

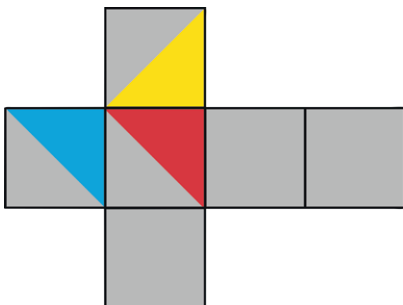
- 1) a) *Accept any correct answers, for example triangular prism, cuboid, pentagonal prism.*
- b) *Accept any correct answers, for example cylinder, cone.*
- c) *Accept any correct answers, for example square-based pyramid, regular octahedron, triangular prism.*
- 2) *Accept any correct answer, for example the cuboid is the odd one out because it does not have any triangular faces.*



- 1) a) *False – a cylinder has a curved surface so is not a prism. Prisms are polyhedrons made from faces, and faces are flat surfaces.*
- b) *False – prisms have rectangular faces.*
- c) *True*
- 2) *Yes this is true for all pyramids.*



- 1) *Multiple answers possible – teacher to check. Example given below.*



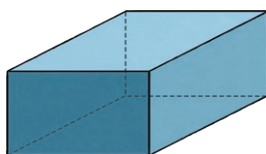
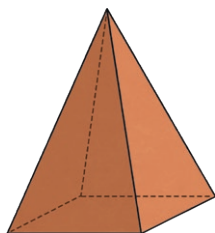
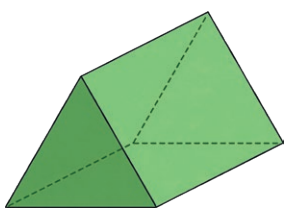


1) a) Name three different 3D shapes that have at least one rectangular face.

b) Name two different 3D shapes that have a curved surface.

c) Name two different 3D shapes that have more than four but fewer than eight vertices.

2) Thinking about these 3D shapes, which could be the odd one out and why? Can you think of more than one example?



1) True or False?



- a) A cylinder is a type of prism.
- b) A cuboid is the only 3D shape to have rectangular faces.
- c) A triangular prism has six vertices.

2) Arnold is looking carefully at a square-based pyramid. He says:



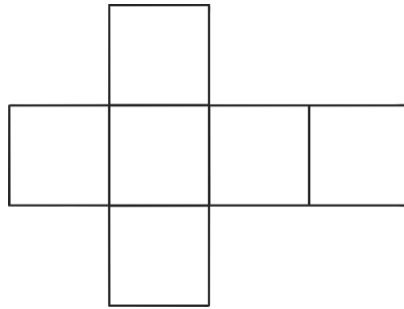
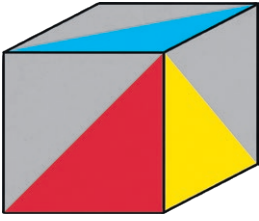
This 3D shape has the same number of faces as vertices.

Investigate to find out if this is true for all pyramids.

What have you learnt from your investigation? What are your findings?

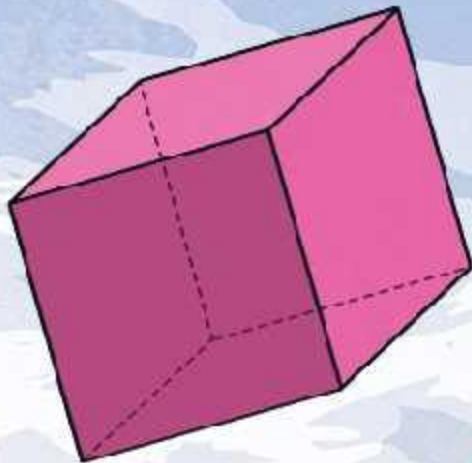
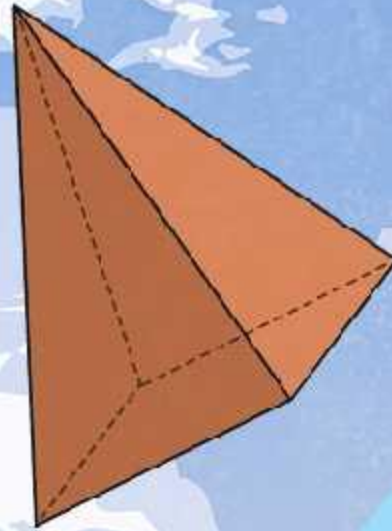
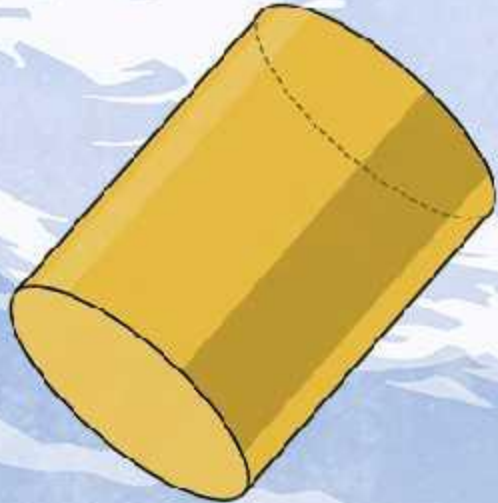


1) Saira wants to create a net of the cube shown below. How should she colour the net to ensure it looks like the picture shown when constructed?



Is there more than one way to achieve this?

Diving into Mastery



Reasoning about 3D Shapes (1)

Diving into Mastery Guidance for Educators

Each activity sheet is split into three sections, diving, deeper and deepest, which are represented by the following icons:



Diving



Deeper



Deepest

These carefully designed activities take your children through a learning journey, initially ensuring they are fluent with the key concept being taught; then applying this to a range of reasoning and problem-solving activities.

These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.

Aim

- Identify 3D shapes, including cubes and cuboids, from 2D representations.

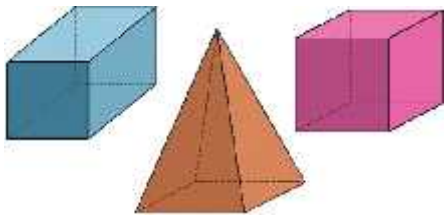


Name a 3D shape that has at least one of these 2D shapes as a face:

- A square
- A circle
- An equilateral triangle

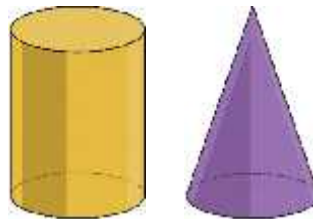
Did you come up with any different suggestions to these?

A square



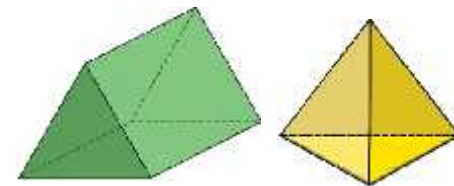
This could be a cuboid, a cube or a square-based pyramid.

A circle



This could be a cylinder or a cone.

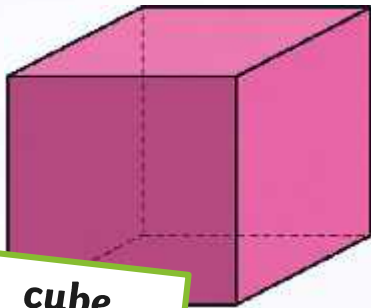
An equilateral triangle



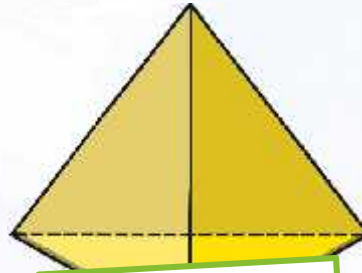
This could be a triangular prism or a tetrahedron.



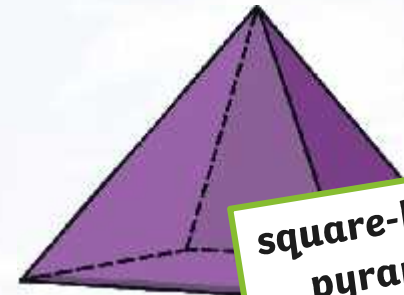
What is the name of each 3D shape shown below?



cube



tetrahedron



square-based
pyramid

Which could be the odd one out and why?

- The cube could be the odd one out because it is not a pyramid; it does not have any triangular faces; it does not have an apex.
- The tetrahedron could be the odd one out because it has the fewest number of faces; it does not have any square faces.
- The square-based pyramid could be the odd one out because its faces are not all the same 2D shape; it has an odd number of vertices.



True or False?

A cube is the only 3D shape to have square faces.

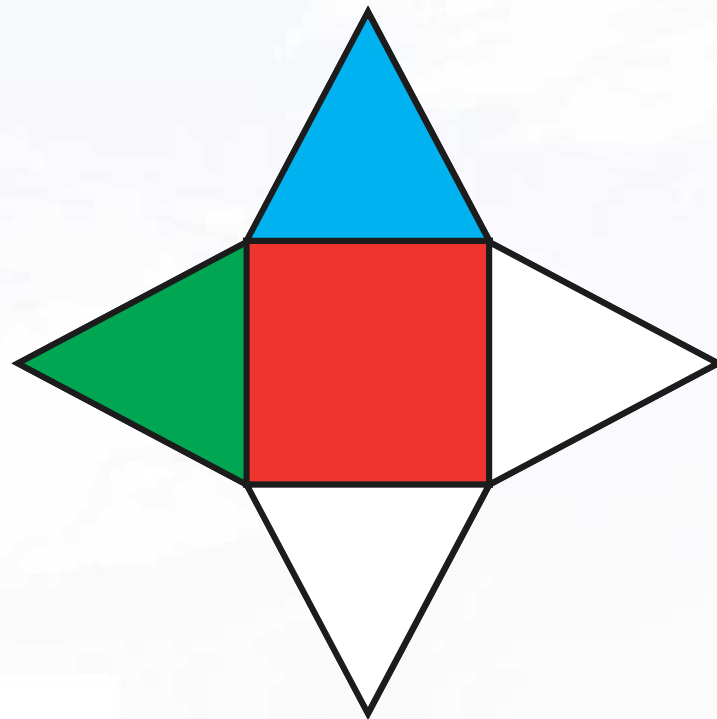
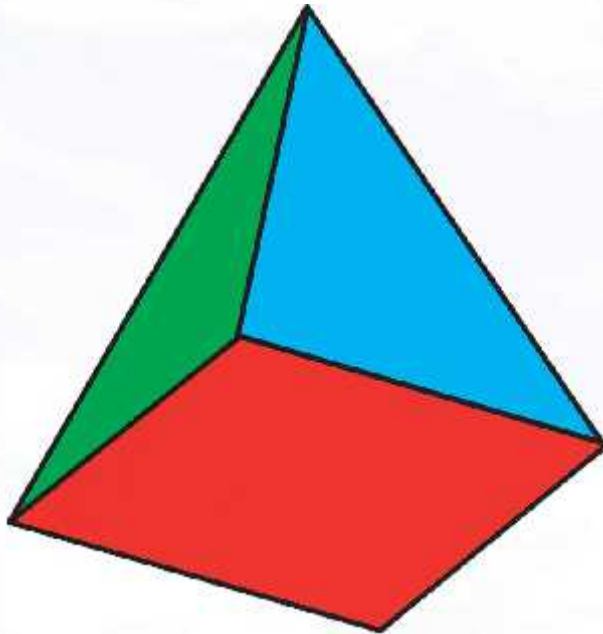
False

- A cuboid can have two square faces at opposite ends to each other.
- Prisms can have square faces joining the opposite ends.



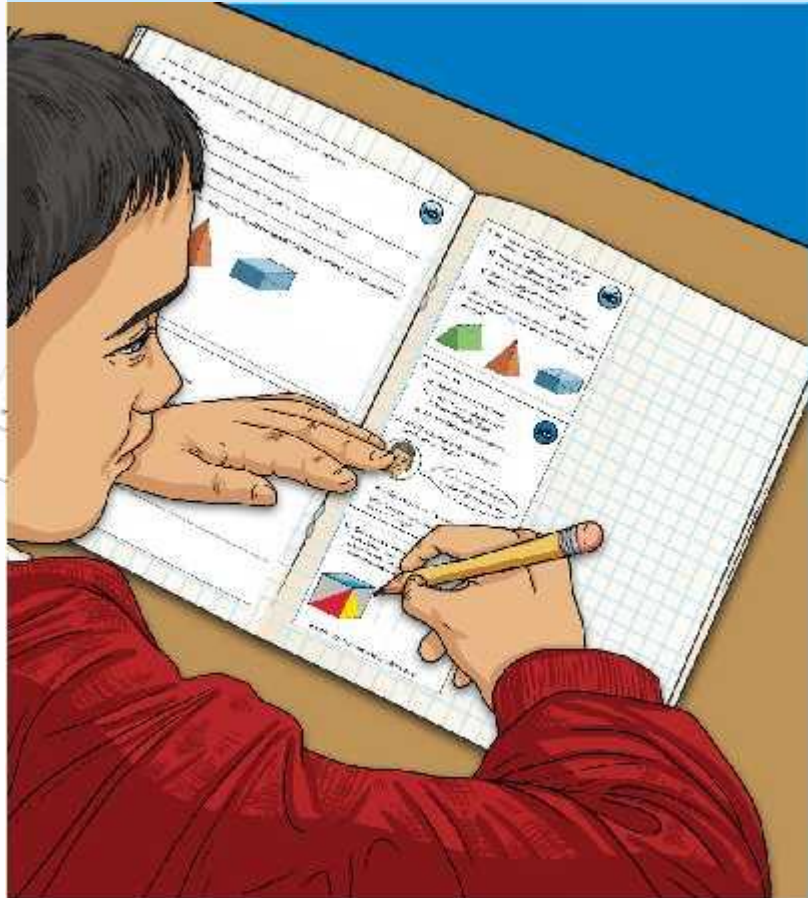









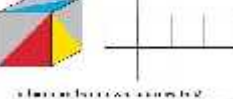
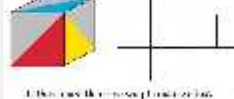
If you were to colour the net for this square-based pyramid, what would it look like? Is there more than one possibility?



Reasoning about 3D Shapes (1)

Dive in by completing your own activity!



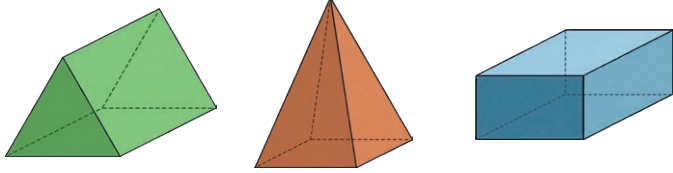
<p>1) What is the volume of this cube?</p> <p>2) What is the surface area of this cube?</p> <p>3) What is the volume of this pyramid?</p> <p>4) What is the surface area of this pyramid?</p> 	<p>1) The length of a rectangular prism is 10 cm, the width is 5 cm, and the height is 3 cm.</p> <p>2) The length of a rectangular prism is 8 cm, the width is 4 cm, and the height is 2 cm.</p> 	<p>1) The length of a rectangular prism is 12 cm, the width is 6 cm, and the height is 4 cm.</p> <p>2) The length of a rectangular prism is 9 cm, the width is 5 cm, and the height is 3 cm.</p> 
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- 2) Thinking about these 3D shapes, which could be the odd one out and why? Can you think of more than one example?



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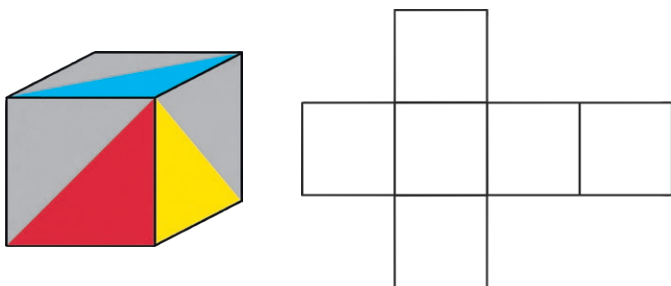
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Investigate to find out if this is true for all pyramids.
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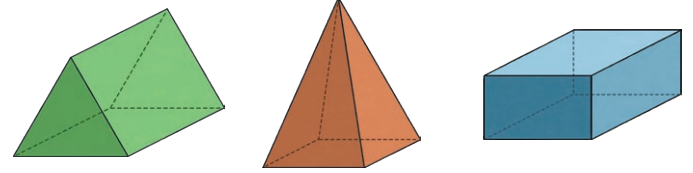


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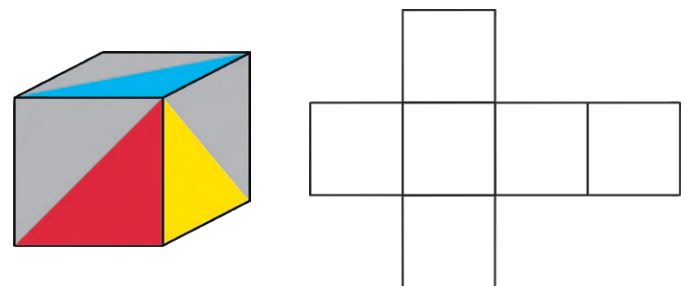
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