



Lesson 1.2 – Introduction to Technical Sketching and Drawing

Concepts

1. Engineers create sketches to quickly record, communicate, and investigate ideas.
2. Pictorials and tonal shading techniques are used in combination to give sketched objects a realistic look.
3. Designers use isometric, oblique, perspective, and multiview sketching to maintain an object's visual proportions.
4. A multiview projection is the most common method of communicating the shape and size of an object that is intended for manufacture.

Performance Objectives

It is expected that students will:

- Identify, sketch, and explain the function of points, construction lines, object lines, and hidden lines.
- Plot points on grid paper to aid in the creation of sketches and drawings.
- Explain the concepts of technical sketching and drawing.
- Sketch an isometric view of simple geometric solids.
- Explain how an oblique view of simple geometric solids differs from an isometric view.
- Sketch one-point, two-point, and three-point perspectives of simple geometric solids.
- Describe the concept of proportion as it relates to freehand sketching.
- Sketch multiview drawings of simple geometric solids.
- Determine the front view for a given object.

Essential Questions

1. Why is sketching an important engineering skill?
2. What is the difference between sketching and drawing?
3. What does the term *isometric sketch* mean?
4. What does the term *oblique sketch* mean?
5. What is perspective sketching?
6. What advantages do pictorial drawings have over multiview drawings?
7. What are the three main views of a sketch or drawing that are required to depict an

object?

8. Why should you not erase construction lines?
9. If you are given an object with an unknown function and told to create a sketch of it, how would you determine what the front view would look like?
10. What is orthographic projection?

Key Terms

Construction Line	Depth	Documentation
Edge	Ellipse	Freehand
Grid	Height	Hidden Line
Isometric Sketch	Line	Line Conventions
Line Weight	Manufacture	Measurement
Multiview Drawings	Object Line	Oblique Sketch
Orthographic Projection	Perspective Sketch	Pictorial Sketch
Plane	Point	Profile
Projection Line	Projection Plane	Proportion
Scale	Shading	Shape
Size	Sketch	Solid
Technical Working Drawing	Tone	Vanishing Point
Views	Visualize	Width

Instructional Resources

PowerPoint® Presentations

- [Line Conventions](#)
- [Isometric Pictorials](#)
- [Oblique Pictorials](#)
- [Perspective Sketches](#)
- [Multiview Sketching](#)

Word Documents

[Activity 1.2.1 Isometric Sketches](#)

[Activity 1.2.2 Oblique Sketches](#)

[Activity 1.2.3 Perspective Sketches](#)

[Activity 1.2.4 Multiview Sketches](#)

Lesson 1.2 Key Terms and definitions in Excel

[Isometric graph paper](#)

[Orthographic graph paper](#)

[Activity 1.2.1 Isometric Graph Paper](#)

Reference Sources

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