What Is a Prism and How to Count Its Parts

KS2 MATHS | 3D SHAPES | GEOMETRY | Ages 10-12 | ⏰ 3 min read

What Is a Prism?

A **prism** is a special **3D shape** (a solid shape with length, width, and height). It has two flat, identical ends and a set of **faces** that connect them. The two identical ends can be any shape—triangles, squares, pentagons, or even hexagons.

The most common prism you'll see is a **rectangular prism** (also called a cuboid or box shape). But there are also **triangular prisms**, **pentagonal prisms**, and many others. A prism always has straight edges and flat faces—no curves!

Think of it like a Toblerone chocolate bar. It has a triangular shape at each end, and three rectangular faces running along the length. That's a triangular prism!

Counting the Faces

A **face** is any flat surface on a 3D shape. For a **rectangular prism** (like a cereal box), there are **6 faces**. For a **triangular prism** (like a Toblerone), there are **5 faces**: two triangular ends and three rectangular sides.

The rule is: a prism always has two identical end faces, plus extra faces connecting them. The number of sides in the end shape tells you how many rectangular faces join them in the middle.

Counting the Edges

An **edge** is a line where two faces meet. A **rectangular prism** has **12 edges**: four around the top rectangle, four around the bottom rectangle, and four vertical edges connecting them.

A **triangular prism** has **9 edges**: three around one triangular end, three around the other triangular end, and three edges running down the length connecting them together.

Think of edges like the metal strips around a picture frame. They're the lines where two flat pieces meet.

Counting the Vertices

A **vertex** (plural: **vertices**) is a corner point where three or more edges meet. A **rectangular prism** has **8 vertices**—one at each corner, like the corners of a dice or a building block.

A **triangular prism** has **6 vertices**: three corners on one triangular end and three on the other triangular end.

To find the vertices quickly, count the corners on one end shape and multiply by two (since there are always two identical ends).

Think of vertices like the pointy tips on a crown. Each point is a corner where the frame meets.

Why Does This Matter?

Understanding faces, edges, and vertices helps you calculate surface area and volume, recognise shapes in the real world, and solve tricky geometry problems. Architects use prisms to design buildings, engineers use them to build bridges, and even video game designers use them to create 3D worlds.

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