

Drawing 3D objects

Understanding: Drawing 3D Objects

- Drawing 3D objects means showing depth, height, and width on 2D surfaces like paper.
- This helps in understanding the shape, faces, and structure of solid objects.
- Common ways to show 3D shapes are isometric drawing and oblique sketches.

Important Points

- 3D objects can be drawn to look realistic using lines, angles, and shading
- In drawings, hidden edges are often shown using dotted lines
- Drawing 3D objects improves spatial understanding and geometry skills

Common 3D Objects to Draw

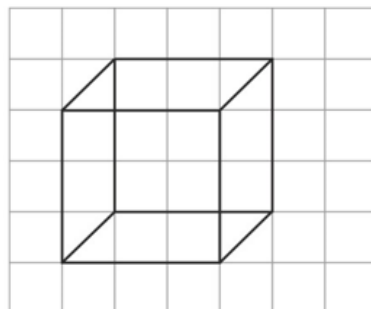
- Cube
- Cuboid
- Cylinder
- Cone
- Pyramid

We can draw solids on Flat Surface by two methods:

Oblique Sketch:

Steps to draw Isometric Sketch

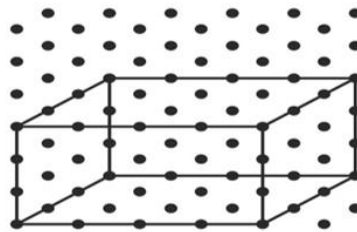
- **Step 1:** Make a drawing of the front face.
- **Step 2:** Draw the face on the opposite side. The faces must be the same size, although the sketch is somewhat offset from step 1.
- **Step 3:** Connect the corners that match.
- **Step 4:** Redraw the hidden edges using dotted lines.



Isometric Sketch:

Steps to Draw:

- **Step 1:** To show the front face, draw a rectangle.
- **Step 2:** Starting at the four corners of the rectangle, draw four parallel line segments of three.
- **Step 3:** Use the proper line segments to connect the corresponding corners.
- **Step 4:** This is a cuboid in isometric view.



Examples with Solutions

Example: Draw a cube

Draw 2 overlapping squares and join their corners with straight lines

- This shows all 6 square faces clearly

Example: Draw a cuboid

Draw 2 rectangles slightly apart and connect their corners to show depth

- It shows 6 rectangular faces

Example: Draw a cylinder

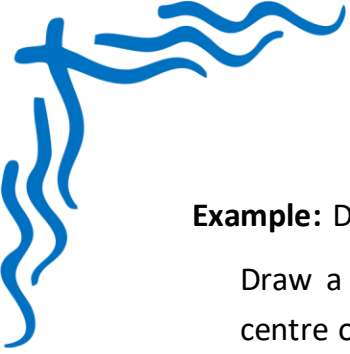
Draw two circles, one at the top and one slightly below, then connect their sides with straight lines

- It shows 2 circular faces and 1 curved surface

Example: Draw a cone

Draw a circle as the base and join the edges to a single point above to form a triangle-like shape

- It shows 1 circular base and 1 curved face



Example: Draw a square pyramid

Draw a square for the base and connect all corners to a single point above the centre of the square

- It shows 1 square base and 4 triangular faces

Summary Points

- 3D objects can be drawn on paper using overlapping shapes and lines.
- Use dashed lines for hidden parts.
- Drawing helps understand edges, vertices, and faces.
- Start with basic shapes like cube and cuboid.
- Practice improves visualization and accuracy.