

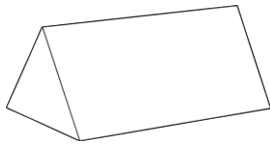
# 3D Shape Turns

To describe three-quarter and whole turns.

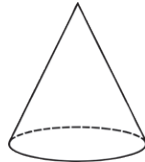


The shapes are turning in a clockwise direction.

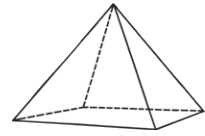
Tick the shapes that show the turns.



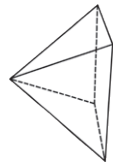
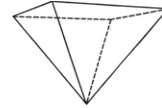
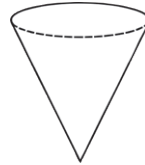
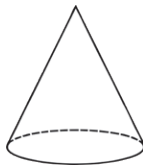
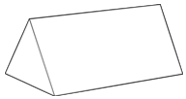
three-quarters



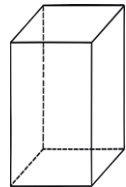
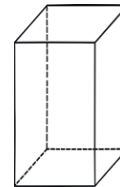
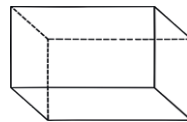
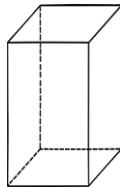
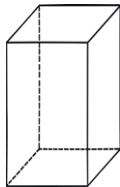
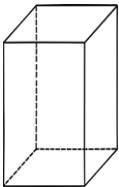
whole



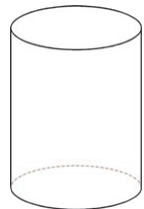
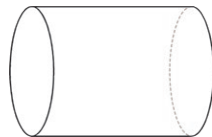
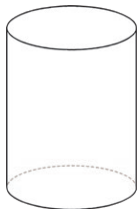
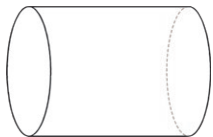
three-quarters



This pattern shows whole turns. Circle the odd one out.



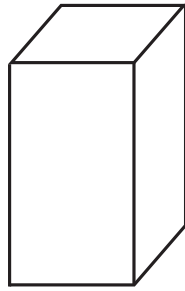
This pattern shows three-quarter turns. Circle the odd one out.



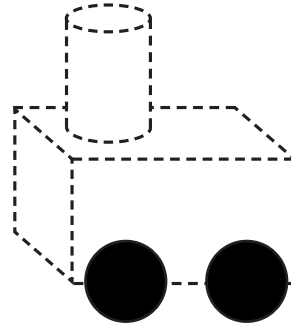
How will the shapes turn to make the model?



cylinder



cuboid



three-quarter

whole

Make a  turn with the cylinder.

Make a  turn with the cuboid.

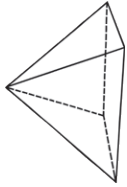
# 3D Shape Turns

To describe three-quarter and whole turns.

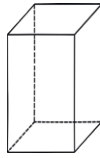


The shapes are turning in a clockwise direction.

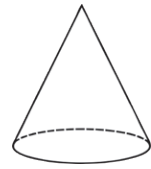
Tick the shapes that show the turns.



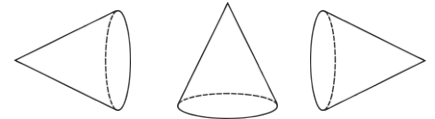
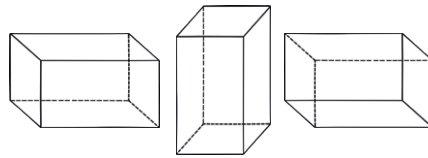
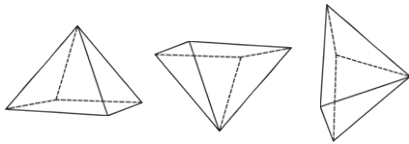
three-quarter turn



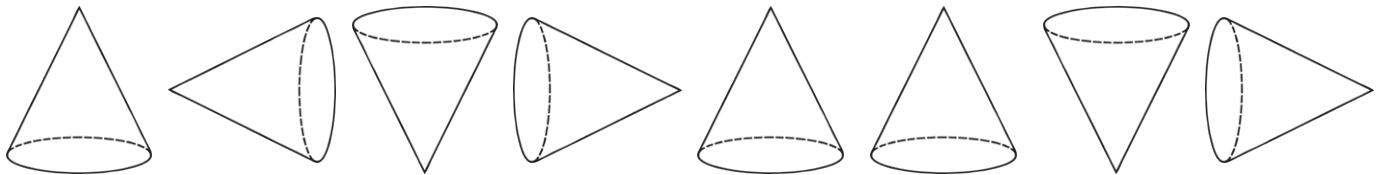
whole turn



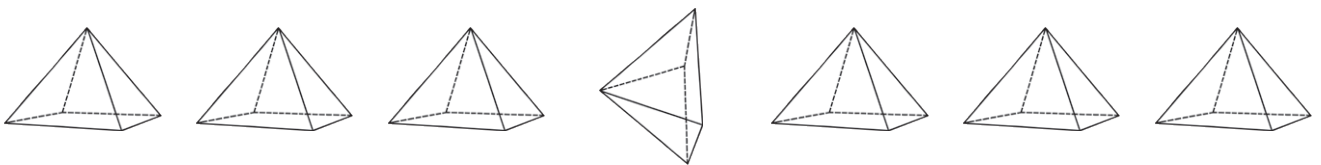
three-quarter turn



This pattern shows three-quarter turns. Circle the odd one out.



This pattern shows whole turns. Circle the odd one out.



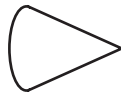
How will the shapes turn to make the model?



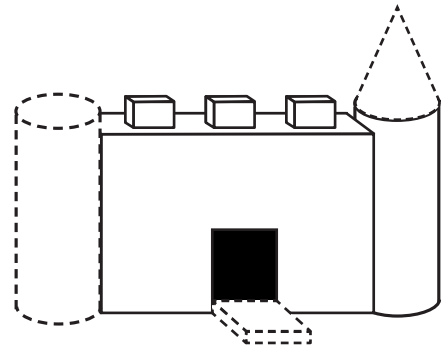
cylinder



cuboid



cone



three-quarter

whole

The cylinder made a  turn.

The cuboid made a  turn.

The cone made a  turn.

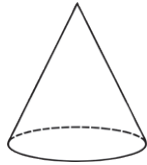
# 3D Shape Turns

To describe three-quarter and whole turns.

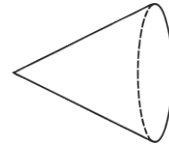


The shapes are turning in a clockwise direction.

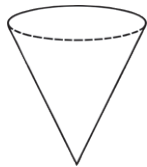
Draw what the shape will look like after it has turned.



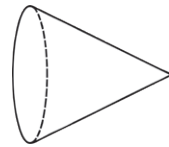
three-quarter turn



three-quarter turn

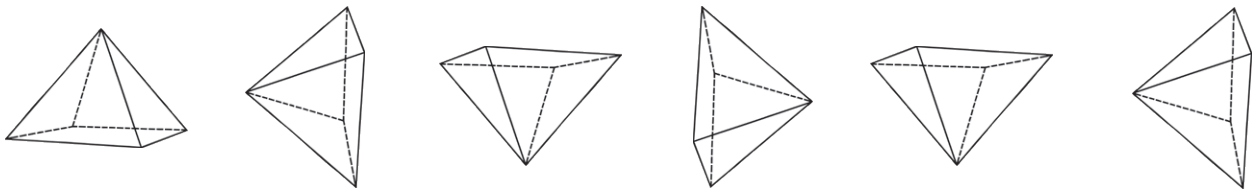


three-quarter turn

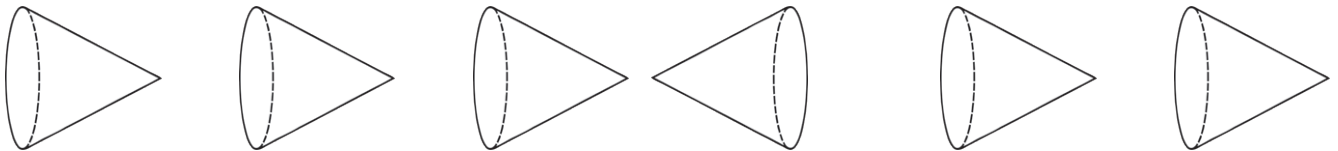


whole turn

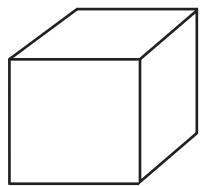
This pattern shows three-quarter turns. Can you spot the odd one out?



This pattern shows whole turns. Can you spot the odd one out?



How will the shapes turn to make the model?



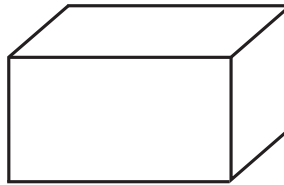
cube



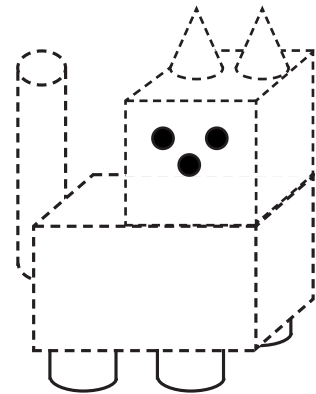
cone



cylinder



cuboid



three-quarter

whole

The cylinder made a  turn.

The cuboid made a  turn.

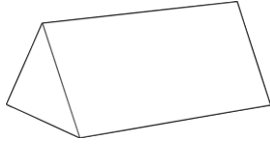
The cube made a  turn.

The cone made a  turn.

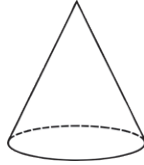
# 3D Shape Turns Answers

The shapes are turning in a clockwise direction.

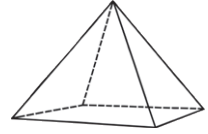
Tick the shapes that show the turns.



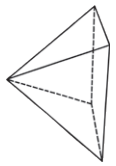
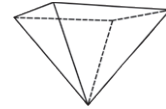
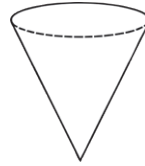
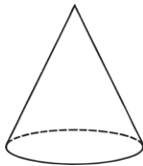
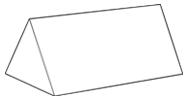
three-quarter



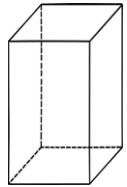
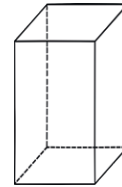
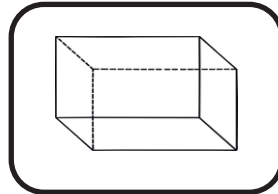
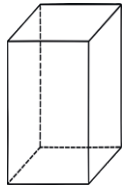
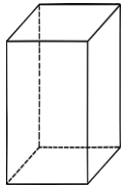
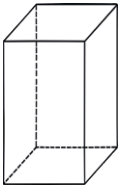
whole



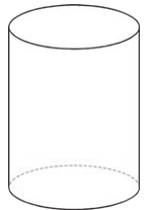
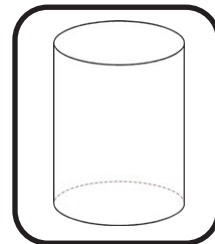
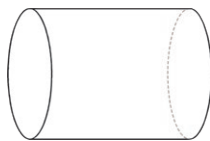
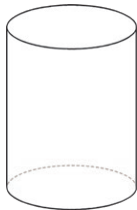
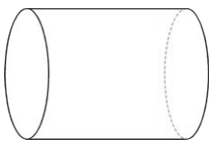
three-quarter



This pattern shows whole turns. Can you spot the odd one out?



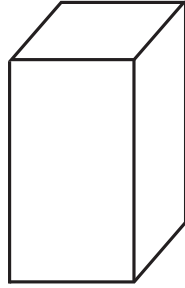
This pattern shows three-quarter turns. Can you spot the odd one out?



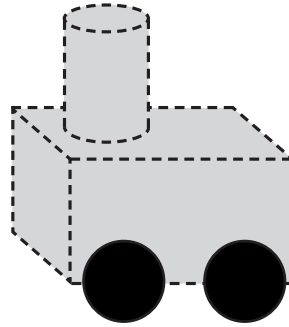
How will the shapes turn to make the model?



cylinder



cuboid



three quarter

whole

Make a **whole** turn with the cylinder.

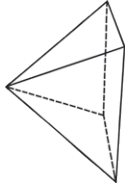
Make a **three-quarter** turn with the cuboid.



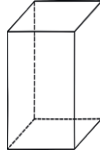
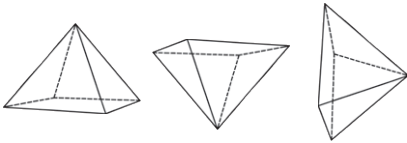
# 3D Shape Turns Answers

The shapes are turning in a clockwise direction.

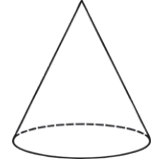
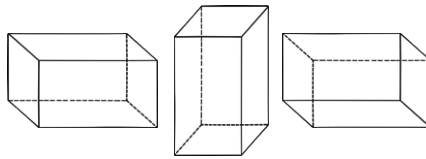
Tick the shapes that show the turns.



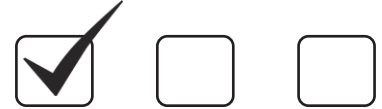
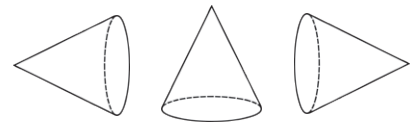
three-quarter turn



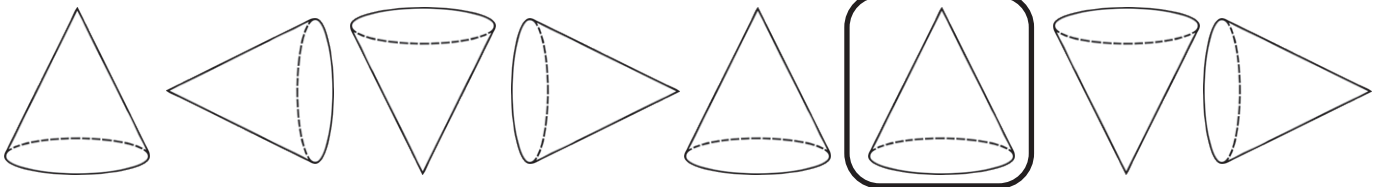
whole turn



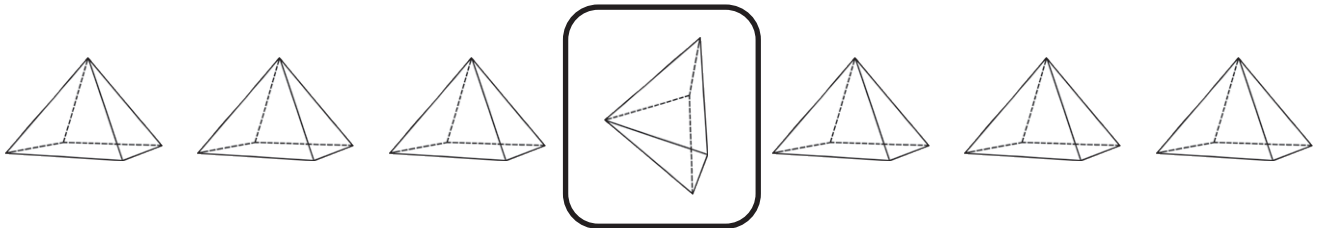
three-quarter turn



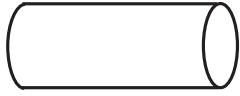
This pattern shows three-quarter turns. Can you spot the odd one out?



This pattern shows whole turns. Can you spot the odd one out?



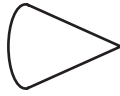
How will the shapes turn to make the model?



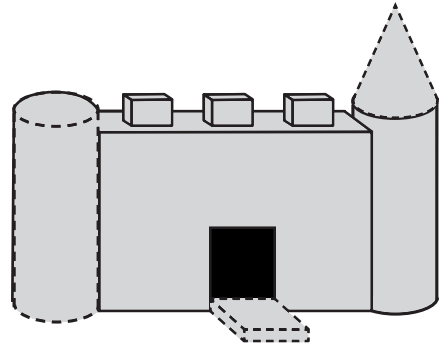
cylinder



cuboid



cone



three quarter

whole

The cylinder made a **three-quarter** turn.

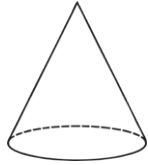
The cuboid made a **whole** turn.

The cone made a **three-quarter** turn.

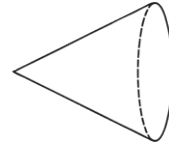
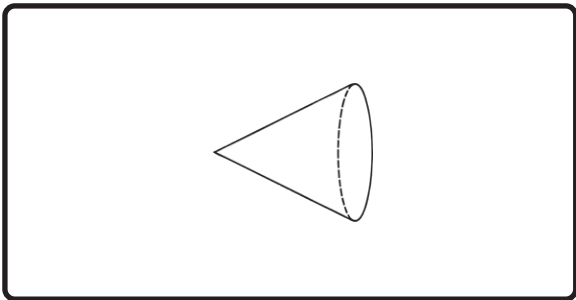
# 3D Shape Turns **Answers**

The shapes are turning in a clockwise direction.

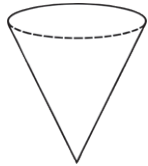
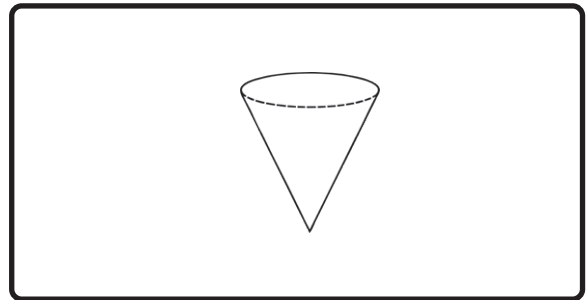
Draw what the shape will look like after it has turned.



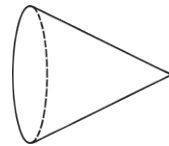
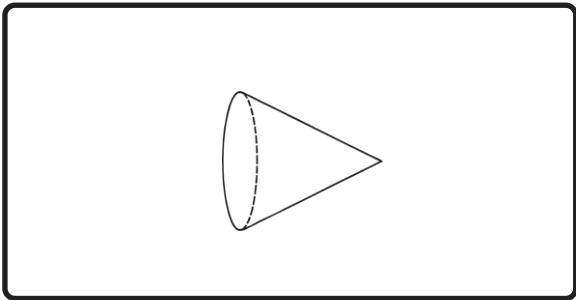
three-quarter turn



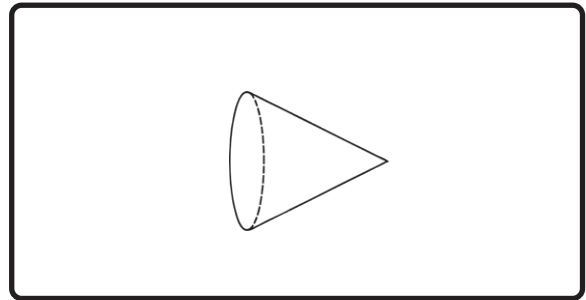
three-quarter turn



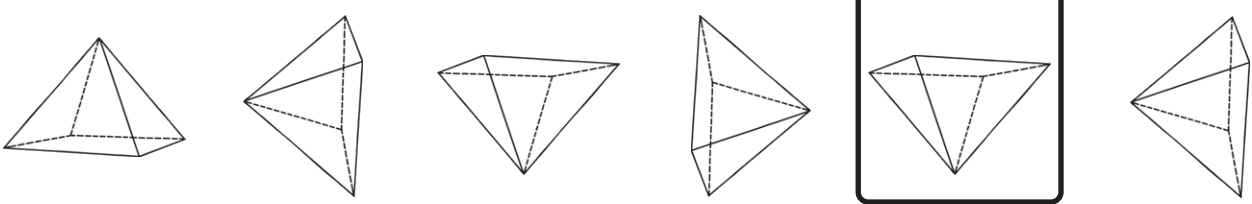
three-quarter turn



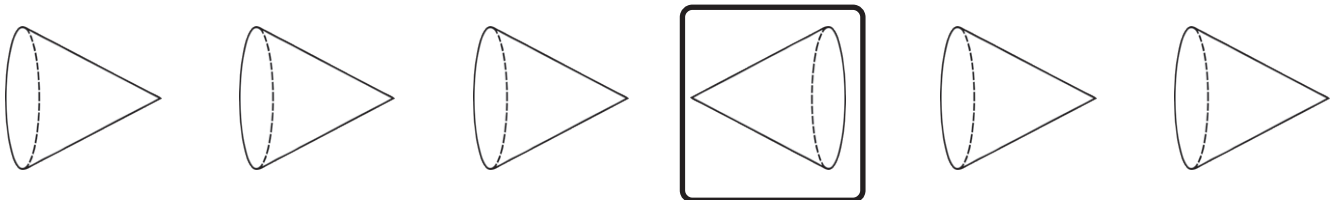
whole turn



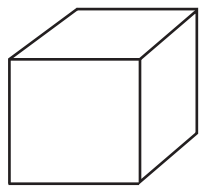
This pattern shows three-quarter turns. Circle the odd one out.



This pattern shows whole turns. Circle the odd one out.



How will the shapes turn to make the model?



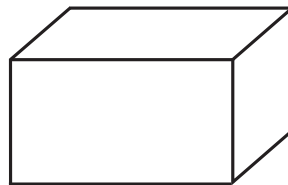
cube



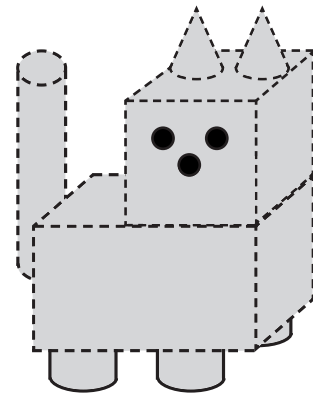
cone



cylinder



cuboid



three quarter

whole

The cylinder made a **three-quarter** turn.

The cuboid made a **whole** turn.

The cube made a **whole or three-quarter** turn.

The cone made a **three-quarter** turn.

## Describing Turns 2 - Diving

Adult Guidance with Question Prompts



Children investigate three-quarter and whole turns in a clockwise direction. Children match the starting and finishing positions of shapes to show whole turns. They continue a pattern and describe the turns made. Children also describe how to turn shapes to complete a model. Children would benefit from manipulating 3D shapes to explore turns.

Which direction are the shapes turning?

Can you turn the square-based pyramid (or other object) in a clockwise direction?

What would a whole turn look like? How did you know when to stop?  
Can you show me a three-quarter turn?

Which bottom shape looks like the first shape after it's done a full turn?  
Can you show me with your shape?

Now match the other shapes.

What can you tell me about the pattern?

What would the missing shapes look like? How do you know?

How would you describe the turns?

Which two shapes are missing from the model?

What can you tell me about the cuboid?

What turn could it make to fit the space?

Can you show me with a real cuboid?

Which turn do you think the cylinder will make to fit the space?

Can you show me with a real cylinder?

How would you describe the turn?

Tell a friend how to make a model with 3D shapes.

Can you describe the turns as you arrange the shapes?

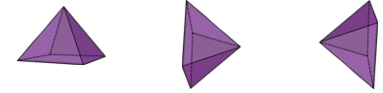
## Describing Turns 2



The shapes are turning in a clockwise direction.

Draw lines matching the shapes to show whole turns.

Before turning:



After turning:



Continue the pattern and describe the turn.



three-quarter

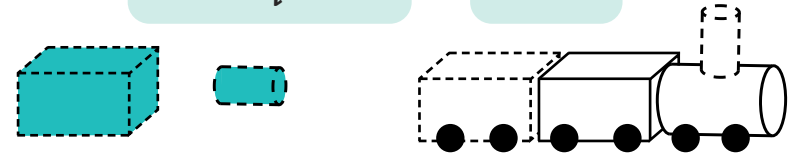
whole

The cone made  turns.

Describe the turns to finish the model.

three-quarter

whole



Make a  turn with the cuboid.

Make a  turn with the cylinder.

## Describing Turns 2 - Deeper

Adult Guidance with Question Prompts



Children investigate three-quarter and whole turns in a clockwise direction. The children look at a model made from 3D shapes. They check the starting position of each shape and identify if they have been labelled with the correct turns. Children then investigate which shape could have made a different turn and still be correct. Children would benefit from manipulating 3D shapes to explore turns.

Can you turn your shape in a clockwise direction?  
What would a whole turn look like? How did you know when to stop?  
Can you show me a three-quarter turn?

The shapes will be used to finish the model.  
The starting positions are shown in the boxes.  
Have they been labelled with the correct turns?  
What can you do to check? Show me the turns with the real 3D shapes.

What if the model wore the cylinder as a hat?  
Which turn would be best for the cylinder to sit on the cube?  
How do you know? Can you show me?

### Additional activity:


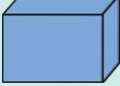



Use 3D shapes to make a model robot. Arrange a set of shapes by it so that they need three-quarter or whole turns to match. Ask a friend to predict how each shape will be turned before using them to make a matching model.

## Describing Turns 2



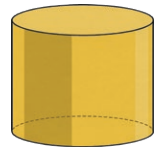
The shapes make three-quarter or whole turns in a clockwise direction

Tick the shape if the correct turn is given to allow it to fit on to the model.

	<p>cone</p>  <p>whole turn <input type="checkbox"/></p>	<p>cuboid</p>  <p>three-quarter turn <input type="checkbox"/></p>
<p>cylinder</p> 	<p>triangular prism</p>  <p>three-quarter turn <input type="checkbox"/></p>	<p>cube</p>  <p>whole turn <input type="checkbox"/></p>

Which shape could have made a different turn but still been correct?

If this cylinder was the hat instead, what turn would be best for sitting on the cube? How do you know?



whole turn  three-quarter turn

## Describing turns 2 - Deepest

Adult Guidance with Question Prompts



Children do not need to name clockwise and anticlockwise directions, but begin to associate clockwise with the movement on a clockface. The children use their problem-solving skills to investigate an all possibilities challenge. Children would benefit from manipulating 3D shapes to explore the different possibilities.

Can you turn in a clockwise direction?

What would a quarter turn look like?

Can you show me a half turn?

Make a three-quarter turn. How did you know when to stop?

What can you tell me about a whole turn?

Can you make these turns in an anticlockwise direction?

What do you notice about the half and whole turns?

What do we know about the cylinder?

What is this challenge asking us to find out? (how many different starting positions, turns and directions lead to this point)

What can you do to check?

How can you make sure you have found all of the possibilities?

What happens when you make a whole turn in a clockwise or anticlockwise direction?

Are there any other turns that lead to the same place if you move in either direction?

Would this challenge work for all 3D shapes?

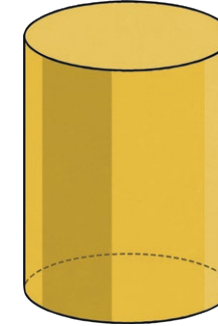
Why? Why not?

Can you prove it?

## Describing Turns 2



The cylinder made one turn to reach this position.



What could the starting position have been?



What turn could have been made?

What if it turned in a different direction?

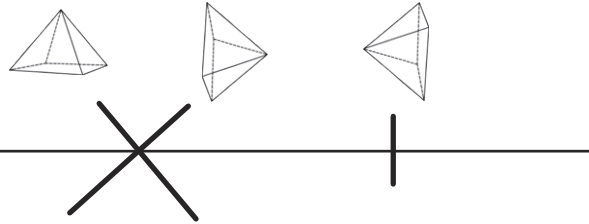


How many possibilities can you find?

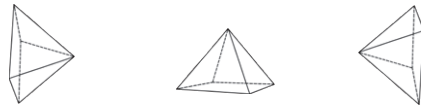


Draw lines matching the shapes to show whole turns.

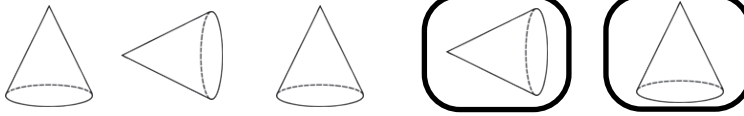
Before turning:



After turning:



Continue the pattern, describe the turns.



three-quarter

whole

The cone made **three-quarter** turns.

Describe the turns to finish the model.

three-quarter

whole



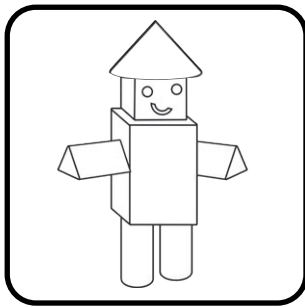
Make a **whole** turn with the cuboid.


Make a **three-quarter** turn with the cylinder.

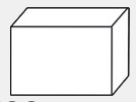






Tick the shape if the correct turn is given to allow it to fit on to the model.




cone  
  
 whole turn

cuboid  
  
 three - quarter turn

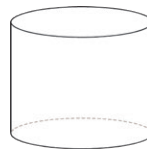
cylinder  
  
 whole turn

triangular prism  
  
 three - quarter turn

cube  
  
 whole turn

Which shape could have made a different turn but still been correct?

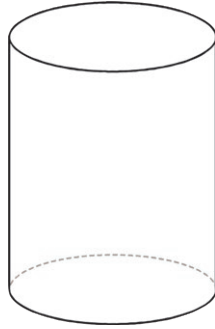
If this cylinder was the hat instead, what turn would be best for sitting on the cube? How do you know?



whole turn  three-quarter turn

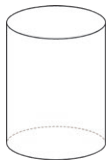


The cylinder made one turn to reach this position.

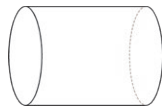


**Clockwise (Does not need to be named)**

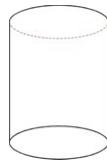
**Whole turn**



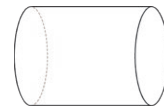
**quarter turn**



**half turn**

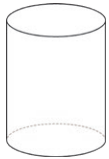


**three-quarter turn**

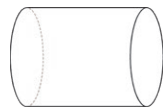


**Anticlockwise (Does not need to be named)**

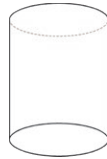
**Whole turn**



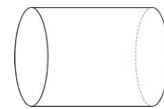
**quarter turn**



**half turn**



**three-quarter turn**



**Whole turns and half turns look the same no matter which direction the turn.**

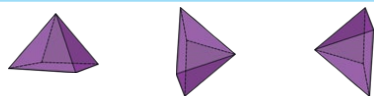
## Describing Turns 2



The shapes are turning in a clockwise direction.

Draw lines matching the shapes to show whole turns.

Before turning:



After turning:



Continue the pattern and describe the turn.



three-quarter

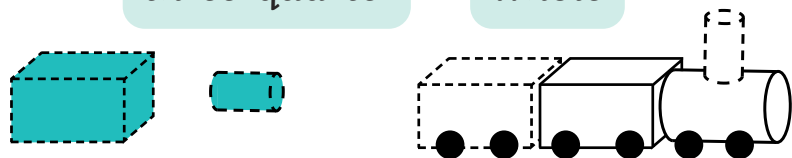
whole

The cone made  turns.

Describe the turns to finish the model.

three-quarter

whole



Make a  turn with the cuboid.

Make a  turn with the cylinder.

## Describing Turns 2



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three-quarter

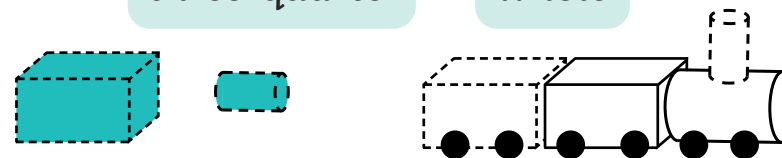
whole

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three-quarter

whole



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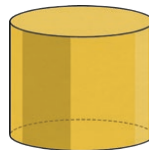
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Which shape could have made a different turn but still been correct?

If this cylinder was the hat instead, what turn would be best for sitting on the cube? How do you know?



whole turn  three-quarter turn

## Describing Turns 2



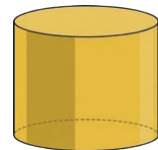
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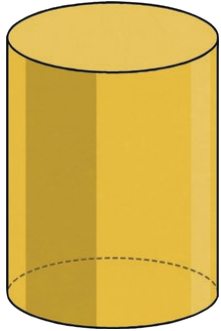


whole turn  three-quarter turn

## Describing Turns 2



The cylinder made one turn to reach this position.



What could the starting position have been?



What turn could have been made?

What if it turned in a different direction?



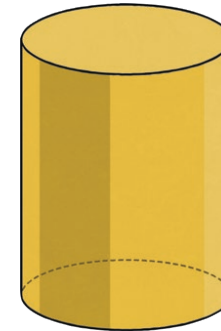
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