DOCUMENT RESUME

ED 251 690 CE 040 330

TITLE Learning to Read and Write the Drafting Way. Field Test Copy.

INSTITUTION California State Dept. of Education, Sacramento. Div. of Vocational Education. California State Univ., Los Angeles. Dept. of Industrial Studies.

PUB DATE 84

NOTE 48p.; For related documents, see ED 244 091-102 and CE 040 190. Developed by the Educationally Disadvantaged Committee, Industrial Education InService Project.

AVAILABLE FROM VOICE, 721 Capitol Mall, Sacramento, CA 95814.

PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052)

EDRS PRICE MF01/PC02 Plus Postage.

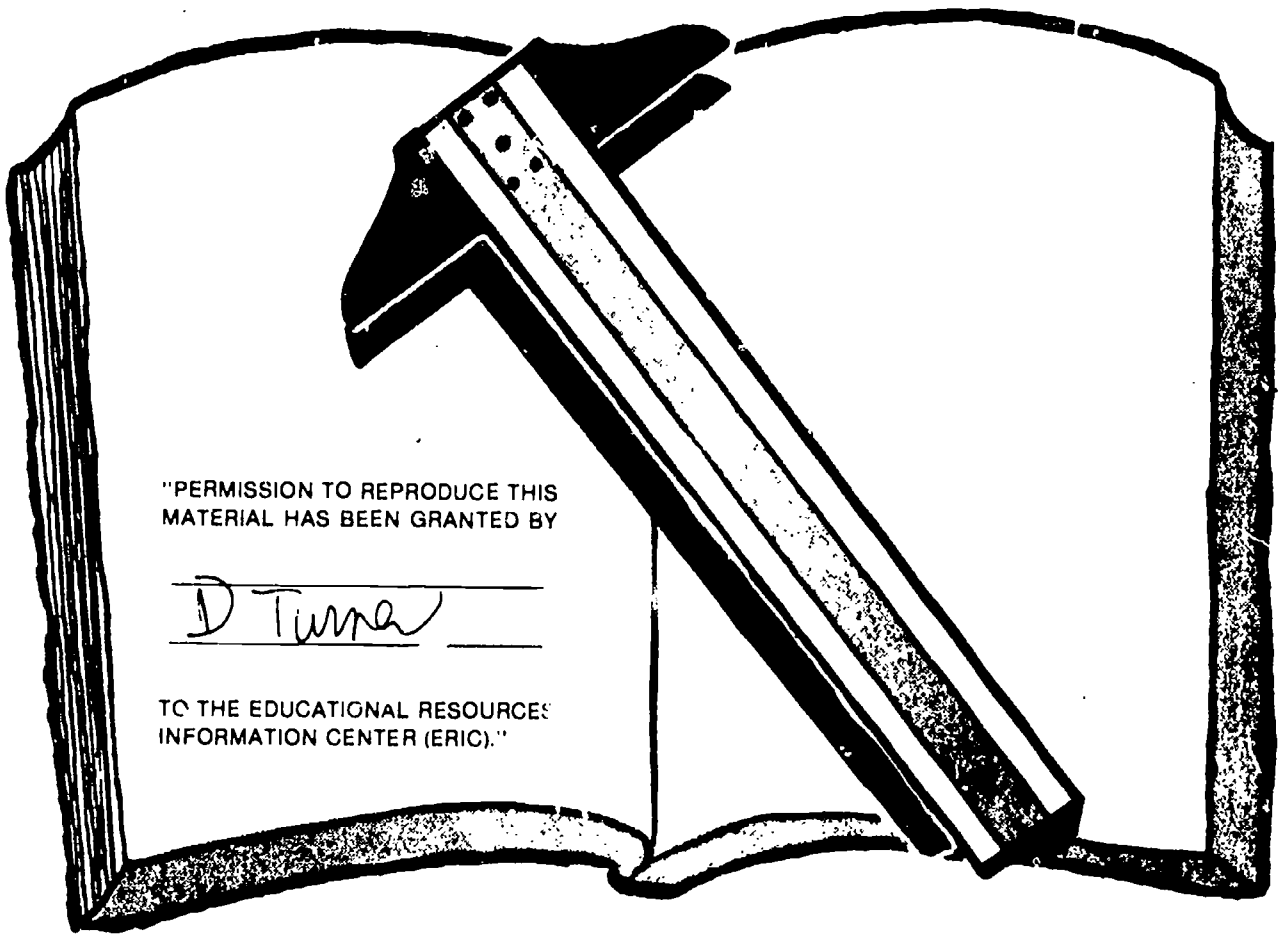
DESCRIPTORS *Basic Skills; Behavioral Objectives; Check Lists; *Classroom Techniques; Communication Skills; *Drafting; Educational Games; *Fused Curriculum; Guidelines; Learning Activities; Mathematics Skills; Reading Skills; Records (Forms); *Remedial Instruction; Secondary Education; Student Evaluation; Teaching Methods; *Trade and Industrial Education; Vocabulary Development; Writing Skills

ABSTRACT

This volume comprises instructional techniques that are designed for use with drafting students who demonstrate a need for additional instruction in the areas of reading, writing, math, and verbal and visual communication. Included in the guide are the following teacher-developed instructional techniques: a drafting crossword puzzle, tool bingo, a daily work log, a game entitled "Mystery Men," a job survey, an exercise calling for students to develop a shop library display, a research problem entitled "Find It-Do It," and a lesson on drafting vocabulary. Each section contains some or all of the following: a discussion of the concepts of the technique, teacher instructions for using the technique, suggested related activities, student instructions for completing the activity, a student assignment, one or more supplementary activities, sample forms, and a teacher's key. Also included in the volume are a basic skills checklist and a basic skills verification form. (MN)

FIELD TEST COPY

"LEARNING TO READ AND WRITE THE DRAFTING WAY"



DEVELOPED BY

THE EDUCATIONALLY DISADVANTAGED COMMITTEE

INDUSTRIAL EDUCATION INSERVICE PROJECT

in cooperation with

The California State Department of Education

Office of Vocational Education
Field Operations Section
Industrial Education Unit

and

California State University - Los Angeles
Industrial Studies Department

ACKNOWLEDGEMENTS

EDUCATIONALLY DISADVANTAGED COMMITTEE

William Whitmore, Chairman, Industrial Education Teacher (Auto Mechanics), Schurr High School, Montebello USD, Montebello, California

William Gray, Irdustrial Education Teacher (Woods), Schurr High School, Montebello USD, Montebello, California

Gordon Hart, Industrial Education Teacher (Electronics), Agoura High School, Las Virgenes USD, Agoura, California

Eldon Barkley, Industrial Education Teacher (Metals), Montebello High School, Montebello USD, Montebello, California

Gilbert Brice, Industrial Education Teacher (Woods), Montebello High School, Montebello USD, Montebello, California

Robert Crouch, Media Specialist, Schurr High School, Montebello USD, Montebello, California

Carroll Green, Industrial Education Teacher (Electronics), Schurr High School, Montebello USD, Montebello, California

Lee Haeberlein, Industrial Education Teacher (Auto Mechanics), Mountain View High School, El Monte Union School District, El Monte, California

Lawrence Jones, Industrial Education Teacher (Retired) (Drafting), Schurr High School, Montebello USD, Montebello, California

Malcolm Lincoln, Math Specialist, Schurr High School, Montebello USD, Montebello, California

Dean Onken, Industrial Education Teacher (Machine Shop), Bell Gardens High School, Montebello USD, Bell Gardens, California

Lawrence Patten, Industrial Education Teacher (Electronics) Lakewood High School, Long Beach USD, Lakewood, California

Darlyne Rice, Reading Resource Specialist, Schurr High School, Montebello USD, Montebello, California

Jacob Torosian, Industrial Education Teacher (Metals), Schurr High School, Montebello USD, Montebello, California

Rudy Vandenburgh, Industrial Education Teacher (Woods), Bell Gardens High School, Montebello USD, Bell Gardens, California

ACKNOWLEDGEMENTS

STATEWIDE STEERING COMMITTEE

William Whitmore, Chairman, Industrial Education Teacher (Auto Mechanics), Schurr High School, Montebello USD, Montebello, California

Keith Bush, Industrial Education Coordinator, East Side Union High School District, San Jose, California

Howard Decker, Professor of Industrial Studies, California State University - San Jose, San Jose, California

William Gray, Industrial Education Teacher (Woods), Schurr High School, Montebello USD, Montebello, California

Clarence Marks, Electronics Consultant, Los Angeles USD, Los Angeles, California

Gilbert Montano, Basic Skills Teacher, Montebello USD, Montebello, California

Richard Phelan, Director of Secondary Instruction, Montebello USD, Montebello, California

Joan Whitmore, Basic Skills Consultant, Alhambra, California

CONSULTANTS TO THE COMMITTEE

Chris Almeida, Industrial Education Consultant, California State Department of Education, Sacramento, California

Keith Gummere, Coordinator of the Industrial Education InService Project, California State University - Los Angeles, Los Angeles, California

PROJECT MONITOR

James T. Allison, Program Manager, Industrial, Health, and Apprenticeship Education, California State Department of Education, Sacramento, California

TABLE OF CONTENTS

INSTRUCTIONAL TECHNIQUES

INTRODUCTION

These instructional techniques were developed for those industrial education students who demonstrate a need for additional instruction in the areas of reading, writing, math, verbal and visual communication. They were written by industrial education teachers with a particular emphasis upon teaching a basic skill while retaining a major focus on the subject areas of auto, woods, metals, electronics, and drafting.

Each of these instructional techniques were written using the same format and with guidance from an expert in the areas of reading, writing, math, verbal and visual communication.

In order to help you identify those students who require additional help with the basic skills, a simple easy-to-use BASIC SKILLS CHECKLIST is provided with each subject area module. This Basic Skills Checklist will enable you as the Industrial Education Teacher to better identify those students in your classes who require additional help in the basic skills.

Additionally, a BASIC SKILLS VERIFICATION FORM is provided which will enable you to ask your school's reading resource teacher, basic skills teacher, math resource teacher, Hart Bill Conferencing teacher, or grade counselors, to verify your identification and provide you with help in the instruction of the basic skills.

You may wish to use these techniques as instruction for your entire class, or as a take-home, parent-involvement assignment. They may also be used in your school's reading or math lab or in conjunction with your school's basic skills instructional programs.

These instructional techniques are successful because your students are able to relate reading, writing, math, verbal and visual communication to their own industrial education classes. When your students succeed, they feel good about themselves, good about their schools, and good about their future.

Name _____

CONFIDENTIAL

Grade _____ Class _____

Date _____

BASIC SKILLS CHECKLIST (DRAFTING)

The following is a list of the basic skills (reading, writing, math, verbal & visual communication) that the student should demonstrate an ability in for the purpose of employment or advanced training in the drafting field.

1.0 Verbal Communication: The student needs additional instruction in verbal communication if any of the items below are checked NO:

1.1 Yes ____ The student understands verbal instructions given by the teacher.

No ____ Example: Does the student select the correct drawing sheet size after receiving verbal instruction on which size to use?

1.2 Yes ____ The student asks questions about verbal instructions or information not understood.

No ____ Example: Does the student ask questions about the use of drafting equipment when it appears that the instruction given was not understood?

1.3 Yes ____ The student is able to relay simple verbal instructions to another student.

No ____ Example: Is the student able to show a new student how to fasten a drawing sheet to the drawing board or table?

1.4 Yes ____ The student is able to verbally communicate with the teacher.

No ____ Example: Is the student able to explain to the teacher why certain views were selected to illustrate and describe an object?

2.0 Writing: The student needs additional instruction in writing if any of the items below are checked NO:

2.1 Yes ____ The student is able to write basic instructions to self and others.

No ____ Example: Is the student able to fill out a work order or a descriptive log on each drawing assignment?

2.2 Yes ____ The student is able to write the answers to questions.

No ____ Example: After a student has demonstrated that they can answer questions orally, can they write the answers on paper?

3.0 Reading: The student needs additional instruction in reading if any of the items below are checked NO:

3.1 Yes ____ The student is able to read and understand job related materials.

No ____ Example: Does the student's responses to written test and informal oral questions indicate that they understand written materials contained in textbooks or instruction sheets?

3.0 *Reading (Continued)*

3.2 Yes ____ *The student is able to follow step by step procedures on instruction or job sheets.*

No ____

Example: Is the student able to perform tasks in sequence after being given a demonstration and a procedure sheet to follow?

4.0 *Math: The student needs additional instruction in math if any of the items below are checked NO:*

4.1 Yes ____ *The student is able to read a rule to increments of 1/16th inch.*

No ____

4.2 Yes ____ *The student understands relationships between fractions and decimals.*

No ____

Example: Is the student able to use a conversion chart to convert fractions to decimals?

4.3 Yes ____ *The student understands basic geometric construction.*

No ____ *Example: Is the student able to lay out basic geometric constructions such as: bisecting an arc, drawing a hexagon, drawing a tangent arc, etc.?*

4.4 Yes ____ *The student can add and subtract whole numbers and fractions.*

No ____ *Example: Is the student able to add and subtract whole numbers and fractions while dimensioning drawings?*

5.0 *Visual Communication: The student needs additional instruction in visual communication if any of the items below are checked NO:*

5.1 Yes ____ *The student understands the relationship between drawings and manufactured products.*

No ____

Example: Given the tools and shop skills, is the student able to construct a simple item from a sketch or drawing?

IDENTIFICATION Made by: _____

BASIC SKILLS VERIFICATION FORM

Student _____ Male____ Female____ Grade Level_____

Teacher _____ Class_____ Date_____

The Basic Skills Check List (attached) for the above student indicates a need for instructional assistance in the basic skills (reading, writing, math, verbal or visual communication). The follcwing verification and recommendations are made:

____Lacks Reading Skills

____Lacks Writing Skills

____Lacks Mathematical Skills

____Lacks Verbal Communication Skills

____Lacks Visual Communication Skills

METHOD USED FOR VERIFICATION

Recent Test Scores:

Test	Score	Date
_____	_____	_____
_____	_____	_____
_____	_____	_____

Other Verification Methods:

_____

_____

RECOMMENDATIONS

The following instructional assistance is recommended: _____

_____

Verification & Recommendations Made By: _____ Date:_____

Title:_____

_____

_____

FOLLOW UP

Action Taken: _____

Results: ____Qualified for advanced training

____Qualified for employment in the trade

____Other_____

Certified by: _____ Date:_____
Teacher

DRAFTING CROSSWORD PUZZLE

(Vocabulary and Spelling)

Drafting Read/Write 1

DRAFTING CROSSWORD PUZZLE

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

This technique will teach vocabulary development and spelling.

b. What student learning problem(s) prompted the development of this technique?

Students are unfamiliar with the words and correct spelling of the words used in drafting.

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Pass out the crossword puzzle to your students.

b. Tell your students to fill in the words using the clues and Word List given on the puzzle page.

c. Tell them that the purpose of the puzzle is to help them learn the words used in the field of drafting.

d. Scoring the puzzle is your option.

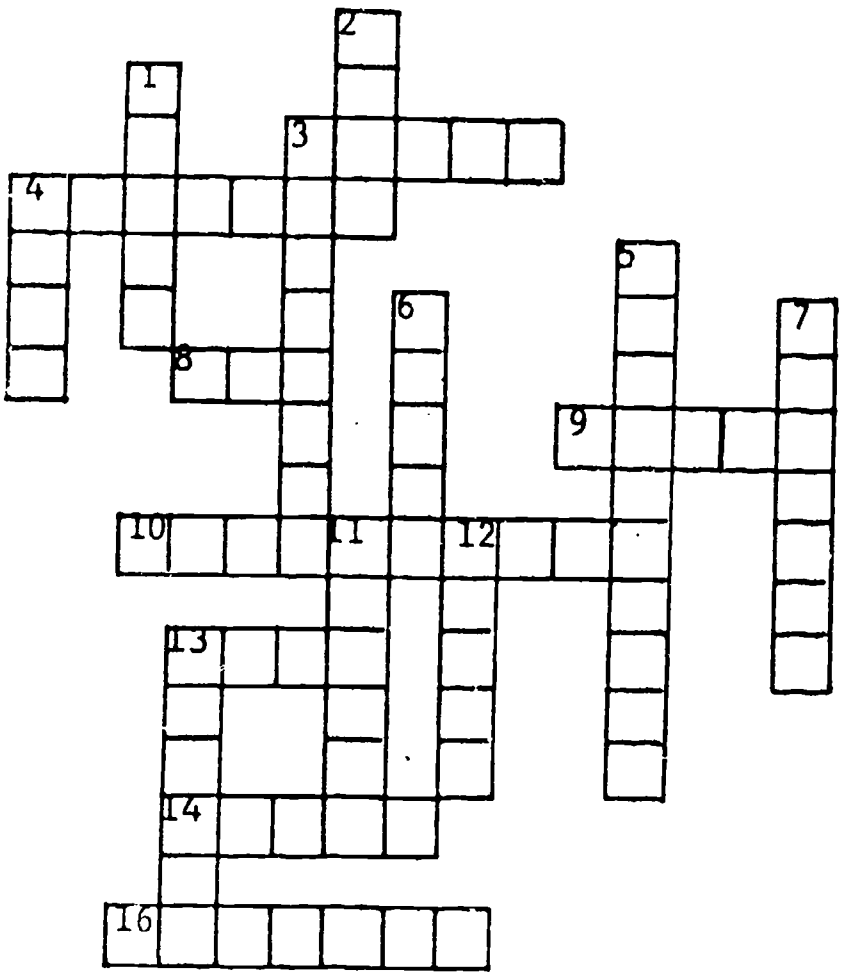
3. SUGGESTED RELATED ACTIVITIES:

Have students develop crossword puzzles.

CROSSWORD PUZZLE

Name _____

Period _____



WORD LIST:

edge
board
triangle
mars
dimensions
compass
paper
inked
square
pencil
trace
erasers
pen
velum
blueprints
sign
angle
measure

ACROSS

3. To copy using an overlay.
4. _____ are used to correct errors.
8. Ink is applied with a _____.
9. Original drawings are made on _____.
10. Working copies of the original.
13. Draftsmen often _____ their drawings.
14. The space between two lines that meet.
16. A scale is used to _____.

DOWN

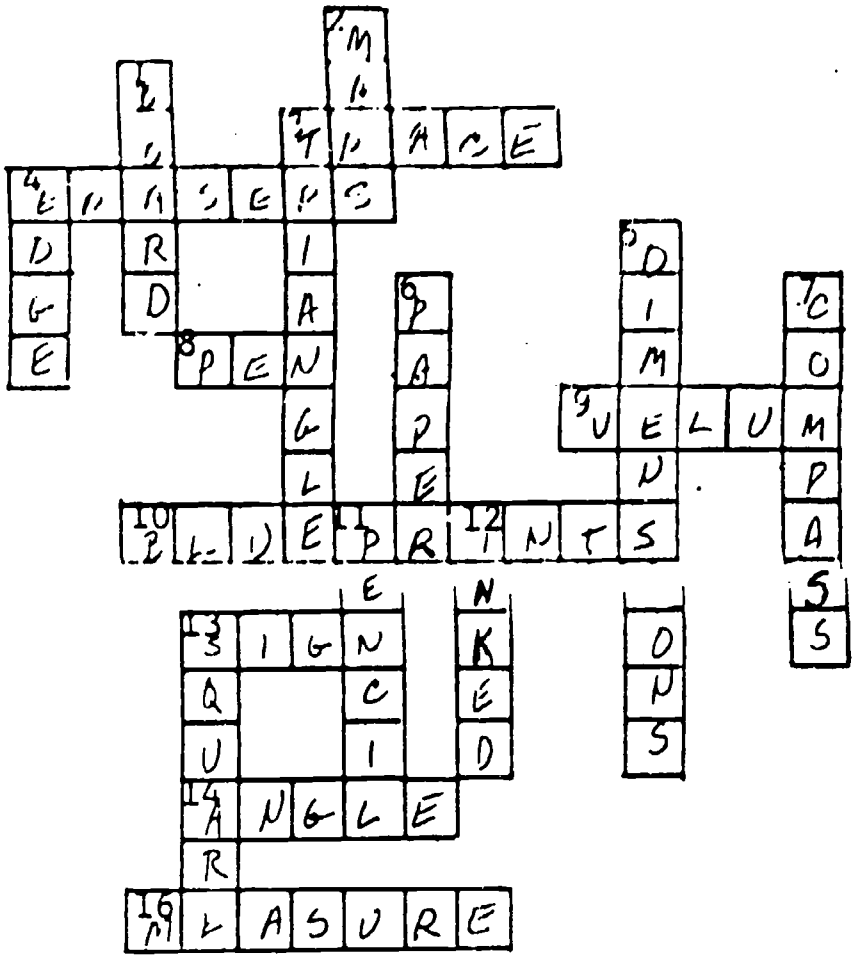
1. A drawing is fastened to a drafting _____.
2. Sloppiness _____ a drawing.
3. Three different angles may be obtained with a 30 - 60 _____.
4. Borders are drawn a certain distance from the _____ of the paper.
5. _____give sizes, distances, and locations.
6. Drawing _____comes in several standard sizes.
7. Tool used to make circles and arcs.
11. Layout lines are made with a 4H _____.
12. For sharpness of detail velumns are _____.
13. The T _____ is often used by beginning draftsmen.

CROSSWORD PUZZLE

KEY

Name _____

Period _____



WORD LIST:

edge
board
triangle
mars
dimensions
compass
paper
inked
square
pencil
trace
erasers
pen
velumn
blueprints
sign
angle
measure

ACROSS

3. To copy using an overlay.
4. _____ are used to correct errors.
8. Ink is applied with a _____.
9. Original drawings are made on _____.
10. Working copies of the original.
13. Draftsmen often _____ their drawings.
14. The space between two lines that meet.
16. A scale is used to _____.

DOWN

1. A drawing is fastened to a drafting _____.
2. Sloppiness _____ a drawing.
3. Three different angles may be obtained with a 30 - 60 _____.
4. Borders are drawn a certain distance from the _____ of the paper.
5. _____give sizes, distances, and locations.
6. Drawing _____comes in several standard sizes.
7. Tool used to make circles and arcs.
11. Layout lines are made with a 4H_____.
12. For sharpness of detail velumns are_____.
13. The T _____ is often used by beginning draftsmen.

TOOL BINGO

(Vocabulary)

Drafting Read/Write 2

TOOL BINGO

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

This technique will teach recognition and correct spelling of the tools used in drafting.

b. What student learning problem(s) prompted the development of this technique?

Students have trouble spelling and recognizing the names of tools used in drafting.

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Make sure that at least 30 tools are labeled in the room so students can copy the names.

b. Have a supply of BINGO sheets, one for each student.

c. Use the attached sheet of names of drafting tools for your own use.

d. Cut them into "cards", shuffle them and call the names.

e. Decide beforehand what the prize or incentives will be for the winners.

3. SUGGESTED RELATED ACTIVITIES:

Play BINGO using architectural symbols rather than names of tools.

SUGGESTED TOOLS TO BE LABELED

T-Square	Dusting Brush	Erasing Shield
30°-60° Triangle	45° Triangle	Architect's Scale
Drawing Board	Compass	French Curve
Eraser	Inking Pen	Pencil
Pencil Pointer	Pencil Sharpener	Protractor
Tape	Ink	Circle Template
Ruler	Scale Guard	Drawing Paper
Velum	Dividers	Inking Compass
Drafting Machine	Architect's Template	Drafting Table
Stool	Ellipse Template	Bolt Template
Electronic Symbols Template	Lettering Guide	

TOOL BINGO

STUDENT MATERIALS:

1. STUDENT INSTRUCTIONS:

a. Take your BINGO sheet and fill in each square with the name of a different tool that is used for drafting.

   1. Correct spelling is essential.
   2. You may move around the room to collect the names.
   3. Then return to your seat.

b. Now, as your teacher calls the names of the tools, mark an X across each one you have on your paper.

c. When you have 5 X's in a row, or diagonally, say BINGO.

d. Your teacher will check your paper for correct spelling and to see if you actually have the name that was called.

e. The first winner will get _____.

f. The second winner will get _____.

g. Actually you are all winners because you have learned names and spelling of tools, so you each will get _____.

h. Finally you will pass in your BINGO sheet to your teacher.

2. STUDENT ASSIGNMENT:

Your assignment is found on STUDENT PAGE 2.

3. EXTRA THINGS THAT YOU CAN DO:

Make up your own bingo game using the names of different building materials.

TOOL BINGO

NAME _____

PERIOD _____

		FREE SPACE		

1. FILL IN EACH SQUARE WITH A DIFFERENT TOOL _____
2. CORRECT SPELLING IS ESSENTIAL.
3. MOVE ABOUT THE ROOM TO COLLECT THE NAMES.
4. RETURN TO YOUR SEAT.
5. WAIT FOR FURTHER INSTRUCTIONS.

DAILY WORK LOG

(Writing and Vocabulary)

Drafting Read/Write 3

DAILY WORK LOG

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

This technique will teach spelling, vocabulary and writing skills.

b. What student learning problem(s) prompted the development of this technique?

Students spend a lot of time drawing but often can't account for what they do each day in class. Students need to keep records and be able to explain in writing what they do in class.

This technique will also reinforce the students' ability to spell and use drafting terms correctly

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Provide students with a weekly worksheet to log their daily accomplishments.

b. Explain that students are to use sentence form and that all drawing terms and other words must be spelled correctly.

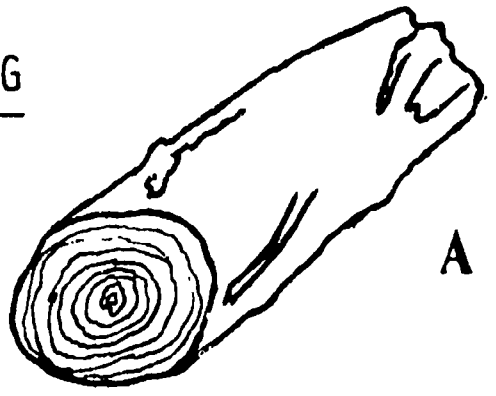
c. Assign students to do their writing the last five minutes of class.

d. Collect logs often and check for completeness, spelling and sentence form.

3. SUGGESTED RELATED ACTIVITIES:

Have students maintain a log in a notebook that can be checked before each grading period.

DAILY WORK LOG



A "LOG"

B. STUDENT MATERIALS:

1. STUDENT INSTRUCTIONS:

a. You are to keep a daily work log of all class assignments and activities.

b. You should do your writing during the last five minutes of the period.

c. You can be brief but you must write in sentence form.

d. To help you spell all the words correctly, use a dictionary or your textbook as a reference.

e. The weekly log worksheet will be given to you each Monday by your instructor.

f. Your instructor will also give you an example called the Daily Work Log Sample.

2. STUDENT ASSIGNMENT:

Your assignment is to keep a daily work log. A sample of the Daily Work Log is found on STUDENT PAGE 2.

The Daily Work Log is found on STUDENT PAGE 3.

3. EXTRA THINGS THAT YOU CAN DO:

You may want to use this technique for keeping an account of what you are doing in other classes. This technique can show you if you are using your time wisely.

DAILY WORK LOG SAMPLE

NAME Joe Lopez

DATES: WEEK OF March 3 TO March 7

MONDAY

I started a three-view drawing of an Offset Bracket. I completed the boarder lines and the construction lines of the three views.

TUESDAY

I located the hole diameters and drew them in. I darkened in all object lines.

WEDNESDAY

I visited the career center and completed a job survey. I returned to class and turned my survey in for grading.

THURSDAY

I completely dimensioned the Offset Bracket and worked on the title block.

FRIDAY

1. I took a quiz on Orthographic Projections.
2. I completed the drawing of the Offset Bracket.
3. I had the Lead Draftsperson check my drawing, and I turned it in for grading.

DAILY WORK LOG

NAME _____

DATES: WEEK OF _____ TO _____

_____

MONDAY

_____

TUESDAY

_____

WEDNESDAY

_____

THURSDAY

_____

FRIDAY

MYSTERY MEN

(Following Instructions)

Drafting Read/Write 4

MYSTERY MEN

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

This technique will teach the skill of reading detailed directions.

b. What student learning problem(s) prompted the development of this technique?

Students have difficulty reading and following detailed directions.

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Issue the worksheet to each student.

b. Inform students that this is a test of their ability to follow detailed instructions.

c. When directions have been followed carefully, they will find the MYSTERY MEN.

d. It is not necessary for the student to put dimensions on the two drawings.

3. SUGGESTED RELATED ACTIVITIES:

Pac Man will fade in popularity, so you may want to update by using a drawing of another star.

MYSTERY MEN

STUDENT MATERIALS:

1. STUDENT INSTRUCTIONS:

a. This is a test of following detailed instructions. You will end up by drawing the MYSTERY MEN, if you do everything correctly.

2. STUDENT ASSIGNMENT:

Your assignment is found on STUDENT PAGES 2 ~~AND~~ 3.

3. EXTRA THINGS THAT YOU CAN DO:

Develop your own Mystery Object for a future drawing assignment.

MYSTERY MEN

1. Set your blank drawing on the drawing board.

2. Line up the drawing with a T square or drafting machine and tape the drawing in place.

3. Use a 4H pencil until you know which lines will become the object lines.

4. From the left end of the diagonal line on page 4.6, measure 1/8" to the left. Make a point.

5. Use this point as center of a circle. Make the circle using a radius of 1 3/4".

6. From the center of the circle, measure towards the top 15/16". Make a point.

7. Using this new point, construct a circle that is 5/8" in diameter.

8. From the left end of the original diagonal line, draw a line toward the upper right that is 60^{0} to the original line. Stop this new line when it meets the large circle.

9. Congratulations! Now you should recognize the MYSTERY MAN.

10. Darken all object lines using a 2H pencil.

11. The new MYSTERY MAN begins at the center lines on page 4.6.

12. Construct 5/8" diameter circles to the right and to the left of the center at a distance of 7/8". One circle is to be on each side.

13. Also from this horizontal center line, measure down 7/8" and draw a horizontal line.

14. Measure 1" more downward and draw another horizontal line.

15. From the vertical center line, measure 1/2", then 1", to both the left and the right and make new vertical lines that cross the two new horizontal lines. You should have 4 equal rectangles.

16. Draw a 1/4" radius half-circle which touches the left side, top, and right side of the left rectangle.

17. Do the same for the third rectangle.

18. For the second and fourth rectangles, do the same again except at the bottom of the rectangles.

MYSTERY MEN

19. How are you doing? Hang in there.

20. From the original center point, make a half circle upward using a radius of 2". Make the half circle from horizontal center line to the same line at the right.

21. From the point at which the half circle meets the horizontal center line, draw a vertical line downward that is 3 1/8" long.

22. Do the same on the right. You should recognize the MYSTERY MAN by now.

23. Draw a horizontal line connecting the bottom ends of the two new vertical lines.

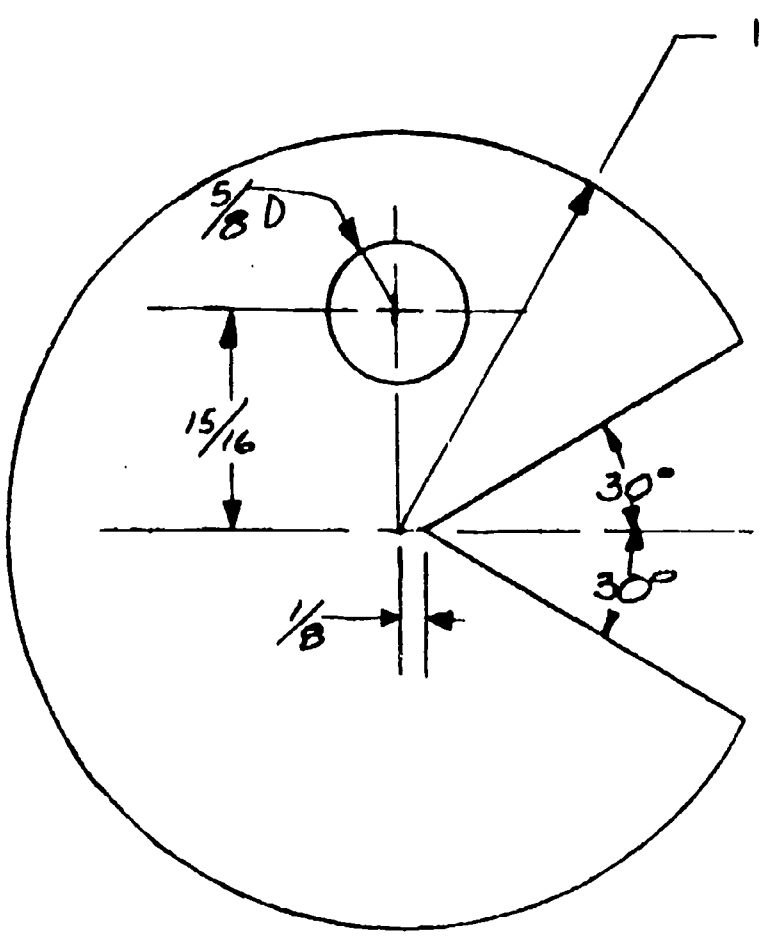
24. Along this new line measure 1" from the left end. Now measure 1" more. Measure 1" again and still once more. This process should have divided the horizontal line into four equal parts.

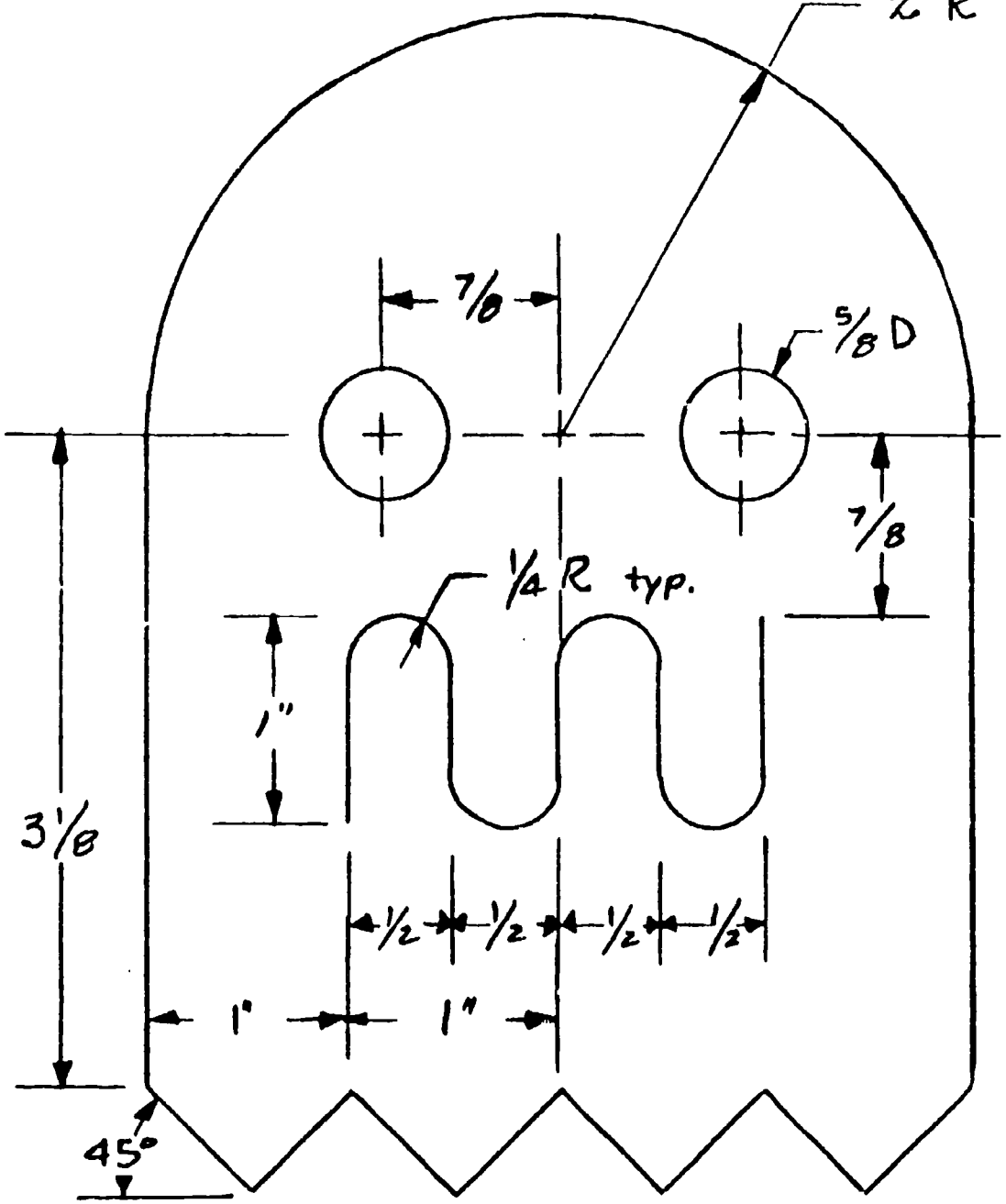
25. Now the 1" part at the left needs lines extending downward from each side, which are 45° to the horizontal. Continue these 45° lines until they meet at the bottom.

26. Make the same 45° lines for the second 1" portion, also the third and the fourth.

27. Now that you recognize the new MYSTERY MAN darken all object lines and erase all guide lines.

28. Be sure your name and period is on your drawing and turn it in to your teacher for grading.



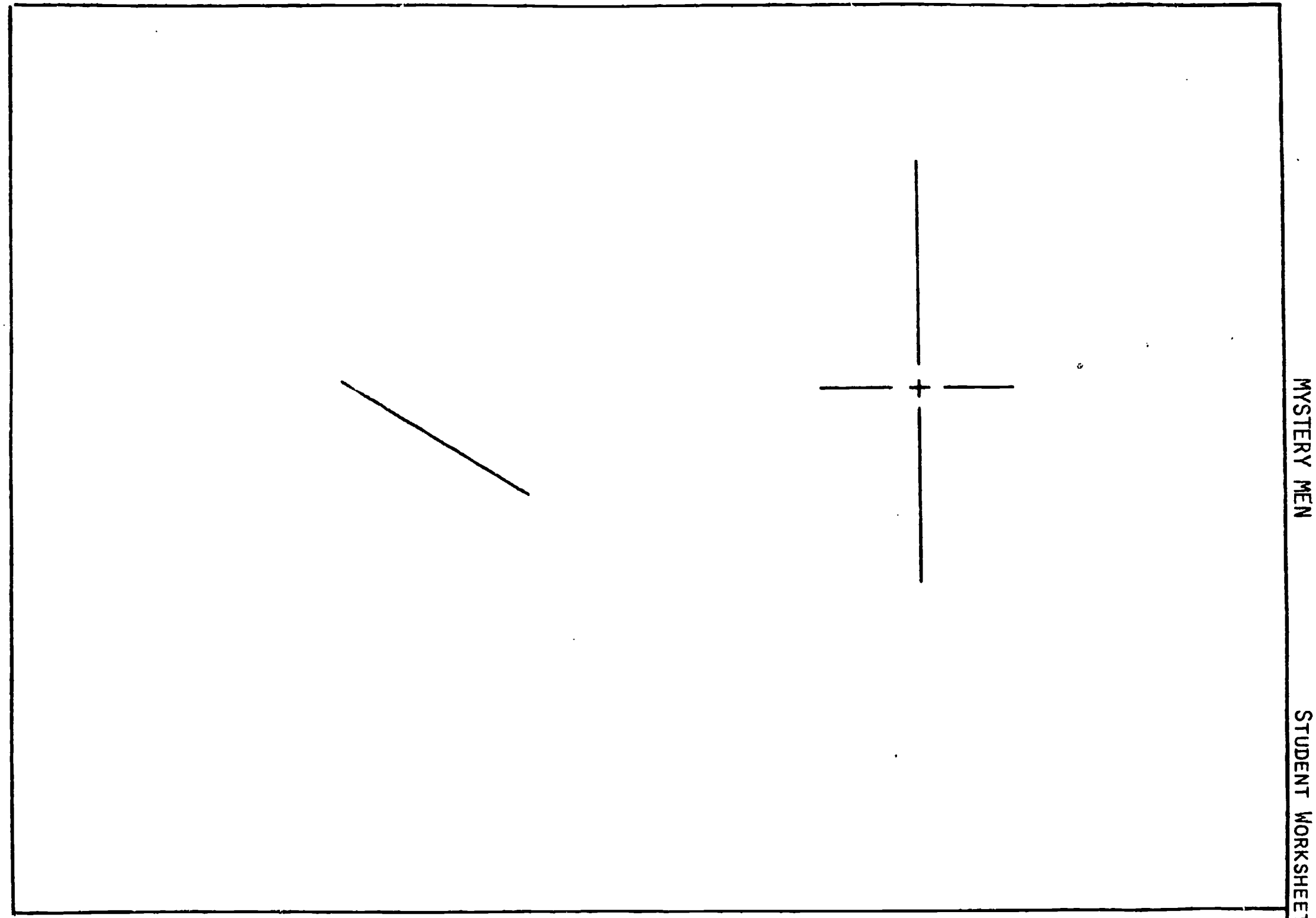


MYSTERY MEN

WORKSHEET KEY

4.5

MYSTERY MEN NAME (TEACHER'S KEY) PER.



MYSTERY MEN STUDENT WORKSHEET

4.6

MYSTERY MEN NAME PER

JOB SURVEY

(Research and Writing Skills)

Drafting Read/Write 5

JOB SURVEY

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

This technique will teach how to do research and writing skills.

b. What student learning problem(s) prompted the development of this technique?

Some students are not familiar with the Career Center and the service it provides.

Most students are unaware of the many jobs that relate to their Industrial Education classes and to their interests and abilities.

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Collect and/or save classified ads from newspapers related to industrial jobs.

b. Provide class time when students can select a few careers from the classified ads. These might be jobs that relate to their industrial education classes.

c. Provide a "Job Survey Sheet" where students list information about a chosen field.

d. Have students visit the Career Center for use of the Center's resources for completing their forms.

3. SUGGESTED RELATED ACTIVITIES:

Create a mini-career center in your classroom using student surveys, classified ads, and other career information.

JOB SURVEY

Help Wanted- Someone to Travel Around the World-All Expenses Paid- Must Enjoy Meeting People and Doing New Things.

B. STUDENT MATERIALS:

1. STUDENT INSTRUCTIONS:

a. Look in the classified ad section in your newspaper for three jobs that look interesting to you.

b. Cut these job ads out and staple them to your Job Survey.

c. Select one of the three jobs to survey and list it on your form.

d. Make an appointment with the Career Center for researching your chosen career.

2. STUDENT ASSIGNMENT:

Your assignment is found on STUDENT PAGE 2.

3. EXTRA THINGS THAT YOU CAN DO:

A Career Center tries to help you plan your life after high school. You may wish to visit the Career Center again and do another survey for a different field.

JOB SURVEY

(Your Name) _____ (Career Center Appointment Date & Time) _____

(Job Title to Survey) _____

1. How much training do you need in order to enter this career?

2. List a trade school, college or other agency that offers this required training.

3. What is the starting wage or average salary for people who enter this career?

4. List or describe any good working conditions of this career.

5. List or describe any bad working conditions of this career.

6. What school subjects do you need to take in order to enter this career?

7. What is the employment outlook for this career?

STUDENT PAGE 2

LIBRARY

(Reading and Research Skills)

Drafting Read/Write 6

"LIBRARY"

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

This technique will encourage reading and research.

b. What student learning problem(s) prompted the development of this technique?

Students usually read only what is assigned. With the "Library" readily accessible they are more apt to pick up something based on interest.

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Establish a specific place in the shop lab for display of magazines, pamphlets, etc.

b. Place a student in charge to keep track of things and to replace magazines into an attractive display.

c. The display may include periodicals, catalogues, career pamphlets, reference books, dictionary, and "How to..." folders.

d. Encourage students to read selections from this "Library" during times when they have completed other assignments or projects.

3. SUGGESTED RELATED ACTIVITIES:

Offer incentives for students to bring appropriate and relevant materials to add to the "Library".

Request an annotated bibliography.

FIND IT-DO IT

(Research Skills)

Drafting Read/Write 7

FIND IT-DO IT

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

This technique will teach research skills which will enable students to locate detailed information and follow directions.

b. What student learning problem(s) prompted the development of this technique?

1. Students are unable to use an index or table of contents to find specific information in their textbooks, etc.

2. After the information is found students are unable to independently follow directions to complete an assignment.

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Make available to each student a textbook or other reference material.

b. Ask your students to search and find specific information that will enable him or her to complete an assignment. You could ask your students to find out how to bisect a line into equal divisions and then have them do it following the given directions.

c. Make as many copies as you need of FIND IT-DO IT assignment sheet and distribute these to your students. Explain to your class how to complete the assignment sheet.

d. After your students have located the information and completed the assignment have them return the assignment to you.

3. SUGGESTED RELATED ACTIVITIES:

Have your students demonstrate to the entire class one of the assignments found in this technique.

FIND IT-DO IT

ASSIGNMENT: _____

TITLE OF BOOK: _____ PAGE NUMBER: _____

Do the assignment or answer the question in the space below.

ASSIGNMENT: _____

TITLE OF BOOK: _____ PAGE NUMBER: _____

Do the assignment or answer the question in the space below:

FIND IT-DO IT

STUDENT MATERIALS:

1. STUDENT INSTRUCTIONS:

a. Read the list found on STUDENT PAGE 2.

b. Search for each assignment in your textbook or other reference material.

c. Write down the title of book and page number where you found the assignment.

d. Complete each assignment and return it to your teacher for grading.

2. STUDENT ASSIGNMENT:

Your assignment is found on STUDENT PAGE 2.

3. EXTRA THINGS THAT YOU CAN DO:

Demonstrate to the class one of the assignments found in this technique.

FIND IT-DO IT

Find these subjects in your textbook and then do the assignment using the forms FIND IT-DO IT which your teacher will give you.

1. Bisect a line using a compass.

2. Draw an arc tangent to the lines of a right angle.

3. List 6 different scales that can be found on an architect scale.

4. Name the two most commonly used triangles in drafting. Draw and label the three angles you can draw with these two triangles.

5. What is the definition of an isometric drawing? Draw a cube as an isometric drawing.

DRAFTING WORDS

(Vocabulary and Reading Skills)

Drafting Read/Write 8

DRAFTING WORDS

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

This technique will teach technical vocabulary and reading skills.

b. What student learning problem(s) prompted the development of this technique?

Students have problems reading drafting textbooks and understanding technical words.

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Give your students the attached lesson on Drafting Words.

b. Briefly explain how to complete fill-in questions and stress the importance of understanding technical vocabulary.

3. SUGGESTED RELATED ACTIVITIES:

Give your students more drafting words and have them write sentences using these words.

DRAFTING WORDS

STUDENT MATERIALS:

1. STUDENT INSTRUCTIONS:

Complete the lesson on STUDENT PAGE 2 by filling in the correct word in the missing blanks.

2. STUDENT ASSIGNMENT:

Your assignment is found on STUDENT PAGE 2.

3. EXTRA THINGS THAT YOU CAN DO:

Think of more new drafting words you have learned. Write them down and use them in sentences.

DRAFTING WORDS

Select the correct word or words to complete these sentences.

dimensions	enlarge
rendering	specifications
perspective	templates
photostated	revisions

1. Before construction begins, a homeowner may require a drawing or _____ in order to see what their finished house will actually look like.

2. Drafting _____ are available which will help you to draw circles, ellipses, architectural symbols, etc.

3. Working drawings often come with written _____ which give detailed instructions for a job or project.

4. It is important that _____ on a working drawing be correct or the builder will have difficulty determining the sizes required for building a room.

5. A space should be provided on a drawing for any _____ or changes in the original plan.

6. If you want to make a drawing bigger so you can see it better you can _____ the drawing.

7. An original drawing can be _____ to make additional copies.

8. If you draw a house in _____ it looks realistic or as it would appear normal vision.

THE FOLLOWING INDUSTRIAL EDUCATION BASIC SKILL INSTRUCTIONAL TECHNIQUES ARE AVAILABLE FROM:

VOICE (VOCATIONAL OCCUPATIONAL INFORMATION CENTER FOR EDUCATORS)

721 CAPITOL MALL
SACRAMENTO, CALIFORNIA 95814

"LEARNING TO READ AND WRITE THE AUTOMOTIVE WAY"
"LEARNING TO DO MATH THE AUTOMOTIVE WAY"
"LEARNING TO VERBALLY & VISUALLY COMMUNICATE THE AUTOMOTIVE WAY"

"LEARNING TO READ AND WRITE THE WOODWORKING WAY"
"LEARNING TO DO MATH THE WOODWORKING WAY"
"LEARNING TO VERBALLY & VISUALLY COMMUNICATE THE WOODWORKING WAY"

"LEARNING TO READ AND WRITE THE METALWORKING WAY"
"LEARNING TO DO MATH THE METALWORKING WAY"
"LEARNING TO VERBALLY & VISUALLY COMMUNICATE THE METALWORKING WAY"

"LEARNING TO READ AND WRITE THE ELECTRONICS WAY"
"LEARNING TO DO MATH THE ELECTRONICS WAY"
"LEARNING TO VERBALLY & VISUALLY COMMUNICATE THE ELECTRONICS WAY"

"LEARNING TO READ AND WRITE THE DRAFTING WAY"
"LEARNING TO DO MATH THE DRAFTING WAY"
"LEARNING TO VERBALLY & VISUALLY COMMUNICATE THE DRAFTING WAY"