

DOCUMENT RESUME

ED 217 249

CE 032 885

TITLE Introduction to the Plumbing Trade.
Pre-Apprenticeship Phase 1 Training.

INSTITUTION Lane Community Coll., Eugene, Oreg.

SPONS AGENCY Employment and Training Administration (DOL),
Washington, D.C.; Oregon State Dept. of Education,
Salem.

PUB DATE 79

NOTE 1lp.; For related documents see CE 032 866-930 and ED
213 887-905.

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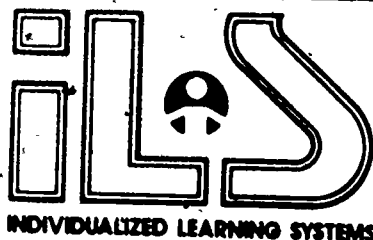
IDENTIFIERS *Preapprenticeship Programs

ABSTRACT

This student training module provides an introduction to the plumbing trade. (A companion instructor's guide is available separately as CE 032 884; also, other student modules are available--see note.) The modules are designed to introduce trade knowledge and skills to the student. This module contains a cover sheet listing module title, goal, and performance indicators; study guide/checklist with directions for module completion; information sheets providing background information about the plumbing trade; supplementary references; self-assessment; self-assessment answers; post assessment; and post-assessment answers for the instructor. Topics covered in the module include the history, trends, working conditions, places of employment, hiring practices, and wage scale of the plumbing trade. (KC)

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PRE-APPRENTICESHIP PHASE 1 TRAINING

INTRODUCTION TO THE PLUMBING TRADE

C00183

Goal:

The student will be able to identify and briefly describe the history, trends, working conditions, places of employment, hiring practices and wage scale of the plumbing trade.

Performance Indicators:

The student will demonstrate knowledge of the material by successfully completing a Self Assessment and a Post Assessment exam.

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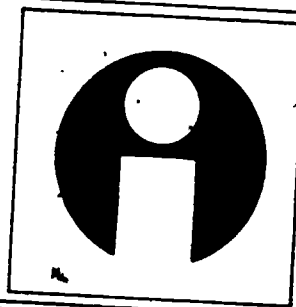
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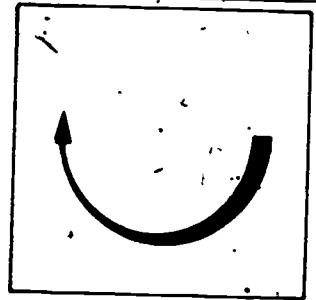
Study Guide



To successfully complete this module, complete the following tasks in the order listed. Check each one off as you complete it.

1. Read the Goal and Performance Indicators on the cover of this module. This will inform you of what you are expected to gain from completing this module and how you will demonstrate that knowledge.
2. Study the Information section of this module to acquire the knowledge necessary to complete the Self and Post Assessment exams.
3. Complete the Self Assessment exam and compare your answers with those on the Self Assessment Answer Sheet on the page immediately following the exam. Re-study or ask your instructor for help on any questions you have trouble with. The Self Assessment exam will help you determine how well you are likely to do on the Post Assessment.
4. Complete the Post Assessment exam and turn your answers in to your instructor.

Information



HISTORY

One of the problems for every civilization in which there are centers of population (cities and towns) has been the development of adequate water and sewerage systems. Evidence has been found in the city of Kish which flourished around 4500 B.C. of cemented tile drains and swimming pools. On the island of Crete about 2800 B.C., bathrooms and pottery pipes tapered so that they fitted end to end were used.

The Roman Empire's practices of sanitation progressed far beyond the Greeks. In some parts of Europe the aqueducts built to bring water to Roman cities are still standing. Roman excavations have revealed a profound knowledge of masonry structures and hydraulics with the discovery of municipal sewers, cesspools serving private homes, public rest rooms and a thousand public baths.

Improvements in plumbing facilities were not seen until the 19th century. The primitive sanitation conditions during the Industrial Revolution led to outbreaks of typhoid fever and dysentery. Eventually epidemics were controlled with the development of separate, underground water and sewage systems which eliminated open sewage ditches. Plumbing fixtures--sinks, bathtubs, toilets--were invented to handle portable water wastes within buildings. During the latter part of the 19th century the water closet and the sanitary fixture trap were widely used. The 20th century has brought numerous technical improvements, large scale adoption of plumbing design and workmanship is of such a quality that the health of the occupants will not be impaired.

TRENDS

Employment opportunities for plumbers and pipefitters will grow as fast as most occupations through the 1980's. Plumbing is closely connected to construction activity. New plumbing challenges will develop with the demand for homes with air-conditioning, solar heating and kitchen appliances. Chemical and petroleum

refineries and coal gasification and nuclear power plants, which use pipes extensively, are expected to expand and create plumbing and pipefitting jobs.

WORKING CONDITIONS

The work for plumbers and pipefitters is often strenuous. Workers must stand for long periods of time and sometimes work in uncomfortable positions. The injury rate is higher for employees of contractors than for those who work for manufacturing firms.

PLACES OF EMPLOYMENT

Plumbers and pipefitters in America numbered about 428,000 in 1978. Most work for contractors and a substantial number are self-employed.

HIRING PRACTICES

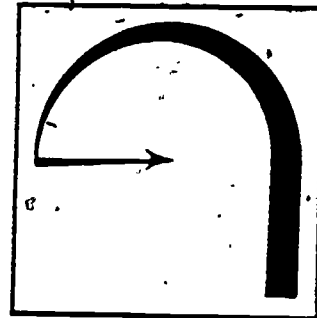
Plumbers and pipefitters learn their trade by working for several years as a helper to experienced journeymen, or by entering an apprenticeship program which is sponsored through a union-management agreement. The apprenticeship programs, whether union or non-union, are for four years of on-the-job training and 216 hours of classroom annually.

Employers are seeking applicants who are 18 or older and in good physical condition. A high school diploma is desirable with course work including chemistry, math, mechanical drawing, physics and shop. Applicants are given tests to determine their mechanical aptitude. Some communities require a trade license, which requires an examination to determine knowledge of the trade and of the local plumbing codes.

WAGE SCALE

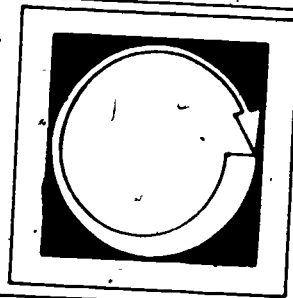
In 1978 a survey within the metropolitan areas was taken and plumbers averaged \$10.10 an hour. New apprentices' pay scale is 40 to 50 percent of the rate paid to experienced plumbers or pipefitters and increases are paid every six months.

● Supplementary References



Occupational Outlook Handbook, United States Department of Labor, Bureau of Labor Statistics, March, 1980.

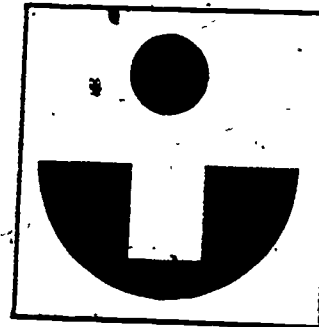
Self Assessment



In the blank provided, write a T if the statement is true and F if the statement is false.

1. Water and sewage systems are entirely a product of the 20th century.
2. Dysentery and typhoid fever during the Industrial Revolution were caused by open sewage ditches.
3. Plumbing and pipefitting codes are secret documents used by those trades to pass information between them.
4. Construction activity will determine the amount of work available.
5. Pipefitters and plumbers find their work is not demanding physically.
6. Plumbers do not require on-the-job training.
7. Some communities require a trade license.
8. Apprentices receive a pay raise every six months.

Self Assessment Answers



1. F

2. T

3. F

4. T

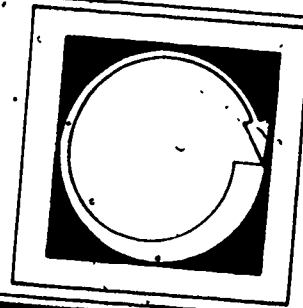
5. F

6. F

7. T

8. T

Post Assessment



Select the word or words which correctly answers the question or completes the statement and write its corresponding letter in the blank space provided.

1. _____ Archaeologists have found evidence of plumbing systems dating back to _____
 - a. 3000 B.C.
 - b. 4500 B.C.
 - c. 9000 B.C.
2. _____ In some parts of Europe, aqueducts built to bring water to _____ cities are still standing.
 - a. Mycenaean
 - b. Atlantean
 - c. Roman
3. _____ Improvements in plumbing did not occur until the _____ century.
 - a. 19th
 - b. 18th
 - c. 21st
4. _____ New plumbing challenges will be created by installation of _____
 - a. air conditioning
 - b. solar heating
 - c. kitchen appliances
 - d. all of the above
5. _____ Other industries expected to expand and create plumbing and pipefitting jobs are _____
 - a. chemical and petroleum refineries
 - b. coal gasification
 - c. nuclear power plants
 - d. all of the above

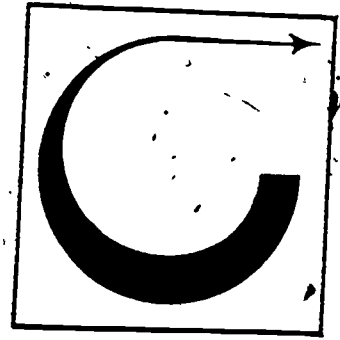
6. _____ Plumbers work for _____ or are _____
a. self-employed
b. contractors
c. service stations

7. _____ Applicants for plumber/pipefitter jobs must be at least _____ years
of age.
a. 16
b. 20
c. 18
d. 21

8. _____ In 1978 plumbers pay average was _____ per hour:
a. \$9.75
b. \$12.50
c. \$15.30
d. \$10.10

9. _____ Beginning apprentices are paid _____ to _____ % of wages paid
to experienced plumbers.
a. 45%
b. 50%
c. 70%
d. 60%

● Instructor Post Assessment Answers



1. b
2. c
3. a
4. d
5. d
6. b, a
7. c
8. d
9. a, b