

## Nets – flat to 3D and back

MODULE 6 · 2D AND 3D SHAPE, ANGLES, SYMMETRY SHAPE & SPACE

**Isometric paper** is a triangular grid (instead of squares). It lets you draw 3-D shapes that look realistic on a flat page: **vertical edges** stay vertical, and **horizontal edges** slope along the grid lines (at  $30^\circ$  from the horizontal).

- A **cube** drawn on isometric paper shows three of its faces — top, left, and right — meeting at one corner.
- Edges that are equal length on the real cube are equal length on the isometric drawing too — count grid steps to keep them matching.

### HOW TO ANSWER TODAY

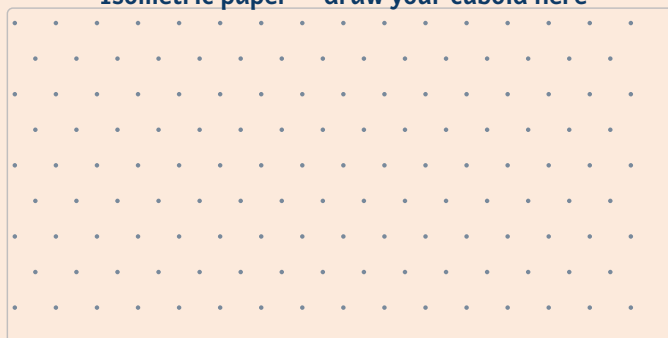
- **Name a 3D shape.** Count faces (flat surfaces), edges (where two faces meet), vertices (corners). Match to the shape.

5 faces, 9 edges, 6 vertices → triangular prism

### TRY IT ON THE LINE

Use the isometric grid below to draw a cuboid. Vertical edges stay vertical; horizontal edges slope along the  $30^\circ$  and  $60^\circ$  lines of the dot grid. Show three faces — front, right, and top — with no hidden lines.

Isometric paper — draw your cuboid here



1. Draw a  $4 \times 2 \times 3$  cm cuboid on the grid: 4 dots wide along the front, 2 dots deep, 3 dots tall.
2. Underneath your first drawing, sketch a  $3 \times 3 \times 3$  cm cube — every edge the same length (3 dots).
3. If space allows, add a  $5 \times 2 \times 2$  cm cuboid (long and thin).
4. Label one length, one width, and one height on each drawing.

### PRACTICE

- 1 Eoin is helping the caretaker carry a wooden equipment box out to the school field before soccer training. He notices the box has **6** faces, **12** edges and **8** vertices, and that all the faces are rectangles but not all are squares. What 3D shape is the equipment box?

A 3D shape has these properties: 6 faces, 12 edges, 8 vertices; all faces are rectangles, not all squares. What shape is it?

- 2 Aoife is designing a mosaic for the school library wall and sketches a 3D shape she wants to feature. Her shape has **4** faces, **6** edges and **4** vertices, and every face is a triangle. What is the name of this shape?

A 3D shape has these properties: 4 faces, 6 edges, 4 vertices; every face is a triangle. What shape is it?