

Lesson 1.2 Introduction to Technical Sketching

Essential Questions and Key Terms

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?

Construction Line - Thin lines that serve as guides while sketching or drawing.

Depth - The distance from front to back.

Documentation - The documents that are required for something, or that give evidence or proof of something.

Edge - 1) The outside limit of an object, a surface, or an area. 2) The line along which two surfaces of a solid meet.

Ellipse - A regular oval shape, traced by a point moving in a plane so that the sum of its distances from two other points is constant.

Freehand - Done manually without the aid of instruments such as rulers.

Grid - A network of lines that cross each other to form a series of squares or rectangles.

Height - The distance from bottom to top.

Hidden Line - A line type that represents an edge that is not directly visible, because it is behind or beneath another surface.

Isometric Sketch - A form of pictorial sketch in which all three drawing axes form equal angles of 120 degrees with the plane of projection.

Line - A long thin mark on a surface.

Line Conventions - Standardization of lines used on technical drawings by line weight and style.

Line Weight - Also called line width or value. The thickness of a line, characterized as thick or thin.. The value of a line being dark or light.

Manufacture - To make something, especially on a large scale using machinery.

Measurement - The process of using dimensions, quantity, or capacity by comparison with a standard in order to mark off, apportion, layout, or establish dimensions.

Multiview Drawings - Views of an object projected onto two or more orthographic planes.

Object Line - A heavy solid line used on a drawing to represent the outline of an object.

Oblique Sketch - A type of sketch involving a combination of a flat, orthographic front with depth lines receding at a selected angle, usually 45 degrees.

Orthographic Projection - A method of representing three-dimensional objects by breaking them down into identifiable views. The identifiable views are front, back, bottom, top, right side and left side. Also referred to as Right Angle Projection.

Perspective Drawing - A form of pictorial drawing in which vanishing points are used to provide the depth and distortion that is seen with the human eye. Perspective drawings can be drawn using one, two, and three vanishing points.

Pictorial Sketch - A sketch that shows an object's height, width, and depth in a single view.

Point - A very small dot or mark on a surface that has position, but not spatial extent, magnitude, dimension, or direction.

Profile - An outline of something as seen from one side.

Projection Line - A horizontal or vertical line that can be used to locate entities in an adjacent view.

Projection Plane - An imaginary surface on which the view of the object is projected and drawn. This surface is imagined to exist between the object and the observer.

Proportion - The relationship of one thing to another in size, amount, etc.

Scale - A ratio of size in a map, model, drawing, or plan.

Shading - The representation of light and shade on a drawing or map.

Shape - The external appearance of someone or something as produced by his/her/its outline.

Size - How large or small a person or thing is.

Sketch - A rough or unfinished drawing or painting.

Solid - A three-dimensional body or geometric figure.

Technical Working Drawing - A drawing that is used to show the material, size, and shape of a product for manufacturing purposes.

Tone - The general effect of color or of light and shade in a picture.

Vanishing Point - A vanishing point is a point in space, usually located on the horizon, where parallel edges of an object appear to converge.

Views - Views is shorthand for multiview projection, which is a system used to view an object. The six mutually perpendicular directions any object may be viewed are top, front, right-side, rear, left-side, and bottom. Top, front, and right-side views are also referred to as the three regular views because they are the three views most frequently used.

Visualize - To form a mental image of; imagine.

Width - The distance from side to side.