Cross-sections of right prisms

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A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Show your thinking using words, working or a labelled drawing. Use the explanations and example first.

What you will practise

• Cross-sections of right prisms

• Explain and check an answer with an appropriate representation.

Useful starting skills: Use objects, drawings or a number line to explain a simple idea.

A cross-section is the flat shape formed where a plane cuts through a solid. A right prism has constant sections when the cutting planes are parallel to its two matching bases.

State which faces are the bases and how the plane is oriented. A tilted cut or a cut in another direction can create a different shape, so a solid’s name alone does not determine every section.

Worked example

Slice a right triangular prism parallel to its triangular base.

The cutting plane passes across corresponding side faces.

At any height between the bases, the matching section has the same triangular shape and size.

Answer: A congruent triangle

Try it yourself

Name: _____ Date: _____

1. A right triangular prism is cut by a plane parallel to its triangular bases, between the bases. What shape is the cross-section?

2. A right rectangular prism has a 6 cm×4 cm base and height 9 cm. A slice parallel to the base is made halfway up. Give the cross-section dimensions.

Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. A congruent triangle

Parallel slices across a prism keep the same cross-section as its base.

2. 6 cm×4 cm

Changing the slice height does not change a prism’s parallel cross-section.

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