THIRD SPACE LEARNING

Ready-to-go Lesson Slides Year 2

Please note:
3-D shapes will be needed for this lesson.

Geometry: Properties of Shapes

Lesson 9

Spr3

At Third Space Learning we provide personalised online lessons from specialist maths tutors to support the target groups in your school.

These ready-to-go slides are designed to work alongside our interventions to supplement quality first teaching and raise attainment in maths for all pupils.

To find out more about how you could use our 1-to-1 interventions year-round to boost maths progress in your school then get in touch:

020 3771 0095
hello@thirdspacelearning.com

Boosting maths progress through 1-to-1 conversations…

THIRD SPACE LEARNING

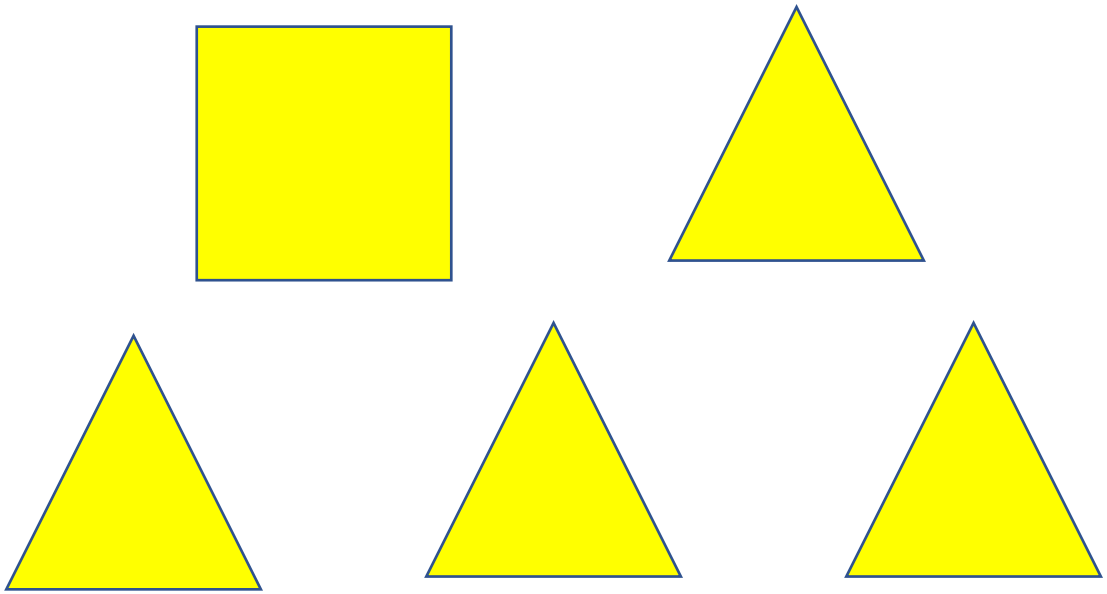
To count edges on 3-D shapes

Success Criteria:

- ❑ I know what an edge is
- ❑ I can identify and count edges on 3D shapes
- ❑ I can tell a 3D shape is from its 2D picture

Starter:

Here are the faces of a 3-D shape.
Which 3-D shape must it be? How do you know?



To count edges on 3-D shapes

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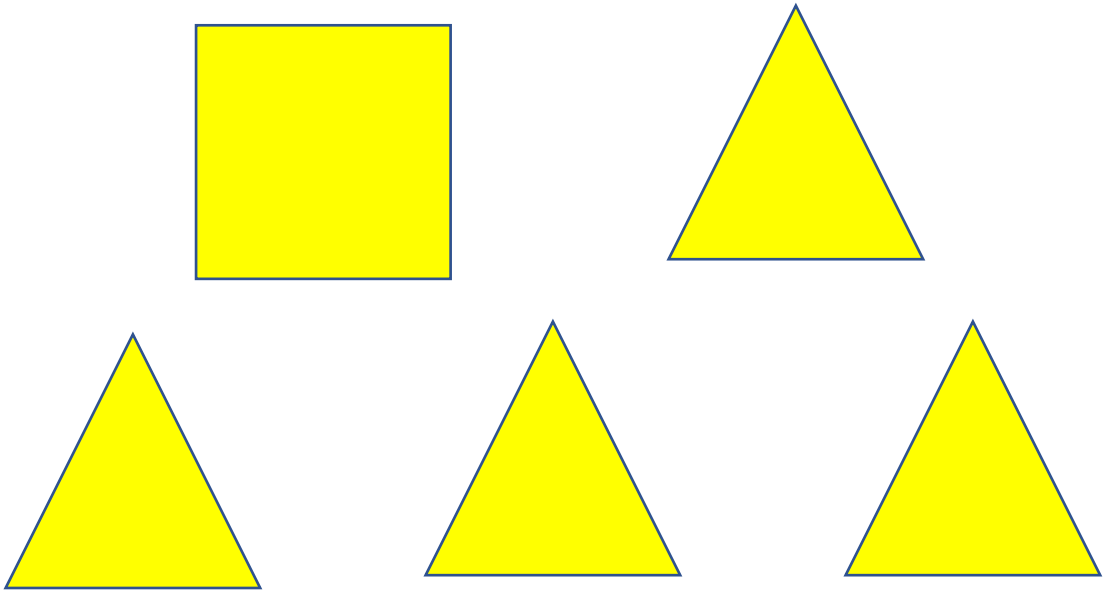
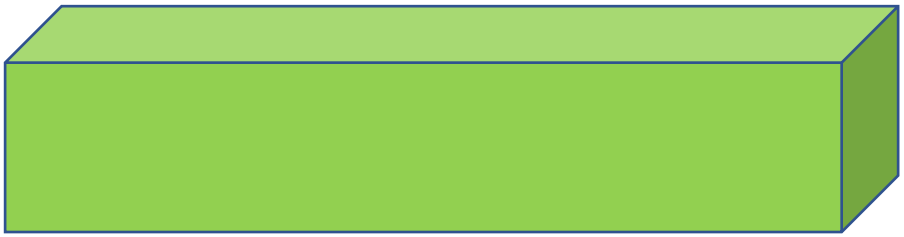


The 3-D shape must be a square-based pyramid.
The square is the base.
The triangular faces would go around the base and meet at a point.

To count edges on 3-D shapes

Talking Time:

Here is a cuboid.
How many edges does this shape have?
How could you make sure that you do not miss any when you count them?

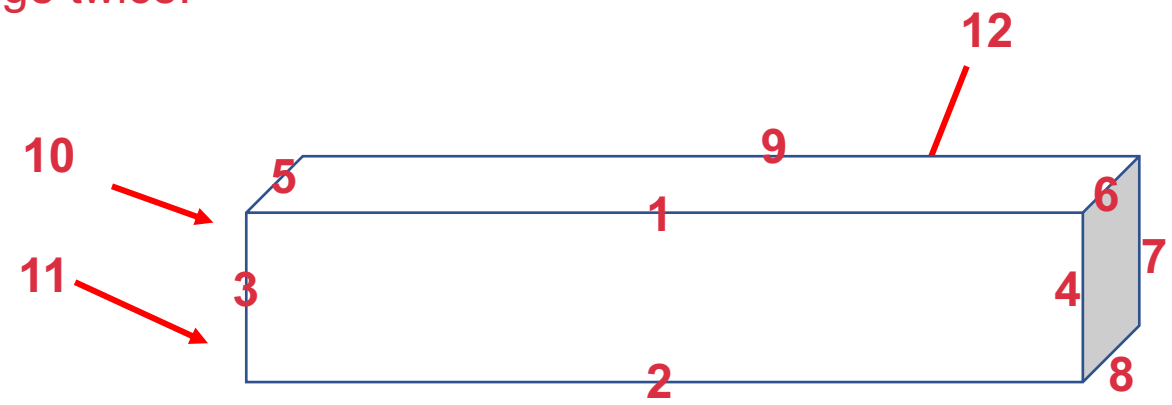


To count edges on 3-D shapes

Talking Time:

Here is a cuboid.
How many edges does this shape have?
The cuboid has 12 edges altogether.

How could you make sure that you do not miss any when you count them? You could mark each edge with a 'wipe-off' marker pen so that you do not count the same edge twice.



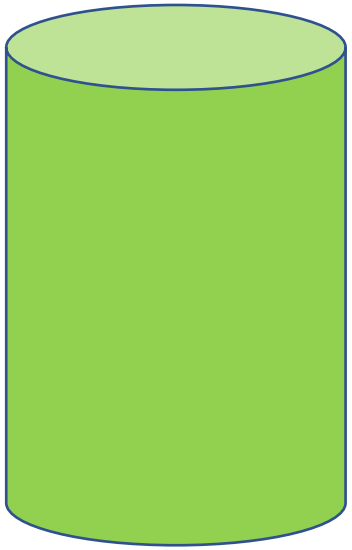
You cannot see edges 10, 11 and 12 from the front.

To count edges on 3-D shapes

Talking Time:

Here is a cylinder.
How many edges does this shape have?

Can you explain how you know?

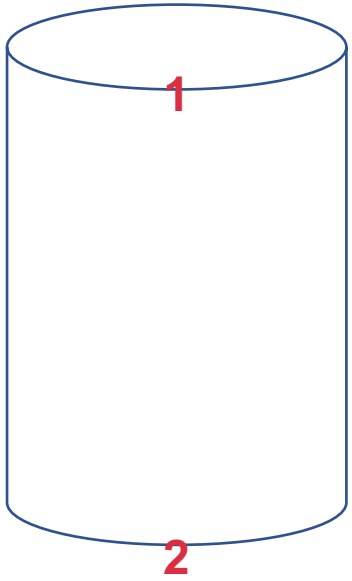


To count edges on 3-D shapes

Talking Time:

Here is a cylinder.
How many edges does this shape have?
The cylinder has 2 edges altogether.

Can you explain how you know?
Here, an edge is where a face meets a curved surface.
The cylinder has 2 circular faces and a curved surface.

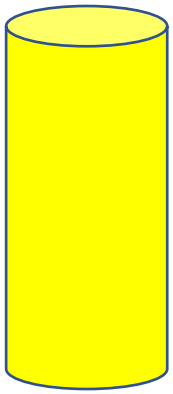


To count edges on 3-D shapes

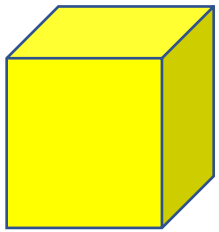
Talking Time:

Alice is describing a 3-D shape.
Can you work out which shape she is describing?

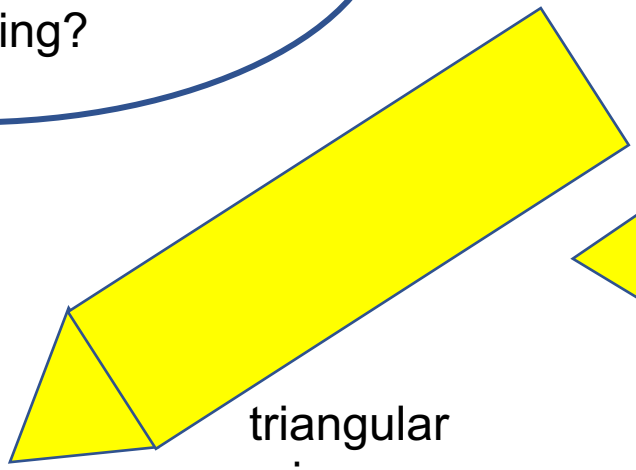
My shape has five faces.
It has no curved surfaces.
It has 8 edges.
Which shape am I describing?



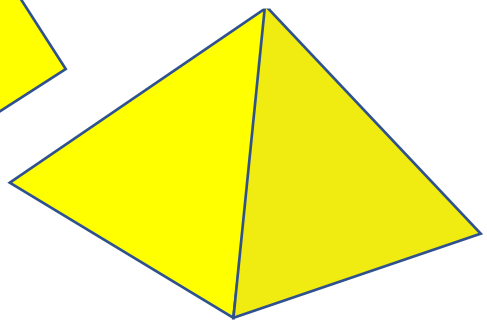
cylinder



cube



triangular prism



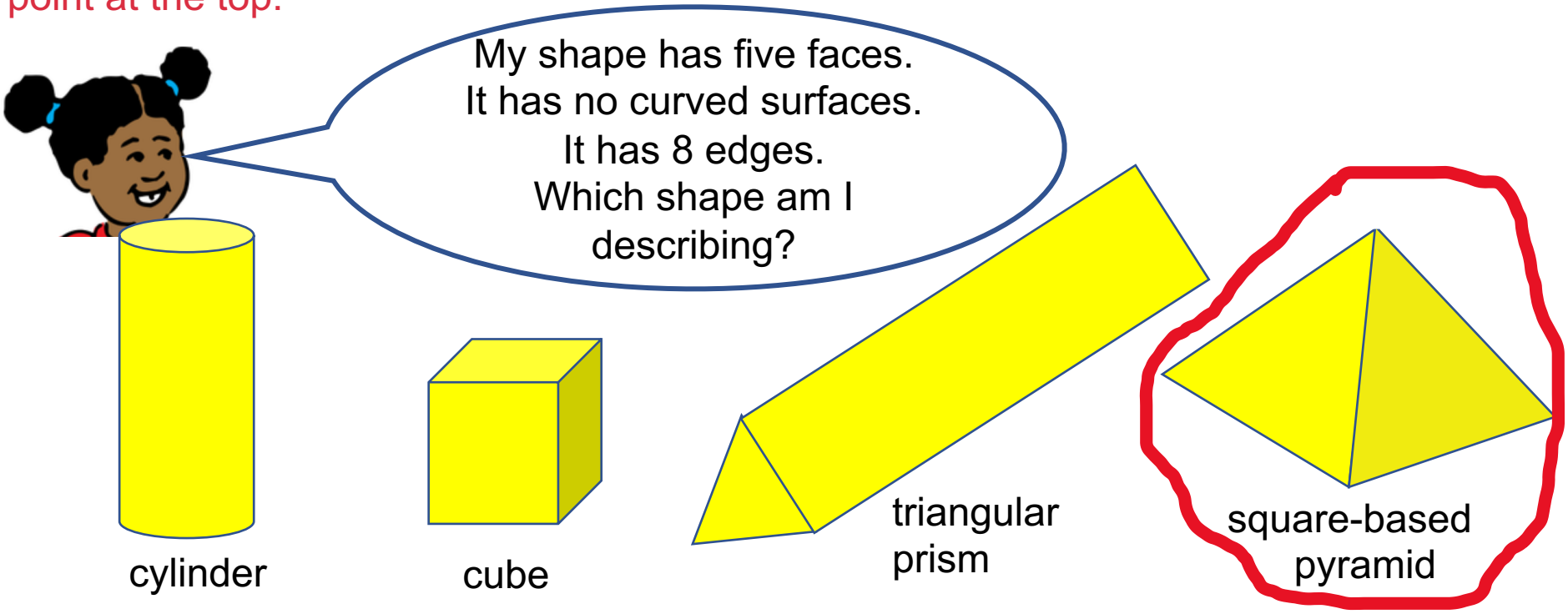
square-based pyramid

To count edges on 3-D shapes

Talking Time:

Alice is describing a 3-D shape.
Can you work out which shape she is describing?

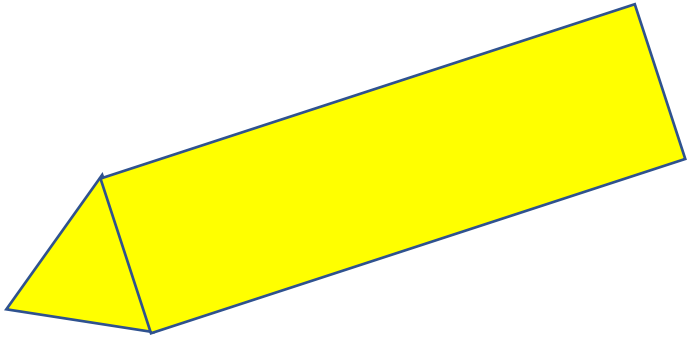
Alice is describing the square-based pyramid.
There are four edges on the base and four edges up to a point at the top.

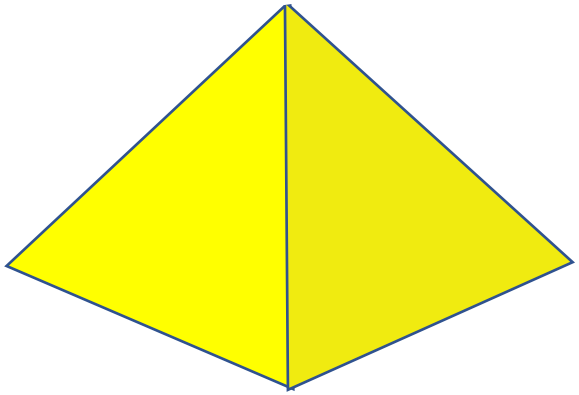


To count edges on 3-D shapes

Activity 1:

Can you compare these 3-D shapes?
What is the same about them?
What is different about them?





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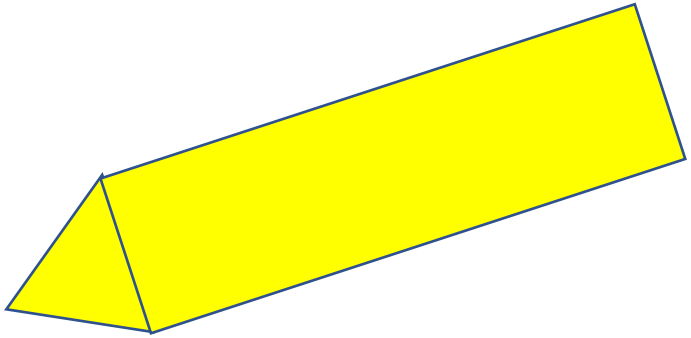
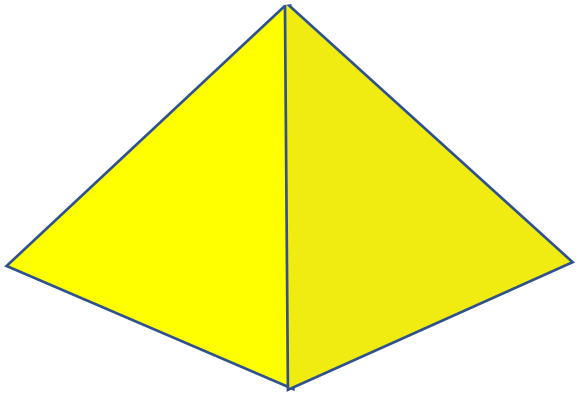




The same

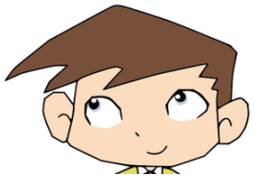
- Both have triangular faces
- Both have 5 faces
- Neither of them can roll
- Both have flat faces
- They are yellow

Different

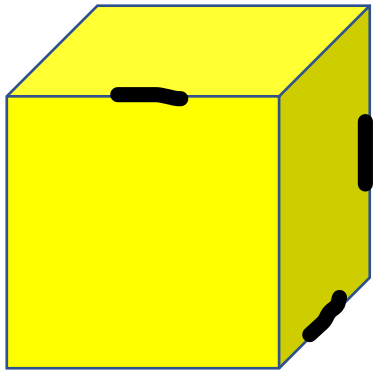
- One has 9 edges and the other has 8
- They are different shapes
- One has 3 rectangular faces
- One has a square face

To count edges on 3-D shapes

Talking Time:

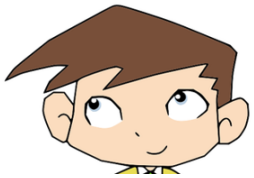


Here is a cube.
Ollie is counting the edges of the shape and he marks each face that he has counted with a line.
How many lines will Ollie draw on this cube?



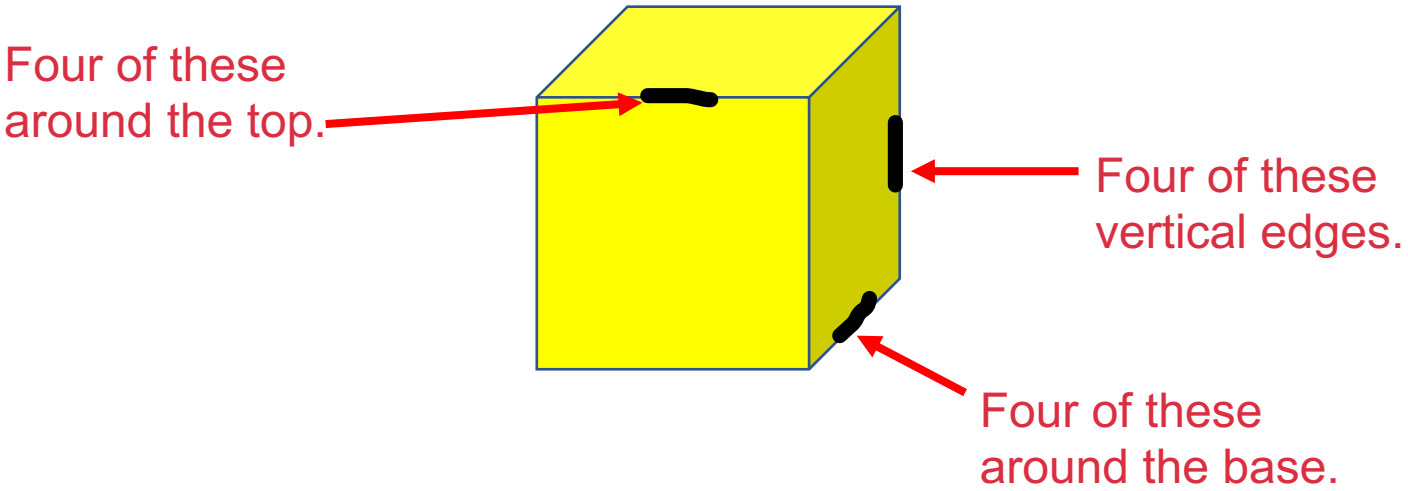
To count edges on 3-D shapes

Talking Time:



Here is a cube.
Ollie is counting the edges of the shape and he marks each face that he has counted with a line.
How many lines will Ollie draw on this cube?

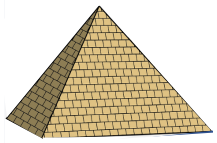
Ollie will draw 12 lines for the 12 edges.



To count edges on 3-D shapes

Talking Time:

Can you complete this table of real-life 3-D objects?

shape	name of shape	number of edges	number of faces
			
			
			
			

To count edges on 3-D shapes

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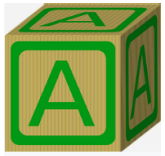
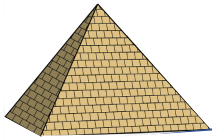
	cube	12	6
	cuboid	12	6
	square-based pyramid	8	5
	triangular prism	9	5

To count edges on 3-D shapes

Talking Time:

Can you complete this table of real-life 3-D objects?

shape	name of shape	number of edges	number of flat faces	number of curved surfaces
				
				
				

To count edges on 3-D shapes

Talking Time:

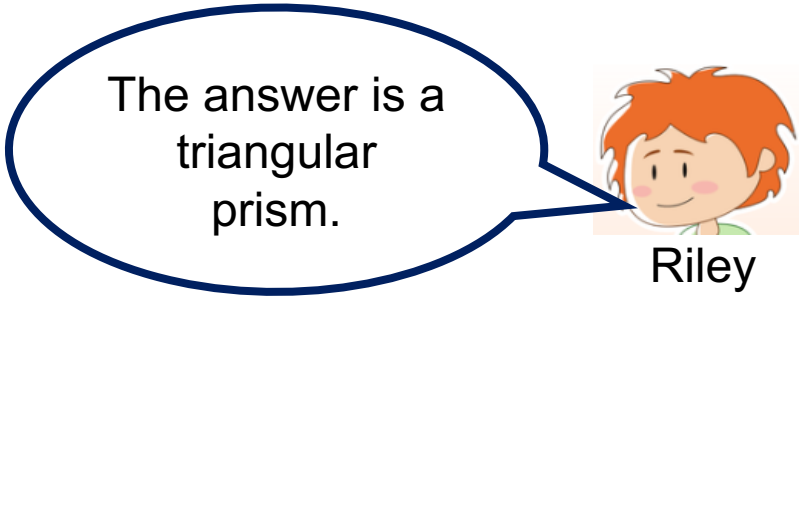
Can you complete this table of real-life 3-D objects?

shape	name of shape	number of edges	number of flat faces	number of curved surfaces
	cone	1	1	1
	sphere	0	0	1
	cylinder	2	2	1

To count edges on 3-D shapes

Activity 2:

Riley and Noah have been asked to name a shape that has more than 6 edges but fewer than 10.
Who is right? Why?
Can you convince me that you are correct?



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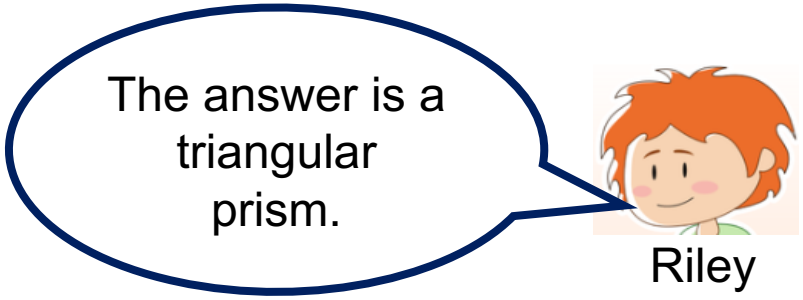
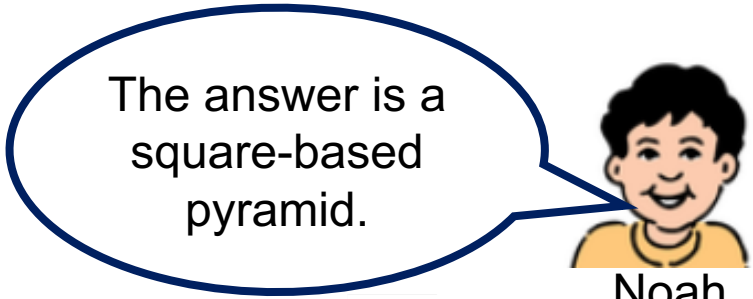


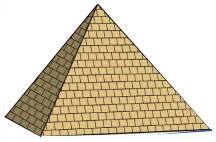
Riley



Noah

Both boys are right.

Riley's triangular prism has 9 edges.



Noah's square-based pyramid has 8 edges.

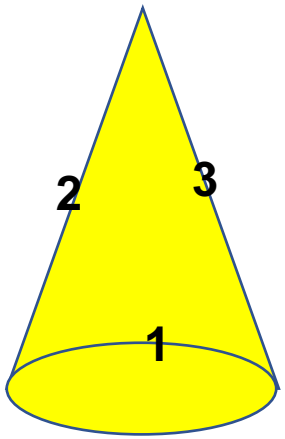
To count edges on 3-D shapes

Talking Time:

True or false?

A cone has three edges.

Do you agree? Why? Why not?



cone

To count edges on 3-D shapes

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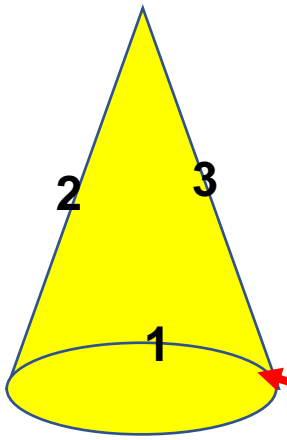


cone

This is false.
The cone only has 1 edge.

On a cone, an edge is where a face meets a curved surface.
Numbers 2 and 3 are part of the curved surface and not edges.

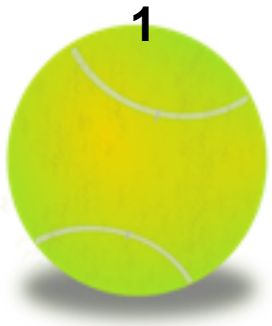
To count edges on 3-D shapes

Talking Time:

True or false?

A sphere has one edge. It goes all around the sphere.

Do you agree? Why? Why not?



sphere

To count edges on 3-D shapes

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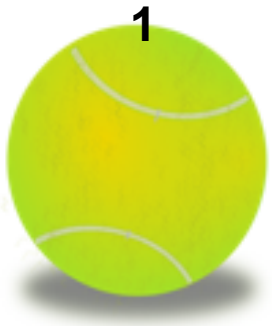


sphere

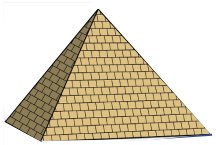
This is false.
The sphere has no edges.

A sphere **does** have a curved surface,
but it has no faces.
An edge is where a face and a curved surface meet.

To count edges on 3-D shapes

Talking Time:

Ava is sorting these 3-D shapes into the sorting hoops.
Can you sort them as well?
Do you get the same answers as Ava?




0 edges

1 edge

more than 1 edge

To count edges on 3-D shapes

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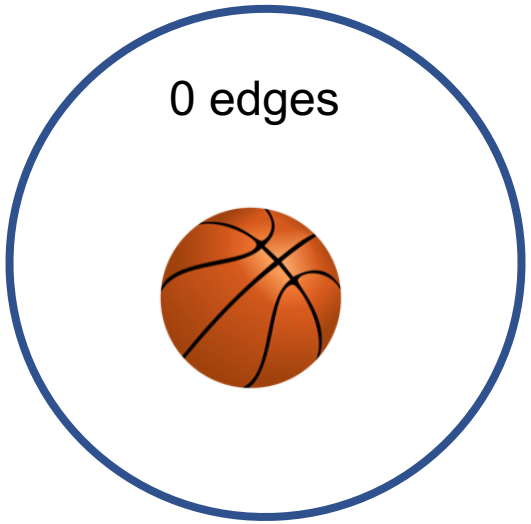
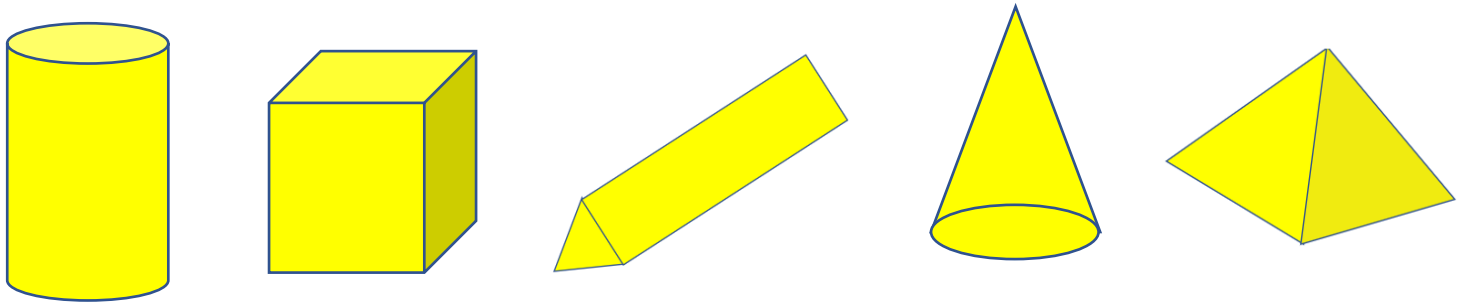
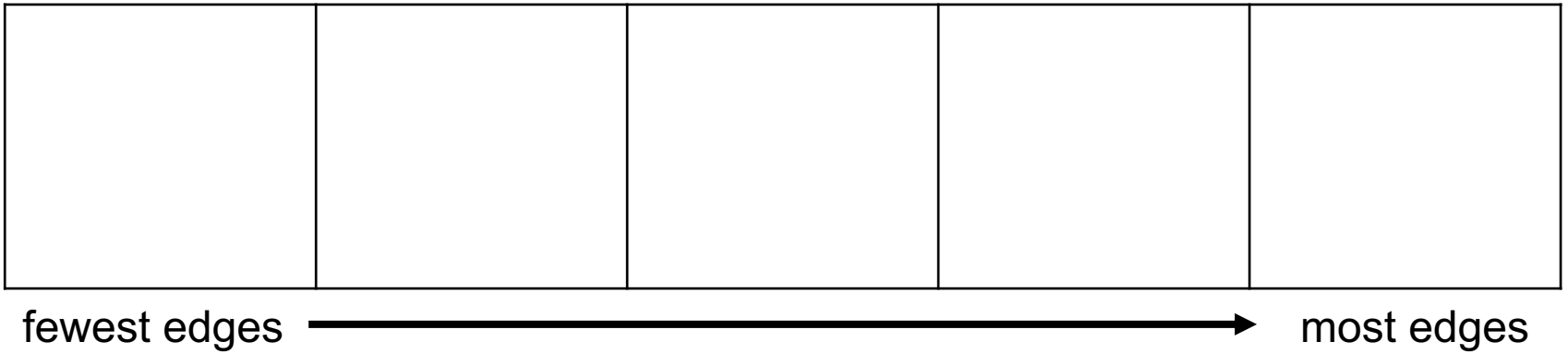


To count edges on 3-D shapes

Evaluation:

Can you put these 3-D shapes in order starting with the one with the fewest edges and ending with the one that has the most edges?





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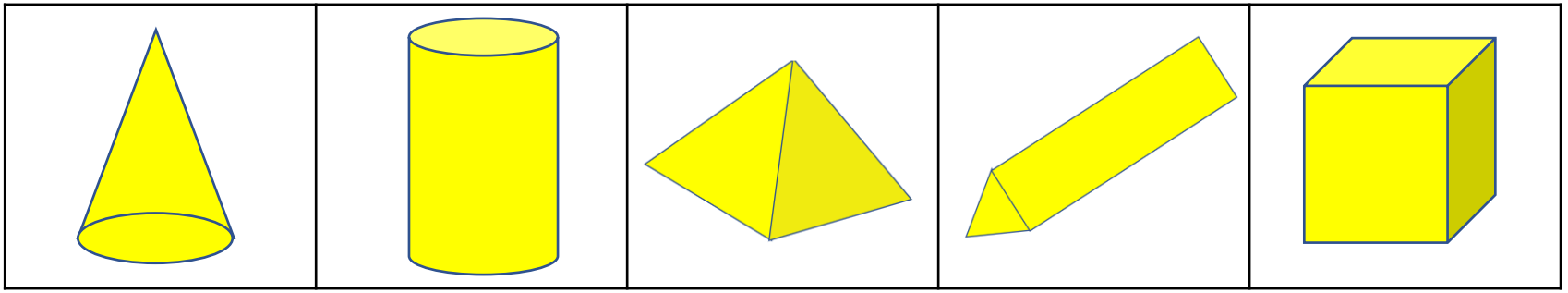

fewest edges → most edges

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- Plug any gaps or misconceptions
- Boost confidence

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