Make Patterns with 3D Shapes

Adult Guidance with Question Prompts

Children use the properties they have learnt about 3D shapes to make repeating patterns. This includes patterns with only one shape in different orientations. They identify the part that repeats (the 'core' of the pattern). Children should use real-life objects to make 3D shape patterns. Children will need a selection of 3D shapes and real-life objects for this activity.

What is the 'core' of the pattern?

What is the missing shape?

How do you know?

What real-life object could you use that is a cylinder/sphere/cube?

How many shapes are in the second pattern?

Describe the pattern to me.

Can you use the shape names to say the third pattern?

What would the eighth shape in the pattern be?

How do you know?

Can we make a pattern with shapes upside down?

Can you make a pattern with only one shape?

What will the core of your pattern be?

Will you use different orientations or different sizes?

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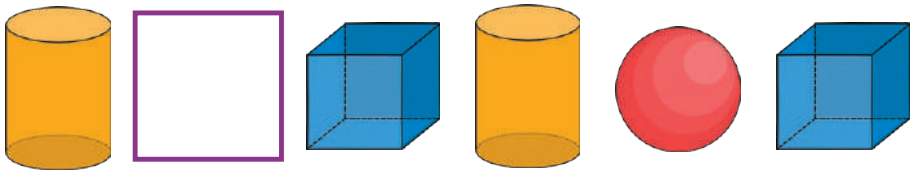
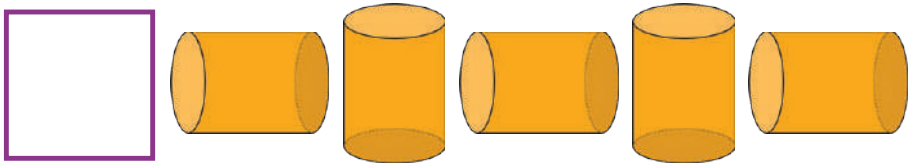
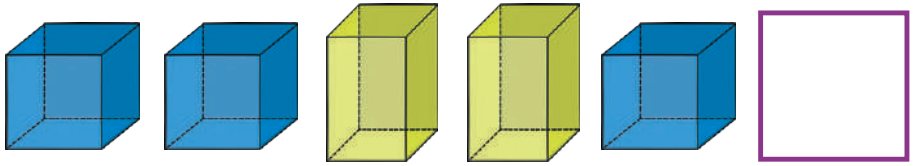
What shapes are missing from these patterns?



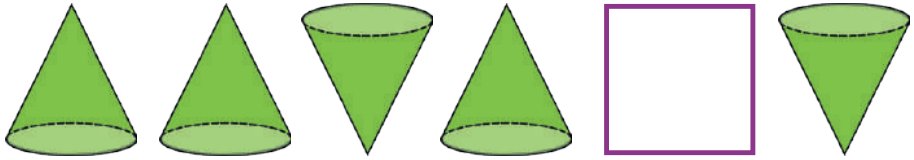
Can you copy this pattern using real-life objects?



Describe this pattern.



What is the 8th shape in this pattern?



Can you make your own repeating pattern with one shape?

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Children compare two patterns and reason about whether they are the same or different. They identify the part that repeats (the 'core' of the pattern). They explain their thinking.

Do the patterns look the same at first glance?

Do they both start with the same shape?

What shapes can you see in Tom's pattern?

What about Ben's pattern?

Do both patterns use the same shapes?

What is the core of each pattern?

Are there different possible cores?

Could the patterns have the same core?

Explain your answer.

Who do you agree with?

Why?

Could both boys be right?

How are the patterns the same/different?

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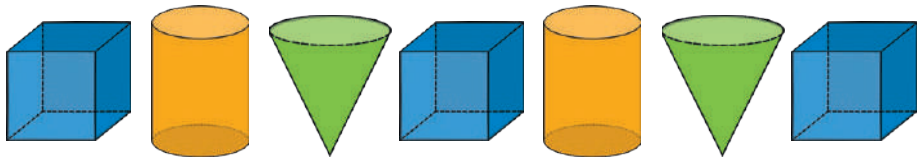
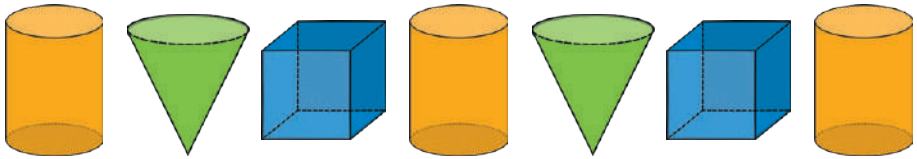
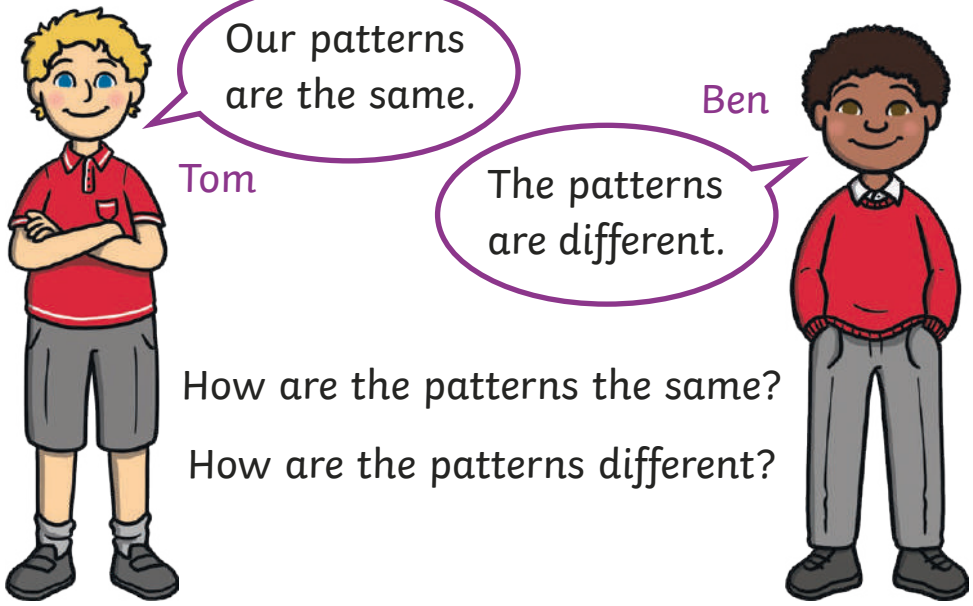
Tom and Ben are making patterns.

Tom's pattern:



Ben's pattern:





How are the patterns the same?

How are the patterns different?

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Adult Guidance with Question Prompts

Children read and interpret clues about a 3D shape pattern. They work out what shapes are in the pattern using their knowledge of 3D shapes. They use the clues to work out the part that repeats (the 'core' of the pattern) and recreate it with 3D shapes or real-life objects (cones and cylinders).

How many different shapes are in the pattern?

What are the two shapes?

How could you arrange the cones and cylinders to make a core with four shapes?

Could the core have one cylinder and three cones?

Why?

What else could it be?

What do the clues tell you about the first four shapes in the pattern?

Can you make a possible pattern?

Is there more than one possible pattern?

Do the clues tell you about the orientation of the shapes in the pattern?

How many different ways can you orientate the shapes to create different patterns?

Can you think of your own pattern?

Can you write clues to describe your pattern for a friend?

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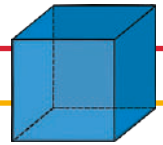
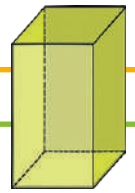
Use these clues to make this pattern.

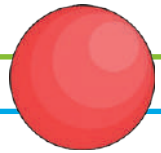
My pattern has two different 3D shapes in it.



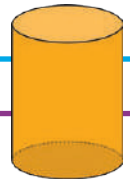
The two shapes both have curved surfaces and flat faces.



The core that repeats has 4 shapes in it.



The first and second shapes in the pattern are the same.



The third and fourth shapes in the pattern are the same.

Think of a 3D shape pattern.

Write clues about the pattern for a friend to solve.