Reasoning and Problem Solving
Step 8: Count Faces 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
Mathematics Year 2: (2G3) Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Identify and explain the odd one out from three 3D shapes. All shapes presented in the same orientation and size. Perspective lines visible on all shapes.
Expected Identify and explain the odd one out from four 3D shapes. All shapes presented in different orientations and sizes. Perspective lines visible on some shapes.
Greater Depth Identify and explain the odd one out from four 3D shapes. All shapes presented in different orientations and sizes. No perspective lines visible on shapes, with the use of some real-life objects.

Questions 2, 5 and 8 (Reasoning)
Developing Complete the missing parts of a table. All shapes presented in the same orientation and size. Perspective lines visible on all shapes.
Expected Complete the missing parts of a table. All shapes presented in different orientations and sizes. Perspective lines visible on some shapes.
Greater Depth Complete the missing parts of a table. No shapes given.

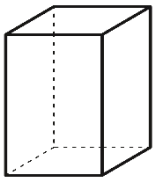
Questions 3, 6 and 9 (Problem Solving)
Developing Investigate and compare the number of faces of multiple 3D shapes. Includes two types of shape. Image of all shapes provided and all shapes presented in the same orientation and size. Perspective lines visible on all shapes.
Expected Investigate and compare the number of faces of multiple 3D shapes. Includes three types of shape. One image for each type of shape provided and shapes presented in different orientations and sizes. Perspective lines visible on some shapes.
Greater Depth Investigate and compare the number of faces of multiple 3D shapes. Includes four types of shape. No pictures provided.

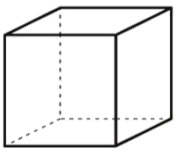
More Year 2 Properties of Shape resources.

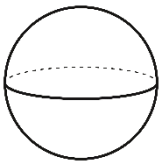
Did you like this resource? Don't forget to review it on our website.

Count Faces on 3D Shapes

1a. Look at the faces. Which shape is the odd one out?

A. 

B. 

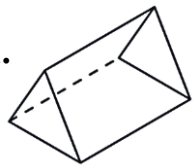
C. 

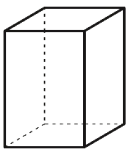
Explain your answer.

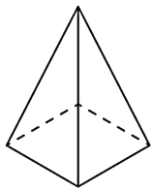
D R

Count Faces on 3D Shapes

1b. Count the faces. Which shape is the odd one out?

A. 

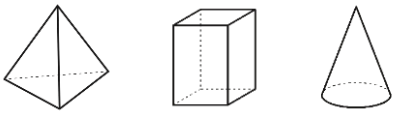
B. 

C. 

Explain your answer.

D R

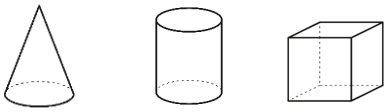
2a. Complete the table below.



Name	Number of flat faces	2D shape of faces
cone		
		square
		triangle

D PS

2b. Complete the table below.

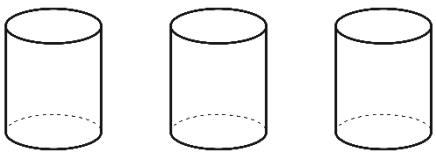


Name	Number of flat faces	2D shape of faces
		square
		circle
cylinder		

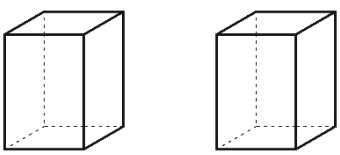
D PS

3a. Which group of shapes has the greatest number of flat faces?

3 cylinders



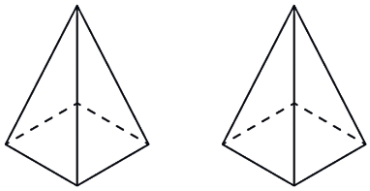
2 cuboids



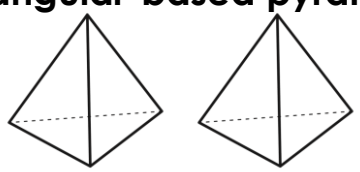
D PS

3b. Which group of shapes has the greatest number of flat faces?

2 square-based pyramids



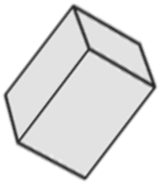
2 triangular-based pyramids

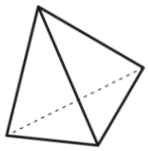


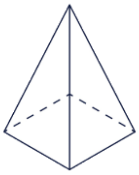
D PS

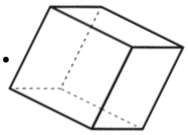
Count Faces on 3D Shapes

4a. Look at the shape of the faces. Which shape is the odd one out?

A. 

B. 

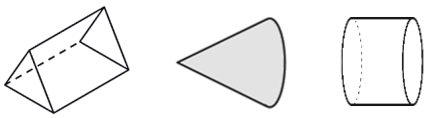
C. 

D. 

Explain your answer.

E R

5a. Complete the table below.

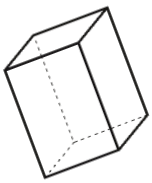


Name	Number of flat faces	2D shape of faces
		rectangle triangle
cone		

E PS

6a. Which group of shapes has the greatest number of flat faces?

3 triangular prisms 



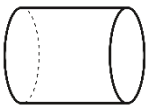
3 cuboids

5 spheres 

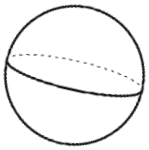
E PS

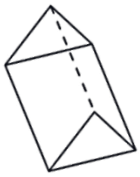
Count Faces on 3D Shapes

4b. Look at the surfaces. Which shape is the odd one out?

A. 

B. 

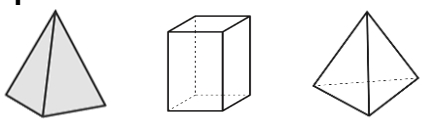
C. 

D. 

Explain your answer.

E R

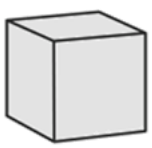
5b. Complete the table below.



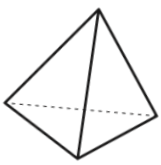
Name	Number of flat faces	2D shape of faces
		square
cuboid		
		triangle

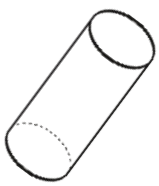
E PS

6b. Which group of shapes has the greatest number of flat faces?

2 cubes 

4 triangular-based pyramids

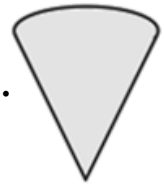


5 cylinders 

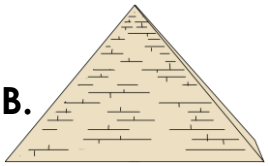
E PS

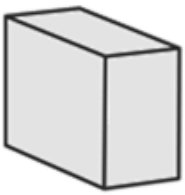
Count Faces on 3D Shapes

7a. Look at the surfaces. Which shape is the odd one out?

A. 

C. 

B. 

D. 

Explain your answer.

GD

R

8a. Complete the table below using different shapes.

Name	Number of flat faces	2D shape of faces
triangular-based pyramid		
		triangle
		square

GD

PS

9a. Which group of shapes has the greatest number of flat faces?

three triangular-based pyramids

four triangular prisms

three square-based pyramids

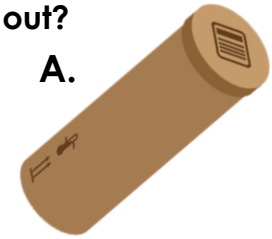
two cuboids

GD

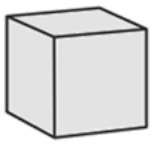
PS

Count Faces on 3D Shapes

7b. Count the faces and look at the numbers. Which shape is the odd one out?

A. 

C. 

B. 

D. 

Explain your answer.

GD

R

8b. Complete the table below using different shapes.

Name	Number of flat faces	2D shape of faces
		square
		circle
cylinder		

GD

PS

9b. Which group of shapes has the greatest number of flat faces?

three cubes

eight cylinders

three triangular-based pyramids

two triangular prisms

GD

PS

Reasoning and Problem Solving
Count Faces on 3D Shapes

Developing

1a. C. It is the only shape with a curved surface.

2a.

Name	Number of flat faces	2D shape of faces
cone	1	circle
cuboid	6	square rectangle
triangular-based pyramid	4	triangle

3a. 2 cuboids have the greatest number of flat faces (12 in total).
3 cylinders = 6 flat faces

Expected

4a. B. It does not have a square face.

5a.

Name	Number of flat faces	2D shape of faces
cylinder	2	circle
triangular prism	5	rectangle triangle
cone	1	circle

6a. 3 cuboids have the greatest number of flat faces (18 in total).
3 triangular prisms = 15 flat faces; 1 sphere = 0 flat faces

Greater Depth

7a. A. It is the only shape with a curved surface.

8a. Various answers, for example:

Name	Number of flat faces	2D shape of faces
triangular-based pyramid	4	triangle
triangular prism	5	triangle rectangle
cube	6	square

9a. 4 triangular prisms have the greatest number of flat faces (20 in total).
3 triangular-based pyramids = 12 flat faces; 3 square-based pyramids = 15 flat faces; 2 cuboids = 12 flat faces

Reasoning and Problem Solving
Count Faces on 3D Shapes

Developing

1a. B. It has 6 flat faces the other shapes have 5.

2a.

Name	Number of flat faces	2D shape of faces
cube	6	square
cone	1	circle
cylinder	2	circle

3a. 2 square-based pyramids have the greatest number of flat faces (10 in total).
2 triangular-based pyramids = 8 flat faces

Expected

4b. D. It has no curved surfaces.

5b.

Name	Number of flat faces	2D shape of faces
square-based pyramid	5	square triangle
cuboid	6	rectangle square
triangular-based pyramid	4	triangle

6b. 4 triangular-based pyramids have the greatest number of flat faces (16 in total).
2 cubes = 12 flat faces; 5 cylinders = 10 flat faces

Greater Depth

7b. C. It has an odd number of faces.

8b. Various answers, for example:

Name	Number of flat faces	2D shape of faces
square-based pyramid	5	square triangle
cone	1	circle
cylinder	2	circle

9b. 3 cubes have the greatest number of flat faces (18 in total).
8 cylinders = 16 flat faces; 3 triangular-based pyramids = 12 flat faces; 2 triangular prisms = 10 faces