

Line Conventions Guide

A student reference for using the correct engineering line types in sketches and technical drawings.

Use this guide when...

- you need to decide whether a feature should be visible, hidden, centered, dimensioned, or sectioned.
- you are improving the readability of a sketch or drawing.
- you want someone else to understand the drawing without verbal explanation.

Quick reference

Line type	How it looks	Use it for	Accuracy note
Object / visible line	Thick continuous	Visible edges and outlines of the part.	In student sketches, these should be the thickest/darkest final lines.
Hidden line	Medium dashed	Important edges or features that are behind the visible surface.	Use sparingly. Too many hidden lines can make a view harder to read.
Centerline / center mark	Long-short-long or center mark	Hole centers, circular features, axes, symmetry, or rotation.	Do not use it to show a visible edge.
Dimension line	Thin line with arrows and text	Measured size, distance, diameter, or angle.	Do not use object lines as dimension lines.
Extension line	Thin line projecting from a feature	Shows where a dimension begins and ends.	Start slightly away from the object edge when possible.
Construction line	Very light or lightly dashed	Sketch layout, alignment, and setup work.	Mainly a sketching/layout tool; not usually part of a final formal drawing.
Cutting plane line	Thick line with arrows	Shows where the object is cut for a section view.	Arrows show the viewing direction.
Section / hatch lines	Thin repeated angled lines	Solid material exposed by a cut.	Do not hatch holes, voids, or empty space.

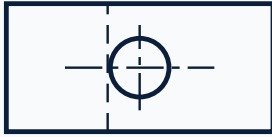
Visual line examples

Each line convention has a different job. Use the lightest line that communicates the needed information.

Object / visible		Visible edges and outlines
Hidden		Important non-visible edges
Centerline		Centers, axes, and symmetry
Dimension		Measurement with arrows/text
Extension		Projects feature to dimension
Construction		Temporary layout/sketch line
Cutting plane		Where section view is cut
Section / hatch		Cut material surface

Example drawing fragment

Match the line style to the feature you want the reader to notice.



Visible outer edges use object lines.

The hole includes a centerline for its axis.

A dashed line represents a hidden feature.

Common mistakes to avoid

Mistake	Better choice
Using one line weight for every feature.	Make visible/object lines strongest and keep construction, extension, and hatch lines lighter.
Using hidden lines for visible edges.	Use object lines for visible edges. Use hidden lines only for important non-visible features.
Using object lines as dimension lines.	Use thin dimension lines with arrows/text and separate extension lines.
Adding every possible hidden feature.	Use hidden lines only when they improve understanding. Choose a section view if the hidden detail is too complex.
Hatching empty space in a section view.	Hatch only solid material cut by the cutting plane.

Quality checklist

- Object lines clearly show the visible part edges.
- Hidden lines are dashed and used only when they clarify important non-visible features.
- Centerlines or center marks identify holes, circular features, symmetry, or axes.
- Dimension lines and extension lines are thin and readable.
- Construction lines are light enough that they do not compete with final object lines.
- Cutting plane arrows and section hatch lines communicate the section view clearly.