



1. Recognising 2D and 3D shapes

compare and sort common 2-D and 3-D shapes and everyday objects.

Fluency:

Put a combination of 3-D shapes in a feely bag. Can you find the cube, the cone, the cylinder? What do you notice about each shape?

How did you know that was the right shape?

Go on a shape hunt around school. Create a tally of the shapes you see. Can you see any pentagons? Can you see any octagons? Can you see any hexagons? What was the most common shape?

Problem solving:

I'm thinking of a 2-D shape with more than 3 sides.



What shape could Whitney be thinking of? Are there any other shapes it could be? What shape is Whitney NOT thinking of? How do you know?

Which shapes are triangles?



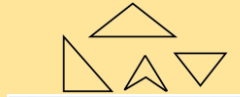
Reasoning:

Which is the odd one out?



I think because

Which is the odd one out?



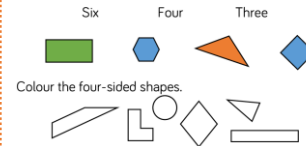
I think because

2. Counting Sides on 2D Shapes

identify & describe properties of 2D shapes, including the number of sides

Fluency:

Match the shapes to the number of sides.



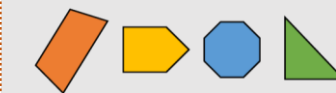
Colour the four-sided shapes.

Complete the table.

Name	Shape	Number of sides
Pentagon		
Rectangle		
Square		
Triangle		
Hexagon		

Problem solving:

If these shapes were put in order, from the smallest number of sides to the largest, which shape would come third?



Where would a hexagon come in the list?

Reasoning:

Here are 18 lolly sticks.



How many hexagons can you make? How many octagons can you make? What other shapes can you make with 18 lolly sticks?

Mo makes a rectangle using the sticks.



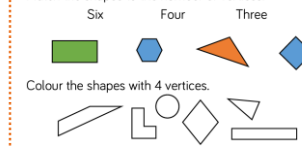
How many rectangles could he make?

3. Counting Vertices on 2D Shapes

identify and describe the properties of 2D shapes

Fluency:

Match the shapes to the number of vertices.



Colour the shapes with 4 vertices.

Complete the table.

Name	Shape	Number of vertices
Pentagon		
Rectangle		
Square		
Triangle		
Hexagon		

Problem solving:

My shape has half the number of vertices as an octagon.



What shape could he have?



Put these shapes in order of the number of vertices they have.

Reasoning:

Jack has created a pattern using shapes:



How many vertices does each step in the pattern have? How many vertices might the next step have?

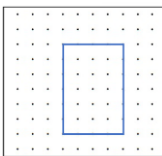
Can you create your own pattern and count the vertices at each step?

4. Drawing 2D Shapes

identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line

Fluency:

Can you draw a rectangle on dotted paper? Start at a vertex and use a ruler to draw your first straight line. How many sides will you need? Rotate the paper to help you draw the shape more accurately. Try drawing other shapes in the same way.



Problem solving:

Draw a large rectangle on squared paper or dotted paper.

Draw a square inside the rectangle.

Draw a triangle below the rectangle.

Draw a pentagon that is bigger than the square.

Can you give instructions to your partner to help them draw different shapes?

Reasoning:

What shape could be hiding under the spilt paint?



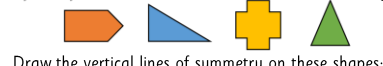
Prove your answer by drawing it.

5. Lines of Symmetry

identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line

Fluency:

Can you fold these shapes to find a vertical line of symmetry?



Draw the vertical lines of symmetry on these shapes:



Circle the shape with an incorrect line of symmetry (Folding may help)



Problem solving:

Investigate which 2D shapes can be made when a vertical line of symmetry is drawn on a square.

Reasoning:

Tommy has placed a mirror on the vertical line of symmetry. This is what he sees:



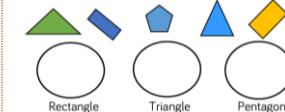
Can you draw the other half of the shape?

6. Sorting 2D Shapes

compare and sort common 2-D and 3-D shapes and everyday objects

Fluency:

Sort the shapes into the correct groups:

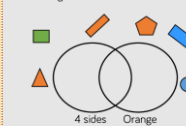


Whitney sorted her shapes by the number of sides. What shapes could she put in each group?

4 sides	Not 4 sides

Problem solving:

Where should these shapes go in the Venn diagram?



Create your own labels and sort the shapes in a different way.

Reasoning:

Ron sorts shapes by the number of sides they have. Has he done it correctly? Explain why.

Vertical line of symmetry	No vertical line of symmetry

7. Making Patterns with 2D Shapes

Fluency:

Continue the pattern. What is the next shape? What is the 9th shape?



Draw this pattern: square, circle, triangle, triangle, square, circle, triangle, triangle

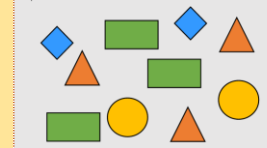
What would the 10th shape be in this pattern?



Can you make your own repeating pattern using only one shape?

Problem solving:

How many different ways can you arrange these shapes to make a repeating pattern?



Reasoning:

Dora says that the 12th shape in this pattern will be a triangle.



Is she correct? How do you know?



8. Counting Faces on 3D Shapes

identify 2-D shapes on the surface of 3-D shapes

Fluency:

- Which 2D shapes can you see on the surface of each of these 3D shapes?



- Complete the table:

Shape	Name of shape	Number of flat faces	Draw the faces

Problem solving:

Whitney says,



I have a 3-D shape with 2 square faces and 4 rectangular faces.

What shape does Whitney have?

Play this game with a friend. Describe the faces of a 3-D shape and they need to guess what it is.

Reasoning:

- Teddy says his shape has 6 faces. Mo says it must be a cube. He is right?

I think because

- Annie has sorted 3D shapes. Can you spot her mistake? Can you add another shape to each set?



9. Counting Edges on 3D Shapes

identify & describe properties of 3D shapes, including number of edges, vertices and faces

Fluency:

- How many edges does each of these 3D shapes have?



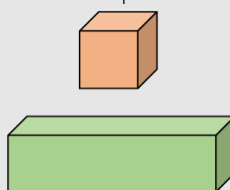
- Complete the table:

Shape	Name	Edges	Faces

- Place 3D shapes in order by the number of edges they have

Problem solving:

- Compare these 3D shapes.



What's the same?
What's different?

Reasoning:

- Ron has sorted these shapes by the number of edges. Which is in the wrong place? Why?



- Eva says her 3D shape has 12 edges. Dora says she has a cube, cuboid or square-based pyramid. Is Dora correct? Why?



I think because

10. Counting Vertices on 3D Shapes

identify & describe properties of 3D shapes, including number of edges, vertices and faces

Fluency:

- How many vertices does each of these 3D shapes have?



- Complete the table:

Shape	Name	Faces	Edges	Vertices

- Place 3D shapes in order by the number of vertices they have

Problem solving:

- Tommy has a shape with 8 vertices. What 3D shape could it be?



I think because

Reasoning:

- What is the same about these shapes? What is different? (faces, edges, vertices?)



- Is it true or false? Why?

All 3-D shapes have at least one vertex.

I think because

11. Sorting 3D Shapes

compare and sort common 2-D and 3-D shapes and everyday objects

Fluency:

- How could you sort these objects? Can you find other objects to add to each group?



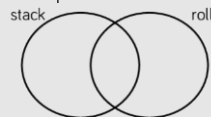
- How are these shapes grouped? Could you group them in a different way?



- Sort the 3D shapes on your table. Label the groups. Can you find more than one way? Remove the labels. Can someone guess how you sorted them?

Problem solving:

Jack is investigating which shapes stack and which roll



Some shapes will stack and roll.

Is he correct? Sort your shapes using the diagram.

Reasoning:

Annie is sorting 3-D shapes. She puts a cube in the cuboid pile.

A cube is a type of cuboid.

Do you agree? Why?

12. Making Patterns with 3D Shapes

Fluency:

- Use different coloured cubes to make a repeating pattern. Describe the pattern to your partner.

- Make a pattern using a sequence of 3D shapes.

- How many times does this pattern repeat? What will the 10th cylinder look like?



- Can you make your own repeating pattern using only one 3D shape?

Problem solving:

Look at these patterns. What's the same? What's different?



Reasoning:

Choose two 3-D shapes. What different repeating patterns could be made?



Vocabulary

vertices	triangle	sphere
edges	circle	cube
faces	square	cuboid
sides	rectangle	cylinder
vertical symmetry	pentagon	prism
3D	hexagon	pyramid
2D	octagon	base
surface		