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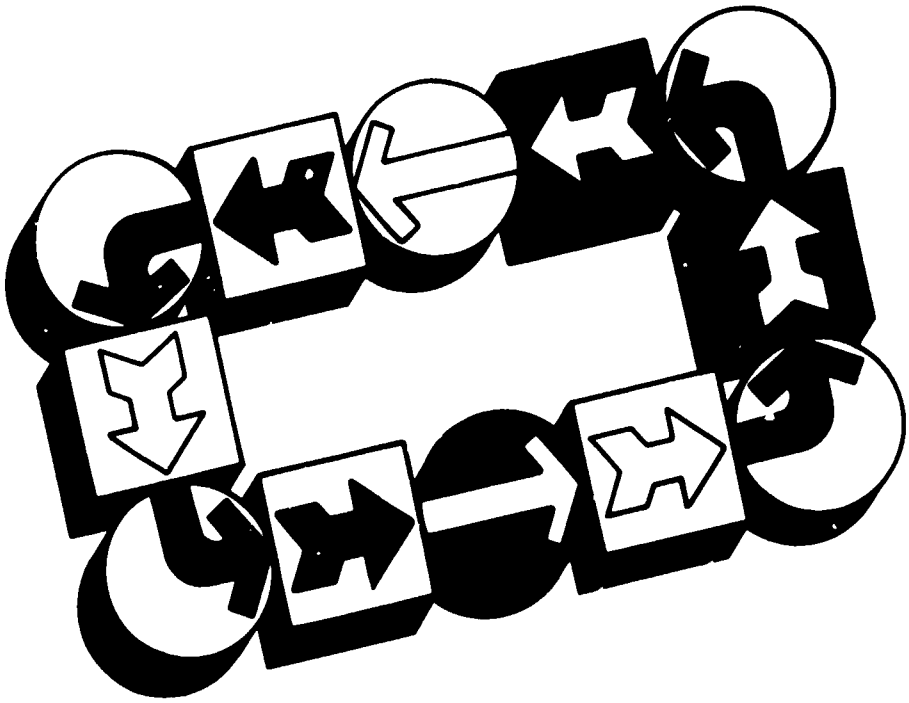
ABSTRACT

This module is one in a series of 127 performance-based teacher education (PBTE) learning packages focusing upon specific professional competencies of vocational teachers. The competencies upon which these modules are based were identified and verified through research as being important to successful vocational teaching at both the secondary and postsecondary levels of instruction. The modules are suitable for the preparation of teachers and other occupational trainers in all occupational areas. Each module provides learning experiences that integrate theory and application; each culminates with criterion-referenced assessment of the teacher's performance of the specified competency. This module is designed to help prospective teachers to develop and reproduce student instructional materials. (For this module, teacher-made instructional materials are defined as materials planned and prepared by the teacher, often with the help of students: in this module, only handouts and transparencies are considered.) The module consists of a terminal objective and enabling objectives, prerequisites, resources, and five learning experiences. Learning experiences, which focus on the enabling objectives, contain an overview, information, activities, self-checks, and feedback. The final learning experience is an actual teaching situation in which the prospective teacher is to prepare instructional materials and be assessed by a resource person on his/her competency in this task. (KC)

MODULE B-6

Prepare Teacher-Made Instructional Materials

Second Edition



Module B-6 of Category B—Instructional Planning
PROFESSIONAL TEACHER EDUCATION MODULE SERIES

AMERICAN ASSOCIATION FOR VOCATIONAL INSTRUCTIONAL MATERIALS
The University of Georgia
120 Driftmier Engineering Center / Athens GA 30602

THE NATIONAL CENTER FOR RESEARCH IN VOCATIONAL EDUCATION
THE OHIO STATE UNIVERSITY
1960 KENNY ROAD • COLUMBUS OHIO 43210

FOREWORD

This module is one of a series of 127 performance-based teacher education (PBTE) learning packages focusing upon specific professional competencies of vocational teachers. The competencies upon which these modules are based were identified and verified through research as being important to successful vocational teaching at both the secondary and postsecondary levels of instruction. The modules are suitable for the preparation of teachers and other occupational trainers in all occupational areas.

Each module provides learning experiences that integrate theory and application, each culminates with criterion-referenced assessment of the teacher's (instructor's, trainer's) performance of the specified competency. The materials are designed for use by teachers-in-training working individually or in groups under the direction and with the assistance of teacher educators or others acting as resource persons. Resource persons should be skilled in the teacher competencies being developed and should be thoroughly oriented to PBTE concepts and procedures before using these materials.

The design of the materials provides considerable flexibility for planning and conducting performance-based training programs for preservice and inservice teachers, as well as business-industry-labor trainers, to meet a wide variety of individual needs and interests. The materials are intended for use by universities and colleges, state departments of education, postsecondary institutions, local education agencies, and others responsible for the professional development of vocational teachers and other occupational trainers.

The PBTE curriculum packages in Categories A – J are products of a sustained research and development effort by the National Center's Program for Professional Development for Vocational Education. Many individuals, institutions, and agencies participated with the National Center and have made contributions to the systematic development, testing, revision, and refinement of these very significant training materials. Calvin J. Cotrell directed the vocational teacher competency research study upon which these modules are based and also directed the curriculum development effort from 1971 – 1972. Curtis R. Finch provided leadership for the program from 1972 – 1974. Over 40 teacher educators provided input in development of initial versions of the modules, over 2,000 teachers and 300 resource persons in 20 universities, colleges, and postsecondary institutions used the materials and provided feedback to the National Center for revisions and refinement.

Early versions of the materials were developed by the National Center in cooperation with the vocational teacher education faculties at Oregon State University and at the University of Missouri – Columbia. Preliminary testing of the materials was conducted at Oregon State University, Temple University, and the University of Missouri – Columbia.

Following preliminary testing, major revision of all materials was performed by National Center staff, with the assistance of numerous consultants and visiting scholars from throughout the country.

Advanced testing of the materials was carried out with assistance of the vocational teacher educators and students of Central Washington State College; Colorado State University; Ferris State College, Michigan; Florida State University, Holland College, P.E.I., Canada; Oklahoma State University; Rutgers University, New Jersey; State University College at Buffalo, New York, Temple University, Pennsylvania; University of Arizona; University of Michigan–Flint; University of Minnesota–Twin Cities; University of Nebraska–Lincoln; University of Northern Colorado; University of Pittsburgh, Pennsylvania, University of Tennessee, University of Vermont; and Utah State University.

The first published edition of the modules found widespread use nationwide and in many other countries of the world. User feedback from such extensive use, as well as the passage of time, called for the updating of the content, resources, and illustrations of the original materials. Furthermore, three new categories (K–M) have been added to the series, covering the areas of serving students with special/exceptional needs, improving students' basic and personal skills, and implementing competency-based education. This addition required the articulation of content among the original modules and those of the new categories.

Recognition is extended to the following individuals for their roles in the revision of the original materials: Lois G. Harrington, Catherine C. King-Fitch and Michael E. Wonacott, Program Associates, for revision of content and resources; Cheryl M. Lowry, Research Specialist, for illustration specifications; and Barbara Shea for art work. Special recognition is extended to the staff at AAVIM for their invaluable contributions to the quality of the final printed products, particularly to Donna Pritchett for module layout, design, and final art work, and to George W. Smith Jr. for supervision of the module production process.

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The National Center for Research in Vocational Education's mission is to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning, preparation, and progression. The National Center fulfills its mission by

- Generating knowledge through research
- Developing educational programs and products
- Evaluating individual program needs and outcomes
- Providing information for national planning and policy
- Installing educational programs and products
- Operating information systems and services
- Conducting leadership development and training programs

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AMERICAN ASSOCIATION FOR VOCATIONAL INSTRUCTIONAL MATERIALS
The National Institute for Instructional Materials
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Athens, Georgia 30602

The American Association for Vocational Instructional Materials (AAVIM) is a nonprofit national institute.

The institute is a cooperative effort of universities, colleges and divisions of vocational and technical education in the United States and Canada to provide for excellence in instructional materials.

Direction is given by a representative from each of the states, provinces and territories. AAVIM also works closely with teacher organizations, government agencies and industry.

MODULE B-6

Prepare Teacher-Made Instructional Materials

Second Edition

Module B-6 of Category B—Instructional Planning
PROFESSIONAL TEACHER EDUCATION MODULE SERIES

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INTRODUCTION

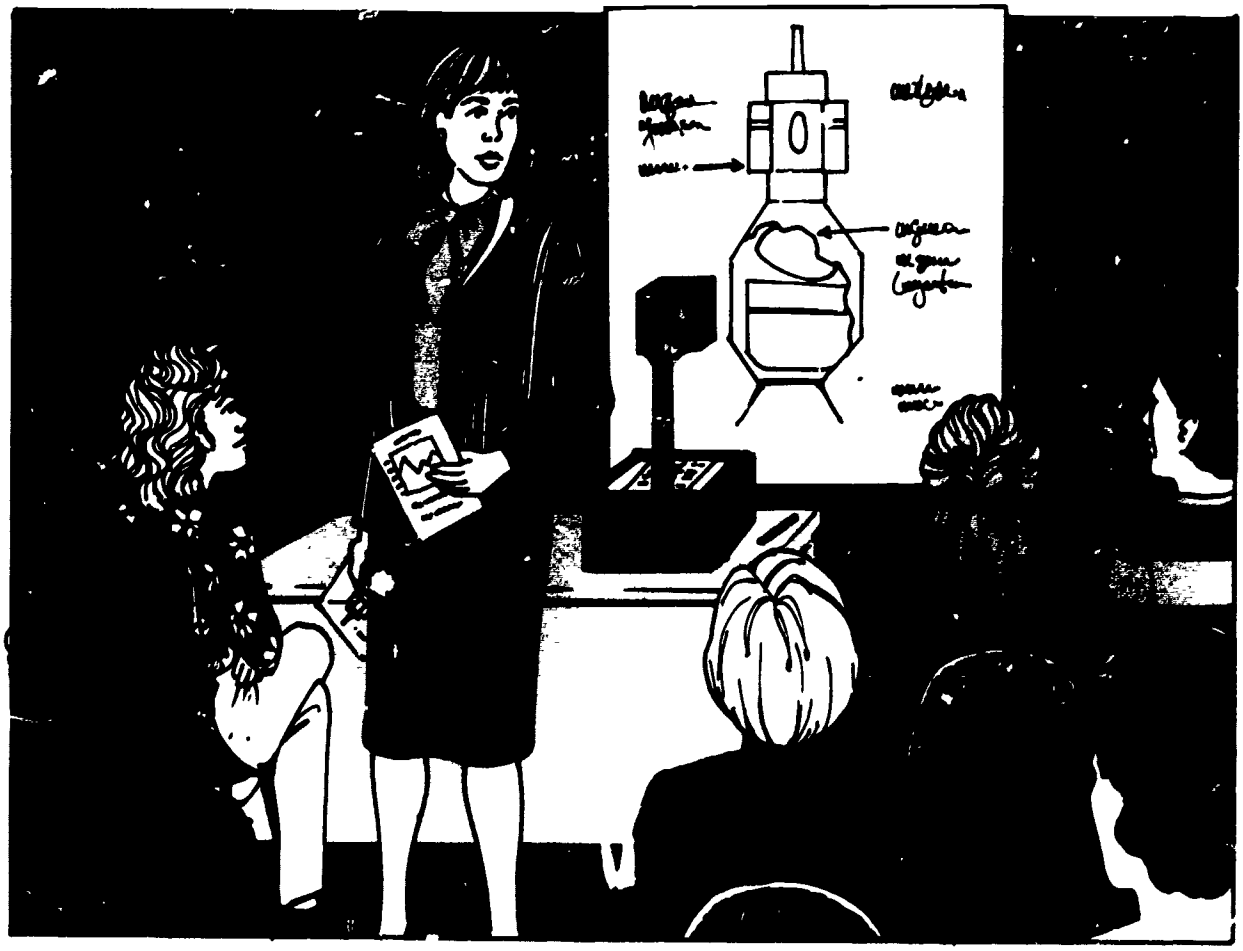
Lesson plans should be supported—and can be enhanced—by a variety of well-selected student instructional materials, chosen with your students' needs, interests, and abilities in mind. Often, there are many excellent ready-made student instructional materials from which to choose. However, there will be times when the uniqueness of your students, your teaching style or methods, or your lesson objectives will require the use of materials that do not exist—or not in the form you require.

To meet those situations, you need to be able to develop and reproduce the necessary student instructional materials yourself. This module is designed to help you acquire skill in developing and reproducing such materials.

For the purposes of this module, *teacher-made instructional materials* are defined as materials planned and prepared by the teacher, often with the help of students. Although teacher-made materials could include such items as models, slide/tapes, videotapes, or bulletin board materials, in this module you will be dealing only with two basic types of materials: handouts and transparencies.

Handouts are those duplicated or printed materials that are given to students for their study and reference. *Transparencies* are the acetate illustrative materials used with the overhead projector to present information. The preparation of other types of instructional materials is covered in depth in modules in Category C: Instructional Execution.

NOTE: If you are involved in a competency-based education (CBE) program, you may need to develop individualized learning packages (e.g., learning guides or modules). If you have students in your classes with special/exceptional needs, any materials you develop may require some additional, special skills on your part. Specific coverage of how to develop these unique—and very exciting—teacher-made instructional materials is provided in Module K-4, *Provide Instructional Materials for CBE;* and Module L-4, *Provide Appropriate Instructional Materials for Exceptional Students.*



ABOUT THIS MODULE

Objectives

Terminal Objective: In an actual teaching situation, prepare teacher-made instructional materials. Your performance will be assessed by your resource person, using the Teacher Performance Assessment Form, pp. 43–44 (*Learning Experience V*).

Enabling Objectives:

1. After completing the required reading, demonstrate knowledge of (1) types of teacher-made handouts and transparencies and (2) criteria for selecting which type to use (*Learning Experience I*).
2. After completing the required reading, demonstrate knowledge of (1) five methods of duplicating teacher-made handouts and transparencies and (2) criteria for selecting which method to use (*Learning Experience II*).
3. Using the material provided, prepare masters for four types of duplicating machines and use those machines to prepare copies (*Learning Experience III*).
4. Given case studies describing how four teachers prepared and duplicated teacher-made materials, critique the performance of those teachers (*Learning Experience IV*).

Prerequisites

To complete this module, you must have competency in developing a lesson plan. If you do not already have this competency, meet with your resource person to determine what method you will use to gain this skill. One option is to complete the information and practice activities in the following module:

- *Develop a Lesson Plan,* Module B-4

Resources

A list of the outside resources that supplement those contained within the module follows. Check with your resource person (1) to determine the availability and the location of these resources, (2) to locate additional references in your occupational specialty, and (3) to get assistance in setting up activities with peers or observations of skilled teachers, if necessary. Your resource person may also be contacted if you have any difficulty with directions or in assessing your progress at any time.

Learning Experience I

Optional

Reference: Harrington, Shirley Klein. "You Could Be Breaking the (Copyright) Law." *Technical Education News.* 41 (October/November 1981): 11, 15.

Reference: Flygare, Thomas J. "Photocopying and Videotaping for Educational Purposes: The Doctrine of Fair Use." *Phi Delta Kappan.* 65 (April 1984): 568–569.

A resource person or inservice teacher, experienced in the preparation of teacher-made instructional materials, who can show you samples of such materials.

Materials (e.g., graph paper, writing utensils) to use in preparing graphs, charts, and/or diagrams.

Resources (e.g., periodicals, newspapers, texts) to use in locating materials for starting a resource file of occupational cartoons.

Learning Experience II

No outside resources

Learning Experience III

Required

Equipment (i.e., fluid process duplicator, stencil duplicator, infrared photocopier, and xerographic or electrostatic photocopier) to use in preparing teacher-made instructional materials.

Materials (e.g., stencil masters, ditto masters, transparency film, infrared photocopy paper) to use in reproducing teacher-made instructional materials.

Teacher-made instructional materials (e.g., information sheets, graphs, charts, diagrams, cartoons) to reproduce.

An operating manual for each piece of equipment to aid you in its operation.

A resource person to evaluate your competency in preparing masters and duplicating copies using each of four duplication methods.

Learning Experience IV

No outside resources

Learning Experience V

Required

An actual teaching situation in which you can prepare teacher-made instructional materials.

A resource person to assess your competency in preparing teacher-made instructional materials.

General Information

For information about the general organization of each performance-based teacher education (PBTE) module, general procedures for its use, and terminology that is common to all the modules, see About Using the National Center's PBTE Modules on the inside back cover. For more in-depth information on how to use the modules in teacher/trainer education programs, you may wish to refer to three related documents:

The *Student Guide to Using Performance-Based Teacher Education Materials* is designed to help orient preservice and inservice teachers and occupational trainers to PBTE in general and to the PBTE materials

The *Resource Person Guide to Using Performance-Based Teacher Education Materials* can help prospective resource persons to guide and assist preservice and inservice teachers and occupational trainers in the development of professional teaching competencies through use of the PBTE modules. It also includes lists of all the module competencies, as well as a listing of the supplementary resources and the addresses where they can be obtained.

The *Guide to the Implementation of Performance-Based Teacher Education* is designed to help those who will administer the PBTE program. It contains answers to implementation questions, possible solutions to problems, and alternative courses of action.

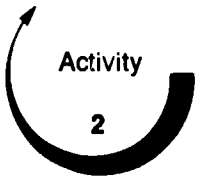
NOTES

Learning Experience I

OVERVIEW

After completing the required reading, demonstrate knowledge of (1) types of teacher-made handouts and transparencies and (2) criteria for selecting which type to use.

You will be reading the information sheet, Using Handouts and Transparencies, pp. 9–11.



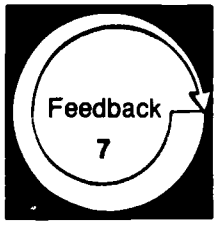
To learn more about copyright law, you may wish to read one or both of the following supplementary references: Harrington, "You Could Be Breaking the (Copyright) Law," *Technical Education News;* and/or Flygare, "Photocopying and Videotaping for Educational Purposes: The Doctrine of Fair Use," *Phi Delta Kappan.*

You may wish to check with your resource person or an inservice teacher to view samples of teacher-made handouts and transparencies.

You may wish to produce one or more graphs, charts, or diagrams to illustrate concepts or principles in your occupational area.

You may wish to start a resource file of cartoons that relate to your occupational area.

You will be demonstrating knowledge of (1) types of teacher-made handouts and transparencies and (2) criteria for selecting which type to use by completing the Self-Check, pp. 13–14.



You will be evaluating your competency by comparing your completed Self-Check with the Model Answers, p. 15.

Activity 1

For information on the value of using handouts and transparencies and the types of information that can be presented by these teacher-made materials, read the following information sheet.

USING HANDOUTS AND TRANSPARENCIES

You, your students, the relationship between you and your students, your lesson objectives, and your school's resources are unique. Therefore, it is not surprising that there are times when commercially prepared materials to support a particular lesson are not available, not suitable, or not as good as those that could be prepared by you or your students.

Carefully selected instructional media and materials can help you to do the following:

- Provide concrete experience
- Motivate and arouse interest
- Increase retention
- Develop continuity of thought
- Provide variety in learning
- Provide experience not otherwise easily obtained
- Make better use of instructional time

Teacher-made **handouts** and **transparencies** can do all these things and do them well. When a teacher selects these materials in response to a specific lesson and the specific students involved in that lesson, the materials can be an invaluable tool in meeting the above seven criteria. Materials prepared by the teacher and the students tend to be more closely related to students' own method of communication and, therefore, more easily understood by the students than commercially prepared materials.

Furthermore, the act of preparing materials can contribute to understanding—for both teachers and students. And finally, there is a great deal of untapped creativity in teachers and students that can be tapped a bit by their being involved in the preparation of instructional materials.

Handouts and transparencies can be used to present a variety of types of information. Written information sheets can be prepared to provide students with just the facts or explanation they need, in language designed to effectively communicate to those particular students. Facts and figures can be presented graphically for ease of understanding. Points can be made humorously with cartoons.

Examples of ways to present information through information sheets, graphs, diagrams, charts, and cartoons follow.[1] The type of presentation method you choose will depend on the sort of information you are dealing with. The best method will be the one that will most clearly and simply illustrate the information you are seeking to teach.

Information Sheets

Information sheets can readily provide students with the **information** needed to achieve lesson objectives. Perhaps a magazine article can be reproduced to meet these needs. (Don't forget copyright laws, however.) Or, if your training or experience has given you a thorough understanding of the necessary information, you can create the sheet yourself.

Or perhaps a student might have special information that can be shared in this way. Or you might have read 25 sources, each of which contains a needed piece of information. In that case, you could write a sheet summarizing, or capsulizing, all this information. What you are now reading is an example of an information sheet.[2]

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1. Information on graphs, diagrams, charts, and cartoons is adapted from Walter A. Wittich and Charles F. Schuller, *Instructional Technology Its Nature and Use*, Fifth Edition (New York, NY: Harper and Row, Publishers, 1973), pp. 110–130. Copyright © by Harper and Row, Publishers. Reprinted by permission of Harper and Row, Publishers.

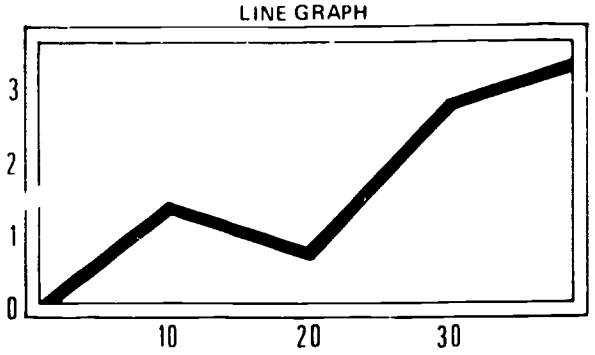
2. To gain additional skill in developing and using information sheets, you may wish to refer to Module C-7, *Direct Student Laboratory Experience*.

Graphs

Graphs are **visual representations of numerical data**. Graphs should be simple. They should be used to show **comparisons or relationships**, and they should deal with approximations, rather than precise amounts, so that they tell a story obviously at a glance.[3]

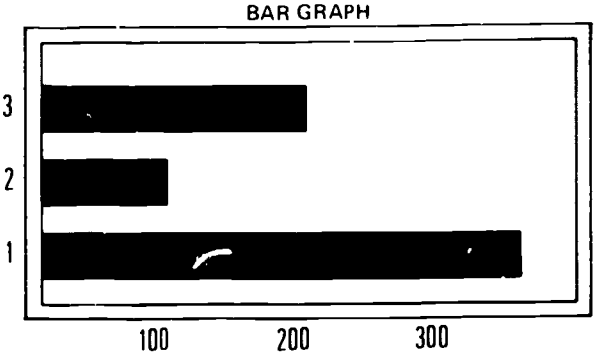
The following types of graphs may be used:

LINE GRAPH



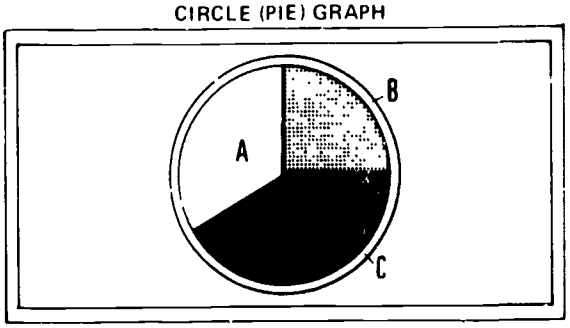
Line graph. Line graphs should be used when a considerable number of data are to be plotted or when the data comprise a continuous series that, over a period time, shows progress or development taking place.

BAR GRAPH



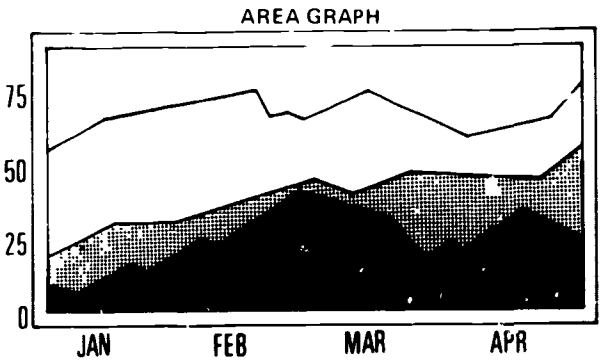
Bar graph. The bar graph is used when the number of values to be compared is small (less than ten).

CIRCLE (PIE) GRAPH



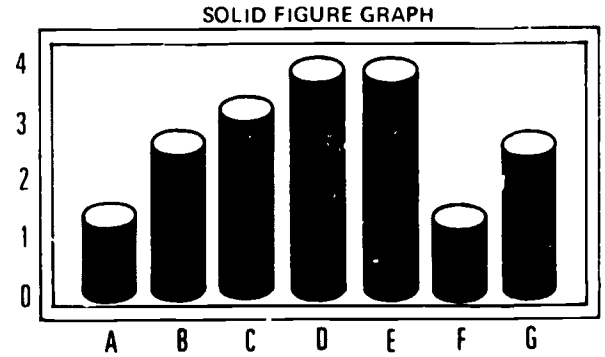
Circle or pie graph. This type of graph is used to represent the whole (100%) and the parts of the whole.

AREA GRAPH



Area graph. An area graph consists of squares, circles, or other outline figures of different sizes, which represent two or more related totals.

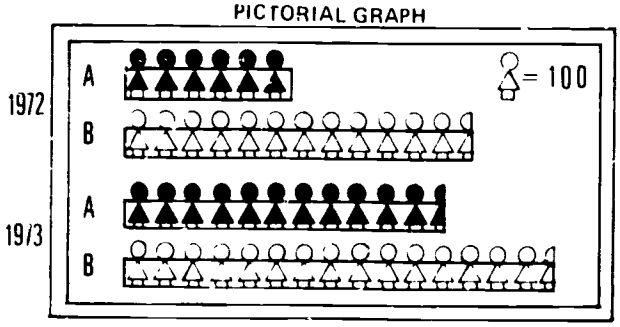
SOLID FIGURE GRAPH



Solid figure graph. This graph can serve the same purpose as an area graph, but it contains spheres, cubes, or other figures that give a three-dimensional effect.

3 To gain additional skill in developing and using graphs, you may wish to refer to Module A-3, *Report the Findings of a Community Survey*

PICTORIAL GRAPH



Pictorial graph. The pictorial graph is an adaptation of the bar graph using simplified drawings of the subjects involved. Each quantity is indicated by the **number** of symbolic figures, rather than by the **size** of a single figure.

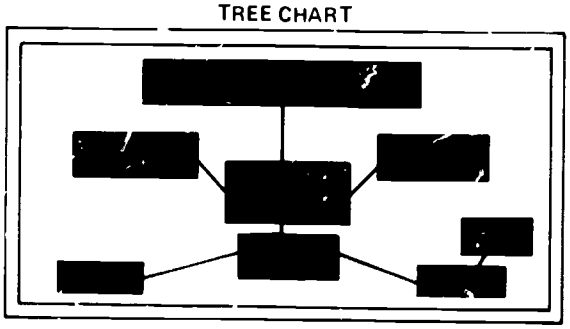
Diagrams

Diagrams are condensed drawings consisting of lines and symbols designed to show the **interrelationships, general outlines, or key features of a process, object, or area** (e.g., blueprints or schemata). A diagram can show how to thread a film projector, how to assemble a new bike, or how to wire a transistor radio

Charts

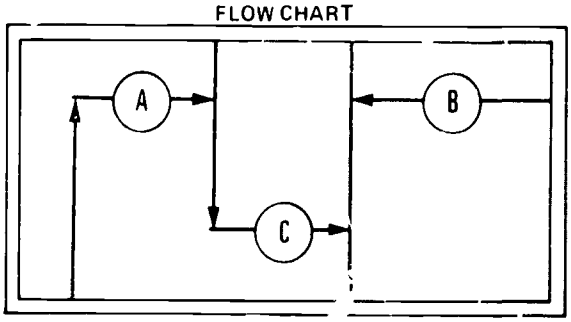
Charts are combinations of pictorial, graphic, numerical, or verbal materials that, together, will present clear visual **summaries of important processes or relationships.**[4]

TREE CHART



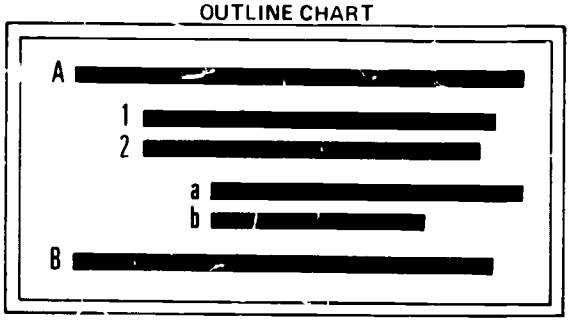
Tree chart. A tree chart is developed from a base composed of several roots leading to a single trunk, with branches representing developments and relationships. It can be used to show developments resulting from a combination of major factors.

FLOW CHART



Flow chart. Flow charts can be used to show functional relationships (e.g., organizational chart).

OUTLINE CHART



Outline chart. This type of chart can show the organization of content using key points and subpoints.

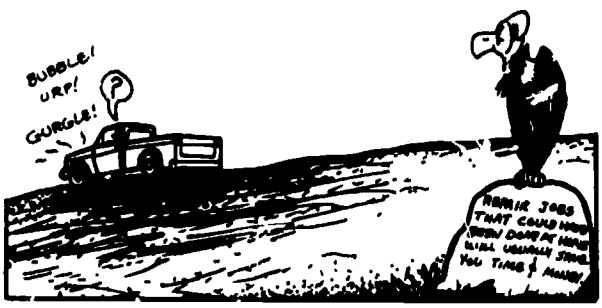
TABULAR CHART

1970	5,000	10,000
1960	1,000	5,000
1950	500	1,000
1940	200	500

Tabular chart. Tabular charts are useful in showing sequences or time relationships.

Cartoons

Cartoons are pictorial representations of ideas employing caricature, exaggeration, symbolism, and humor.



4 To gain additional skill in developing and using charts, you may wish to refer to Module A-3, *Report the Findings of a Community Survey*

Before you duplicate copyrighted material for classroom use, it is important that you have some understanding about copyright law. For more detailed information on copyright law as it relates to educators, you may wish to read one or both of the following supplementary references: Harrington, "You Could Be Breaking the (Copyright) Law," *Technical Education News;* and/or Flygare, "Photocopying and Videotaping for Educational Purposes: The Doctrine of Fair Use," *Phi Delta Kappan.*

You may wish to check with your resource person or an inservice teacher in your occupational area who can show you samples of various information sheets, graphs, charts, diagrams, and transparencies that they have developed to meet their classroom needs and objectives. Discussion with these people may yield information on further guidelines to follow or pitfalls to avoid in developing these materials.

You may wish to select several concepts or principles in your occupational area and to produce a variety of graphs, charts, and diagrams (e.g., line graph, bar graph, tree chart, flow chart) to illustrate each concept/principle.

You may wish to start a resource file of cartoons at this time. By searching through a variety of resources (e.g., periodicals, manufacturers' catalogs, trade materials), you should be able to locate cartoons, relating to your occupational area, that could be used to liven up your information sheets and transparencies.

The following items check your comprehension of the material in the information sheet, Using Handouts and Transparencies, pp. 9–11

SELF-CHECK

I. Essay:

Each of the two items below requires a short essay-type response. Please explain fully, but briefly, and make sure you respond to all parts of each item.

1. Given that many fine, commercially produced instructional materials are available, explain why teacher-made materials are necessary and what the advantages are of using teacher-made materials.

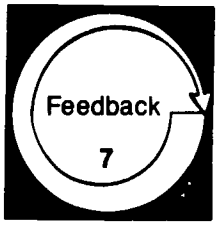
2. What guideline(s) can you use to determine what kind of teacher-made materials to prepare in order to present a particular type of information?

II. Matching:

In the left-hand column are the names of 13 types of information that can be used on handouts or transparencies. In the right-hand column are definitions. Respond to each numbered item on the left by placing the letter of the correct definition for that item in the blank to the left of the item.

____ 1. Area Graph
____ 2. Bar Graph
____ 3 Cartoon
____ 4. Circle or Pie Graph
____ 5. Diagram
____ 6. Flow Chart
____ 7. Information Sheet
____ 8. Line Graph
____ 9. Outline Chart
____ 10. Pictorial Graph
____ 11. Solid Figure Graph
____ 12. Tabular Chart
____ 13. Tree Chart

a. uses spheres, cubes, or other three-dimensional figures to represent two or more related totals
b. uses key points and subpoints to show organization of content
c. uses caricature, exaggeration, symbolism, etc., to pictorially represent ideas
d. uses verbal explanations to present concepts, facts, ideas, etc.
e. uses lines or symbols to show interrelationships, general outlines, or key features of a process object, or area
f. uses lines and symbols to show functional relationships, such as the relative order in which tasks are to be completed
g. uses lines to plot a considerable number of data, when the data comprise a continuous developmental series
h. uses squares, circles, or other outline figures of different sizes to represent two or more related totals
i. uses numbers to show sequences or time relationships
j. uses simplified drawings to show comparisons or relationships; quantity is indicated by the number of symbolic figures
k. uses triangles to represent populations of major cities
l. uses a representation of the whole (100%) and parts of the whole to show comparisons or relationships
m. uses thick, horizontal lines to show comparisons or relations when the number of values to be compared is less than ten
n. uses a base, with various arms coming off that base and leading to a single outcome, to show developments resulting from a combination of major factors



Compare your written responses to the self-check items with the model answers given below. For Part I, your responses need not exactly duplicate the model responses; however, you should have covered the same **major** points. For Part II, your responses should exactly duplicate the model responses.

MODEL ANSWERS

I. Essay:

1. Commercial products have been prepared for the general use of a large group of clients. Thus, there are times when they do not match the specific needs of the teacher, the lesson, or the students. To meet those specific needs, teacher-made materials should be produced.

   There are numerous advantages to producing and using these teacher-made materials. Students can be involved in producing the materials, and both students and teacher can tap their creativity in the process. The materials thus prepared will probably match the style or method of student/teacher communication more closely. And, as mentioned above, these teacher-made materials can fit the unique characteristics and needs of the class or lesson more closely than commercial products.

2. There is no **specific** guideline which says that for one specific type of concept, there is one specific type of material that should be used. In Learning Experience II, there is a more in-depth explanation of the variables that will affect your decisions in selecting types of materials. The **general** guideline, however, is that you should use whichever type of material will most clearly and simply illustrate the idea.

II. Matching:

1. h
2. m
3. c
4. l
5. e
6. f
7. d
8. g
9. b
10. j
11. a
12. i
13. n

Level of Performance: For Part I, your responses should have covered the same **major** points as the model responses. For Part II, you should have answered all 13 items correctly. If you missed some points or have questions about any additional points you made in Part I, or if you did not have all 13 correct in Part II, review the material in the information sheet, Using Handouts and Transparencies, pp. 9–11, or check with your resource person if necessary.

NOTES

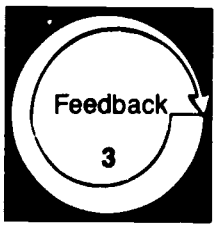
Learning Experience II

OVERVIEW

After completing the required reading, demonstrate knowledge of (1) five methods of duplicating teacher-made handouts and transparencies and (2) criteria for selecting which method to use.

You will be reading the information sheet, Duplicating Materials, pp. 18–22.

You will be demonstrating knowledge of (1) five methods of duplicating teacher-made handouts and transparencies and (2) criteria for selecting which method to use by completing the Self-Check, pp. 23–25.



You will be evaluating your competency by comparing your completed Self-Check with the Model Answers, p. 27.

Activity 1

For information on five types of duplication methods, ways to prepare masters for those methods, and criteria for preparing handouts and transparencies, read the following information sheet.

DUPLICATING MATERIALS

There is no one **best** duplication method. The method you select should be based on six factors:

- Type of master available
- Quantity of copies desired
- Quality of copies desired
- Economy: cost of materials and labor
- Time element and urgency
- Type of machines available

The following information will help you know how to select the appropriate method for any given situation.

Duplication Methods

The times, they are indeed changing. When the first edition of this module was originally drafted, the duplication options teachers had available to them were generally limited—often just ditto and mimeograph. Special masters had to be prepared—sometimes a lengthy, fussy process; and copies had to be reproduced—sometimes a time-consuming, messy process.

Nowadays, teachers may have a wide range of duplication options available in their schools, from a ditto machine in the teachers lounge, to a xerographic photocopy machine in the central office, to offset equipment in the school's print shop. Teachers with access to word processing equipment—perhaps even at home on their own personal computers—can produce multiple copies of perfectly typed and edited documents with ease. Word processors aside, let us look at these duplication processes in more detail.

Fluid

Types: Hectograph, spirit, ditto

No. copies possible: 10–250

Cost: Less than 1 cent per copy

How fluid process works: The master is placed on a roller, with the carbon image side up. As the blank paper is forced through the machine, it is moistened with a liquid chemical and then squeezed against the master. The dye in the carbon dissolves and transfers to the paper. As the paper leaves the machine, the fluid rapidly evaporates. It is this liquid chemical that causes that charming odor on all those newly run-off tests you've taken on occasion.

Master: The master for fluid reproduction consists of a shiny piece of white paper, backed by an attached sheet of duplicator carbon, with a protective sheet of tissue between the two. To make a master copy, you first remove the protective tissue. Lay the master on a smooth, hard surface—or place in the typewriter—with the white sheet face up, pressing against the duplicator carbon.

Leave margins of ½" top and bottom, at least ¾" on each side. Write or type on the white paper with a hard, firm, even pressure. With electric typewriters, you will need to increase the pressure, using the dial designed for that purpose. When you make a mark on the white paper, the carbon is transferred to the back of the white paper in a reverse impression. It is this reverse carbon image that constitutes the finished master.

When preparing a master on the typewriter, there are a few special do's and don'ts:

- Don't underline using the typewriter. It has a tendency to slash the paper. Wait until you have completed your master, and then use a ball-point pen and a ruler.
- Leave your ribbon in its normal position. Do not switch to "stencil."
- Put the master in the machine upside down; i.e., the first end of the master to go into the machine is the end where the two sheets (carbon and white sheet) are **not** attached. This will allow you to correct errors more easily, without having to remove the master from the typewriter.
- Use a backing sheet as a cushion. It will ensure a better carbon impression.

If you make an error on a master, it is fairly simple to correct. If something needs to be eliminated without anything else having to go in that place, you may simply cut out the error or place a piece of cellophane tape over the error **on the carbon image side** of the white paper.

If something must replace the error, you should flip to the carbon image side and **scrape** the carbon error away using a razor or knife. You then need a small piece of unused duplicator carbon; this can be cut from an unused margin of the duplicator carbon being used at present. Place this under the error and make the correction on the shiny side of the white paper. Then immediately remove the extra scrap of carbon.

Occasionally, you will complete a master copy only to find you have left the protective tissue between your sheets. In this case, the reversed carbon image is on the tissue. If you are careful, this tissue can be used as a master.

Color can be produced by using various colored duplicator carbons. Five colors are available. The normal color is purple.

A master may be filed after stapling it to a sample copy or to the tissue to protect the carbon side. Over time, however, the carbon impressions blur and the masters become unusable.

Disadvantages: If you handle the carbons at all, it can be messy. Copies are not particularly professional looking. And copies cannot be photocopied.

Stencil

Types: Mimeograph ink process

No. copies possible: 50–1,000 +, with a deeper, more even tone than copies produced using the fluid process

Cost: 1–1½ cents per copy

How stencil process works: The master is made up of a porous tissue with a waxlike coating that doesn't absorb ink. In preparing the stencil, this coating is removed by typing or by writing with a stylus. When the blank paper makes contact with the stencil in the duplication machine, ink flows onto the paper **only** through those places where the coating has been removed.

Master: The stencil master consists of the wax-coated tissue and an attached backing sheet. The wax-coated tissue is marked with lines to indicate margins for 8½" × 11", post card size, etc.

To write on the stencil, a stylus should be used. When writing, do so on a firm, smooth surface, using the attached backing sheet or a writing plate. Do not use a cushion sheet. Do not retrace a line on a stencil.

To type a stencil, place the stencil with the backing sheet and a cushion sheet (glossy side next to the stencil sheet) in the machine with the wax-coated tissue side up. Set the typewriter ribbon on stencil; in this setting, the ribbon is not used. Use a firm, even stroke.

Stencils can also be prepared using an electronic stencil-maker. The original and the stencil for the machine are placed on a cylinder, and when started, the machine electronically prepares a stencil from the master. It is a somewhat lengthy process, but not so lengthy as, and far more simple than, cutting a stencil with a stylus or typewriter.

If you make an error on a stencil, first rub the error in a circle (burnish) with the rounded end of a paper clip. Then apply a thin coat of blue correction fluid using an upward brush stroke. Allow 30 seconds to dry and then make the correction. The stencil may be filed and reused.

Disadvantages: The time required to prepare the stencil may be a disadvantage. And the stencils are messy to handle once they have been used.

Photocopy: Infrared

Types: Thermofax

No. copies possible: 1–25

Cost: 3–5 cents per copy

How infrared photocopying process works: A heat-sensitive paper and the material to be copied are inserted together through the exposure opening and are exposed to an infrared light. The light generates heat on contact with dark portions of the original material, and the heat, in turn, turns the copy paper dark in corresponding locations.

Master: Infrared photocopies duplicate best from masters with carbon impressions (e.g., masters typed using a carbon ribbon, written in pencil, or photocopied). The infrared photocopier will copy magazine articles but does not copy pictures well. It will not copy material written with pen, fluid process reproductions, or materials prepared with most colored inks.

Disadvantages: Errors that have been corrected will show up as smudges. Copies are not permanent; they become brittle and will darken if exposed to heat. And since it is a heat process, the master will become fainter (burned off) each time it is used.

Photocopy: Xerographic or Electrostatic

Types: Available from such companies as Xerox, IBM, Eastman Kodak, SCM / A.B. Dick, Pitney Bowes, Saxon, Royfax

No. copies possible: Indefinite number of equal-quality copies

Cost: 3–5 cents per copy

How xerographic photocopying process works: The surface of a selenium-coated plate is charged electrically as it passes beneath wires. The image of the original document is projected through a camera lens. The latent image retains a positive charge.

The charge is drained away in areas that are exposed to light. Negatively charged powder is cascaded over the plate and adheres to the positive image. The latent image now becomes visible.

A sheet of plain bond paper is placed over the plate, and the paper is given a positive charge. Positively charged paper attracts powder from the plate, forming a direct positive image. The print is fused by heat for permanency.

How electrostatic photocopying works: In some schools, an electrostatic photocopier is used to perform the same function as the xerographic equipment. Many of the operating principles are the same; however, the electrostatic photocopier uses a chemical process and special zinc-oxide-coated paper. Dispersant and concentrate fluids carry the image onto the paper.

Master: With the xerographic or electrostatic photocopier, anything can be a master. Since it is a photocopy process, what you see is what you get: a page of a book, a heavily corrected typewritten sheet, a picture, a graph, a rough draft in pencil, a composition in ink. The only thing a xerographic or electrostatic photocopier will not reproduce well is light (nonphoto) blue pencil. It will even reproduce printed matter covered by a piece of cellophane tape.

Disadvantages: Due to the expense involved, it is not usually economically feasible to run large numbers of copies on a xerographic-type machine; electrostatic photocopies are usually slightly more expensive.

Offset

Types: Available from such companies as Addressograph Multilith, Itek, A.B. Dick, Gestetner, AFT-Davidson

No. copies possible: 1–1,000+ from a paper master, with quality near that of the original

Cost: 2–3 cents per copy

How the offset duplication process works: The typed or printed image from a paper master is transferred to a moistened rubber blanket that is mounted on a revolving cylinder. The blanket picks up ink from a roller only on the parts that form the image, and the inked image is then printed on the duplication paper. Paper for offset duplication is available in numerous colors, as well as in white.

Master: Your original can be any 8½″ x 11″ sheet of paper, with the copy typewritten, hand-lettered, or drawn in ink. In addition, commercially printed material can be cut out and pasted or fastened with nongloss transparent tape onto a sheet of paper to form an original. Errors can be corrected as on any typewritten copy, and they will not show on the final product. As with the xerographic process, the only thing offset does not reproduce is nonphoto blue.

The original is then processed through a master maker to produce a paper master. (Electrostatic and metal masters are also used in offset reproduction.) The original is not used up or damaged in the master-making process and is good indefinitely.

Disadvantages: Offset duplication machines have a fairly high initial cost, but many schools and colleges have installed them as instructional equipment (e.g., in business and office, graphic arts, or printing programs) or for promotional purposes (e.g., to produce brochures, recruitment materials, or course catalogs). Training is needed to operate the equipment properly, and unless the equipment is part of the teacher's instructional program, it will generally not be teacher-operated (which may be a disadvantage or an advantage, depending on the situation).

Preparing Transparencies and Handouts

In preparing transparencies and handouts, more is involved than simply preparing a master and having it reproduced. Many a presentation has been marred by the use of transparencies and handouts that were unattractive or, worse, impossible to read. Let's look, then, at some guidelines governing the preparation of such materials.

Transparencies

Transparencies should be prepared with the following guidelines in mind:

- Transparencies should be designed to **illustrate** or **emphasize** key points you are making; they should not be used to present the total content of your lesson.
- Keep each transparency simple. Preferably, a transparency should deal with only one main point. Too much detail or information on one transparency is distracting and confusing, rather than enlightening.
- Avoid masses of black area, especially when using photocopies as masters. It will not show up as solid black, but as blotchy.
- Put only six to seven words per line.
- Put only ten lines or less on a single transparency.
- Do not overuse color.
- Lettering should be large enough to be read **easily** by students in the last row (minimum letter size, ¼"). Do not attempt to use typewritten lettering; even the largest print sizes are too small and thin.

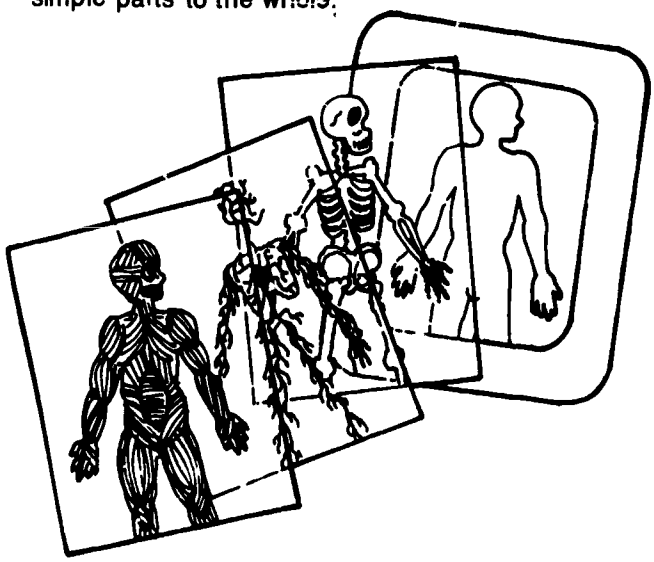
One simple way to prepare a transparency by machine is to use an infrared photocopier and a master with a carbon impression. Directions for using the infrared photocopier to run a transparency are given in the operation manual for the equipment.

If your school has a graphic arts program, you may be able to get beautiful photocopy or diazo transparencies made from your masters. These are of much higher quality than infrared copies.

Transparencies can also be prepared by hand, using a special nylon- or felt-tip pen containing water-based ink. These are not generally very high in quality.

If you have the time, the talent, and the inclination, however, there are a variety of special techniques, such as the following, that you can use to produce high-quality transparencies.

To simplify a transparency that is, of necessity, complicated (e.g., the internal workings of the human body), **overlays** may be used. Overlays involve a series of transparencies, each containing a simple portion of the whole. Used one at a time, they are each simple. Placed one over the other, they show the whole system, as well as the relationship of the simple parts to the whole.



Take, for example, a transparency in overlay form used in support of a lesson on normal and abnormal heartbeats. The basic, mounted transparency could be a graph without any data. The first overlay could show the pattern of a normal heartbeat. The second overlay could show the pattern of an abnormal heartbeat. A different color could be used for each transparency. In this way, simplicity can be maintained.

To make fine, professional-looking **lettering**, one option is to use dry-transfer lettering, sheets of which are available—in a variety of lettering styles—at art supply and drafting supply stores.

You can make bold, clean, straight **lines** by using pressure-sensitive graphic tape, available in many widths at art supply stores.

Plastic templates permit you to make perfect circles, boxes, and a bewildering variety of other **standard shapes** on your transparency masters. Use a sharp-tipped black felt pen or technical pen for best results.

There are several ways to add **color** to your final result. Transparency material for the infrared process is available that gives you a pale-colored background with black lines or a clear background with colored lines. Several colors are available in a "rainbow pack."

You can also use special felt-tip pens—in various colors—to fill in the desired areas on the completed transparency. Again, coloring in small areas or using parallel lines or dots works best; it is difficult to color in large areas evenly.

Finally, special transparent, self-adhesive, colored film is available in sheets or rolls. You cut the film to fit the desired shape and then adhere it to the underside of the transparency. Be sure to get the right kind; some look transparent but show up as black on the screen.

Handouts

The quality of handouts that is acceptable may vary depending on their purpose and your situation. Generally speaking, using a xerographic photocopier or offset equipment produces the most professional-looking copies—then mimeographing, then dittoing, then using the infrared photocopier. Xerographic photocopies are also the most expensive—per copy—to reproduce, however, so duplicating large quantities by this method must be carefully justified.

Stencils take time and care to prepare, but they save well and can be reused year after year (assuming the content is still up-to-date and appropriate). Typewritten or handwritten ditto masters can be prepared fairly simply and quickly; the quality of the copies is adequate, but not professional-looking.

Infrared photocopies don't hold up well, and this is a more expensive process. However, the infrared photocopier can be used to make ditto masters. This means that if you have a magazine article or a single copy of information, you can use the infrared photocopier to prepare a ditto master of the material. Then, the material can be duplicated more inexpensively on the ditto machine.

No matter what method you choose, the handouts you give your students should be clear, logical, straightforward, concise, error-free, and above all, legible.

The following items check your comprehension of the material in the information sheet, Duplicating Materials, pp. 18–22.

SELF-CHECK

I. Duplication Methods:

The left-hand column below contains a list of characteristics, each of which applies to one or more duplication methods. On the right are five columns, one for each duplication method. Read each item and decide which method(s) that item describes. Then place an X in the box(es) in the appropriate column(s). The first item is done for you.

	Fluid Process	Stencil	Infrared Photocopier	Xerographic (or Electrostatic) Photocopier	Offset
1. Costs 1–1½ cents per copy	☐	☒	☐	☐	☐
2. Costs less than 1 cent per copy	☐	☐	☐	☐	☐
3. Costs 2–3 cents per copy	☐	☐	☐	☐	☐
4. Costs 3–5 cents per copy	☐	☐	☐	☐	☐
5. Up to 25 copies can be run from a single master	☐	☐	☐	☐	☐
6. Up to 250 copies can be run from a single master	☐	☐	☐	☐	☐
7. Up to 1,000+ copies can be run from a single master	☐	☐	☐	☐	☐
8. An indefinite number of good copies can be run from a single master	☐	☐	☐	☐	☐
9. Master must be prepared using carbon ribbon or pencil	☐	☐	☐	☐	☐
10. Master is a piece of shiny white paper attached to a duplicator carbon; finished master is the reverse side of the white paper, which has reverse carbon impression on it	☐	☐	☐	☐	☐
11. Master is a wax-coated tissue attached to a backing sheet; finished master is the tissue alone	☐	☐	☐	☐	☐
12. Master can be anything except material written in light blue pencil	☐	☐	☐	☐	☐
13. Reproduces by heat process	☐	☐	☐	☐	☐
14. Reproduces by electrical or chemical process	☐	☐	☐	☐	☐

	Fluid Process	Stencil	Infrared Photocopier	Xerographic (or Electrostatic) Photocopier	Offset
15. Reproduces by spirit process using a liquid chemical	☐	☐	☐	☐	☐
16. Reproduces by ink process	☐	☐	☐	☐	☐
17. Errors on master should be burnished, covered with blue correction fluid, and corrected	☐	☐	☐	☐	☐
18. Errors on masters can be cut out, covered with cellophane tape, or scraped away	☐	☐	☐	☐	☐
19. Errors on originals can be corrected as on any typewritten copy and will not show up on the final copies	☐	☐	☐	☐	☐
20. Corrections will show up as smudges on copies	☐	☐	☐	☐	☐
21. Master is typed without using the typewriter ribbon	☐	☐	☐	☐	☐
22. Masters can be messy to handle	☐	☐	☐	☐	☐
23. Master should be typed using a backing sheet as a cushion	☐	☐	☐	☐	☐
24. Almost any printed material can be a master	☐	☐	☐	☐	☐
25. Copies darken with age	☐	☐	☐	☐	☐
26. Master that generally requires the most time to prepare ..	☐	☐	☐	☐	☐
27. Master becomes fainter (burned off) each time it is used .	☐	☐	☐	☐	☐
28. Master requires that a stylus be used if it is to be handwritten	☐	☐	☐	☐	☐
29. Masters or originals save well for future use	☐	☐	☐	☐	☐
30. Produces the most professional-looking copies	☐	☐	☐	☐	☐
31. Simple method of reproducing a transparency	☐	☐	☐	☐	☐
32. Can make a ditto master from normal copy	☐	☐	☐	☐	☐
33. Can reproduce printing covered by cellophane tape	☐	☐	☐	☐	☐
34. Can reproduce a page of a book without having to remove the page from the book	☐	☐	☐	☐	☐

II. Transparencies:

Each of the six items below requires a short response. Please respond fully, but briefly

1. How many lines of writing (maximum) should a transparency contain?

2. How many words per line (maximum) should a transparency contain?

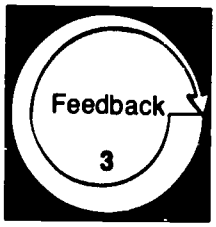
3. How much detail should a transparency contain? Why?

4. How large should the lettering on a transparency be?

5. If you had a circle that was 1" in diameter on your transparency, should you color it in with heavy black to make it more visible? Why or why not?

6. If you had a very complicated process to present, how could you use transparencies to simplify the process?

NOTES



Compare your written responses to the self-check items with the model answers given below. For Part I, your responses should exactly duplicate the model responses. For Part II, your responses need not exactly duplicate the model responses; however, you should have covered the same **major** points.

MODEL ANSWERS

I. Duplication Methods:

1. Stencil
2. Fluid Process
3. Offset
4. Infrared Photocopier, Xerographic Photocopier
5. Infrarod Photocopier
6. Fluid Process
7. Stencil, Offset
8. Xerographic Photocopier
9. Infrared Photocopier
10. Fluid Process
11. Stencil
12. Xerographic Photocopier, Offset
13. Infrared Photocopier
14. Xerographic Photocopier
15. Fluid Process
16. Stencil, Offset
17. Stencil
18. Fluid Process
19. Xerographic Photocopier, Offset
20. Infrared Photocopier
21. Stencil
22. Fluid Process, Stencil
23. Fluid Process, Stencil
24. Xerographic Photocopier, Offset
25. Infrared Photocopier
26. Stencil
27. Infrared Photocopier
28. Stencil
29. Stencil, Xerographic Photocopier, Offset
30. Xerographic Photocopier, Offset
31. Infrared Photocopier
32. Infrared Photocopier
33. Xerographic Photocopier, Offset
34. Xerographic Photocopier

II. Transparencies:

1. A transparency should contain 10 lines or less.
2. Each line should contain not more than 6–7 words.
3. A transparency should be kept simple. A transparency containing 25 lines of detailed information, with 15–20 words a line, is cluttered; it can confuse and discourage learners. A simple transparency that keys in to one main point can be an effective instructional device.
4. The lettering should be large enough to be seen by the last student in the last row of your classroom or laboratory.
5. Masses of black area reproduce as unevenly colored, blotchy areas. Therefore, coloring in black areas should be avoided.
6. The process can be simplified by breaking it down into single subparts of the process and using a series of overlays to present it.

Level of Performance: For Part I, you should have answered all 34 items correctly. For Part II, your responses should have covered the same **major** points as the model responses. If you did not have all 34 correct in Part I, or if you missed some points or have questions about any additional points you made in Part II, review the material in the information sheet, Duplicating Materials, pp. 18–22, or check with your resource person if necessary.

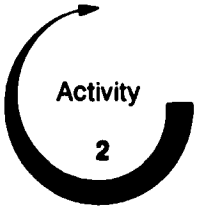
NOTES

Learning Experience III

OVERVIEW

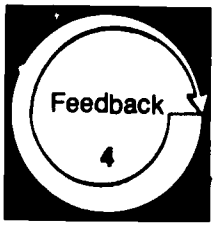
Using the material provided, prepare masters for four types of duplicating machines and use those machines to prepare copies.

You will be locating, within your immediate environment, four specific types of duplicating machines and arranging to have at least temporary access to each machine.



You will be preparing masters for each of the four machines, using the subject matter provided or other subject matter from your own occupational area.

You will be reading the operating manual for each machine, relating what you read to the actual machine, and using each machine to run copies from your masters.

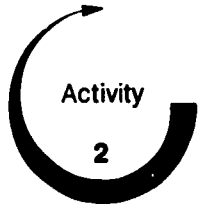


The quality of your masters and of your duplicated copies will be evaluated by your resource person, using the Duplication Checklist, pp. 33–34.

Locate, within your immediate environment, the following four machines:

- Xerographic or electrostatic photocopier
- Infrared photocopier
- Stencil
- Fluid process

Arrange independently or, if necessary, through your resource person to have at least temporary access to each of the above machines. **NOTE:** Since offset equipment is generally not teacher-operated, its use is not included here.



Using the following essay, Desiderata, as your content, prepare masters for each of the four machines. If desired, you may use content other than Desiderata, perhaps something from your own occupational area, for example.

DESIDERATA

Go placidly amid the noise and haste, and remember what peace there may be in Silence.... As far as possible without surrender be on good terms with all persons.... Speak your Truth quietly and Clearly; and listen to others, even the dull and ignorant; they too have their story.... Avoid loud and aggressive persons, they are vexations to the spirit.... If you compare yourself with others, you may become vain and bitter; for always there will be greater and lesser persons than yourself.... Enjoy your achievements as well as your plans.... Keep interested in your own career, however humble; it is a real possession in the changing fortunes of time.... Exercise caution in your business affairs; for the world is full of trickery.... But let this not blind you to what virtue is; many persons strive for high ideals; and everywhere life is full of heroism.... Be yourself.... Especially, do not feign affection.... Neither be cynical about love; for in the face of all aridity and disenchantment it is perennial as the grass.... Take kindly the counsel of the years, gracefully surrendering the things of youth.... Nurture strength of spirit to shield you in sudden misfortune.... But do not distress yourself with imaginings. Many fears are born of fatigue and loneliness.... Beyond a wholesome discipline, be gentle with yourself.... **[You are a child of the universe, no less than the trees and the stars; You have a right to be here; and whether or not it is clear to you, no doubt the universe is unfolding as it should]**.... Therefore be at peace with God, whatever you conceive Him to be, and whatever your labors and aspiration, in the noisy confusion of life, keep peace with your soul.... With all its sham, drudgery and broken dreams, it is still a beautiful world.... Be careful.... Strive to be happy.... (by Max Ehrman.... found in Old St. Paul's Church, Baltimore; dated 1692)

Read the operating manual for each machine and try to relate what you are reading to the actual machine. Then, use each machine as follows to run the following number of copies for each master:

- Xerographic Photocopier—2 copies
- Infrared Photocopier—1 copy
  1 transparency
  1 ditto master
- Fluid Process—10 copies from your original ditto master
  10 copies from your thermofaxed ditto master
- Stencil—10 copies

NOTE: Use only the portion in brackets when preparing your transparency.

After you have duplicated all the required materials, arrange to have your resource person review and evaluate your masters and reproduced copies. Give him/her the Duplication Checklist, pp. 33–34, to use in evaluating your work.

NOTES

DUPLICATION CHECKLIST

Directions: Place an X in the NO, PARTIAL, or FULL box to indicate that each of the following performance components was not accomplished, partially accomplished, or fully accomplished. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

Name _____

Date _____

Resource Person _____

	LEVEL OF PERFORMANCE			
	N/A	No	Partial	Full
Fluid Process Master:				
1. The master was typed or written according to the directions given for that master	☐	☐	☐	☐
2. Any errors were corrected cleanly, correctly, and completely	☐	☐	☐	☐
3. The layout of material was attractive and easily legible	☐	☐	☐	☐
4. The typing or writing pressure was firm and even	☐	☐	☐	☐
Stencil Master:				
5. The master was typed or written according to the directions given for that master	☐	☐	☐	☐
6. Any errors were corrected cleanly, correctly, and completely	☐	☐	☐	☐
7. The layout of the material was attractive and easily legible	☐	☐	☐	☐
8. The typing or writing pressure was firm and even	☐	☐	☐	☐
Infrared Photocopy Master:				
9. The master was prepared using a carbon ribbon or a pencil	☐	☐	☐	☐
10. Any errors were corrected cleanly, correctly, and completely	☐	☐	☐	☐
11. The layout of the material was attractive and easily legible	☐	☐	☐	☐
12. The typing or writing pressure was firm and even	☐	☐	☐	☐
Xerographic Photocopy Master:				
13. The master was typed or written according to the directions given for that master	☐	☐	☐	☐
14. Any errors were correctly cleanly, correctly, and completely	☐	☐	☐	☐
15. The layout of the material was attractive and easily legible	☐	☐	☐	☐
16. The typing or writing pressure was firm and even	☐	☐	☐	☐

	N/A	No	Partial	Full
Completed Copies:				
17. The copies were clean	☐	☐	☐	☐
18. The copies were easily legible	☐	☐	☐	☐
19. The copies were error-free	☐	☐	☐	☐
20. The material was well centered on the copies	☐	☐	☐	☐
21. The copies were attractive	☐	☐	☐	☐

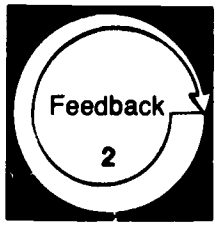
Level of Performance: All items must receive FULL or N/A responses. If any item receives a NO or PARTIAL response, the teacher and resource person should meet to determine what additional activities the teacher needs to complete in order to reach competency in the weak area(s).

Learning Experience IV

OVERVIEW

Given case studies describing how four teachers prepared and duplicated teacher-made materials, critique the performance of those teachers.

You will be reading the Case Studies, pp. 36–37, and critiquing the performance of the teachers described.



You will be evaluating your competency in critiquing the teachers' performance in preparing and duplicating teacher-made materials by comparing your completed critiques with the Model Critiques, p. 39.

The following case studies describe how four vocational teachers prepared and duplicated teacher-made materials for their classes. Keeping in mind the criteria for selecting the best method of reproducing materials, read each case study. Then, explain in the space provided (1) what each teacher did correctly, (2) what the teacher did incorrectly, and (3) what the teacher should have done instead.

CASE STUDIES

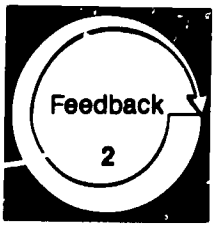
1. Mrs. Jones, the home economics teacher, wanted each of her students to make one dozen chocolate chip cookies. She wanted to give each student a copy of the recipe, so she took her personal copy and made a xeroqraphic photocopy for each of her 60 students.

2. The students in horticulture wanted to sell the Easter lilies they were raising. They decided to advertise by preparing a handout to give to each of the school's 1,000 teachers, students, and other staff. One of their teachers, Mr. Mudd, agreed with their idea and offered to help them. He prepared a beautiful stencil explaining the sale, complete with a sketch of an Easter lily. He ran off 1,050 copies on the mimeograph machine using various colors of paper and arranged with the office for the handouts to be distributed. The duplicating bill could be paid from proceeds of the sale.

3. While he was reading *Popular Mechanics* after school one day, Mr. Jameson, a T&I teacher, came across a ten-page article that would supplement the next day's lesson perfectly. It gave diagrams and pictures and explanations of some up-to-the-minute developments. Due to the nature of the material, he used the original article as a master and used the infrared photocopier to prepare the 30 copies he needed for his class. Then, he put them in his car and went to meet his wife at the pool for a swim before supper.

4. Mr. Quinn, the business and office education teacher, was teaching a lesson on typing business letters. One member of the class, a transfer student, had in her notebook a two-page mimeographed guide for typing business letters that she had gotten at her last school. Mr. Quinn had two of his students make xerographic photocopies of the mimeographed sheets, run another ditto master on the infrared photographer, and then run enough dittoed copies for the class to use that same period.

NOTES



Compare your written critiques of each teacher's performance with the model critiques given below. Your responses need not exactly duplicate the model responses; however, you should have covered the same **major** points.

MODEL CRITIQUES

1. Mrs. Jones's decision to provide all students with a recipe of their own was a good one. The condition of her personal copy would determine whether it would make a good master. However, it is doubtful that using the xerographic photocopier was appropriate in this situation. Duplicating 60 copies is relatively expensive.

   It would have been better, and nearly as simple, to have a ditto master made up, either typed or written, by either the teacher or a student. The ditto master could then have been used to run the necessary 60 copies. If this was a recipe Mrs. Jones wanted to use again and again, a mimeograph stencil would be the best method.

2. The method was good. Where Mr. Mudd went wrong was in usurping the task completely from the students. He didn't "help"; he took over. The students should have been involved in the planning, preparation and duplication processes.

3. A ten-page article is quite lengthy. It might have been sufficient to duplicate two to five copies and circulate them as extra reading. On the other hand, perhaps it was necessary for each student to have a copy and perhaps the nature of the material did not allow for a handmade copy.

   Nevertheless, material prepared with an infrared photocopier is not the easiest copy to read, nor does it save well, nor is it quick. Mr. Jameson would have had to hand feed the machine 300 times to get his 30 copies. Leaving them in a hot car would have darkened the copies, making them even harder to read.

   The simplest, most economical method would have been to use the infrared photocopier to make a ditto master for each page. Then the 30 copies could have been run on a ditto machine.

   Finally, it looks as though Mr. Jameson forgot to check whether copyright laws would allow him to duplicate an article of that length for classroom use.

4. Mr. Quinn's decisions were very good all around. The copies would be adequate, they could be used immediately, and the students were definitely involved.

Level of Performance: Your written critiques of the teachers' performance should have covered the same **major** points as the model critiques. If you missed some points or have questions about any additional points you made, review the material in the information sheet, Duplicating Materials, pp. 18–22, or check with your resource person if necessary.

Learning Experience V

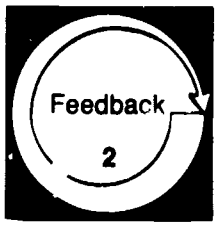
FINAL EXPERIENCE

In an **actual teaching situation,*** prepare teacher-made instructional materials.

As you plan your lessons, prepare teacher-made instructional materials to support those lessons. This will include—

- deciding what, if any, teacher-made materials are needed to support each lesson
- deciding what duplication method would be the most appropriate for duplicating each of those materials
- preparing the necessary masters
- duplicating the necessary copies

NOTE: Due to the nature of this experience, you will need to have access to an actual teaching situation over an extended period of time (e.g., two to six weeks).



After you have had the opportunity to prepare and duplicate handouts and transparencies using each of four types of duplication methods (fluid process, stencil, xerographic or electrostatic photocopier, infrared photocopier), arrange to have your resource person review copies of (1) the masters, (2) the reproduced copies, and (3) the lesson plans for which these materials were prepared.

Your total competency will be assessed by your resource person, using the Teacher Performance Assessment Form, pp. 43–44.

Based upon the criteria specified in this assessment instrument, your resource person will determine whether you are competent in preparing teacher-made instructional materials.

* For a definition of "actual teaching situation," see the inside back cover

TEACHER PERFORMANCE ASSESSMENT FORM

Prepare Teacher-Made Instructional Materials (B-6)

Directions: Indicate the level of the teacher's accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

Name _____

Date _____

Resource Person _____

	LEVEL OF PERFORMANCE					
	N/A	None	Poor	Fair	Good	Excellent
1. Students were involved in the planning and/or preparation of the materials	☐	☐	☐	☐	☐	☐
2. The materials that were developed were geared to:						
a. meet the lesson objectives	☐	☐	☐	☐	☐	☐
b. students' needs, interests, and abilities	☐	☐	☐	☐	☐	☐
c. fit available resources	☐	☐	☐	☐	☐	☐
d. provide concrete experiences	☐	☐	☐	☐	☐	☐
e. motivate and arouse interest	☐	☐	☐	☐	☐	☐
f. increase retention by involving the senses	☐	☐	☐	☐	☐	☐
g. provide variety in learning	☐	☐	☐	☐	☐	☐
h. provide experience not otherwise easily obtained	☐	☐	☐	☐	☐	☐
i. save instructional time	☐	☐	☐	☐	☐	☐
3. The type of instructional materials selected (i.e., information sheet, graph, diagram, chart, or cartoon) were appropriate for illustrating the concepts being taught	☐	☐	☐	☐	☐	☐
4. The materials that were developed were:						
a. clear	☐	☐	☐	☐	☐	☐
b. logical	☐	☐	☐	☐	☐	☐
c. concise	☐	☐	☐	☐	☐	☐
d. error-free	☐	☐	☐	☐	☐	☐
e. legible	☐	☐	☐	☐	☐	☐
f. attractive (well centered, clean)	☐	☐	☐	☐	☐	☐

	N/A	None	Poor	Fair	Good	Excellent
5. When materials were duplicated, the duplication method was selected on the basis of:						
a. type of original or master available	☐	☐	☐	☐	☐	☐
b. quantity of copies desired	☐	☐	☐	☐	☐	☐
c. quality of copies desired	☐	☐	☐	☐	☐	☐
d. cost of materials and labor	☐	☐	☐	☐	☐	☐
e. time element and urgency	☐	☐	☐	☐	☐	☐
f. type of machines available	☐	☐	☐	☐	☐	☐
6. When a master was prepared:						
a. it was appropriate for the machine selected	☐	☐	☐	☐	☐	☐
b. it was prepared according to the directions given for that master	☐	☐	☐	☐	☐	☐
c. the errors were corrected cleanly, correctly, and completely	☐	☐	☐	☐	☐	☐
d. the typing or writing pressure was hard, firm, and even	☐	☐	☐	☐	☐	☐

Level of Performance: All items must receive N/A, GOOD, or EXCELLENT responses. If any item receives a NONE, POOR, or FAIR response, the teacher and resource person should meet to determine what additional activities the teacher needs to complete in order to reach competency in the weak area(s).

ABOUT USING THE NATIONAL CENTER'S PBTE MODULES

Organization

Each module is designed to help you gain competency in a particular skill area considered important to teaching success A module is made up of a series of learning experiences, some providing background information, some providing practice experiences, and others combining these two functions. Completing these experiences should **enable** you to achieve the **terminal** objective in the final learning experience. The final experience in each module always requires you to demonstrate the skill in an actual teaching situation when you are an intern, a student teacher, an inservice teacher, or occupational trainer

Procedures

Modules are designed to allow you to individualize your teacher education program. You need to take only those modules covering skills that you do not already possess. Similarly, you need not complete any learning experience within a module if you already have the skill needed to complete it. Therefore, before taking any module, you should carefully review (1) the introduction, (2) the objectives listed on p. 4, (3) the overviews preceding each learning experience, and (4) the final experience. After comparing your present needs and competencies with the information you have read in these sections, you should be ready to make one of the following decisions:

- That you do not have the competencies indicated and should complete the entire module
- That you are competent in one or more of the enabling objectives leading to the final learning experience and, thus, can omit those learning experiences
- That you are already competent in this area and are ready to complete the final learning experience in order to "test out"
- That the module is inappropriate to your needs at this time

When you are ready to complete the final learning experience **and** have access to an actual teaching situation, make the necessary arrangements with your resource person If you do not complete the final experience successfully, meet with your resource person and arrange to (1) repeat the experience or (2) complete (or review) previous sections of the module or other related activities suggested by your resource person before attempting to repeat the final experience.

Options for recycling are also available in each of the learning experiences preceding the final experience. Any time you do not meet the minimum level of performance required to meet an objective, you and your resource person may meet to select activities to help you reach competency. This could involve (1) completing parts of the module previously skipped, (2) repeating activities, (3) reading supplementary resources or completing additional activities suggested by the resource person, (4) designing your own learning experience, or (5) completing some other activity suggested by you or your resource person

Terminology

Actual Teaching Situation: A situation in which you are actually working with and responsible for teaching secondary or postsecondary vocational students or other occupational trainees. An intern, a student teacher, an inservice teacher, or other occupational trainer would be functioning in an actual teaching situation. If you do **not** have access to an actual teaching situation when you are taking the module, you can complete the module **up to** the final learning experience. You would then complete the final learning experience later (i.e , when you have access to an actual teaching situation).

Alternate Activity or Feedback: An item that may **substitute** for required items that, due to special circumstances, you are unable to complete.

Occupational Specialty: A specific area of preparation within a vocational service area (e.g., the service area Trade and Industrial Education includes occupational specialties such as automobile mechanics, welding, and electricity.

Optional Activity or Feedback: An item that is not required but that is designed to **supplement** and enrich the required items in a learning experience.

Resource Person: The person in charge of your educational program (e.g., the professor, instructor, administrator, instructional supervisor, cooperating/supervising/classroom teacher, or training supervisor who is guiding you in completing this module).

Student: The person who is receiving occupational instruction in a secondary, postsecondary, or other training program.

Vocational Service Area: A major vocational field: agricultural education, business and office education, marketing and distributive education, health occupations education, home economics education, industrial arts education, technical education, or trade and industrial education.

You or the Teacher/Instructor: The person who is completing the module.

Levels of Performance for Final Assessment

N/A: The criterion was not met because it was **not applicable** to the situation.

None: No attempt was made to meet the criterion, although it was relevant.

Poor: The teacher is unable to perform this skill or has only **very limited ability** to perform it.

Fair: The teacher is unable to perform this skill in an acceptable manner but has **some ability** to perform it.

Good: The teacher is able to perform this skill in an **effective** manner.

Excellent: The teacher is able to perform this skill in a **very effective** manner.

Titles of the National Center's Performance-Based Teacher Education Modules

Category A: Program Planning, Development, and Evaluation

A-1 Prepare for a Community Survey
A-2 Conduct a Community Survey
A-3 Report the Findings of a Community Survey
A-4 Organize an Occupational Advisory Committee
A-5 Maintain an Occupational Advisory Committee
A-6 Develop Program Goals and Objectives
A-7 Conduct an Occupational Analysis
A-8 Develop a Course of Study
A-9 Develop Long-Range Program Plans
A-10 Conduct a Student Follow-Up Study
A-11 Evaluate Your Vocational Program

Category B: Instructional Planning

B-1 Determine Needs and Interests of Students
B-2 Develop Student Performance Objectives
B-3 Develop a Unit of Instruction
B-4 Develop a Lesson Plan
B-5 Select Student Instructional Materials
B-6 Prepare Teacher-Made Instructional Materials

Category C: Instructional Execution

C-1 Direct Field Trips
C-2 Conduct Group Discussions, Panel Discussions, and Symposiums
C-3 Employ Brainstorming, Buzz Group, and Question Box Techniques
C-4 Direct Students in Instructing Other Students
C-5 Employ Simulation Techniques
C-6 Guide Student Study
C-7 Direct Student Laboratory Experience
C-8 Direct Students in Applying Problem-Solving Techniques
C-9 Employ the Project Method
C-10 Introduce a Lesson
C-11 Summarize a Lesson
C-12 Employ Oral Questioning Techniques
C-13 Employ Reinforcement Techniques
C-14 Provide Instruction for Slower and More Capable Learners
C-15 Present an Illustrated Talk
C-16 Demonstrate a Manipulative Skill
C-17 Demonstrate a Concept or Principle
C-18 Individualize Instruction
C-19 Employ the Team Teaching Approach
C-20 Use Subject Matter Experts to Present Information
C-21 Prepare Bulletin Boards and Exhibits
C-22 Present Information with Models, Real Objects, and Flannel Boards
C-23 Present Information with Overhead and Opaque Materials
C-24 Present Information with Filmstrips and Slides
C-25 Present Information with Films
C-26 Present Information with Audio Recordings
C-27 Present Information with Televised and Videotaped Materials
C-28 Employ Programmed Instruction
C-29 Present Information with the Chalkboard and Flip Chart
C-30 Provide for Students' Learning Styles

Category D: Instructional Evaluation

D-1 Establish Student Performance Criteria
D-2 Assess Student Performance: Knowledge
D-3 Assess Student Performance: Attitudes
D-4 Assess Student Performance: Skills
D-5 Determine Student Grades
D-6 Evaluate Your Instructional Effectiveness

Category E: Instructional Management

E-1 Project Instructional Resource Needs
E-2 Manage Your Budgeting and Reporting Responsibilities
E-3 Arrange for Improvement of Your Vocational Facilities
E-4 Maintain a Filing System
E-5 Provide for Student Safety
E-6 Provide for the First Aid Needs of Students
E-7 Assist Students in Developing Self-Discipline
E-8 Organize the Vocational Laboratory
E-9 Manage the Vocational Laboratory
E-10 Combat Problems of Student Chemical Use

Category F: Guidance

F-1 Gather Student Data Using Formal Data-Collection Techniques
F-2 Gather Student Data Through Personal Contacts
F-3 Use Conferences to Help Meet Student Needs
F-4 Provide Information on Educational and Career Opportunities
F-5 Assist Students in Applying for Employment or Further Education

Category G: School–Community Relations

G-1 Develop a School–Community Relations Plan for Your Vocational Program
G-2 Give Presentations to Promote Your Vocational Program
G-3 Develop Brochures to Promote Your Vocational Program
G-4 Prepare Displays to Promote Your Vocational Program
G-5 Prepare News Releases and Articles Concerning Your Vocational Program
G-6 Arrange for Television and Radio Presentations Concerning Your Vocational Program
G-7 Conduct an Open House
G-8 Work with Members of the Community
G-9 Work with State and Local Educators
G-10 Obtain Feedback about Your Vocational Program

Category H: Vocational Student Organization

H-1 Develop a Personal Philosophy Concerning Vocational Student Organizations
H-2 Establish a Vocational Student Organization
H-3 Prepare Vocational Student Organization Members for Leadership Roles
H-4 Assist Vocational Student Organization Members in Developing and Financing a Yearly Program of Activities
H-5 Supervise Activities of the Vocational Student Organization
H-6 Guide Participation in Vocational Student Organization Contests

Category I: Professional Role and Development

I-1 Keep Up to Date Professionally
I-2 Serve Your Teaching Profession
I-3 Develop an Active Personal Philosophy of Education
I-4 Serve the School and Community
I-5 Obtain a Suitable Teaching Position
I-6 Provide Laboratory Experiences for Prospective Teachers
I-7 Plan the Student Teaching Experience
I-8 Supervise Student Teachers

Category J: Coordination of Cooperative Education

J-1 Establish Guidelines for Your Cooperative Vocational Program
J-2 Manage the Attendance, Transfers, and Terminations of Co-Op Students
J-3 Enroll Students in Your Co-Op Program
J-4 Secure Training Stations for Your Co-Op Program
J-5 Place Co-Op Students on the Job
J-6 Develop the Training Ability of On-the-Job Instructors
J-7 Coordinate On-the-Job Instruction
J-8 Evaluate Co-Op Students' On-the-Job Performance
J-9 Prepare for Students' Related Instruction
J-10 Supervise an Employer–Employee Appreciation Event

Category K: Implementing Competency-Based Education (CBE)

K-1 Prepare Yourself for CBE
K-2 Organize the Content for a CBE Program
K-3 Organize Your Class and Lab to Install CBE
K-4 Provide Instructional Materials for CBE
K-5 Manage the Daily Routines of Your CBE Program
K-6 Guide Your Students Through the CBE Program

Category L: Serving Students with Special/Exceptional Needs

L-1 Prepare Yourself to Serve Exceptional Students
L-2 Identify and Diagnose Exceptional Students
L-3 Plan Instruction for Exceptional Students
L-4 Provide Appropriate Instructional Materials for Exceptional Students
L-5 Modify the Learning Environment for Exceptional Students
L-6 Promote Peer Acceptance of Exceptional Students
L-7 Use Instructional Techniques to Meet the Needs of Exceptional Students
L-8 Improve Your Communication Skills
L-9 Assess the Progress of Exceptional Students
L-10 Counsel Exceptional Students with Personal–Social Problems
L-11 Assist Exceptional Students in Developing Career Planning Skills
L-12 Prepare Exceptional Students for Employability
L-13 Promote Your Vocational Program with Exceptional Students

Category M: Assisting Students in Improving Their Basic Skills

M-1 Assist Students in Achieving Basic Reading Skills
M-2 Assist Students in Developing Technical Reading Skills
M-3 Assist Students in Improving Their Writing Skills
M-4 Assist Students in Improving Their Oral Communication Skills
M-5 Assist Students in Improving Their Math Skills
M-6 Assist Students in Improving Their Survival Skills

RELATED PUBLICATIONS

Student Guide to Using Performance-Based Teacher Education Materials
Resource Person Guide to Using Performance-Based Teacher Education Materials
Guide to the Implementation of Performance-Based Teacher Education
Performance-Based Teacher Education: The State of the Art, General Education and Vocational Education

For information regarding availability and prices of these materials contact—AAVIM, American Association for Vocational Instructional Materials, 120 Driftmier Engineering Center, University of Georgia, Athens, Georgia 30602, (404) 542-2586

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