Reasoning and Problem Solving
Step 11: Sort 3D Shapes

National Curriculum Objectives:

Mathematics Year 2: (2G1b) Compare and sort common 3D shapes and everyday objects
Mathematics Year 2: (2G2b) Identify and describe the properties of 3D shapes, including the number of edges, vertices and faces

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Explain if 3D shapes have been sorted correctly in a Venn diagram, with reference to the number of faces, edges and vertices. All shapes presented in the same orientation and size. Perspectives line visible on all shapes.
Expected Explain if 3D shapes have been sorted correctly in a Venn diagram, with reference to the number of faces, edges and vertices. All shapes presented in different orientations and sizes. Perspectives line visible on some shapes and some real-life objects.
Greater Depth Explain if 3D shapes have been sorted correctly in a Venn diagram, with reference to faces, edges and vertices. All shapes presented in different orientations and sizes. No perspectives lines visible on shapes, with some use of real-life objects.

Questions 2, 5 and 8 (Problem Solving)
Developing Sort four 3D shapes into 2 groups. All shapes presented in the same orientation and size. Perspectives line visible on all shapes.
Expected Sort six 3D shapes into 2 groups. All shapes presented in different orientations and sizes. Perspectives line visible on some shapes.
Greater Depth Sort six 3D shapes into 2 or 3 groups. All shapes presented in different orientations and sizes. No perspectives lines visible on shapes, with some use of real-life objects.

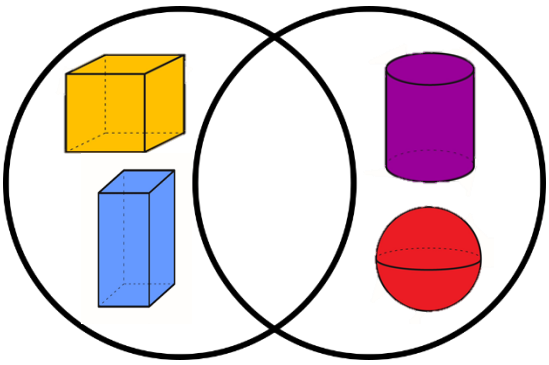
Questions 3, 6 and 9 (Problem solving)
Developing Identify the missing label. All shapes presented in the same orientation and size. Perspectives line visible on all shapes.
Expected Identify the missing label. All shapes presented in different orientations and sizes. Perspectives line visible on some shapes.
Greater Depth Identify the missing label. All shapes presented in different orientations and sizes. No perspectives lines visible on shapes, with some use of real-life objects.

More Year 2 Properties of Shape resources.

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

Sort 3D Shapes

1a. Ben has sorted these 3D shapes.

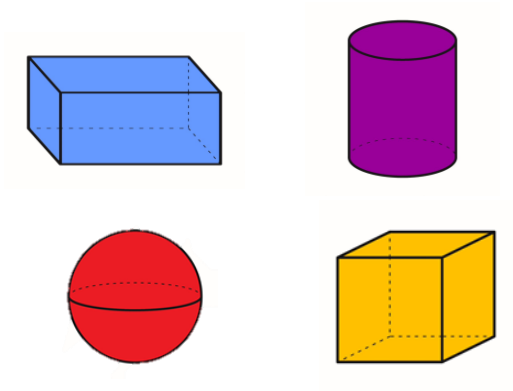


Flat faces	Curved surface

Is he correct? Explain why.

D R

2a. How could you sort these 3D shapes into 2 groups?

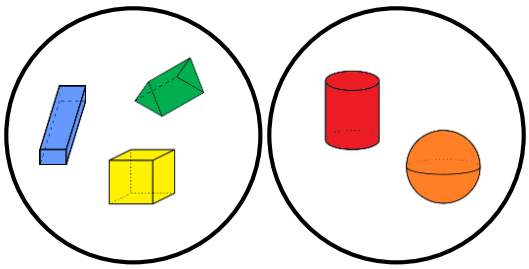


How would you label your groups?

D PS

3a. Charlie is sorting some 3D shapes.

Even number of vertices	?

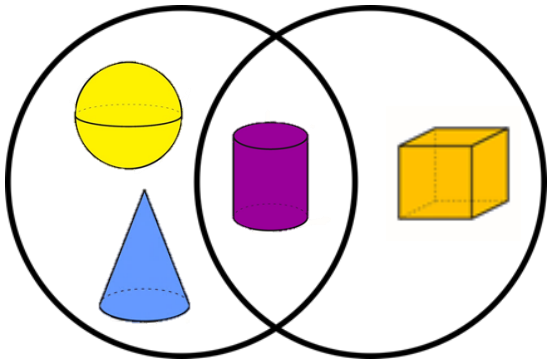


What is Charlie's missing label?

D PS

Sort 3D Shapes

1b. Isha has sorted these 3D shapes.

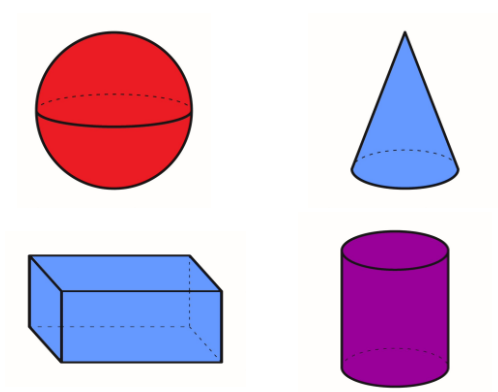


Will roll	Will slide

Is she correct? Explain why.

D R

2b. How could you sort these 3D shapes into 2 groups according to their faces?

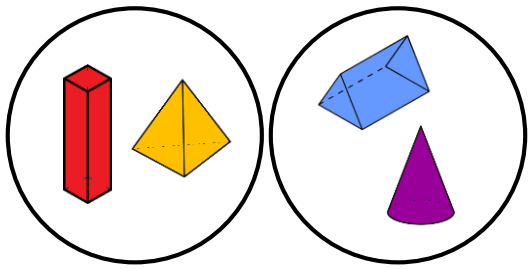


How would you label your groups?

D PS

3b. Erik is sorting some 3D shapes.

Even number of edges	?

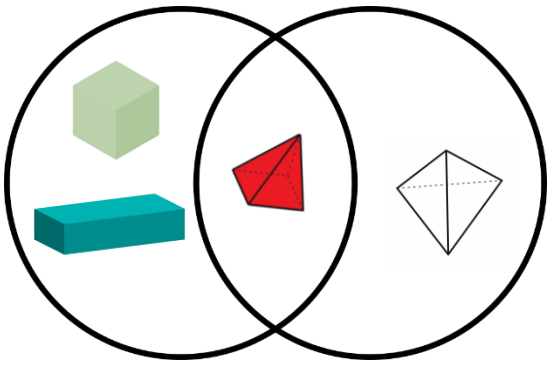


What is Erik's missing label?

D PS

Sort 3D Shapes

4a. Harvey has sorted these 3D shapes.



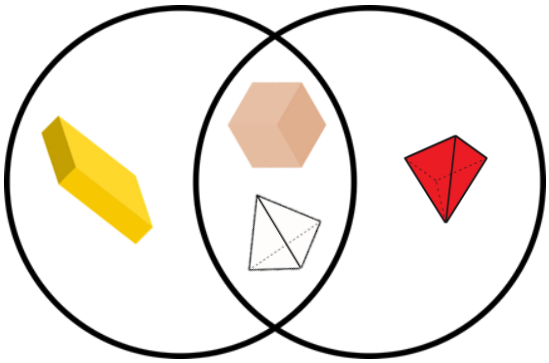
Rectangular face	Triangular face

Is he correct? Explain why.

E R

Sort 3D Shapes

4b. Jessica has sorted these 3D shapes.

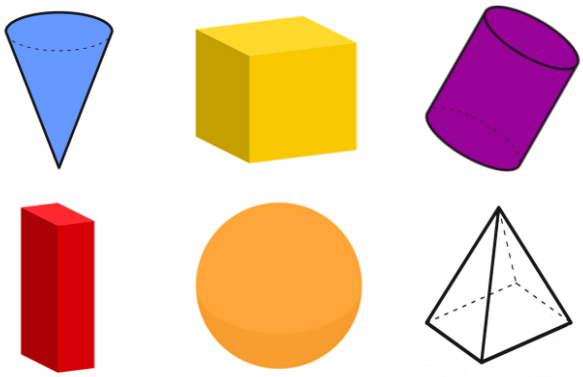


Even number of faces	Even number of vertices

Is she correct? Explain why.

E R

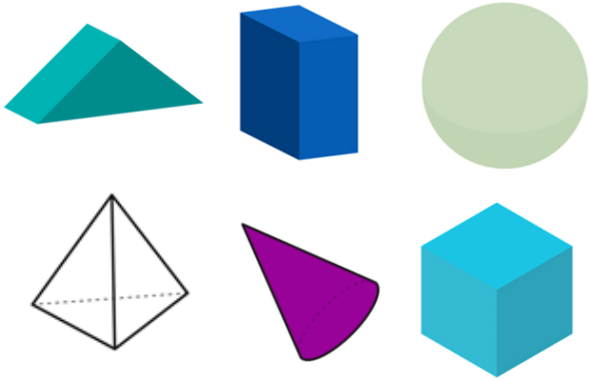
5a. How could you sort these 3D shapes into 2 groups?



How would you label your groups?

E PS

5b. How could you sort these 3D shapes into 2 groups?

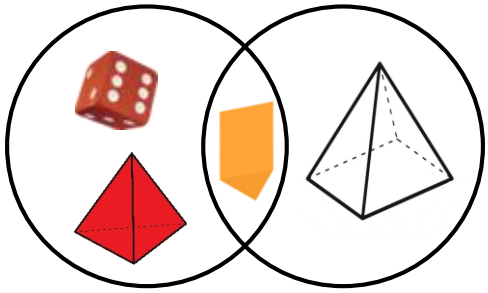


How would you label your groups?

E PS

6a. Anya is sorting some 3D shapes.

Even number of vertices	?

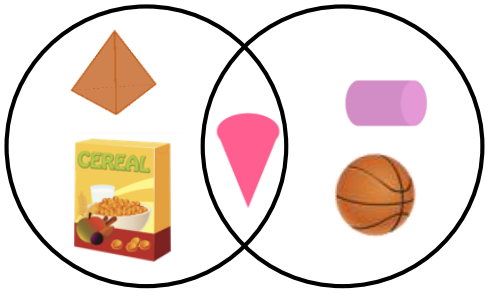


What is Anya's missing label?

E PS

6b. Adam is sorting some 3D shapes.

Even number of faces	?

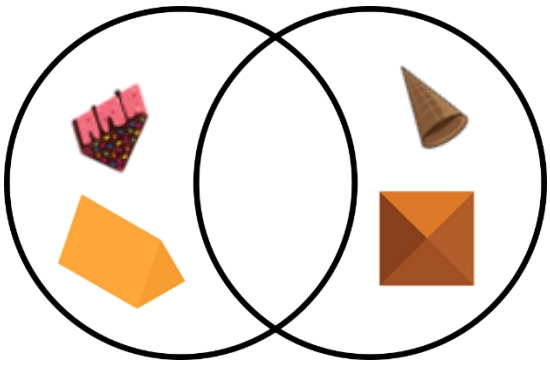


What is Adam's missing label?

E PS

Sort 3D Shapes

7a. Alina has sorted these 3D shapes.



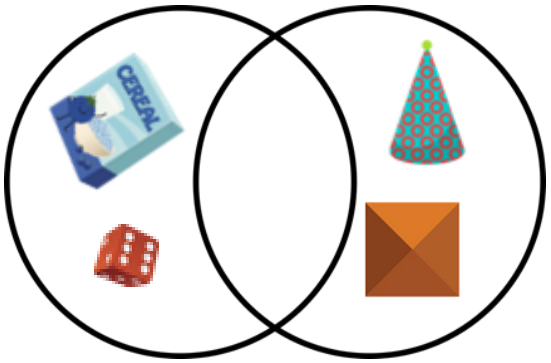
Odd number of faces	Odd number of vertices

Is she correct? Explain why.

GD R

Sort 3D Shapes

7b. Kai has sorted these 3D shapes.



Even number of edges	Odd number of vertices

Is he correct? Explain why.

GD R

8a. How could you sort these 3D shapes into 2 groups according to their faces?

How would you label your groups?

GD PS

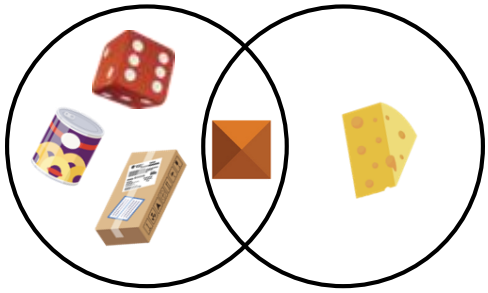
8b. How could you sort these 3D shapes into 2 groups according to their edges?

How would you label your groups?

GD PS

9a. Jasper is sorting some 3D shapes.

Even number of edges	?



What is Jasper's missing label?
Give two possibilities.

GD PS

9b. Kamran is sorting some 3D shapes.

Circular faces/ curved surface	?

What is Kamran's missing label?
Give two possibilities.

GD PS

Reasoning and Problem Solving
Sort 3D Shapes

Developing

1a. Ben is incorrect because the cylinder has flat faces and a curved surface. It belongs in the intersection.

2a. Various answers, for example: vertices/no vertices; flat/curved surface

3a. Various answers, for example: No vertices; curved surface

Expected

4a. Harvey is correct because the square-based pyramid has both rectangular and triangular faces but the other shapes have one or the other.

5a. Various answers, for example: curved surface/no curved surface; rectangular face/no rectangular face; 8 vertices/fewer than 8 vertices

6a. Various answers, for example: triangular and rectangular face

Greater Depth

7a. Alina is incorrect because the square-based pyramid has both an odd number of faces and an odd number of vertices so belongs in the intersection.

8a. Various answers, for example: more than 5 faces/fewer than 5 faces

9a. Various answers, for example: odd number of vertices; triangular faces

Reasoning and Problem Solving
Sort 3D Shapes

Developing

1b. Isla is incorrect because the cone will roll on its curved surface, but slide on its base. It belongs in the intersection.

2b. Various answers, for example: curved surface/flat face; will roll/will slide

3b. Various answers, for example: odd number of edges; odd number of flat faces

Expected

4b. Jessica is incorrect because the cuboid belongs in the intersection as it has an even number of faces and vertices and the square-based pyramid has 5 vertices and 5 faces so cannot be sorted into the Venn diagram.

5b. Various answers, for example: curved surface/no curved surface; odd/even number of faces, edges or vertices

6b. Various answers, for example: can roll; fewer than 4 faces; curved face

Greater Depth

7b. Kai is incorrect because the square-based pyramid has an even number of edges and an odd number of vertices so belongs in the intersection.

8b. Various answers, for example: even number of edges/odd number of edges

9b. Various answers, for example: can stack; even number of edges