

Notes & Steps



Key idea

Isometric drawing shows 3D objects on flat paper. Vertical lines stay vertical, but horizontal lines are drawn at 30° to the horizontal. Use isometric dot paper to keep proportions correct.

Steps to draw a cube

1. Start at a dot. Draw a vertical line for the height.
2. From the bottom, draw a line up-right at 30° for the width.
3. From the bottom, draw a line up-left at 30° for the depth.
4. Complete the three visible faces using parallel lines.
5. Add dashed lines for hidden edges (optional).

Counting cubes



Count each cube including hidden ones. The drawing shows 2 cubes: one on top, one underneath on the right.

Common mistake

Drawing horizontal lines as truly horizontal instead of at 30° . In isometric, no line is truly horizontal except the base dots.

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Example 1: Drawing a cube

Draw a cube of side 2 units on isometric paper.

Start with a vertical line of 2 units. From the bottom point, draw two lines at 30° of length 2 units each (one up-right, one up-left). Complete the three visible faces. Add hidden edges as dashed lines if needed.

Example 2: Counting cubes

An isometric drawing shows a shape with visible cubes in a $2 \times 2 \times 1$ arrangement (bottom layer of 4) plus 2 cubes on top of one corner. Total = 6 cubes.

Example 3: L-shape

An L-shaped solid has 3 cubes on the bottom row and 2 stacked on the leftmost cube. That's 5 cubes total: 3 base + 2 on top.

Try these

1. Draw a single cube on isometric paper.
2. How many cubes in a $2 \times 2 \times 2$ cube? (answer: 8)
3. Draw an L-shape of 3 cubes.

Common mistake

Forgetting hidden cubes when counting. A $2 \times 2 \times 2$ cube has 8 total but only 7 visible from most angles. Always account for all layers.