Department of Education
SPTVE
TECHNICAL DRAFTING-8
Interpret Technical Drawings & Plans
Quarter 2 - Week 4 Module

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EXPECTATIONS

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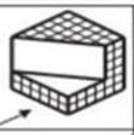
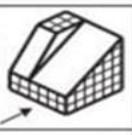
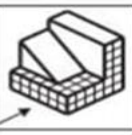
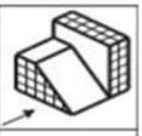
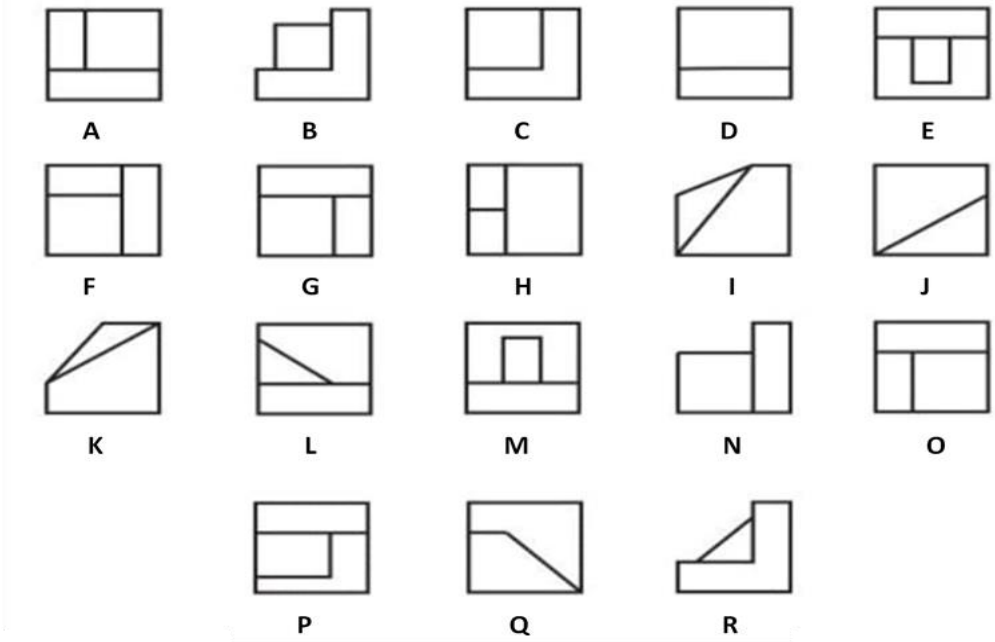
At the end of the module, the learner is expected to:

1. show the proper use of tools, materials, & instrument in drawing orthographic projection;
2. perform the steps in constructing orthographic projection drawings of simple objects using third-angle projection; and
3. cite the importance of this activity in interpreting drawings and plans.

PRE-TEST

Directions: Study the two types of drawings and complete the table by matching the numbered orthographic drawings with the same isometric view. The arrows indicate front view of the objecs.

						
TOP VIEW						
FRONT VIEW						
SIDE VIEW						



LOOKING BACK

Direction: Encircle the letter of the correct answer.

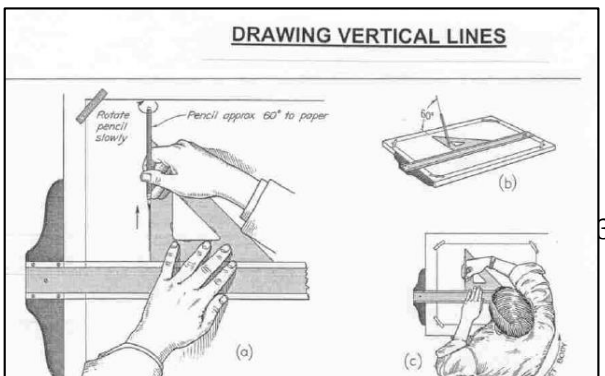
1. It is used to draw horizontal and vertical lines and supports the triangle in drawing vertical and diagonal lines.
   A. compass B. triangle C. triangular scale D. T-square
2. Drafting material used for fastening the drawing paper on the drawing board.
   A. double-side tape B. Masking tape C. scotch tape D. thumb tacks
3. The main function of this tool is to reproduce the measurements of an object to any size.
   A. compass B. protractor C. triangle D. triangular scale
4. This drafting tool is used to protect the rest of the drawing when removing annecessary lines.
   A. eraser B. erasing shield C. masking tape D. pencil sharpener
5. A celluloid made drafting instrument used to guide in drawing vertical and/or inclined lines.
   A. compass B. ruler C. T-square D. triangle
6. An instrument commonly made of celluloid used for measuring length, width or height of an object. Usually 6 – 12 inches in length.
   A. drawing board B. ruler C. T-square D. triangle
7. Generally made of soft wood and it is in rectangular shape. It is used to support drawing sheet.
   A. center table B. drawing board C. T-square D. triangle
8. Which of the choices below is NOT recommended for transferring measurement in the drawing?
   A. compass B. pencil C. scale D. 45^0 x 45^0 x 90^0
9. It is used to remove the lines or spots which drawn by mistake or with wrong measurements.
   A. brush B. dust pan C. eraser D.sponge
10. It is an alternative instrument used for drawing small arcs and circles that cannot be drawn by a compass.
   A. circle template B. divider C. improvised compass D. pencil

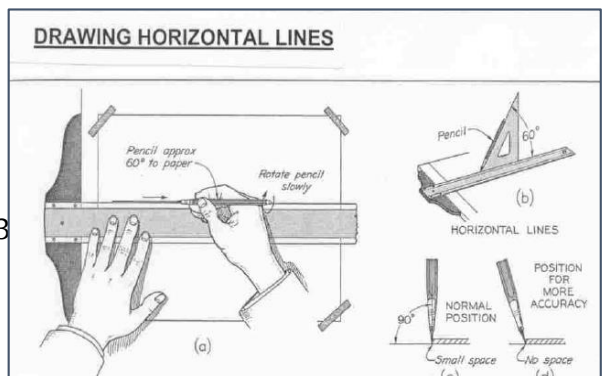
BRIEF INTRODUCTION

This lesson is designed to familiarize you in orthographic projection drawing of simple objects in free-hand and mechanical taken from pictorial drawings. It is necessary to have basic knowledge and skills in orthographic projection because this can be used or applied construction to be undertaken.

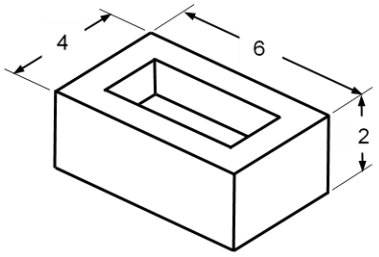
In mechanical dawing, you have to have compass/divider, triangle, T-square, pencils (monggol 1 or 2 or its equivalent) and erasers. Proper use of these tools, material and instrument are illustrated to serve as your guide. Proper procedures are also included in this lesson to guide you in the activities. It also includes activities on reading and interpreting simple working drawings. Happy learning!

The illustrations below show the proper use of tools, materials, and instrument in constructing vertical and horizontal lines. Follow the procedure for your improvement.





Simple Steps in Constructing Orthographic Projection Drawings

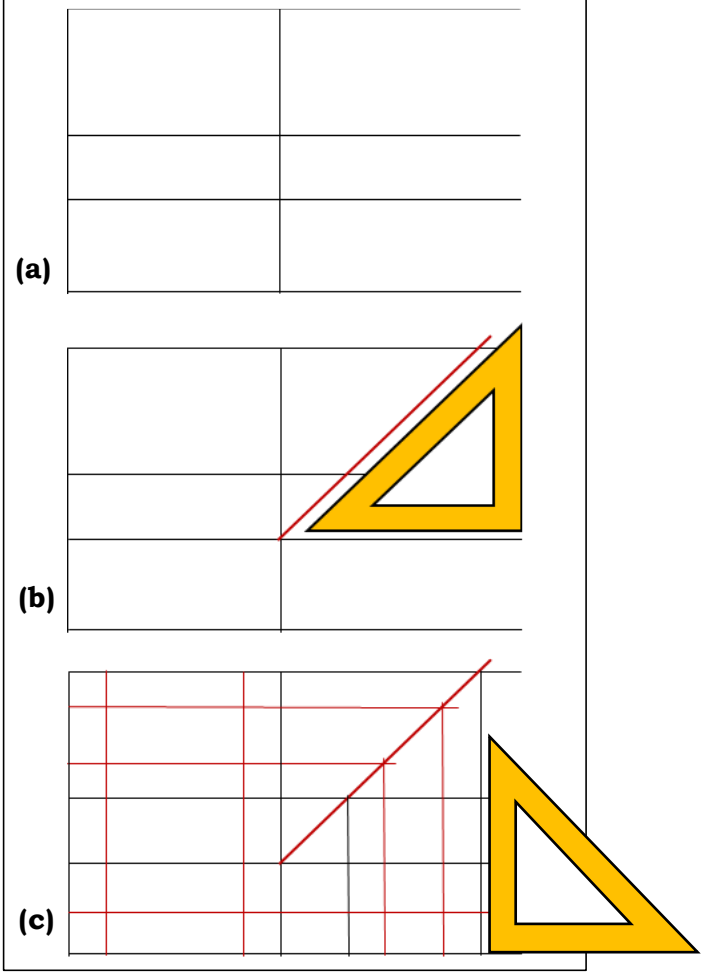


2. Study the object. The overall dimensions (length, width & thickness) of the object must be known in order to know the proportion of the parts to each other and of the parts to the whole.

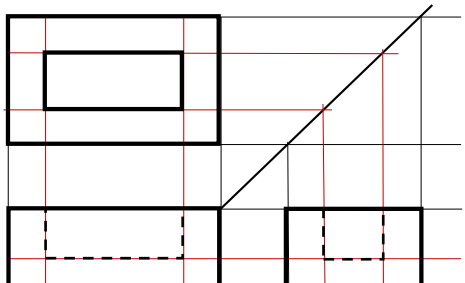
3. Determine the views and their arrangement on the drawing paper.

4. Construct light perpendicar lines.

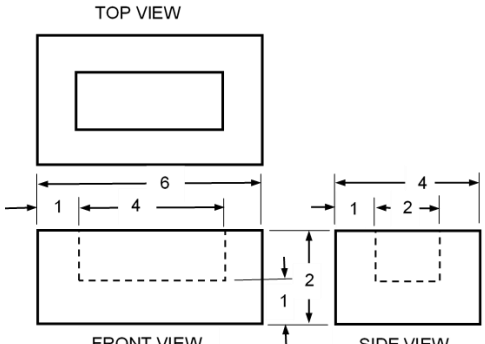
1. Indicate or supply marking lines according to the given dimensions and block-in the views (top & front views). Use 45^0 x 45^0 x 90^0 to transfer the width of the side view. See figures below.



5. Trace the visible edges.



6. Erase unnecessary lines and complete the details (dimensions and labeling.



ACTIVITIES

Activity 1: Choose the format you want to follow in making the title block. Apply it to all mechanical drawings to make.

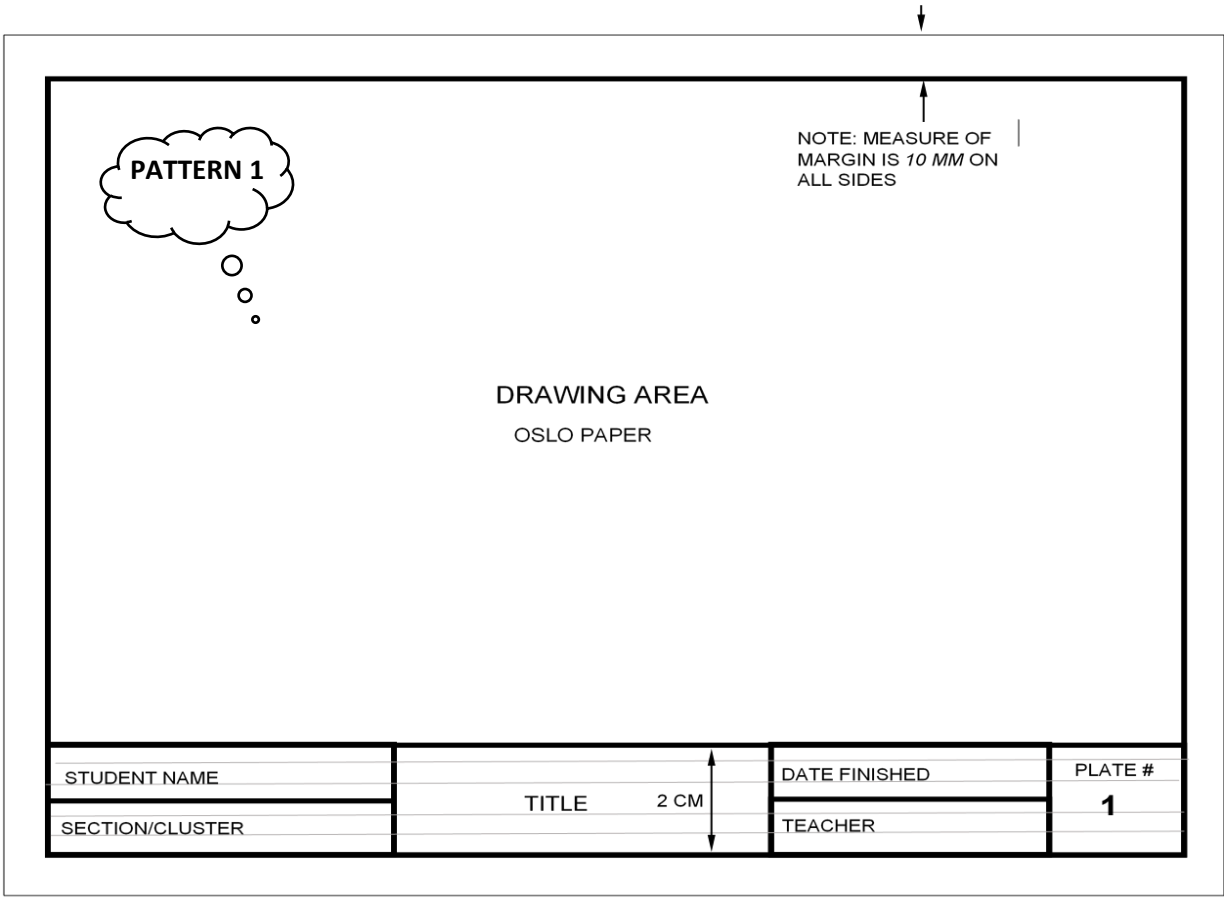


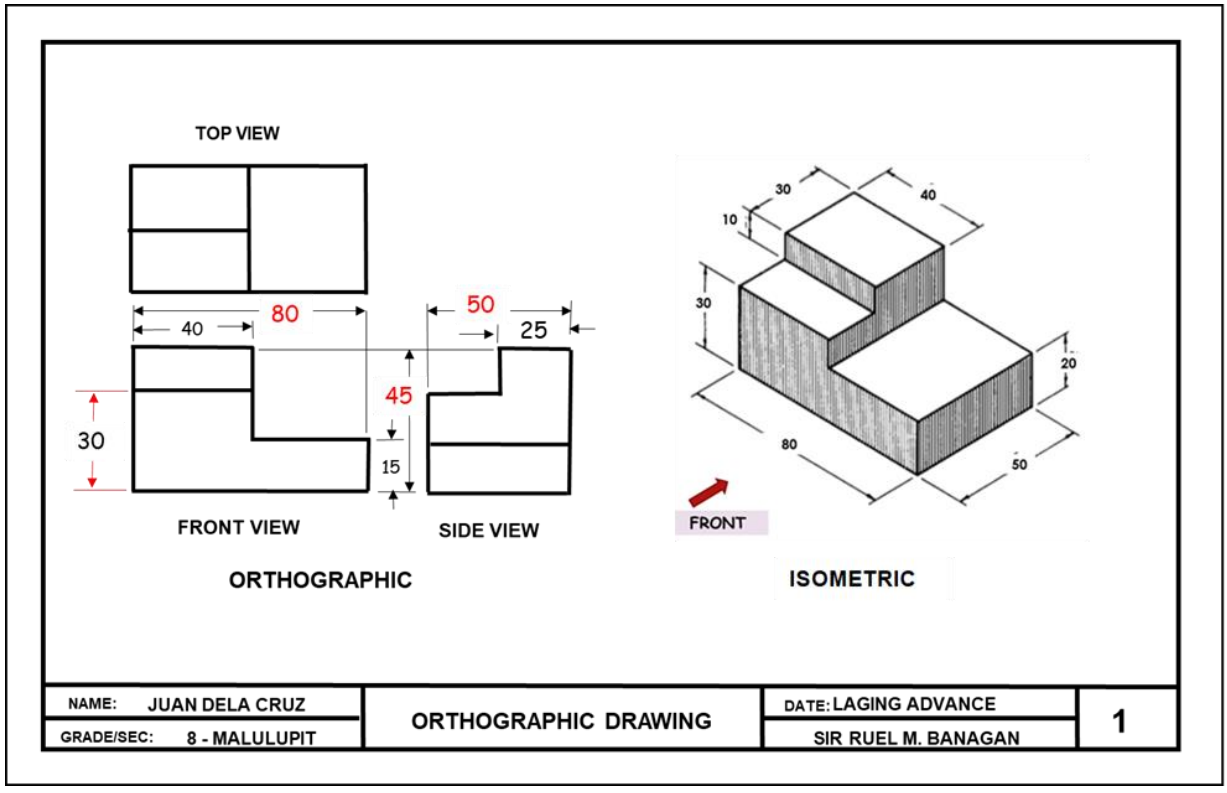
Plate No.:____

PATTERN 2

Year & Section: _____ Name:_____

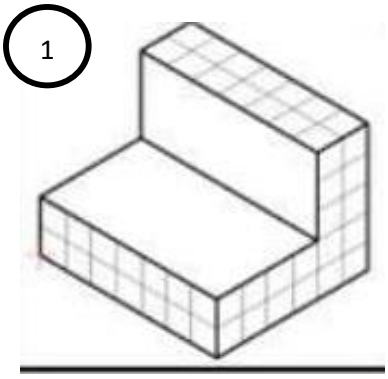
Teacher: _____ Title Date: _____

Sample arrangement of orthographic views (generally in L-shaped position) on the drawing paper (Oslo).

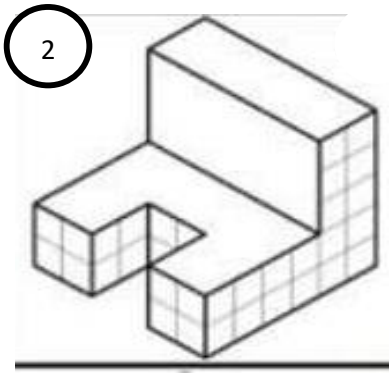


Activity 2:
Draw the orthographic views of the illustrations below *mechanically* in Oslo paper. Use centimeter as unit of measurement.

1



2



Activity 3. Reflection Writing

In your own opinion, write briefly the importance of orthographic projection drawings in interpreting drawings and plans.

REMEMBER

Principles of Orthographic Projection

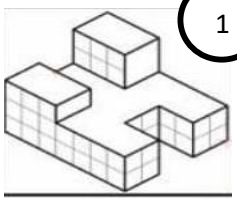
1. The top view is directly above the front view.
2. The side views are horizontally in line with the front view.
3. The width of the top view is equal to the width of the side views
4. When a line or edge is viewed perpendicularly to a plane of projection, it appears as a point.
5. A line or edge parallel to the plane of projection will also appear as a line or edge in its exact or true length.
6. A line or edge inclined to the plane of projection will appear shorter or foreshortened.
7. A surface perpendicular to the projection plane will appear as a line or edge equal in length to the nearest edge of the surface, which in this case is either its length or its width, depending on its position.
8. A surface parallel to the plane of projection will be shown in its exact or true shape and size.
9. A surface inclined to the plane of projection will also appear as a surface but smaller in size and shape.
10. No line or edge of the object can be projected longer than its true length.

Note: In construction of any mechanical drawings, the principles of orthographic drawings must be observed; and also, the proper application of alphabet of lines in order to create a better output.

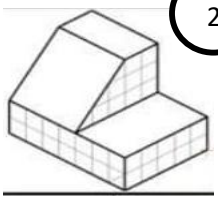
CHECK YOUR UNDERSTANDING

***Sketch** (free-hand)* **the orthographic views of the following illustrations.**

1

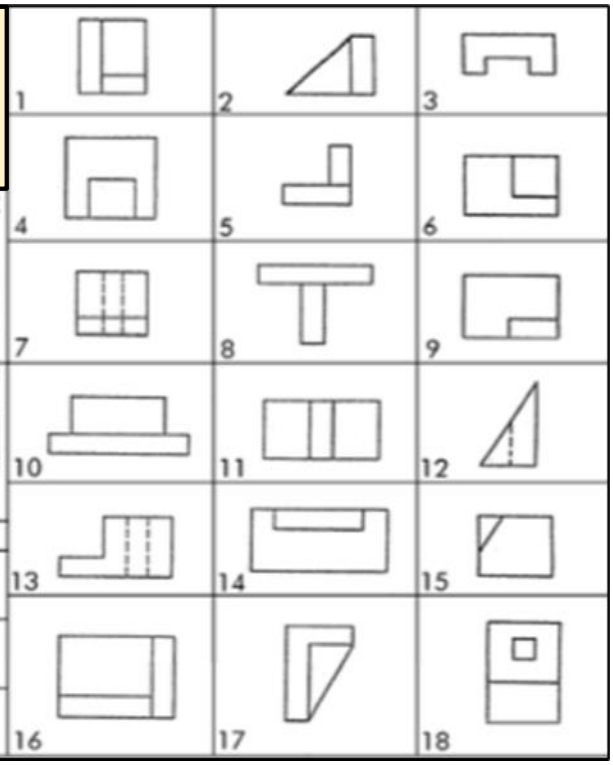


2



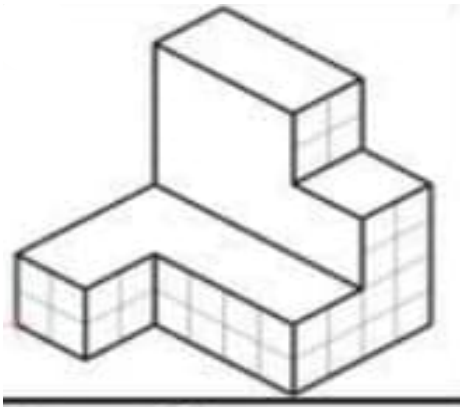
POST TEST

A. Match the isometric (labeled A-F) with those in the orthographic views' numbers 1-18, then fill out the corresponding number of your answer. Letter A is done for you.



DRAWING	A	B	C	D	E	F
FRONT view in direction of F	10					
PLAN view in direction of P						
SIDE view in direction of R						

B. Direction: Draw the orthographic views of the isometric below *mechanically*. Use Oslo paper as your drawing sheet. Indicate all the needed information on the drawing, such as measurements and labeling.



Note: Each square on the grids represents one (1) centimeter.

SCORING RUBRICS FOR LEARNER'S OUTPUT			
Accuracy	**10**	**9**	**8**
	The output is accurately done	Two to five errors are observed on the output	Six to ten errors are observed on the output
Speed	**2**	**1.6**	**1.2**
	The output is done 5 minutes before the time	The output is done on time	The output is done after the allotted time
Neatness	**5**	**4**	**3**
	Has no erasure	Has two to three erasures	Has four or more erasures
Notes & Lettering	**3**	**2.4**	**2**
	All pieces of info. are completely indicated and legibly printed.	All pieces of info. are legibly printed but some are missing.	All pieces of info. are legibly printed but some are missing and misspelled.

Rating Scale

Points Earned	Numerical Equivalent	Description
18 – 20	91 - 100	Excellent
15 - 17	86 - 90	Very Good
10 - 14	81 - 85	Good
Below 10 points	75 - 80	Needs Improvement

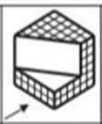
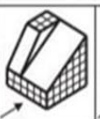
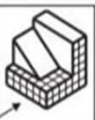
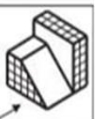
References:

- *Giesecke, Mitchell and Spencer. Technical Drawing; The Macmillan Company: 1999.*
- *French and Vierck. Engineering Drawing 10th edition MacGraw, Hill Book Company, 1960*
- *German M. Manaois. Drafting 1 and 2 Phoenix Publishing:1983*
- *Norman Stirling. Introduction to Technical Drawing Delmar Publishing: 1977*
- *Competency Based Learning Material, Technical Drafting*
- *Madsen, Shumaker, Turpin, Stark: Engineering, Drawing and Design*
- *Internet: Pinterest*

KEY TO CORRECTION

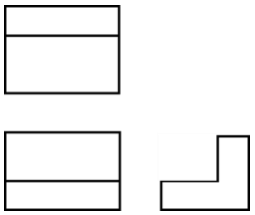
Looking Back

1. D
2. B
3. D
4. B
5. D
6. B
7. B
8. B
9. C
10. A

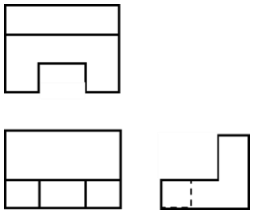
FRE-TEST KEY						
TOP VIEW	E	J	H	P	G	O
FRONT VIEW	M	D	A	L	F	Q
SIDE VIEW	R	C	K	B	I	N

Activity 2

1

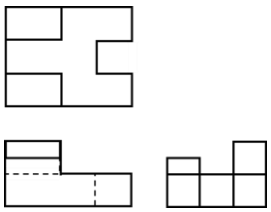


2

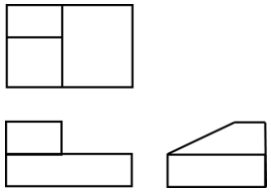


Check Your Understanding

1



2



Post-Test

A

DRAWING	A	B	C	D	E	F
FRONT view in direction of F	10	1	11	4	7	6
PLAN view in direction of P	14	17	8	3	18	9
SIDE view in direction of R	5	16	2	12	13	15

B