure equipment

PROCEDURE:

1. To teach the students the vital signs (pulse, temperature, blood pressure.)

   **PULSE**

   a) To determine pulse rate, place the fingers of the right hand on the inside of the wrist of the left hand, slightly left center.

   b) Keep moving the fingers until a good strong pulse is located.
   c) Then count the number of pulse beats you have for 30 seconds.
   d) Multiply by 2 to find the pulse rate per minute.
   e) As a check, try counting the number of beats for 10 seconds.
   f) and multiply by 6 to determine the pulse rate.
   g) The average pulse rate is 60-80 beats per minute.
   h) Record your normal pulse rate.
   i) Now bend from the waist and touch your toes 10 times. Then count and record your pulse rate.
   j) What has happened? Why?

   **TEMPERATURE**

   a) Caution the students as to the fragile quality of the thermometer.
   b) Clean the bulb of the thermometer with a cotton ball moistened with alcohol.
TEMPEATURE

c) Shake the mercury down so a true reading is possible.

d) Place the bulb under the tongue and close the lips.
   DO NOT clamp the thermometer between the teeth.

e) Wait 3 minutes. Then take out the thermometer and
   find your temperature. Record it.

f) Most people have a normal temperature of 98.6 degrees
   but this varies with the individual.

g) Compare your temperature with those of the other students
   in our group.

h) Be sure to clean the thermometer with alcohol before using.

BLOOD PRESSURE

Must be done by the school nurse.

2. STETHOSCOPE

The stethoscope consists of two ear pieces attached to flexible
rubber tubes that lead to a cone, which is applied to the out-
side of the body in order for the doctor to listen to sounds
made by the heart, lungs, large blood vessels, and other inter-
nal organs.

Place the ear pieces of the stethoscope into place in the ears
(see drawing #1). Then place the cone (see drawing #1) against
your own (or someone else's) chest. See how easily you can
hear the heartbeat.
The same effect can be achieved by placing the open end of a glass tumbler against the chest and placing the ear against the closed end. (Drawing #2)

ILLUSTRATION #2

Experiment to see how much easier it is to hear the heartbeat with the stethoscope than it is with the tumbler. Drawing #3 will explain why.

Stethoscope has flexible rubber tubing which carries to sounds to examiner's ears.

ILLUSTRATION #3
3. BUILDING A STETHOSCOPE

Objectives: Following these instructions the students should be able to assemble a stethoscope and listen to heartbeats and pulses.

Materials: A Y-shaped glass tube (may be metal or plastic), a rubber tubing (about 36 inches - 18 inches for each ear), and a funnel.

Procedure:

1. Cut two 14 inch strips of rubber tubing, leaving an 8 inch strip

2. Attach the two 14 inch strips to the tops of the Y-shaped tube and the 8 inch strip to the bottom. Attach the plastic funnel to the bottom end of the 8 inch strip. Now the stethoscope is complete.
<table>
<thead>
<tr>
<th>LICENSED PRACTICAL NURSE KIT</th>
<th>LICENSED PRACTICAL NURSE KIT</th>
<th>LICENSED PRACTICAL NURSE KIT</th>
</tr>
</thead>
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<tr>
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<td>Grade ________ Sex ________</td>
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</tr>
<tr>
<td>Height ________ Weight ______</td>
<td>Height ________ Weight ______</td>
<td>Height ________ Weight ______</td>
</tr>
<tr>
<td>Normal Pulse _______________</td>
<td>Normal Pulse _______________</td>
<td>Normal Pulse _______________</td>
</tr>
<tr>
<td>Pulse after exercise ________</td>
<td>Pulse after exercise ________</td>
<td>Pulse after exercise ________</td>
</tr>
<tr>
<td>Temperature _________________</td>
<td>Temperature _________________</td>
<td>Temperature _________________</td>
</tr>
<tr>
<td>Blood pressure ______________</td>
<td>Blood pressure ______________</td>
<td>Blood pressure ______________</td>
</tr>
<tr>
<td>Heartbeat w/stethoscope _______</td>
<td>Heartbeat w/stethoscope _______</td>
<td>Heartbeat w/stethoscope _______</td>
</tr>
<tr>
<td>Heartbeat w/tumbler _________</td>
<td>Heartbeat w/tumbler _________</td>
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NURSING ASSISTANT

OBJECTIVES: After working with this project, the student should be able to distinguish between diets for certain patients; should be able to select food according to a menu; should be able to plan a well balanced meal.

MATERIALS: Food trays, food models*, napkins, flatware, straws

PROCEDURE: Use the food models and trays to prepare a food tray for each patient listed below:

A. **Patient #1** has had an appendectomy and is on a clear liquid diet.
   - **BREAKFAST:** strained orange juice, coffee, sugar
   - **SNACK:** strained lemonade (soft drink)
   - **LUNCH:** strained soup, strained grapefruit juice, tea, sugar
   - **SNACK:** ginger ale (soft drink)
   - **DINNER:** strained soup, raspberry gelatin, tea, sugar
   - **SNACK:** strained orange juice

B. **Patient #2** has had her tonsils removed. The doctor had ordered a regular liquid diet. Prepare the trays and put the nearest snack on it.
   - **BREAKFAST:** tomato juice, cream cooked farina cereal, cream, sugar, coffee
   - **SNACK:** milk
   - **LUNCH:** chowder, orange juice, vanilla ice cream
   - **SNACK:** chocolate malted milk
   - **DINNER:** stewed tomatoes, apple sauce, tea, sugar
   - **SNACK:** chocolate ice cream

C. **Patient #3** is in traction with a back injury. Normally he would have a regular diet, but he has ulcers. His doctor ordered a soft diet for him. Prepare his 3 trays.
   - **BREAKFAST:** tomato juice, cooked cereal, poached egg on toast, white toast, butter, coffee, milk, cream, sugar
LUNCH: tomato soup, whole wheat bread with butter, macaroni and cheese, broccoli, baked custard, milk

DINNER: sliced chicken, mashed potatoes, buttered cabbage, bread and butter, ice cream and sponge cake, milk

D. Patient #4 has a broken leg. His doctor has ordered a regular diet. Prepare the trays for him.

BREAKFAST: grapefruit, packaged cereal and milk, bacon, scrambled egg, jelly, toast/butter, cream, coffee, sugar, milk

LUNCH: vegetable soup/crackers, roast beef, cream peas, carrot and cottage cheese salad, corn muffins/butter, milk, tea, sugar, cherry cottage pudding with whipped cream.

DINNER: tossed green salad/french dressing, London broil meat patties, baked potato, string beans, rolls, with butter, milk, tea, sugar, apple pie with cheese.

NOTE: Food models may be obtained from the Memphis Dairy Council, or you may make your own by pasting magazine pictures on posterboard. It might be a good idea to arrange the foods together by type: for example - all beverages, all salads, all vegetables, all meats, all breads, all desserts.
| #1 Breakfast: strained orange juice, coffee, sugar | #3 Lunch: tomato soup, whole wheat bread with butter, macaroni & cheese, broccoli, baked custard, milk |
| Snack: strained lemonade, (soft drink) | |
| #2 Breakfast: tomato juice, cream cooked farina cereal, cream, sugar, coffee | #4 Lunch: vegetable soup/crackers, roast beef, cream peas, carrot and cottage cheese salad, corn muffins/butter, milk, tea, sugar, cherry cottage pudding with whipped cream |
| Snack: milk | |
| #3 Breakfast: tomato juice, cooked cereal, poached egg on toast, white toast, butter, coffee, milk, cream, sugar | #1 Dinner: strained soup, raspberry gelatin, tea, sugar |
| | Snack: strained orange juice |
| #4 Breakfast: grapefruit, packaged cereal and milk, bacon, scrambled egg, jelly, toast/butter, cream, coffee, sugar, milk | #2 Dinner: stewed tomatoes, apple sauce, tea, sugar |
| | Snack: chocolate ice cream |
| #1 Lunch: strained soup, strained grapefruit juice, tea, sugar | #3 Dinner: sliced chicken, mashed potatoes, buttered cabbage, bread and butter, ice cream and sponge cake, milk |
| Snack: Gingerale (soft drink) | |
| #2 Lunch: chowder, orange juice, vanilla ice cream | #4 Dinner: Tossed green salad with French dressing, London broil meat patties, baked potato, string beans, rolls/butter, milk, tea, sugar, apple pie with cheese |
| Snack: chocolate malted milk | |
OBJECTIVES:

After the project, the children should have a general knowledge of first aid rules. They should know how to use the lists given to them. They should know some of the four pressure points to stop bleeding. Using the guide, they should be able to bandage a finger, a knee, a hand, and an ankle.

MATERIALS:

List of first aid supplies, General Rules for First Aid, list of antidotes, guaze strips for bandaging, guaze squares for head bandaging, finger splints, arm splints.

PROCEDURES:

1. Go over the General Rules for First Aid. Discuss the points one by one.

2. Go over the list of supplies for making the student's own first aid kit. Discuss the use of each item.

3. Go over the list of antidotes. Discuss ways carelessness can lead to accidental poisoning. Why does each antidote work?

4. Looking at the instructions for bandaging, attempt to apply each bandage.

5. Using the charts for pressure points, helping the students locate these areas. Discuss what accidents might cause bleeding in these areas.
GENERAL RULES FOR FIRST AID

1. **Stay Calm**
   You cannot think clearly if you are excited. You may be the only one who can summon help or reassure the injured person.

2. **Analyze the Situation**
   Can you give the right kind of help to the injured person? If you can help him, begin at once. If you are not sure, DO NOTHING to the injured person. Call the police or the fire department at once.

3. **DO NOT MOVE THE VICTIM (unless absolutely necessary)**
   Move him only if he is in danger of further injury. If you must move him, do so gently and carefully.

4. **Keep the Victim Lying Down**
   The victim should not be allowed to sit up or to walk around. Talk to him calmly and do not allow other people to crowd about him.

5. **Examine the Victim**
   Remember he may have more than one injury. Try to stop any bleeding. If the person is unconscious, but has no sign of injury, have someone help you examine his identification. Many diabetics, heart patients, and other persons subject to sudden illness carry cards that give instructions for emergency care. Follow these instructions carefully.

6. **Cover the Victim**
   As soon as the bleeding has been stopped, cover the victim so he won't become chilled. Preserving body heat is important in preventing and treating shock.

7. **Call a Doctor**
   In the confusion and excitement after an accident, many times everyone assumes that someone else has called a doctor. Be sure that the ambulance has been called also. If you do not know how to contact a doctor, the telephone operator will help you. Be sure you can give clear directions on how to get to the scene of the accident.
FIRST AID KITS

There are many commercial first-aid kits on the market. However, many people prefer to make their own. Find a good sturdy box in which to collect the items usually needed for emergencies. Then put the box in place easy for you to reach.

The following list names the basic items needed for emergencies. Can you tell why each item is needed?

- Gauze Pads
- Scissors
- Tweezers
- Flashlight
- Medicine Dropper
- Tape
- Tourniquet
- Alcohol
- Cotton
- Soap
- Hot Water Bottle
ANTIDOTES FOR COMMON POISONS

The best antidote for poison is to prevent a person from taking it by keeping it out of his reach. Many items around the house can be harmful:

- aspirin
- sleeping pills
- kerosene
- any medicine not prescribed for you
- ammonia
- lye
- disinfectants
- insecticides
- weed killers
- garden sprays
- metal polish
- furniture polish
- dry cleaners
- bleaches
- moth balls
- rat poisons

If a person does take poison, there are general rules to follow for diluting the poison in his system. Speed is very important in poisoning accidents. Remember to:

1. GIVE THE VICTIM WATER OR MILK. This will dilute the poison. Adults should drink four or more glasses of liquid.

2. GIVE THE ANTIDOTE. This is printed on the label of the poison, or give the antidote in the table that follows. If you don't know an antidote for the poison, give the universal antidote: 1 part milk of magnesia; 1 part strong tea; 2 parts crumbled burned toast.

3. CALL A DOCTOR. Have someone call a doctor, while you give first-aid. If you are alone, call the doctor as soon as possible.

Tape the following list in a handy place. (Begins on page 2)
ANTIDOTE FOR COMMON POISONS

ACIDS, STRONG

Give water to dilute the acid. Then give baking soda solution, milk, egg white, olive oil, or salad oil to protect the lining of the digestive tract.

ALKALIES, STRONG (lye, ammonia)

Give orange or lemon juice, or a mixture of equal amounts of vinegar and water. Then give milk, egg white, olive oil, or salad oil to coat the digestive tract.

ARSENIC AND ARSENIC PREPARATIONS (rat poisons, insect spray)

Give water, then egg white and milk.

ASPIRIN

Give large amounts of water. Get the victim to a hospital as soon as possible.

BARBITURATES (drugs that induce sleep)

If the victim is conscious, give him large amounts of coffee. Try to make him walk. If the victim is unconscious, keep him warm and call a doctor at once. If breathing stops, give artificial respiration.

CARBOLIC ACID (phenol)

Give 1 tablespoon of Epsom Salt in a glass of water. DO NOT give milk, fats or oils.

GAS (Coal gas, cooking gas, carbon monoxide)

Give the victim fresh air. Begin artificial respiration.

IODINE

Mix starch or flour with water to make a thin paste. Give the victim several glassfuls of this mixture to drink.

MATCHES (phosphorus)

Give water. Do not give milk, fat, or oils.
MORPHINE AND OTHER OPIATES (codeine, paregoric)

Keep the victim awake. Wash his hands and face with cold water. Keep him moving about. Give him strong black coffee. If he is unconscious, keep him warm until a doctor arrives. Start artificial respiration if breathing stops.

POISONOUS MUSHROOMS (toadstools)

Give strong tea, then castor oil. Keep the victim warm and quite.

STRYCHNINE (rat poison)

Give the victim water or milk. Do not give stimulating drinks. Keep the victim warm and quite in a darkened room until a doctor arrives. Give artificial respiration if necessary.
Health Occupations
Project #4 (D)

BANDAGING

Choose one or all of the following injuries and practice bandaging them.

1. Pretend someone has a cut on his forearm. Follow the pictures and direction to bandage it.
   a) Use a roller bandage. Make one or two straight turns.

   [Diagram of hands with a roller bandage wrapped around the forearm]

   b) Then reverse the direction of the spiral on each turn.

   c) At the end, make one or two straight turns for anchorage.

   d) Split the end of the roller bandage for about ten inches and tie at the base with a half hitch.

   [Diagram of the end of the bandage with a half hitch]

   e) Bring the two ends around the bandage and tie with a square knot.

   [Diagram of the square knot being tied]

2. Someone has a head injury. Follow these steps to bandage his head:

1. A large triangle Bandage is useful as a head bandage. A two-inch fold is along the base of the bandage.
2. The bandage is placed on the victim's head with the apex (point at top) down the back of the neck and the two ends brought behind the head above the ear.
3. The ends are crossed and returned to the front.
4. The ends are tied with a square knot.
5. The apex is tucked in.
6. Appearance of the finished bandage from behind.
3. You have cut your finger. This is how to bandage it.

Run the bandage from the base over the tip back to the base of the finger several times. Wind the bandage around the finger to the tip and back to the base. Tie it at the base, or use adhesive tape.

4. Your best friend has injured his foot. Can you help him put a bandage on it.

Wrap the bandage around the instep, then up around the ankle. Wrap as many turns around the ankle as are needed and tape or tie the bandage.
5. Your knee is hurt. Bandage it.

To bandage a knee or elbow, bend the joint slightly. Anchor the bandage above the joint, winding it completely around. Then draw the bandage behind or to the side of the joint to a point below the injury. Continue to bandage by alternately winding the bandage first above, then below, the joint. This forms a herringbone design. Fasten the bandage in place securely but not tightly.

6. Someone has a finger injury. You think the finger may be broken. Put a splint on it to go to the doctor.

Popsicle stick is used to splint broken finger.
B L E E D I N G

Some injuries or wounds can result in a great loss of blood unless someone can stop the bleeding. It is good to know the pressure points and ways to stop bleeding.

The best way to stop bleeding is to apply direct pressure to the wound.

a) Use a thick compress of gauze or a gauze pad.

b) Apply direct pressure on and around the wound (or in the wound if it is very wide.) This will likely stop the bleeding.

c) The pressure must be constant. DO NOT lift the gauze every few minutes to see if the bleeding stops.

d) If blood soaks through the gauze pad, get a fresh one. If it does not soak through, then bind the gauze pad firmly over the wound while you go to a doctor.

e) Sometimes direct pressure will not stop the bleeding. Then you should apply pressure at the nearest pressure point.

Seven pressure points and the injuries causing the bleeding are found on the following page.
Pressure Points:

For bleeding around the mouth and nose, apply pressure on the facial artery passing over the jawbone.

The subclavian artery supplies the arm. Blood flowing to the arm may be controlled by pressing down behind the collarbone.

Scalp bleeding can be controlled by pressure in front of the ear.

Head and neck bleeding may be controlled by pressure on the common carotid artery in the neck.
Compress brachial artery against bone of upper arm to control bleeding from wound lower on arm.

Pressure on the two arteries of the wrist controls bleeding of the hand.

Bleeding from the leg can be controlled by deep pressure on the femoral artery high up in the groin.
MATCH THE TOOLS WITH THE WORKER

- Patient records
- Food tray
- Wheel chair
- Lambs wool
- Wash bowl
- Water bottle
- Cloth and towel
MATCH THE TOOLS WITH THE WORKER

- Stethoscope
- Bandages
- Blood pressure apparatus
- Scissors
- Syringe
- Thermometer
- Compress
MATCH THE WORKERS WITH THE TOOLS

Dust pan

Furniture duster

Linen Hamper

Wet mop

Wet mop pail

Floor dust mop
MATCH THE WORKERS WITH THE TOOLS

Centrifuge

Microscope

Contents of Centrifuge

Pipette

Reagent kits

Specimen tubes
Plasma preparing cups
Automatic pipette
Reaction cuvettes
Ultrafiltered reagents

Petri dishes
MATCH THE WORKERS WITH THE TOOLS

- Face mask
- Mayo table
- Surgical gloves
- Tonsil sponge
- Forceps
- Silicone sponge
- Needle
- Needle holder
- Hemostat
- Scalers
- Scrub brush
MATCH THE WORKERS WITH THE TOOLS
WHO MAKES OUR FURNITURE?

INDUSTRIAL OCCUPATIONS

Grades
4 5 6
ACKNOWLEDGEMENTS

MANUFACTURING OCCUPATIONS

*Mr. John R. Ralston, Jr., Consultant, Vocational Division

Mr. Jim Kern, Director of Personnel, Memphis Furniture and Manufacturing Company

Mr. Marshall Marcus, Job Placement Coordinator, Project SPAN

*Committee Chairman
LISTING OF INDUSTRIAL OCCUPATIONS

accountant
assembler
cashier
designer
draftsman
engineer
forklift operator
painter
inspector
loader

machine operator
machinist
painter
personnel director
production line workers
salesman
secretary
stapler
supervisor
upholstery seamstress
FIND THESE HIDDEN WORDS:

ART
CLAMP
DRILL
GLUER
NAIL
NUT
PLIERS
RAIL
SAW
SCREW
TOOL
WRENCH
See if you can decode the message below, using the number code.

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Write the message here:

Write the message here:
MATHEMATICS

The RCI television plant produces black and white, and color televisions. There are eight assembly lines at the plant. The following pie chart shows the percentage that is black and white and the percentage that is color.

25% B & W
75% COLOR

Problem #1
If RCI makes 1,000 television sets on Monday, how many are color and how many are black and white?

Problem #2
If RCI makes 2,500 televisions, how many are color and how many are black and white?
Industrial Occupations

SOCIAL STUDIES

In the last 75 years, the United States has become one of the largest industrialized countries in the world. One man is responsible for much of this rapid rise, his name was Henry Ford. Can you guess what Henry Ford made? Yes, he made cars.

Before Henry Ford made cars, everything was made as a whole unit. The parts that made one card would not fit another; each car was different from the others because of this. When Henry Ford began building cars, they were very expensive. It took many days to build a car and men who were skilled craftsmen. Henry Ford started building cars like that too, but decide that it was too slow and too expensive.

Henry Ford built a big factory and hired many unskilled men. He trained each man to do one thing. One man would put on a tire; one man would put on the steering wheel; one man would paint the car. Everyone had a job that was simple to do. Henry Ford put the heavy parts on metal hooks that moved along the line of men and in a matter of hours a car could be built.

Because Henry Ford's new assembly line was fast, he built many cars that were very inexpensive. Other car manufacturers began using Henry Ford's idea; soon the idea spread to other industries. Henry Ford's Assembly Line was soon used the world over.

Do you know what kind of car Henry Ford built?
CUTTING AND SEWING KIT

OBJECTIVE: Working with this project will allow the pupils to imitate the cutting and sewing procedures used by the industrial workers.

MATERIALS: A piece of felt (8"x10") for background of flag various pieces of felt in contrasting colors, pinking shears, needles, thread.

PROCEDURE:

1. Design the flag: do this on paper. Be sure you know exactly what you are going to cut before you cut it. (Use the encyclopedia for reference.)

2. With the pinking shears, cut a rectangle (8"x10") in the desired color for the background of the flag.

3. With the pinking shears, cut out the desired shapes and colors to sew (or glue) onto the background.

4. With a needle and thread stitch the shapes onto the background.

5. Pin the flags to the bulletin board.
XYLOPHONE

OBJECTIVE:
The students should be able to construct a working model of a xylophone from the material furnished.

MATERIALS:
12 pieces of 3/4 inch x 1 1/4 inch pine
50 inches roving
16 #14 wire brads
2 - 12 inch x 1/4 inch dowel
2 - 1 inch wooden breads
4 - 1 inch nails
2 - 1 1/4 inch nails
4 tacks

PROCEDURE:
On the 3/4 inch pine stock, mark off the following to be cut:
2 - 20 inches
1 - 7 1/2 inches
1 - 1 1/5 inches
1 - 12 inches Bar #1
1 - 11 1/2 inches Bar #2
1 - 11 inches Bar #3
1 - 10 3/4 inches Bar #4
1 - 10 1/2 inches Bar #5
1 - 9 3/4 inches Bar #6
1 - 9 1/4 inches Bar #7
1 - 1 inch Bar #8

Cut the twelve pieces being careful to follow your lines.

Find the 7 1/2 inch, 5 inch and two 20 inch pieces. Place the 20 inch pieces on edge, then mount the other two pieces flat, 16 inches apart as shown in the drawing.
With the pieces now in place, nail them together with the four 1 inch nails. The frame is finished; turn it over.

Cut the roving into two 23 inch pieces and lay it across the length of the 20 inch pieces of wood. Attach the pieces of roving to the ends using the four tacks. Make sure that the roving is tight.

Place the remaining eight bars on the frame. Beginning with the longest on the left, place the remaining according to size, 3/4 inches apart. Center the pieces so that they look like this drawing.

Where each bar rests on the frame, make a small mark in the bar's center. Removing them one at a time, drill an 1/8 inch hole at each mark and move them back into place. After all eight are drilled, take the 16 brads and tack them half way into the frame. (Not the rovings). Make sure that each bar is loose and free to vibrate.

Attach the wooden beads to each dowell with 1/4 inch nails and your mallet is also completed. You may decorate the mallet and the frame, but do not paint or shellac the eight bars as this will change their sound.
CLASSROOM NOTEBOARD

OBJECTIVE:

Using the material furnished in this kit, the students should be able to construct a simple wall note holder.

MATERIALS:

Wood 10"x12"
Clothespin
Glue
Assortment of sandpaper
Stain
Varnish

PROCEDURE:

Sand the wood piece until it has a smooth surface. Level the sides using the course sandpaper and then smooth them using the fine sandpaper.

Mix an equal amount of resin and hardener and apply it to the clothespin. Mount the clothespin centered at the top and hold for two minutes. Do not disturb this for 24 hours.

Stain the board using a rag and stain. After the stain is wiped dry, apply a thin coat of varnish. Let this dry for 24 hours before using.
Mrs. Gilbert Gordon School

Thank you for letting me use your class and your students last month. I will bring you copies as soon as I have the pictures made.

Sincerely,
Jerry Turpin
Project SPAN
GAMES

OBJECTIVES:

Following the instructions in this project will allow the students to demonstrate the principles behind the assembly line.

MATERIALS:

- 2"x6"x'ocks of wood, cross cut from pint 2"x6"
- ¼" wood dowel, 5 foot length
- blue enamel paint
- red enamel paint
- hand tools
- sandpaper

PROCEDURE:

1. Divide the class into six groups.
   - Group #1 - sanders
   - Group #2 - layout designers
   - Group #3 - drillers
   - Group #4 - dowell cutters
   - Group #5 - red painters
   - Group #6 - blue painters

2. Group #1 takes the blocks and sands the top and bottom and bevels the edges.

3. Group #2 used the template and marks where each hole will be drilled in the block. Group #2 also marks off fifty (50) pieces of the ¼" dowel.

4. Group #3 drills eleven (11) holes in the blocks where the layout designers marked.

5. Group #4 cuts the dowels where they are marked.

6. Group #5 takes half of the cut dowels and dip the tips into the red paint.
Industrial Occupations
Project #4
(continued)

7. Group #6 takes half of the cut dowels and dips the tips into the blue paint.

8. The finished game board looks like this:

```
  ●  ●  ●  ●  ●  ●  ●  ●  ●  ●
```

9. The object of the game is to move the red pieces into the places occupied by the blue pegs and move the blue pieces into the places occupied by the red pegs.

10. You may jump any piece (but only one at a time) or you may move one space forward. You may never move backwards.
Another game has fifteen holes arranged in the shape of a triangle. Fourteen pegs are placed in the holes, one hole being left empty.

The object of the game is to jump the pegs, as in checkers and remove those pegs that are jumped. See how many are left.
TOOLS

SPRING

FURNITURE LEGS
AND ATTACHMENT PLATE

DECORATIVE TACKS

SEWING NEEDLE

UPHOLSTERY PIN

CURVED NEEDLE
ACKNOWLEDGEMENTS

TRANSPORTATION OCCUPATIONS

Mr. James Marsh, Assistant Director, Vocational

Mrs. Avis Pentecost, Elementary Instructional Consultant, Southwest Area

Mrs. Odessa W. Myers, Secondary Instructional Consultant, Southwest Area

Mrs. Charline May, Textbook Secretary, Instructional Division, Memphis City Schools

Mr. Richard A. Castillon, Assistant Director, Memphis Area Vocational-Technical School

Mr. Chester R. Figiel, Assistant Director, Aviation, Memphis Area

*Committee Chairman(s)
Children wondering about the cluster of workers in the transportation field observe people in the transportation industry performing their various duties. The Railroad, Airplane, Barge lines and Truck lines are studied.

1. List all the workers in the film and describe the work each one was doing.

2. Point out the actions which show or tell how the people feel about their work.

3. Explain ways in which people in the film work together.

When show a picture from this teacher's guide of a transportation worker, pupils should be able to:

a) name him, b) describe the work he does, c) be able to locate further information about this worker.
SCHEDULE FOR CLASS WORK

Have the children

1. Discuss "licensed to Drive"

2. LANGUAGE ARTS: Write a short story about a talking train, bus, train, or airplane.

3. Work the puzzle on page 7.

4. SOCIAL STUDIES: Compare the means of transportation now as opposed to 100 years ago.

5. MATHEMATICS: Work the math problems on pages 5 and 6, then make up some of your own.

6. Use any or all of the four building projects included. Obtaining materials for these projects is left up to the resourcefulness of the individual teacher.

HIGHWAY BILLBOARDS

1. Transportation - America's Inland waterways
   Bd of Ed #68200

2. Transportation - Footpath to Air line
   Bd of Ed #68220

3. Transportation by Land
   Bd of Ed #68260

4. Transportation in the Modern World
   Bd. of Ed. #68300
TRUCK DRIVER'S DICTIONARY

BAREBACK: Tractor without its semi-trailer.

BOLOGNAS: Tires

DUSTING: Car or truck moving with one wheel off the pavement and throwing up a cloud of dust.
LOAD OF POST HOLES: Empty Truck.

POTS: Flares placed on a highway to warn other motorists of danger.

YARD MULE: Small tractor used to move semi-trailers around at a truck terminal yard.
PUSH WATER: Gasoline.

THE HOUND: Greyhound Bus.

PEANUT WAGON: Small tractor pulling a large trailer.

PEACH PICKER: A very high cab-over-engine tractor.
Draw a map of Memphis on butcher paper (make it at least 3 feet square, and larger if possible). Be sure to include the river, the airport, the expressway, major railroads, and some of the main streets of Memphis. (Maps may be obtained from local service stations.

Cut out pictures pertaining to transportation: cars, buses, airplanes, trains, trucks, barges, boats, docks, terminals, freight yard, etc. Glue these pictures in the approximate location on the map.
LANGUAGE ARTS

Write a short poem about your favorite transportation worker or your favorite means of transportation. Illustrate it (draw pictures and color them).

Read the poems to your classmates and then place them in your scrapbook.
MATH PROBLEM

A. Hank Cooper drives a truck for the Samson Mattress Company in Memphis. He delivers mattresses all over the country. Last week, he worked locally. Hank is paid 10¢ for every mile he drives in Memphis; so he keeps up with his mileage. To do this he records his speedometer reading at the start of the day and again at the end of the day. When he subtracts, he knows how many miles he has traveled that day. He multiplies the number of miles by 10¢ to find how much money he will receive. Let's figure his wages for delivering mattresses in Memphis.

<table>
<thead>
<tr>
<th>DAY</th>
<th>READING AT START OF THE DAY</th>
<th>READING AT END OF THE DAY</th>
<th>MILEAGE PER DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>05290</td>
<td>05444</td>
<td>154</td>
</tr>
<tr>
<td>Tuesday</td>
<td>05444</td>
<td>05580</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>05580</td>
<td>05763</td>
<td></td>
</tr>
<tr>
<td>Thursday</td>
<td>05763</td>
<td>05905</td>
<td></td>
</tr>
<tr>
<td>Friday</td>
<td>05905</td>
<td>06067</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL MILES FOR WEEK

MULTIPLIED BY 10¢ PER MILE x $ .10

TOTAL MILEAGE ALLOWANCE

B. One week Hank had to deliver mattresses out of town. The company pays him 13¢ a mile for these deliveries. Use a map of Tennessee to figure his mileage each day. Then multiply the total by 13¢ to tell Hank's weekly travel allowance.

<table>
<thead>
<tr>
<th>DAY</th>
<th>START</th>
<th>DESTINATION</th>
<th>MILES PER DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Memphis</td>
<td>Chattanooga</td>
<td></td>
</tr>
<tr>
<td>Tuesday</td>
<td>Chattanooga</td>
<td>Johnson City</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>Johnson City</td>
<td>Murfreesboro</td>
<td></td>
</tr>
<tr>
<td>Thursday</td>
<td>Murfreesboro</td>
<td>Paducah, Ky.</td>
<td></td>
</tr>
<tr>
<td>Friday</td>
<td>Paducah, Ky.</td>
<td>Memphis</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL WEEKLY MILES

MULTIPLIED BY 13¢ PER MILE x $ .13

TOTAL MILEAGE ALLOWANCE

186
C. Sometimes Hank makes long distance deliveries. Last week the company sent him to Seattle, Washington. For these trips he makes 15¢ a mile travel allowance. Use an Atlas, or a map of the United States to find the shortest route. Fill in the chart as you did for problem B. Hank can travel about 500 miles a day.

<table>
<thead>
<tr>
<th>DAY</th>
<th>START</th>
<th>DESIGNATION</th>
<th>MILES PER DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Memphis, Tenn.</td>
<td>Seattle, Wash.</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL MILES FOR THE TRIP
MULTIPLIED BY 15¢ PER MILE X $ .15
TOTAL MILEAGE ALLOWANCE
THE GAME OF TRANSPORTATION

2-4 Players

Each player spins the dial; the one with the highest number moves first and goes by truck to St. Louis. The next highest goes by airplane to Chicago, the next by railroad to Atlanta, the lowest by barge to New Orleans.

START - Each player starts on the dock. The player going to St. Louis begins by spinning. He moves the number of spaces shown on the spinner.

BUMPING - Any time you land on a spot occupied by another player, he must go back to the dock. You can only bump on the first 7 spaces.

DISASTER - There are 7 Disaster Blocks on each route. If you land on one, draw a Disaster Card from the stack and follow the direction.

FREE - There are 5 free spaces on each route. They are used only when 5-8 are playing. You may not bump a player on a Free space.

OBJECT - To deliver your freight to your city first.

4-8 Players

The same rules apply except that two players may go to the destination and you may bump anyone during the entire game.
Project Number 1

DISPATCHER KIT

OBJECTIVES:

This project will give the child the opportunity to observe a two-way radio and to build his own model of one. He will be given the opportunity to simulate the work of a freight dispatcher.

MATERIALS:

2 baking powder cans with tops off, 2 large nails, 50 feet of single strand wire

PROCEDURE:

1. Punch a hole big enough for the wire to go through in the middle of the end of each can. Push the ends of the wire through the holes up into the cans. Fasten these to a nail. Your phone will look like this:

2. Dispatcher stands in one room and the truck drivers stand in another room. Keep the wire tight between you and speak loudly into the can. The can is the mouthpiece for listening and talking. Be sure to speak clearly.

3. Dispatcher gives the orders for deliveries and the other students take turns filling the orders. (Example: Dispatcher: "Bring 5 tons of coal to the warehouse." Driver then looks through the papers until he finds the one marked 5 tons of coal. He takes this to the dispatcher, who checks to see if that was his message.)

4. Rotate so that each child has a turn being the dispatcher.
<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>DRIVER'S NAME</th>
<th>DELIVERY DESCRIPTION</th>
<th>DATE DELIVERED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DELIVERY DESCRIPTION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500 bushels of oranges</td>
<td>15 tons of seedless grapes</td>
<td>28 bales of cotton</td>
<td></td>
</tr>
<tr>
<td>400 crates of strawberries</td>
<td>50 boxes of gift wrapping</td>
<td>63 cases of cooking oil</td>
<td></td>
</tr>
<tr>
<td>8 yards of concrete</td>
<td>2 tons concrete blocks</td>
<td>26 cartons paper bags</td>
<td></td>
</tr>
<tr>
<td>7500 glass bottles</td>
<td>65 barrels of oil</td>
<td>275 bolts of cloth</td>
<td></td>
</tr>
<tr>
<td>32 tons of bricks</td>
<td>1300 gallons of milk</td>
<td>5000 gallons of gasoline</td>
<td></td>
</tr>
<tr>
<td>1260 boy's bicycles</td>
<td>10,000 math books</td>
<td>327 color television sets</td>
<td></td>
</tr>
<tr>
<td><strong>DELIVERY DESCRIPTION</strong></td>
<td><strong>2700 cases of ball point pens</strong></td>
<td><strong>960 pairs of shoes</strong></td>
<td><strong>360 surf boards</strong></td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>-----------------------------------</td>
<td>------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td><strong>50 head of cattle</strong></td>
<td><strong>400 bushels of corn</strong></td>
<td><strong>50 tons of wheat</strong></td>
<td></td>
</tr>
<tr>
<td><strong>8 new cars</strong></td>
<td><strong>2 loads of household furniture</strong></td>
<td><strong>200 tons of steel</strong></td>
<td></td>
</tr>
<tr>
<td><strong>6 jet engines</strong></td>
<td><strong>60 bags of mail</strong></td>
<td><strong>2500 gallons of paint</strong></td>
<td></td>
</tr>
<tr>
<td><strong>4280 board feet of lumber</strong></td>
<td><strong>850 cartons of shingles</strong></td>
<td><strong>3 trees, 42 shrubs and 350 potted plants</strong></td>
<td></td>
</tr>
</tbody>
</table>
Transportation Occupations
Project #1
(continued)

<table>
<thead>
<tr>
<th>365 reams of paper</th>
<th>18 dining room tables</th>
<th>1 load of assorted toys</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 tons of gravel</td>
<td>2000 chickens</td>
<td>850 frozen pies</td>
</tr>
<tr>
<td>3 truck loads of farm equipment</td>
<td>920 heads of lettuce</td>
<td>425 dozen eggs</td>
</tr>
</tbody>
</table>
PAPER AIRPLANE C'EST

OBJECTIVES:

The student should be able to utilize creativity and ingenuity in constructing a paper airplane (or a boat) in competition with other students in the class. This activity will help to develop his ability to follow instructions and will give him the opportunity to examine objects that glide on air and float on water.

MATERIALS:

Sheets of notebook paper or white typing paper, 8½" x 11".

PROCEDURE:

A. Jet Plane:

1. Fold the paper in half to form a rectangle:

   ![Figure 1](image1)

   Figure 1

2. Open your paper and bring A to center fold and crease.

   ![Figure 2](image2)

   Figure 2
3. Bring B to center fold and crease. Now bring D over to the center fold and crease on line *- E. 

Figure 3

4. Bring G over to center fold and crease on line C - F. 

Figure 4

5. Your shape now looks like this. Leave it in this position.

Figure 5
6. Fold along line C - H so that E falls on F.

7. Place your shape in position shown in the figure below. Bring E down to H so edges meet. Crease along line C - I. Turn over. Fold top edge to bottom edge in the same way.
B. Sailboat:

1. Fold your paper to this shape:

2. Now pick up A and bring it up to where it meets B - D. Crease on G - H. Fold G - H up and crease on line E
3. Fold E-G up and crease on line G-H.

Figure 10

FINISHED BOAT
TRANSPORTATION OCCUPATIONS
Project #3

ELECTRIC MOTOR KIT

OBJECTIVES:

Using this kit, the students should be able to demonstrate the fundamental concepts of electric motors.

PROCEDURE:

1. Mount the 4 inch strip of metal on the breadboard using two 1/4 inch bolts and four nuts and washers as shown in the illustration.

2. Mount one short bolt as the brush support.

3. Begin wrapping the electro-magnets. Strip one end and begin winding the first coil. Wind 150 turns on one bolt and wind 150 turns, in the opposite direction, on the other bolt. Cut the wire and clean the ends.

4. Form the six inch strap like this:

5. Mount the strap so that the top dimple is above the bottom dimple.

6. Place the armature in the dimples and adjust the strap until the armature spins freely when struck.

7. With a 6 inch piece of cleaned wire, wrap one end around the support and place the other end so that it just touches the armature on the part of its spin.
8. Attach a wire from the negative (-) terminal to the support then attach the end of the wire coming from the second coil to the positive (+) side of another battery.

9. Connect the two remaining battery terminals together and give the armature a spin. It should continue to turn until the battery is disconnected.
DOCKMAN OR FREIGHT LOADER

OBJECTIVES:

This lesson should show the child how machines help to move great weights. After working with pulleys, levers, and inclined planes, the children should be able to demonstrate how a worker is able to lift heavy materials with very little effort.

PROCEDURE:

A. Inclined Plane:

1. First, stack one of the concrete blocks on top of the other. Now hook the spring scale onto the skate. Life the skate slowly until it is as high as the stack of concrete blocks. (Figure 1)
Look at the spring scale to see how much force it took to lift the skate straight up. (Figure 2)

Record the method and the amount of force on your form. (Figure 3)

<table>
<thead>
<tr>
<th>HOW THE SKATE WAS MOVED</th>
<th>FORCE</th>
<th>DISTANCE</th>
<th>WORK DONE (force x distance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifted straight up from the floor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulled up the 2 foot board</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. Next, place the 2-foot board so that it rests against the top of the concrete blocks. This board is an inclined plane because it slopes up from the floor to the top of the blocks. Now pull the skate up the board with the spring scale. (Figure 4) How much force does it take? Record it on your form. (See Figure 3)

3. Repeat this procedure with the 3-foot and the 4-foot board. Record your information on the form. Compare the force required to lift the skate by each method.

Does the inclined plane make the job of getting the skate to the top of the blocks easier? How? What difference does the length of the board make?

Can you think of some inclined planes you use every day? (i.e. stairs)

B. Levers:

1. First have the children attempt to lift a concrete block straight up. Now let them lift it with a lever. Make the lever by placing the 4-foot board over a brick set on its side. Place the concrete block on one end of the board. (The one with the restraint rim) and allow the child to push down on the other end. Experiment with lengthening and shortening the distance from the block to the fulcrum. (Figure 5)
2. Now experiment with lifting the block using the 6 foot board. What differences do you find?

Try lifting 2 of the concrete blocks in this same manner. Can you think of some levers you use every day? (i.e. seesaw, a car jack)

C. Pulleys:

1. Set up the pulley to lift the concrete block. Attach one end of the heavy duty cord to the block and the other end to the spring scale. (Figure 6)
2. Pull the scale with the cord attached until the concrete block is lifted off the floor. How much force does it take?

3. Be sure to note the amount of string pulled down in comparison to how high the block goes up. What are some pulleys you have seen? (i.e. water buckets in wells, painter's scaffolds, revolving clothes lines).
<table>
<thead>
<tr>
<th>HOW THE SKATE WAS MOVED</th>
<th>FORCE</th>
<th>DISTANCE</th>
<th>WORK DONE (Multiply Force by Distance)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following pages are to be used with the Game of Transportation on pages 48 and 49. After you have constructed your own game board, cut the pages that follow into cards. Make sure you keep the Disaster Cards (D. C.) separated according to the various means of transportation:

- BARGE LINES
- AIR LINES
- RAILROADS
- TRUCK LINES
BARGE LINE
Man over board--go back 2 spaces

BARGE LINE
Loaders did a fast job--take an extra turn.

BARGE LINE
Swift river currents slow the upriver trip--lose 1 turn

BARGE LINE
Heavy load slows the barge--go back 2 spaces

BARGE LINE
Swift river currents speed up the downriver trip--take an extra turn.

BARGE LINE
Dock laborers or strike--go back 1 space

BARGE LINE
Take your normal turn.
AIR LINES
Take your normal turn.

AIR LINES
Bad weather ahead—
go back 2 spaces.

AIR LINES
Fog covers the airport--
go back 2 spaces.

AIR LINES
Forgot the cargo--go back 3 spaces.

AIR LINES
Pilots on strike--lose
one turn.

AIR LINES
Plane is hijacked to Cuba--
lose one turn.

AIR LINES
Hijacker captured--go ahead
two spaces.

AIR LINES
Air plane arrives ahead of
schedule--take an extra turn.

AIR LINES
Air plane develops trouble in
an engine--lose one turn.

AIR LINES
Take your normal turn.
BARGE LINE

Man over board--go back 2 spaces

BARGE LINE

Loaders did a fast job--take an extra turn.

BARGE LINE

Fog covers the river--lose one turn.

BARGE LINE

Barge strikes a small boat--lose one turn.

BARGE LINE

Traveling down stream--take an extra turn.

BARGE LINE

Barge is lost in the fog--lose one turn.

BARGE LINE

Take your normal turn.

BARGE LINE

Captain takes the wrong turn--go back 3 spaces.

BARGE LINE

Take your normal turn.

BARGE LINE

Making good time today--take an extra turn.
RAILROAD
Bridge out lose next turn.

RAILROAD
Everything is fine -- take your normal turn.

RAILROAD
An extra engine is pulling freight -- take and extra turn.

RAILROAD
Tracks ahead are clear -- go ahead 2 spaces.

RAILROAD
Train gets late start -- lose 1 turn.

RAILROAD
Diesel engine develops trouble -- go back 2 spaces.

RAILROAD
Rocks ahead on the tracks -- go back 2 spaces.

RAILROAD
Train wreck ahead -- lose 1 turn.

RAILROAD
Extra cars added, go back 1 space.

RAILROAD
Rails out ahead -- go back 2 spaces.
AIR LINES

Good tail wind--go ahead 
2 spaces.

RAILROAD

Bridge out ahead--go back 2 spaces

AIR LINES

Number one engine fails-- 
lose 1 turn.

RAILROAD

Conductor lets passengers off-- 
lose 1 turn.

AIR LINES

Take your normal turn

RAILROAD

Train slows for curve--lose 1 turn

AIR LINES

Air lines add a new jet-- 
take an extra turn

RAILROAD

Train is derailed--lose 1 turn

AIR LINES

Fog delays take off-- 
lose 1 turn

RAILROAD

Train pulls onto siding--lose 
one turn
TRUCK LINES
Detour ahead--go back 1 space

RAILROAD
Tracks ahead are clear--go ahead 2 spaces

TRUCK LINES
Bridge is washed out--go back 2 spaces

RAILROAD
No traffic on the tracks--take extra turn

TRUCK LINES
Wreck ahead blocks traffic--go back 2 spaces

RAILROAD
Take your normal turn.

TRUCK LINES
Truck returns to terminal for repairs--lose 1 turn

RAILROAD
Take your normal turn.

TRUCK LINES
Take your normal turn

RAILROAD
Take your normal turn
BARGE LINE

Take your normal turn.

TRUCK LINES

Driver stops for lunch--lose 1 turn.

BARGE LINE

Barge making good time--take an extra turn.

TRUCK LINES

Driver stops to check brakes--lose 1 turn.

BARGE LINE

Three barges removed from tow--go ahead 2 spaces.

TRUCK LINES

Brakes work fine--take an extra turn.

BARGE LINE

Barge is making slow progress--lose one turn.

TRUCK LINES

Speed limit 80--go ahead 3 spaces.

BARGE LINE

Radio operator receives new instructions--lose one turn.

TRUCK LINES

Truck runs out of fuel--lose 1 turn.
TRUCK LINES
Speed zone ahead--go back one space.

TRUCK LINES
Loading takes too long--lose 1 turn.

TRUCK LINES
Truck used 2 drivers--take an extra turn.

TRUCK LINES
Take your normal turn.

TRUCK LINES
Truckleaders finished early--take an extra turn.

TRUCK LINES
New highway finished--go ahead spaces.

TRUCK LINES
Truck has flat tire--lose 1 turn.

TRUCK LINES
Take your normal turn.

TRUCK LINES
Truck stops for a rest period--lose 1 turn.

TRUCK LINES
Truck stops at a weight station--lose 1 turn.
WHO GIVES US SERVICE?

PERSONAL AND PUBLIC SERVICES

Grades
4 5 5
ACKNOWLEDGMENTS

PUBLIC AND PERSONAL SERVICES OCCUPATIONS

* Mr. Jerry Turpin, SPAN Project, Elementary Curriculum Specialist
  Mr. Steve West, Moler Barber College
  Mrs. Ola Mae Miller, Cosmetology Teacher, Northside High School
  Mr. Henry Lux, Memphis Police Department
  Mrs. Barbara DeLee, Secretary, SPAN Project

* Committee Chairman
SERVICES

POLICE PROTECTION

WEATHER BUREAU

POSTAL SERVICE

FIRE PROTECTION

BEAUTICIAN

BARBERS
MUG - SHOTS

Police and fire protection are two of the many services that the local, state and Federal governments give to their citizens.

In this film, we see these two plus the postal services, weather bureau, barber and the beautician.

LINE UP
ax
arrest
barber
beautician
chief
clippers
comb
detective
fireman
hook and ladder truck
hose
investigate
ladder
patrol car
policeman
policewoman
pumper
scissors
shampoo

TESTIMONY
"Mail Delivery" 107
"Helping the Healing Hands" 213
"At Your Service" 210
"The Badge"
"Weather for the Beginner"
"Fireman on Guard"

SEARCH WARRANT

After viewing this film, the pupils should be able to:

1. name at least six people who give services to us.

2. Describe what each of the six does.

3. Describe the types of surroundings in which the worker is employed.
CROSSWORD PUZZLE

Across
1. He protects us.
2. The fireman uses a ______.
3. He puts out fires.

Down
1. She helps women look pretty.
2. He cuts men's hair ______.
3. The barber uses ______ to cut hair.
Write a story about one of the characters from the television lesson. The boys may write about what the male barber, meteorologist, cosmotologist, postal employee, police officer, or fire fighter does after he leaves work. The girls may write about the female counterparts.
MATHEMATICS

Cut out the weather column from the newspaper for 5 days in a row. Then find the average high temperature and average low temperature for the week.

How to find the average:

I. Find the sum of the five numbers below.

| 58 | 72 | 59 | 61 | 63 |

II. Divide the sum by the five. This is the average.
SCIENCE

Show how clouds form by filling the bottom of a milk bottle with hot water, then placing ice cubes at the mouth of the bottle. The clouds will form in the area above the water as the moisture evaporates and condenses to form fog and clouds.
SOCIAL STUDIES

Draw an outline map of the United States. Call the U.S. Weather Bureau (332-8102) and write down the temperatures for the cities across the country. Write these temperatures for the following cities: New York, San Francisco, Memphis, Atlanta, Chicago, Anchorage, Alaska.
ART

Make a collage of pictures showing all the people who give services in your neighborhood.
U F A T H E R M A N

OBJECTIVE:

The children will be able to predict when rain is approaching.

MATERIALS:

A wide mouthed bottle, a saucer, strips of paper, scotch tape.

PROCEDURE:

1. Fill the bottle half way full of water.

2. Place a saucer over the mouth of the bottle so that the underside of the saucer is on top. Now turn the whole thing upside down, holding the saucer tightly against the bottle. Put a little water in the saucer.

3. Make a scale for the outside of the bottle. Use a ruler to mark inches and half inches on a strip of paper. Tape this scale on the bottle.

4. When a high pressure area or good weather is approaching the water will rise on the scale.

5. When rain, or a low-pressure area, is approaching, the water will fall.

6. Your barometer will look like this:
FBI KIT

OBJECTIVES:

The children will be able to compare their fingerprints to those of other people in the class and to identify their prints according to pattern.

MATERIALS:

The fingerprint pattern, the personal identification form

PROCEDURE:

1. Have each child fill in the information on the form.
2. Press each finger individually on the ink pad and then carefully press it onto the form in the appropriate place.
3. Wipe the fingers carefully and then press it onto the form in the appropriate place.
4. The children can compare the patterns of swirls in the fingerprints with those of the other children. Also they can write the classifications of patterns under the prints. (The eight basic fingerprint patterns are shown below).
**PERSONAL IDENTIFICATION**

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Middle Name</th>
<th>Sex</th>
<th>Height</th>
<th>Weight</th>
<th>Hair</th>
<th>Eyes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Residence</th>
<th>Date Fingerprinted</th>
<th>Place of Birth</th>
<th>Date of Birth</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1. Right thumb</th>
<th>2. Right index</th>
<th>3. Right middle</th>
<th>4. Right ring</th>
<th>5. Right little</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Left four fingers taken simultaneously**

<table>
<thead>
<tr>
<th>Left thumb</th>
<th>Right four fingers taken simultaneously</th>
<th>Right thumb</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

213
There are only eight basic fingerprint patterns. The eight patterns are shown below. The FBI uses these patterns to classify and file fingerprints.

Plain Arch
Tented Arch
Plain Whorl
Loop
Loop
Central Pocket Loop
Double Loop
Accidental

Compare your fingerprints with the patterns. Try to decide which patterns your prints are like.
**HOUSEHOLD LEDGER**

**OBJECTIVES:**

Using this kit, the students should be able to apply his knowledge of math to household budget and the necessary forms.

**MATERIALS:**

Banking forms  
Monthly household ledger

**PROCEDURES:**

Have each student begin on April 1st. Under the $200.00, subtract every time money is spent and add every time money is received. Each time money is spent, make a check for the correct amount. Fill in a savings account deposit slip. Try to determine how much money is left at the end of the month.

<table>
<thead>
<tr>
<th>Date</th>
<th>Transaction</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 1</td>
<td>Payday</td>
<td>$200.00</td>
</tr>
<tr>
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POST OFFICE

OBJECTIVES:

Participating in this project will allow students to simulate the sorting process used in some post offices.

MATERIALS:

15 wooden (24) coke cases
name plates

PROCEDURE:

1. Label each opening of one coke case with the names only of the 24 largest cities in the United States (alphabetized). Label each opening of the second case with the zip codes of the cities as well as the names (Numerical order).

2. Allow the students to take turns sorting and placing the letters in the appropriate slots.
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<td>Mrs. Bunny Bellows</td>
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| Mr. Harold McKee             | Miss Frances Coleman |
| 4837 Summerlane              | 16 N. Ashlawn |
| Washington, D. C. 20288      | Washington, D. C. 20285 |

| Mrs. Glenda Taylor           | Mrs. Adele Pope |
| 63 N. Oak Grove Road         | 1253 Barksdale |
| Washington, D. C. 20277      | Washington, D. C. 20277 |

| Mrs. Dorothy Polk            | Mr. Odis Armstrong |
| 2322 Silver                  | 2024 Keltner |
| Washington, D. C. 20244      | Washington, D. C. 20244 |

| Miss Earlene Price           |                         |
| 684 Kenosha                  |                         |
| Washington, D. C. 20233      |                         |

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| 25 N. Century               |                         |
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<td>Mr. Sam Battle</td>
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<td>Mr. Dan Dailey</td>
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<td>385 McFarland Drive</td>
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<td>Mr. Taylor Caldwell</td>
<td>81 S. Parkway</td>
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<tr>
<td>Miss Ethel Homes</td>
<td>1862 Keltner</td>
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<tr>
<td>Mrs. Dorothy Melton</td>
<td>1799 Westmore</td>
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WHO FEEDS US?

A TEACHER'S GUIDE
TO
CONSUMER AND HOMEMAKING
RELATED OCCUPATIONS

Grades 4 5 6
ACKNOWLEDGMENTS

CONSUMER AND HOMEMAKING - RELATED OCCUPATIONS

*Miss Francis Gandy, Consultant, Home Economics, Memphis City Schools

Mrs. Mildred Blaine, Manager, Union Planters' Bank Dining Room

Mr. Joseph McDonald, Commercial Foods Teacher, Northside High School

Miss Sarah L. McNairy, Teacher, Caldwell Elementary School

Mrs. Daisy Jarrell, Guidance Counselor, Messick High School

Mrs. Grace Williams, Junior High Curriculum Specialist, Project SPAN

Mrs. Odessa Meyers, Secondary Instructional Consultant, Southwest Area

*Committee Chairman
WAYE PLANNING

After a game of baseball in the park, two boys hungrily dream about the different places there are to eat and how it would feel to eat at them. Workers in the various surroundings are shows, and comparisons can be made by the students.

WHO FEEDS US?

CHUCK WAGON

After viewing this film, the students should be able to:

1. Name at least five of the workers in a restaurant or cafeteria.
2. Explain how the people in a restaurant help each other.
3. Describe the surroundings that a food service worker works in.

DESSERTS

16mm films available from Memphis City School, board of education. "Bakery Beat" "Bread" "Clothes We Wear"
TOSSED SALAD OF VOCABULARY

WAITER
WAITRESS
DISHWASHER
CASHIER
MANAGER
CHEF
MAITRE D'HOTEL
BUSBOY
DISH
MENU
TIP
LUNCHEON
DINNER
BREAKFAST
You are the buyer for a cafeteria and must order the supplies for the children. On scratch paper figure up how much it will cost. Then fill out the ORDER FORM to send to the supply house.

1. Each child needs 1 1/2 pints of milk per day. There are 250 students in the school. You need to order ______ pints of milk. Each pint of milk costs 14¢. The milk will cost ______.

2. Each child receives 1 hamburger for lunch. A pound of ground beef will make 4 hamburger patties. In order to serve 250 children you need to order ______ pounds of ground beef. A pound of ground beef costs 59¢. The meat will cost ______.

3. You must order buns for the 250 hamburgers. There are 8 buns in each package. You must order ______ packages of buns. The buns cost 29¢ per package. The total cost will be ______.

4. The children will have potato chips with their hamburgers. Each package of potato chips will serve 6 children. You need to order ______ packages of potato chips. The chips cost 43¢ per package. The total cost will be ______.

5. The cokes for the children will cost 8¢ each. The total cost will be ______.
## SPAN and Company

**Wholesale Grocers, Inc.**  
**Since 1971**

<table>
<thead>
<tr>
<th>Number of Items</th>
<th>Items Needed</th>
<th>Price per Unit</th>
<th>Total Price</th>
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</thead>
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<tr>
<td>Milk</td>
<td>14¢ per pint</td>
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<tr>
<td>Ground Beef</td>
<td>59¢ per pound</td>
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<tr>
<td>Buns, Hamburger</td>
<td>29¢ per pkg.</td>
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<tr>
<td>Potato Chips</td>
<td>43¢ per pkg.</td>
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<tr>
<td>Cokes</td>
<td>8¢ each</td>
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</table>

**Gross Amount**
The food inspectors visit the restaurants to check for harmful bacteria which spoil the food. These bacteria can make people very, very ill and can even kill them.

However, there are many helpful bacteria which aid man. You can grow some of these helpful bacteria.

To grow yeast the materials needed are half of a cantaloupe, 1 package of yeast. Mix the package of yeast with a tablespoon of water. Dip the handle of a teaspoon into the yeast solution covering it with yeast. With the tip of this handle cut a line into and across the fruit. Set the cantaloupe to one side. After a few days the growth will spread as a white film over the fruit. You can see a white line beginning to form. You may try this same experiment with a dried prune which has been boiled and crushed.
ART - HOW TO MAKE BURLAP FLOWERS

A. Burlap: scraps of burlap in various colors, pipe cleaners in various colors (at least 5 of each color), coat hangers, green florist's tape, white glue.

Form petals by twisting the ends of 5 pipe cleaners of the same color.

Apply glue to one side only of the pipe cleaner and arrange on the burlap, glue side down.

Allow to dry and then cut just outside the pipe cleaner.

While the petals are drying make the centers by cutting 2" x 4" oblong of burlap and raveling one edge lengthwise leaving 1/2 inch from the other not ravelled.

Put glue on one side of the unravelled edge. Wind the burlap fringe around the end of a coat hanger which has been bent out and straightened.
Hold until the glue begins to set. Wind and stretch the florist's tape around the flued burlap and down over the wire. Be sure to overlap each layer and work smoothly. Tear the tape.

Add the petals around the centers one at a time, fastening to the stem with florist's tape. Wind the tape around each petal 5 times.

Continue until 5 petals have been added. Then bend the petals outward about half way from where they are attached.

Make leaves by bending green pipe cleaners in this shape and gluing in the same manner as the petals. Attach to the stem about 3 inches below the petals.

B. PAPER: Brilliantly colored tissue paper, coat hangers, florist's tape

Cut rectangles of paper 8 1/2" x 11". Select 6 of these sheets (either all the same color or a variety). Treating them like a single sheet of paper fold them accordion style.
Press the pleats together in the center and fasten by looping one end of a wire coat hanger tightly around it.

Pull the top layer of tissue paper toward the center shaping it as it is pulled. Repeat until all layers have been pulled to the center and shaped.

Cut rounded-corner squares of green tissue paper about 3" square. Cover with glue and slide into the wire and up to the under side of the flower. Hold until the glue sets.
RESTAURANT KIT

OBJECTIVES:

After the simulation in this project, the student should be able to order a meal and pay for it, set a table, take an order and serve a meal.

MATERIALS:

Food kits, silverware, food order forms, trays, play money, cash register, menus, table cloths, napkins.

PROCEDURES:

1. Select volunteers to be the waitress, the cook, manager-cashier, the family,
2. Set up a table or tables for the restaurant and a desk for the cashier.
3. Waitress sets table, (see illustration #1) Cashier shows family to table and they are seated.
4. Waitress brings menu so family can order. She takes order and cook prepares the trays. Waitress serves the food and brings check. Father checks the waitress' arithmetic and pays the bill at the cashier. He is sure to leave a tip.
5. Waitress clears the table.
6. Students rotate so they can play various roles.

Illustration #1
<table>
<thead>
<tr>
<th>Date</th>
<th>Waitress</th>
<th>No. Guests</th>
<th>Date</th>
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</table>

**Tax**

**Total**
BREAKFAST MENU
Served until 11:00 A.M.

EYE OPENER
Freshly toasted bread topped with poached eggs. Served with jelly. Choice of Coffee, Tea, or Milk.

EGGS
Eggs a la goldenrod with sausage or bacon...1.55
Two eggs, bacon or sausage..................1.55
One egg bacon or sausage....................1.25
Two eggs, ham................................1.55
One egg, ham................................1.35

Above items served with Toast and Jam. Coffee, Tea, or Milk.

SIDE ORDERS
Rasher of Bacon, 4 strips.........................60
Rasher of Sausage.................................60
4 links or patties
Ham, 2 1/2 ounces...............................70
One Egg..........................................30
Two Eggs........................................50
Danish Pastry...................................40
Hash Brown Potatoes...........................35

Steak and Egg.................................3.25
Hostess Sirloin Steak, cooked to you specifications with one Egg any style. Served with Toast and Jelly. Coffee, Tea, or Milk.

FRUITS AND JUICES
One-half Grapefruit............................40
Stewed Prunes.................................35
Chilled Fruit Juice............................30
Apricots.........................................35
Fruit cup.......................................50

CEREALS, HOT OR COLD
With Milk.......................................35
With Cream.....................................50
With Fruit.....................................60

BEVERAGES
Coffee "All you want"........................20
Milk..............................................20
Tea, hot or iced...............................20
Hot Chocolate.................................20
Iced Coffee.....................................20

THE CONTINENTAL...85
Choice of Juice, Danish Pastry with Butter and Jelly. Coffee, Tea, or Milk.
APPETIZERS
One half grapefruit ..........35
Fruit cup..........................40
Chilled fruit juice...............35

SALADS FOR LUNCHEON
Cream Cottage Cheese with Carrots....45
Creamy Cottage Cheese with Pineapple..45
Holiday Fruit Salad..................65
"Salads created by our chef as an entree"

Fruit cup
Creamy Cottage Cheese with Pineapple..45
Holiday Fruit Salad
"Salads created by our chef as an entree"

SOUPS
Cream of Tomato
Bean with Pork
Meat and Vegetable
"The Captain's Bowl".....55
"The Journeyman's Cup"....35

"Salads created by our chef as an entree"

ACCOMPANYING SALADS
Crisp Green Tossed Salad......45.
Holiday Creamy Cole Slaw.......30
Lettuce and Tomato...............50
"Salads complemented with a choice of Dressing, Assorted cracker Basket and Butter

JULIAN'S SPECIALITIES
Steak On-A Sandwich...............2.95
"Seven Ounces of Choice Beef, Served On Our Roll with a Crisp Tossed Salad and Choice of Potato".

Skillet Fried Chicken..............2.25
"One half Golden Fried Pullet, Lightly Dusted with Toasted Bread Crumbs. Then dipped in Egg Batter, Cooked Quickly to your order - Served with Crisp Tossed Salad, Choice of Potato or Vegetable".

Tavern Chopped Sirloin Steak.........2.55
"8 Ounces of the All-American Entree" - Topped with Mushroom Sauce

SANDWICHES
Beefburger...............................
Delicious Chopped Sirloin Steak Served with Pickle and Onion on Toasted Bun with Melted Cheese.....85
with Lettuce and Tomato....85
with French Fries and Cole Slaw...1.05
All sandwiches are accompanied by crisp potato chips

Grilled Cheese..........................75
"A Melted Masterpiece Accompanied by Sliced Dill Pickles".

Cornded Beef..........................1.35
"Wafer Thin Slices of Corned Beef on Rye with a Kosher Dill".

BEVERAGES
Hot Coffee "All You Want"...20
Hot Chocolate.......................20
Milk..................................20
Iced Coffee.........................20
Iced Tea................................20
Soft Drinks.........................20
Milk Shakes.........................35

SUGAR AND SPICE PANTRY
Hot Apple Pie........35
Fruit or Cream Pie........35
Cheese Cake........60
Parfait or Sundae........50
Fruit Gelatin........35
Frosty Fruit Sherbert........30
APPETIZERS
One Half Grapefruit........35
Chilled Fruit Juice...........35
Fruit Cocktail................40

LARGE SALADS
Shrimp Remoulade...........2.15
"Crisp Salad Topped with Whole Shrimp, Tomato Wedges, Egg Slices and Remoulade Sauce."

Turkey Salad...............1.65
"Julienne Breast of Turkey with Bacon Crumbles and Tomato Wedges, Served on a Bed of Crisp Salad Greens."

Holiday Fruit Plate.........1.55
"Cottage Cheese or Frosty Sherbet with Assorted Chilled Fruit, Served on a Crisp Bed of Lettuce."

Salads complemented with a choice of dressing, assorted cracker basket and creamy butter.

SOUPS
Cream of Tomato
Bean With Pork
Meat and Vegetable
"The Captain's Bowl"........55
"The Journeyman's Cup".......35

CAP'N HOLIDAY'S CATCH
Broiled Rainbow Trout.......3.25
"From the Icy Mountain Streams this Delectable Fish is Slowly Broiled and Sprinkled with Lemon-Butter"

Salmon Loaf with Cream Sauce....2.05
"Delectable Mountain Stream Salmon Topped with a Rich Cream Sauce"

COACHMAN'S SPECIALTIES
Town Crier Pork Chops.........3.75
"Lean Pork Loins Broiled to Perfection - Crisp Green Salad, Choice of Potato or Vegetable"

Skillet Fried Chicken.........2.25
"Golden Fried Pullet - Served with Crisp Tossed Salad, Choice of Potato or Vegetable."

Broiled Chicken...............2.25
"One half, Tender Broiler, Basted with Butter and Broiled to a Golden Brown - Served with Crisp Tossed Salad, Choice of Potato or Vegetable."

Country Baked Ham............3.25
"Seven Ounces Tender Ham baked in the Southern Tradition - Served with Crisp Tossed Salad and Baked Sweet Potato"

Prime Ribs of Beef............4.50
"Succulent Beef Ribs Cooked to Your Order and Served in Natural Juices"

Roast Leg of Lamb..............4.00
"Tender, Succulent Lamb with just a Hint of Mint."

BEVERAGES
Hot Coffee "All You Want"...........20
Hot Chocolate..................20
Milk.............................20
Iced Tea..........................20
Soft Drinks......................20

SUGAR AND SPICE PANTRY
Hot Apple Pie..................35
Flavors-of-the-Month Ice Cream.....30
Frosty Fruit Sherbet............30
Traditional Cheese Cake.........60
ICE CREAM PROJECT

OBJECTIVES:
The completion of this project will allow the pupils to imitate the skills of a cook and to derive the pleasure of creating a "dish".

MATERIALS:
1 hand crank ice cream freezer, 1 sack of crushed ice, 1 box of ice cream salt, a 6 pack of Orange Crush (it cannot be just orange drink), 1 small can of crushed pineapple, 2 cans Eagle Brand condensed milk, 1 bottle opener, 1 can opener.

PROCEDURE:
1. Pour into the canister all three ingredients.
2. Replace the lid and place canister in the freezer.
3. Pack ice around the canister, being sure to alternate with layers of ice cream salt.
4. When it is completely filled, turn crank.
5. When the crank is hard to turn the cream is ready.
6. Remove the dasher and pack ice around the canister for at least 30 minutes.
RADISH GARDEN

OBJECTIVES:

By participating in this project the students should be able to determine the positive and adverse effects of weathers on food crops.

MATERIALS:

- Various soil
- 1/2 pint milk containers
- Radish seeds

PROCEDURE:

Cut the top from the milk containers and clean them thoroughly. Label each container according to the type of soil it will have:

1. Sandy dry
2. Sandy dry
3. Clay dry
4. Clay dry
5. Rich dry
6. Rich dry

Fill the containers with the correct type of soil and place a few radish seeds 1 1/2 inches deep.

Place the container in the window so that the sun will shine on them. Water the ones marked dry every third day beginning today. Water the others every day.

Fill in the chart as they grow.

SAMPLE

Mark / for no growth
X for growth

Measure the heights, note this on the record like...
# Radish Growth Chart

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SUGGESTED FIELD TRIPS

1. Visit the school cafeteria and watch the workers prepare the lunches.

2. Visit a short order restaurant in the neighborhood of the school.

SUGGESTED SUPPLEMENTARY ACTIVITIES

Ask your principal to assist you in setting up a "Special Table" in the school cafeteria. Secure a tablecloth (from the PTA or ask someone in the school or neighborhood to donate an old tablecloth, but one in good condition) for the table and flowers for the centerpiece (these may be fresh or art flowers made by different classrooms).

Rotate the responsibility of setting up the table and service of the food each day (these students should probably be 6th graders). Make 3 girls responsible for putting on the tablecloth and centerpiece. Be sure they place the napkins and silverware on the table in the proper places. The table will have 10 places.

The same classroom which is responsible for the "waitresses" can be responsible for 10 boys to "serve" the 10 people at the table their food and to clear away the dirty dishes afterward.

The guests at the "Special Table" should include 2 adults (the principal and 1 teacher, 2 teachers, 1 teacher and 1 parent, etc.) and 8 children - from the same grade level - selected by the teachers of that grade level. The children will be guest for 1 day only and should "dress up" and be on their best behavior for the occasion. (This necessitates their being advised of their selection at least one day in advance).
The following words are hidden above. They may be backwards, forwards, diagonal or even diagonally backwards. See how many you can find. Circle the words as you find each one.

Salad Girl  Cook  Cashier
Maitre'd  Waiter  Dishwasher
Chef  Waitress  Hostess
Oven  Busboy
CROSSWORD PUZZLE

Across
1. Food is cooked in pots and _______.
2. A ______ is used to cook food.
3. A ______ lists the food a restaurant serves.

Down
1. Plates, cups and saucers are called _______.
2. Food is cooked in ______ and pans.
3. She waits on tables in a restaurant.
4. She greets the customers and seats them.
5. A ______ cooks the food.
WHO SELLS OUR GOODS?

MARKETING AND DISTRIBUTION
OCCUPATIONS

Grades
4 5 6
ACKNOWLEDGEMENTS

MARKETING AND DISTRIBUTION OCCUPATIONS

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INVENTORY

After viewing the film, the children should be able to:

1. Name at least five workers in the marketing and distribution field.

2. Explain how scales people help us.

3. Describe various types of jobs available in the marketing and distribution field.

SALES TALK

Two children are given a close look at the people who work in stores when they win the prize of their choice in a local contest. They see how people work and where they work as they go to various stores shopping for their prize. Both department stores and specialty stores are visited by the children.

BUYERS GUIDE

advertisement
buyer
credit
cash
cash register
check
sales
salesman
saleslady
manager
stock
clerk
inventory
Marketing and Distribution

LANGUAGE ARTS

GREAT - GIANT - FANTASTIC

Have you ever seen these words used in an advertisement? People who write advertisements for newspapers, magazines, radio and television use these words to make their products seem better than their competition. See if you can take the following sentences and make them sound better.

1. Our new car is nice.
2. Kaptain Kookoo cereal is good for you.
3. Zener television has very good color.
4. Robbie Rivers clothes fit well.
5. ABC detergent gets most of the dirt out of your clothes.

REWRITE

1. ______________________________________
2. ______________________________________
3. ______________________________________
4. ______________________________________
5. ______________________________________
The third street Department Store sells many different types of merchandise. In order to make a profit, third street Department Store adds a percentage of the cost to each item they sell. If an item costs $25.00, and ten percent is added to the price, we can see how much the item will sell for. (Ten percent is .10)

\[
\begin{array}{ccc}
$25.00 & \text{cost} & \$27.50 \text{ selling price} \\
2.50 & \text{added (}$25.00 \times 0.10) & \\
\end{array}
\]

Find out how much each of the following would sell for.

**LAWNMOWER**

\[
\begin{array}{ccc}
$50.00 & \text{cost} & \\
\text{added} & \text{selling price} \\
\end{array}
\]

**ELECTRIC STOVE**

\[
\begin{array}{ccc}
$400.00 & \text{cost} & \\
\text{added} & \text{selling price} \\
\end{array}
\]

**CANDY**

\[
\begin{array}{ccc}
\$0.10 & \text{cost} & \\
\text{added} & \text{selling price} \\
\end{array}
\]
Juniors' Used Cars sells automobiles. Instead of the ten percent that department stores add to the cost, automobile dealers add twenty percent. See if you can find the selling price of the following automobiles.

1971 Klondike Kougar

$2,000.00 cost
added

_____________________
Selling price

1970 Carnes Cat

$2,500.00 cost
added

_____________________
Selling price

1972 Springdale Spider

$5,000.00 cost
added

_____________________
Selling price
Marketing and Distribution

Math (Continued)

At the end of each day, the money in the cash register must be checked to be sure that it agrees with the amount of goods sold. If the cash register says that $3,250.00 worth of goods were sold in one day, there should be $3,250.00 in the cash register drawer.

How does the cash register keep track of what is sold and how much? Many cash registers keep a record of each sale. At the end of the day, the record tells the sales for the day. Some cash registers only keep a continuous total from day to day. That means that the cash register does not always start out on zero. If it starts on $500.00 and at the end of the day it reads $700.00, only $200.00 worth of merchandise was sold.

See if you can tell how much was sold on these days.

BEGINNING READING  $200  $600  $950  $1300  $1900

FINAL READING  $600  $950  $1300  $1900  $3000
SOCIAL STUDIES

You have just been hired to design a new shopping center for Memphis, Tennessee. You have chosen a mall like the one in figure I, because it is covered and protects the shoppers from the rain, heat and cold. Your mall has room for twenty shops.

Every mall needs some large department stores to bring in the customers and a number of small specialty shops that offer different types of merchandise.

Select the stores that you want to include in your mall. Place the number of the stores you have chosen in the blank spaces on figure I to show where each store is to be located.

The following list of stores have requested space in your mall; select the ones that you want to include.

<table>
<thead>
<tr>
<th>DEPARTMENT STORES</th>
<th>SPECIALITY SHOPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Sears</td>
<td>5 - Woolworths</td>
</tr>
<tr>
<td>2 - Penneys</td>
<td>6 - Walgreens</td>
</tr>
<tr>
<td>3 - Goldsmiths</td>
<td>7 - Dairy Queen</td>
</tr>
<tr>
<td>4 - Lowensteins</td>
<td>8 - Dipper Dan Ice Cream</td>
</tr>
<tr>
<td></td>
<td>9 - Shoneys Restaurant</td>
</tr>
<tr>
<td></td>
<td>10 - Morrisons Cafeteria</td>
</tr>
<tr>
<td></td>
<td>11 - Walden Book Store</td>
</tr>
<tr>
<td></td>
<td>12 - Parkland Hosiery</td>
</tr>
<tr>
<td></td>
<td>13 - Merle Norman Cosmetics</td>
</tr>
<tr>
<td></td>
<td>14 - Red Goose Shoes</td>
</tr>
<tr>
<td></td>
<td>15 - Bakers Shoes</td>
</tr>
<tr>
<td></td>
<td>16 - Tall Mens Shop (clothes)</td>
</tr>
<tr>
<td></td>
<td>17 - Robert Halls (clothes)</td>
</tr>
<tr>
<td></td>
<td>18 - Singer Sewing Machines</td>
</tr>
<tr>
<td></td>
<td>19 - Swiss Colony (Cheeses)</td>
</tr>
<tr>
<td></td>
<td>20 - Doktor Pet Center</td>
</tr>
<tr>
<td></td>
<td>21 - First National Bank</td>
</tr>
<tr>
<td></td>
<td>22 - Memphis Bank &amp; Trust Company</td>
</tr>
<tr>
<td></td>
<td>23 - Hancock Fabric Center</td>
</tr>
<tr>
<td></td>
<td>24 - Thrashers Fabrics</td>
</tr>
<tr>
<td></td>
<td>25 - Noels Barbeque</td>
</tr>
</tbody>
</table>
SPECIALITY SHOPS (continued)

26 - National Shirt Shop
27 - Archers Mens Clothes
28 - Ed's Camera Shop
29 - Bob's Camera Shop
30 - Hall Mark Card Shop
31 - Zale Jewelry
32 - Broadnax Jewelry
33 - Baptist Book Store
34 - Orange Julius
35 - The House of John Simons

Figure I
RETAIL PURCHASING

OBJECTIVES:

Participation in this project will allow the pupils to simulate the purchasing of school clothes for three different income groups. They will also be able to compare the difference between the cost of clothing if cash is paid and if credit is used.

MATERIALS:

One retail catalogue (Sears, Speigel, Etc.)
one order form, one credit account table,
scratch paper, tax tables.

PROCEDURE:

1. You have $500.00 to spend for back-to-school clothes for three elementary aged children. Select all the clothing necessary and fill in the order form. Be sure to figure in the tax. There will be postage since you are having the merchandise mailed to your house.

2. You have $200.00 to spend for back-to-school clothes for three elementary aged children. Select all the necessary clothing and fill in the order form. Be sure to figure in the tax. There will be no postage, since you plan to pick up the merchandise at the store.

3. You have $100.00 to spend for back-to-school clothes for three elementary aged children. Select all the necessary clothing and fill in the order form. Be sure to figure in the tax. There will be no postage, since you plan to pick up the merchandise at the store.
4. Using the credit account table, figure how much you would pay for your clothing if you charged it instead of paying cash.

5. Discuss the purchases made by each group of students. Did they include under garments, shoes, and socks? Did the students realize how much more difficult it is to buy clothes for three children for $200.00 or $100.00 than it was to buy them for $500.00?
Marketing and Distribution
Project # 2

RETAIL STORE SIMULATION

OBJECTIVES:

In this simulated work experience, the students will develop the ability to count money, give change, record sales transactions and restock shelves.

MATERIALS:

Cardboard boxes to construct a sales counter
Bookcases for shelves
Cans (emptied from the bottom)
Play money
Sales Slips

PROCEDURES:

1. Construct a sales counter from the cardboard boxes. Refrigerator boxes are very good for this.

2. Stock the shelves with the empty cans. Mark a price on those cans that do not have the price marked on the top.

3. Select one student or a group of students to be the salesclerk. Select one student to be the customer.

4. Give the customer some play money with which to purchase his groceries.

5. The salesclerk totals the bill and receives payment for the groceries. Then using math, the salesclerk gives the customer the correct change.

6. At the end of each round of transactions, the customer returns the groceries and the salesclerk restocks the shelves.
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