

# Reasoning and Problem Solving

## Step 9: Count Edges on 3D Shapes

### National Curriculum Objectives:

Mathematics Year 2: (2G2b) [Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces](#)

### Differentiation:

Questions 1, 4 and 7 (Problem Solving)

**Developing** Match the statement to the correct 3D shape. All shapes with visible perspective lines and presented in the same orientation and size.

**Expected** Match the statement to the correct 3D shape. All shapes without visible perspective lines and presented in the different orientations.

**Greater Depth** Match the statement to the correct 3D shape. All shapes presented as real-life objects.

Questions 2, 5 and 8 (Reasoning)

**Developing** Explain if a given statement is correct. Shapes with visible perspective lines and presented in the same orientation and size.

**Expected** Explain if a given statement is correct. Shapes without visible perspective lines and presented in the different orientations.

**Greater Depth** Explain if a given statement is correct. All shapes presented as real-life objects.

Questions 3, 6 and 9 (Reasoning)

**Developing** Identify a mistake that has been made when grouping 3D shapes. All shapes with visible perspective lines and presented in the same orientation and size.

**Expected** Identify a mistake that has been made when sorting 3D shapes. All shapes with visible perspective lines and presented in the different orientations.

**Greater Depth** Identify a mistake that has been made when sorting 3D shapes. Shapes without visible perspective lines and presented in the different orientations.

More [Year 2 Properties of Shape](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

# Count Edges on 3D Shapes

# Count Edges on 3D Shapes

1a. Match each child to the shape they are describing.

1b. Match each child to the shape they are describing.

My shape has 2 edges.

My shape has 8 edges.



Tara

Lola

My shape has 0 edges.

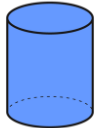
My shape has 1 edges.



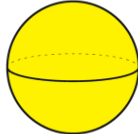
Nico

Zac

A.



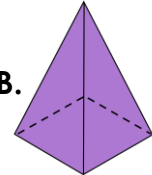
B.



A.



B.



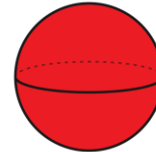
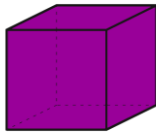
PS



PS

2a. Raj is describing the shape below.

2b. Maya is describing the shape below.



He says,

She says,



The cube has 10 edges.

The sphere has 1 edge.

Do you agree? Explain your answer.

Do you agree? Explain your answer.



R



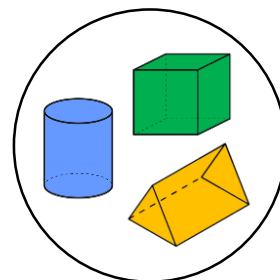
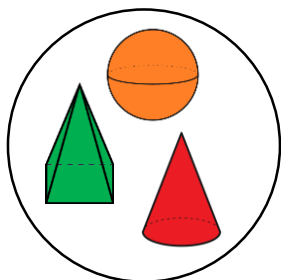
R

3a. May made a mistake when grouping 3D shapes.

3b. Rich made a mistake when grouping 3D shapes.

Fewer than 2 edges

Even number of edges



What has she done wrong?

What has he done wrong?



R



R

# Count Edges on 3D Shapes

# Count Edges on 3D Shapes

4a. Match each child to the shape they are describing.

My shape has 12 edges.

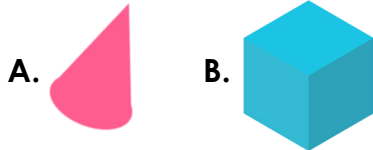


Ava



Della

My shape has 1 edge.



PS

4b. Match each child to the shape they are describing.

My shape has 9 edges.

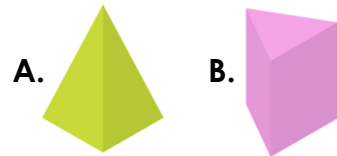


Sam



Amy

My shape has 8 edges.



PS

5a. Sasha is describing the shape below.



She says,



The cylinder only has 1 edge.

Do you agree? Explain your answer.



R

5b. Robin is describing the shape below.



He says,



The cuboid has 8 edges.

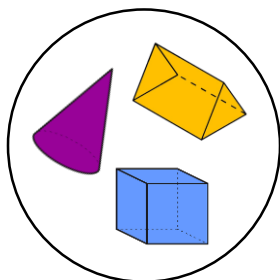
Do you agree? Explain your answer.



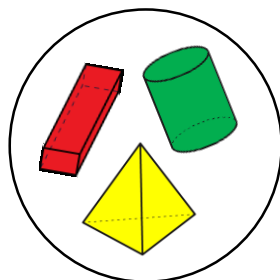
R

6a. Chad made a mistake when sorting 3D shapes.

Odd number of edges



Even number of edges



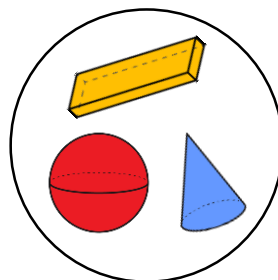
What has he done wrong?



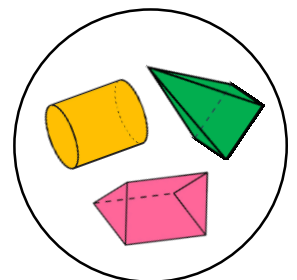
R

6b. Dotty made a mistake when sorting 3D shapes.

Fewer than 5 edges



More than 5 edges



What has she done wrong?



R

## Count Edges on 3D Shapes

## Count Edges on 3D Shapes

7a. Match each child to the shape they are describing.

7b. Match each child to the shape they are describing.

My shape has 8 edges.



George

My shape has 12 edges.



Theo

My shape has 2 edges.



Alicia

My shape has 0 edges.



Jacob

A.



B.



A.



B.



PS



PS

8a. Nico is describing the shape below.

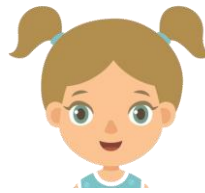
8b. Lola is describing the shape below.

He says,



This is a cuboid. It has 10 edges.

She says,



This is a cone. It has 2 edges.

Do you agree? Explain your answer.

Do you agree? Explain your answer.



R



R

9a. Joy made a mistake when sorting 3D shapes.

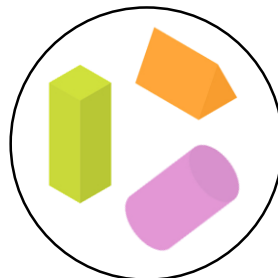
9b. Blake made a mistake when sorting 3D shapes.

Fewer than 8 edges

More than 8 edges

Even number of edges

Odd number of edges



What has she done wrong?

What has he done wrong?



R



R

## Reasoning and Problem Solving Count Edges on 3D Shapes

### Developing

- 1a. Tara = A; Nico = B  
2a. Raj is incorrect because the cube has 12 edges.  
3a. May should not have included the square-based pyramid in the group because it has more than 2 edges.

### Expected

- 4a. Ava = B; Della = A  
5a. Sasha is incorrect because the cylinder has 2 edges.  
6a. Various answers, for example: Chad has put the cube in the wrong sorting hoop. A cube has 12 edges and 12 is an even number.

### Greater Depth

- 7a. George = B; Alicia = A  
8a. Nico is incorrect because the cuboid has 12 edges.  
9a. Various answers, for example: Joy needs to swap the triangular prism and the triangular-based pyramid. A triangular prism has 9 edges which is more than 8. A triangular-based pyramid has 6 edges which is fewer than 8.

## Reasoning and Problem Solving Count Edges on 3D Shapes

### Developing

- 1b. Lola = B; Zac = A  
2b. Maya is incorrect because the sphere has 0 edges.  
3b. Rich should not have included the triangular prism in the group because it has 9 edges which is an odd number.

### Expected

- 4b. Sam = B, Amy = A  
5b. Robin is incorrect because the cuboid has 12 edges.  
6b. Various answers, for example: Dotty needs to swap the cuboid and the cylinder. A cuboid has more than 5 edges. A cylinder has less than 6 edges.

### Greater Depth

- 7b. Theo = A; Jacob = B  
8b. Lola is incorrect because the cone has 1 edge.  
9b. Various answers, for example: Blake needs to swap the triangular prism and the cube. A triangular prism has 9 edges which is an odd number and a cube has 12 edges which is an even number.