Teacher Input Ideas:

Look at Question 3 of the prior learning assessment and discuss the errors made. Establish whether the children have lack of knowledge of the properties of 3D shapes and their names or whether they find it tricky to visualise the shape from the image in the table.

If the children show difficulty in this area due to EAL needs or large gaps in learning, show the children images of 3D shapes, examples of real-life 3D shapes and models of 3D shapes. Encourage the children to name these and discuss what they know about the shape. What makes it that shape? Discuss that these are called properties. If children are having difficulty, ensure that they have access to the shapes to touch and explore. Encourage the children to match models with images of the shapes to help children visualise the edges, faces and vertices that they cannot see in the images.

For year 6, most children should have a good understanding of 3D shape vocabulary and should be challenged to sorting shapes into Carroll diagrams where the children need to sort against a variety of criteria. Model how we can use the properties to sort the shapes into different groups. Model making a large example of a Carroll diagram and encourage the children to suggest how the shapes can be sorted.

Practice Activities

Purple Practice: most suited for children who made errors in Question 3 of the prior learning assessment as they found it hard to visualise the edges, vertices and faces that they could not see in the images.

The activity is spread over 2 sheets. The first sheet has images of 3D shapes. The second sheet can either be stuck directly behind and little flaps can be made using the blocks or both sheets can be cut up and stuck on to a piece of card folded in half to create a flap effect.

The idea of the activity is that the children look at the image on the flap, name the shape and state the number of faces, edges and vertices. The children can then lift the flap and reveal the answers instantly. For those children that are having difficulty, they can also use 3D models to match the shape to the image to help them to count the missing edges, faces and vertices.

Green Practice: most suited for children who made some errors in Question 3 of the prior learning assessment and would benefit from further exploring the properties of 3D shapes.

Practical: The children are to be given lots of different 3D shapes and real life models. The children are to label the shapes and their properties. The children can then sort these into different groups. The children could use strips of paper to create large Carroll diagrams or hoops to create Venn diagrams. The children could be provided with criteria for sorting the shapes, such as has curved faces.

Yellow Practice most suited for children who demonstrate accuracy in Question 3 of the prior learning assessment and would benefit from sorting shapes based on their properties.

Practical: The children are to be given the images of 3D shapes on the yellow task sheet. The children are to label the shapes and their properties. The children can then sort these into different groups, thinking of their own criteria. The children could use strips of paper to create large Carroll diagrams.

Mastery:

Practical: Encourage the children to make their own 3D shapes out of modelling materiel such as Plasticine, play dough or salt dough. Children to explore what other 3D shapes they can make by cutting these in different ways. Such as a triangular prism, from a cuboid.

Encourage the children to identify the properties of prisms, by noticing that when a prism is cut, it creates the same 3D shape. Key questions:
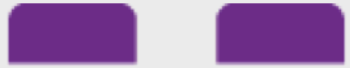
- What shape have you made? How do you know this?
- Explain why you have cut this shape in this way?
- What new shape have you made? Why do you think this is?
- Can you make a different shape by cutting it in a different way?

Answers:

Purple: On task sheet 2.

Look at each shape on a block. Name the shape and visualise the missing vertices, edges and faces. Write down the number of vertices, edges and faces the shape has. Lift the block to see if you are correct.
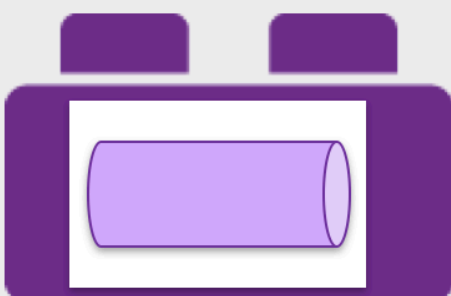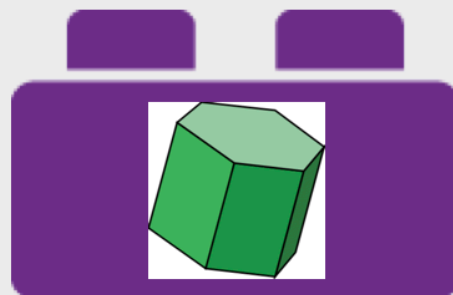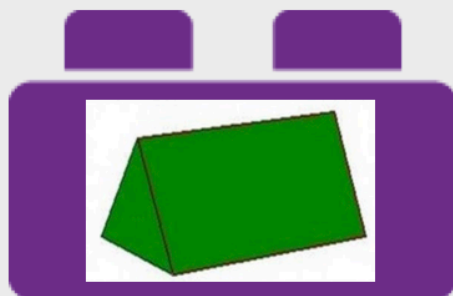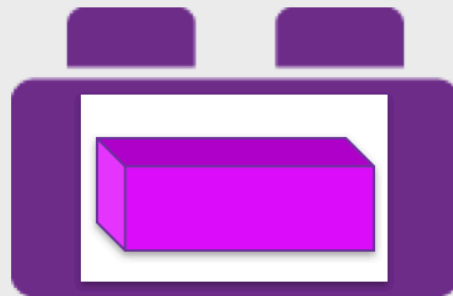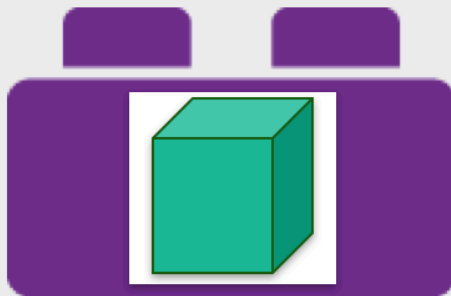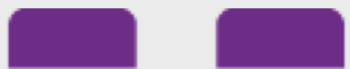
BRICKWORK
Mathematics

Name: Cube
Number of faces: 6
Number of edges: 12
Number of vertices: 8
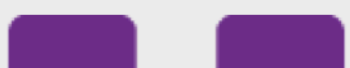
Name: Cuboid
Number of faces: 6
Number of edges: 12
Number of vertices: 8

Name: Square Based Pyramid
Number of faces: 5
Number of edges: 8
Number of vertices: 5
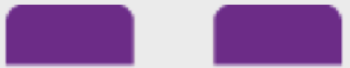
Name: Triangular Prism
Number of faces: 5
Number of edges: 9
Number of vertices: 6

Name: Cone
Number of faces: 2 (1 curved surface, 1 flat face)
Number of edges: 1
Number of vertices: 1

Name: Hexagonal Prism
Number of faces: 8
Number of edges: 18
Number of vertices: 12

Name: Cylinder
Number of faces: 3
Number of edges: 2
Number of vertices: 0

Name: Triangular Based Pyramid
Number of faces: 4
Number of edges: 6
Number of vertices: 4

BRICKWORK

mathematics