Department of Education

SPTVE

TECHNICAL DRAFTING-8

Interpret Technical Drawings & Plans

Quarter 2 - Week 5 Module

Ruel M. Banagan
Writer
Erwin Z. Moros
Validator
Dr. Armando N. Romero
Dr. Rosendo E. Sangalang
Joaquin O. Basijan
Quality Assurance Team

Schools Division Office – Muntinlupa City Student Center for Life Skills Bldg., Centennial Ave., Brgy. Tunasan, Muntinlupa City (02) 8805-9935 / (02) 8805-9940

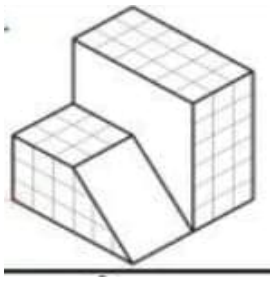
EXPECTATIONS

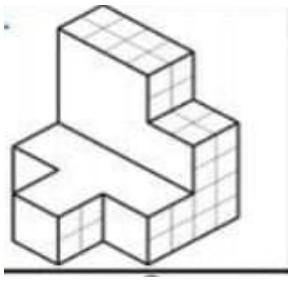
At the end of the module, the student is expected to:

1. read and interpret simple working drawings;
2. sketch orthographic drawings of simple objects; and
3. construct orthographic *(mechanical)* of objects with and/or without inclined surface using third-angle projection

PRE-TEST

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

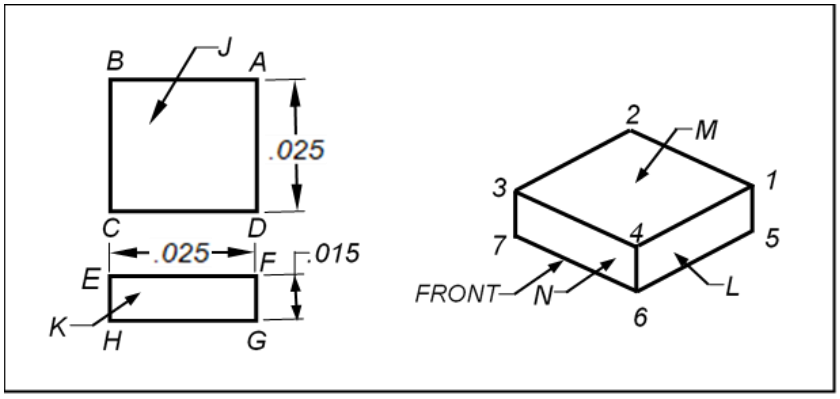




LOOKING BACK

Blueprint Reading

Directions: Analyze the illustrations below, then answer the questions that follow. Write your answer provided for each number.

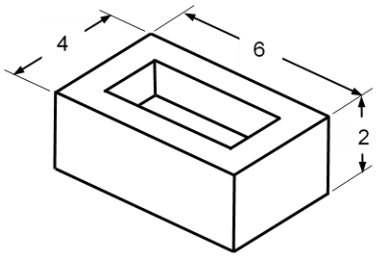


1. What is the length? _____
2. What is the width? _____
3. What is the height? _____
4. What is the length of line AB? _____
5. What is the length of line FG? _____
6. What line in the isometric refers to line CD, top view? _____
7. What point in the top view refers to line EH, front view? _____
8. What point in the front view refers to line BC, top view? _____
9. What surface in the isometric refers to surface J? _____
10. What line in the top view refers to surface K? _____
11. What line in the top view refers to surface L? _____
12. Line FG, front view, is point ___ in the top view? _____
13. Line 3-7 in the isometric is point ___ in the top view? _____
14. Line 1-4 in the isometric is point ___ in the front view? _____
15. Line 4-1 in the isometric is line ___ in the top view? _____
16. Distance A-C is the same distance as ___ in the isometric? _____
17. Line 1-5 in the isometric is point ___ in the top view? _____
18. What surface in the isometric view refers to surface K? _____
19. What line in the front view refers to surface L? _____
20. The shape of the top view is ___? _____

BRIEF INTRODUCTION

This lesson is designed to familiarize you in orthographic drawing of objects with or without inclined/diagonal surface. It includes also exercises on reading and interpreting simple working drawings. Happy learning!

Simple Steps in Constructing Orthographic Projection Drawings



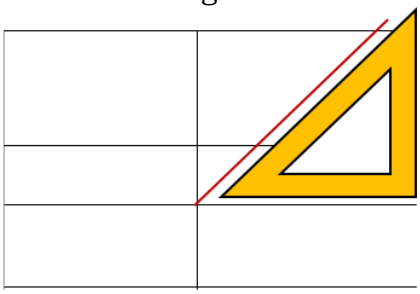
1. Study the object. The overall dimensions (length, width & thickness) of the object must be known in order to know the proportion of the parts to each other and of the parts to the whole.

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

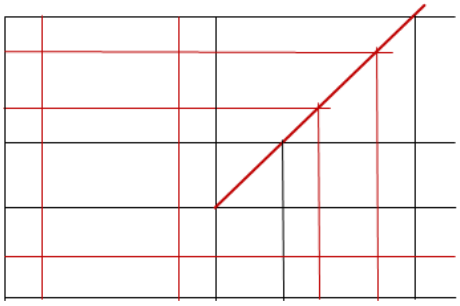
3. Construct light perpendicar lines.

4. Indicate or supply marking lines according to the given dimensions and block-in the views (top & front views).

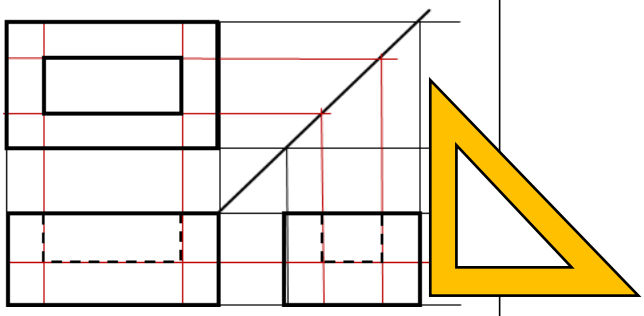
5. Use 45^0 x 45^0 x 90^0 to transfer the width of the side view. Block-in the view. See figures below.



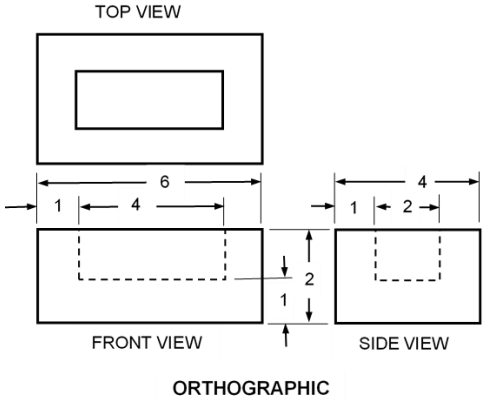
6. After blocking in the 3 views, add other details.



7. Trace the visible edges.



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



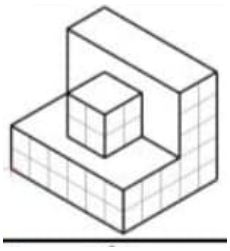
ORTHOGRAPHIC

ACTIVITIES

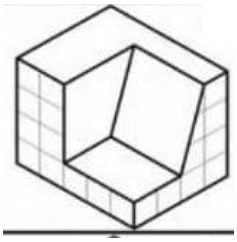
A. Orthographic sketching.

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

1



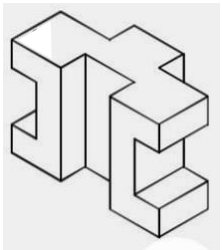
2



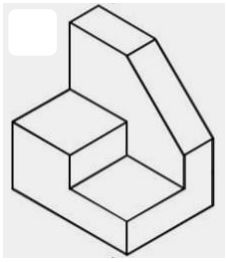
B. Orthographic sketching. (No measurement needed).

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

1



2



REMEMBER

Principles of Orthographic Projection

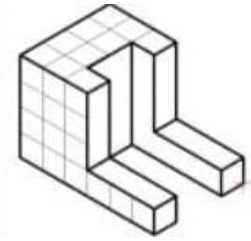
1. The top view is directly above the front view.
2. The side views are horizontally in line with the front view.
3. The width of the top view is equal to the width of the side views
4. When a line or edge is viewed perpendicularly to a plane of projection, it appears as a point.
5. A line or edge parallel 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.

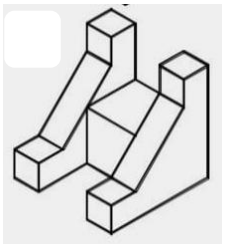
CHECK YOUR UNDERSTANDING

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

1



2



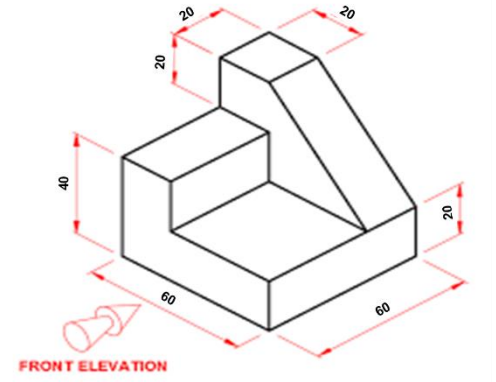
POST TEST

Direction: Construct the orthographic views (mechanical drawing) of the isometric below on Oslo paper. Do not copy the isometric, just the orthographic.

Note:

a) *Follow the principles of orthographic drawing.*
b) *Indicate all the needed information on the drawing, such as measurements and labeling.*
c) *Apply alphabet of lines properly.*

Plate No.:_____



Year & Section: _____ Name:_____

Teacher: _____ Title Date: _____

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 CORRECTIONS

LOOKING BACK

Blueprint reading

11. .025
12. .025
13. .015
14. .025
15. .015
16. 3-4
17. C
18. E
19. M
20. C-D

1. 5-6
2. D
3. C
4. F
5. D-A
6. 1-3
7. A
8. N
9. F-G
10. Square

PRE-TEST

ACTIVITY B

ACTIVITY A

POST TEST

CHECK YOUR UNDERSTANDING