Reasoning and Problem Solving
Step 3: 2D Shapes

National Curriculum Objectives:

Mathematics Year 1: (1G1a) Recognise and name common 2-D shapes [for example, rectangles (including squares), circles and triangles]

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Identify the 3D shape that has been used to create a 2D drawing. 2D shapes include circles, triangles, squares and rectangles presented in the same orientation. Perspective lines used on all 3D shapes.
Expected Identify the two 3D shapes that have been used to create a 2D drawing. 2D shapes include circles, triangles, squares and rectangles presented in different orientations with some perspective lines used on 3D shapes.
Greater Depth Identify the three 3D shapes that have been used to create a 2D drawing. 2D shapes include circles, triangles, squares and rectangles. All shapes presented in different orientations with no perspective lines visible on 3D shapes, with some use of real life objects.

Questions 2, 5 and 8 (Problem Solving)
Developing Use the clues to identify the 3D shape described. 2D shapes include circles, triangles, squares and rectangles presented in the same orientation. Perspective lines used on all 3D shapes.
Expected Use the clues to identify the shape described. 2D shapes include circles, triangles, squares and rectangles presented in different orientations with some perspective lines used on 3D shapes.
Greater Depth Use the clues to identify the shape described. All shapes presented in different orientations with no perspective lines visible on 3D shapes, with some use of real life objects.

Questions 3, 6 and 9 (Reasoning)
Developing Find the mistake when 3D shapes are grouped by their surface shape. 2D shapes include circles, triangles, squares and rectangles presented in the same orientation. Perspective lines used on all 3D shapes.
Expected Find the mistake when 3D shapes are grouped by their surface shape. 2D shapes include circles, triangles, squares and rectangles presented in different orientations with some perspective lines used on 3D shapes.
Greater Depth Find the mistake when 3D shapes are grouped by their surface shape. All shapes presented in different orientations with no perspective lines visible on 3D shapes, with some use of real life objects.

More Year 1 Shape resources.

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

2D Shapes

1a. Mark has drawn around the surface of a 3D shape to create the 2D shape below.

Which 3D shape could he have used?

D

PS

2D Shapes

1b. Kim has drawn around the surface of a 3D shape to create the 2D shape below.

Which 3D shape could she have used?

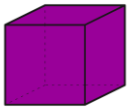
D

PS

2a. Leo is thinking of a 2D shape.

He says,

My shape has 4 sides. It makes up each surface of a cube.



Which shape might Leo be thinking of? Explain your answer.

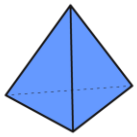
D

R

2b. Lucy is thinking of a 2D shape.

She says,

My shape has 3 sides. It makes up each surface of a pyramid.

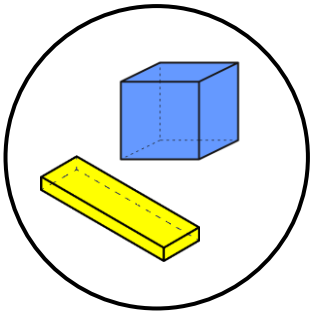


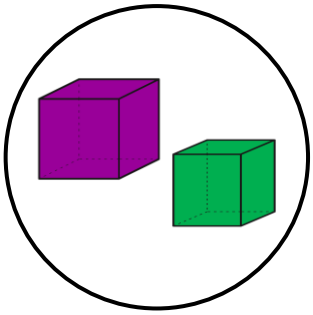
Which shape might Lucy be thinking of? Explain your answer.

D

R

3a. Lottie is sorting 3D shapes by their surface shape but she has made a mistake.



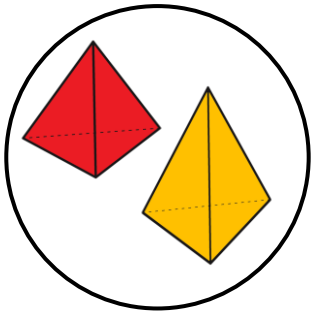


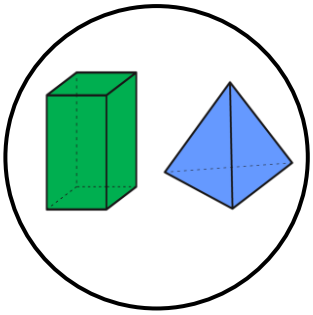
What has Lottie done wrong?

D

R

3b. Alfie is sorting 3D shapes by their surface shape but he has made a mistake.





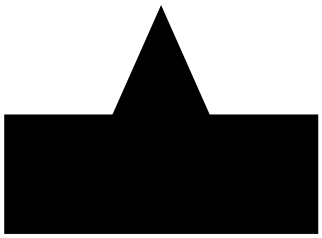
What has Alfie done wrong?

D

R

2D Shapes

4a. Jess has drawn around the surfaces of two 3D shapes to create the 2D shape below.

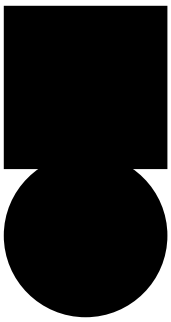


Which 3D shapes could she have used?

E PS

2D Shapes

4b. Joe has drawn around the surfaces of two 3D shapes to create the 2D shape below.



Which 3D shapes could he have used?

E PS

5a. Harry is thinking of a 2D shape.

He says,

My shape makes up two surfaces of a cylinder.

Which shape might Harry be thinking of? Explain your answer.

E R

5b. Helen is thinking of a 2D shape.

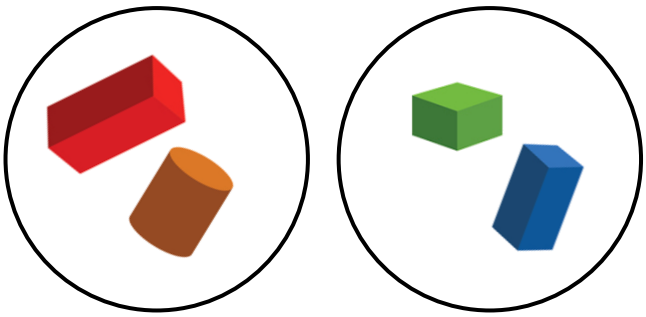
She says,

My shape makes up four surfaces of a cuboid.

Which shape might Helen be thinking of? Explain your answer.

E R

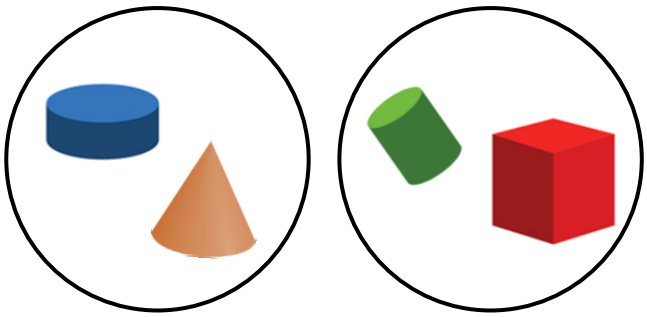
6a. Zac is sorting 3D shapes by their surface shape but he has made a mistake.



What has Zac done wrong?

E R

6b. Katie is sorting 3D shapes by their surface shape but she has made a mistake.

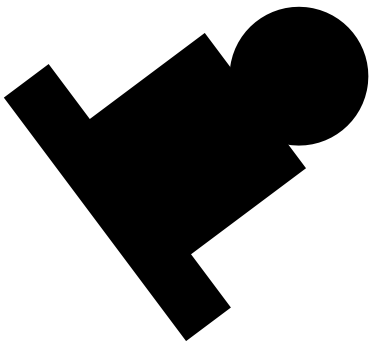


What has Katie done wrong?

E R

2D Shapes

7a. Lucas has drawn around the surfaces of three 3D shapes to create the 2D shape below.

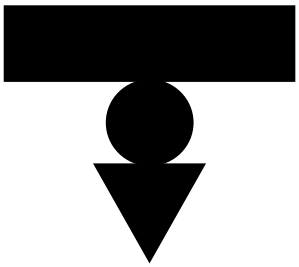


Which 3D shapes could he have used?

GD PS

2D Shapes

7b. Ava has drawn around the surfaces of three 3D shapes to create the 2D shape below.



Which 3D shapes could she have used?

GD PS

8a. Aliza is thinking of a 2D shape.

She says,

My shape makes up at least two sides of a cuboid.

Which shape might Aliza be thinking of? Explain your answer.

GD R

8b. Dan is thinking of a 2D shape.

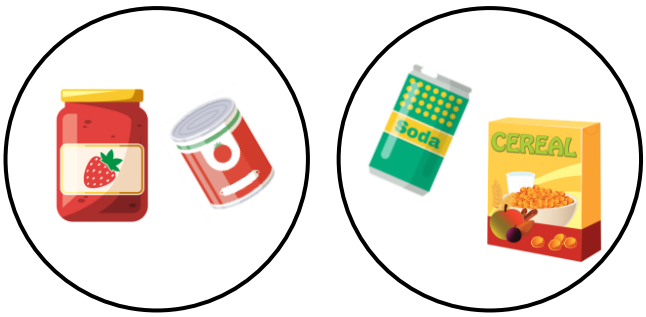
He says,

My shape makes up at least one surface of a square-based pyramid.

Which shape might Dan be thinking of? Explain your answer.

GD R

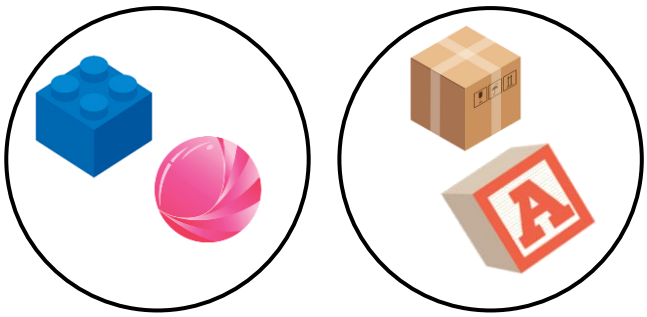
9a. Richard is sorting 3D objects by their surface shape but he has made a mistake.



What has Richard done wrong?

GD R

9b. Tilly is sorting 3D objects by their surface shape but she has made a mistake.



What has Tilly done wrong?

GD R

Reasoning and Problem Solving
2D Shapes

Developing

1a. Cuboid

2a. A square. It has 4 sides and is each surface of a cube

3a. The cubes should all be together because they all have square surfaces. The cuboid is the only shape with a rectangular surface.

Expected

4a. A triangular-based pyramid and a cuboid.

5a. A circle. It makes up 2 surfaces of a cylinder.

6a. The cuboids should all be together as they have square and rectangular surfaces. The cylinder is the only shape with circular surfaces.

Greater Depth

7a. Various answers, for example; a cone, a square-based pyramid and a cuboid.

8a. Various answers, for example; a rectangle because it makes up 4 sides of a cuboid.

9a. The objects that are a cylinder shape should be grouped together as they all have circular surfaces. The box is the only cuboid.

Reasoning and Problem Solving
2D Shapes

Developing

1b. Cuboid or cube

2b. A triangle. It has 3 sides and is each surface of a triangular based pyramid.

3b. The triangular-based pyramids should all be together as they have triangular surfaces. The cuboid is the only shape with a rectangular surface.

Expected

4b. Various answers, for example; a cube and a cone.

5b. A rectangle. It makes up 4 surfaces of a cuboid.

6b. The cylinders and the cone should be together as they both have circular surfaces. The cube is the only shape with square surfaces.

Greater Depth

7b. Various answers, for example; a cylinder, a cuboid and a triangular-based pyramid.

8b. Various answers, for example; a triangle makes up at least one side of a square-based pyramid.

9b. The objects that are a cube or cuboid shape should be grouped together because they all have square surfaces. The marble is the only sphere.