

Shape Maths week commencing 29th June 2020.

This week in Maths our focus is shape. In year 5 and 6, we place a greater focus on the properties of shapes and how we can classify and compare them. We work on constructing our own 2D and 3D shapes accurately and identifying shapes from their nets. We also look at the different types of angles in shapes, using the knowledge we already know about shapes to work out unknown lengths and angles. In addition, we also build on our knowledge of volume, understanding how to find the volume of cubes and cuboids. Below is a list of suggested activities for each day, which are both practical and printable activities.

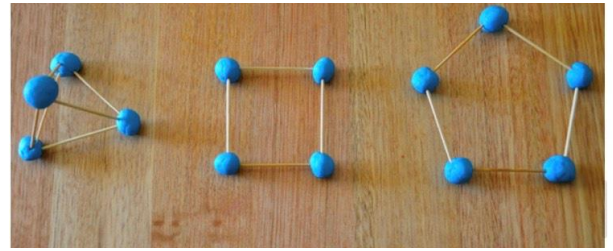
Monday - L.O- I can compare and classify 2D shapes and describe their properties.

Today we are going to look at 2D shapes! Below are a list of shapes. Could you identify the properties of each shape? You could have a go at creating your own table like the one below? Could you add extra columns to the

2D Shape	Total Number of Sides	Number of Straight Sides	Number of Curved Sides	Number of Vertices	Lines of Symmetry
Square					
Rectangle					
Circle					
Triangle					
Pentagon					
Hexagon					

table: Is the shape regular or irregular? Is the shape a polygon? Does the shape have a set of perpendicular lines? Does the shape have parallel lines? If it makes it easier to visualise the shapes, you can use the 2D

shape flashcards that I have attached to the class webpage, or you could have a go at making your own 2D shapes!



Useful definitions:

Polygon: A polygon is a flat, two-dimensional (2D) shape with straight sides that is fully closed (all the sides are joined up). The sides must be straight.

Regular polygon: A regular polygon is a polygon in which all sides are of all the same length and all the angles are equal.

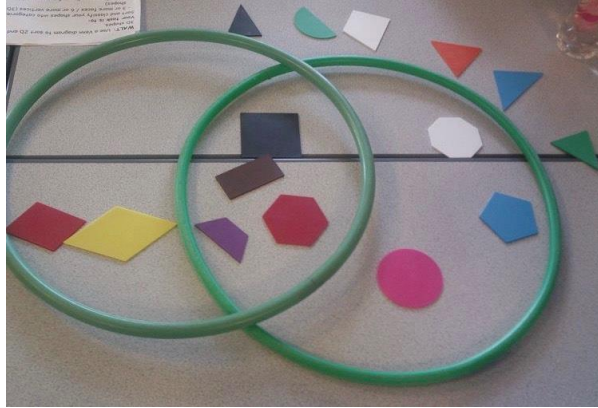
Irregular polygon: A polygon that does not have all sides equal and all angles equal.

Parallel lines: Parallel lines are always the same distance apart for their entire length, they never meet. (a bit like train tracks).

Perpendicular lines: These lines meet at right angles.

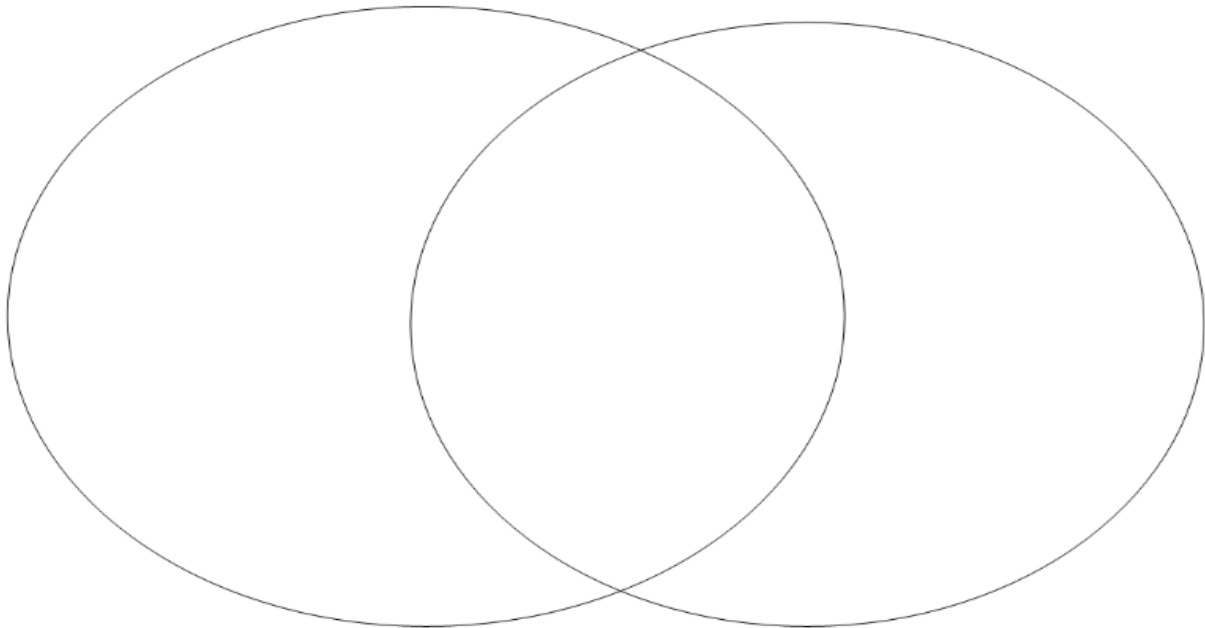
You could also sort your shapes with two categories using a venn diagram for example or with 4 categories, using a carroll diagram. You can see some examples of these you might like to use below. You could draw your

own or you could create your own using some hula hoops! I have attached to the class webpage some 2D shape flashcards, which you can use to help fill in your table, or you could print these and add these to your venn diagram.



A) Has a right angle

B) Has four sides



	<u>Has at least one right angle</u>	<u>Has no right angles</u>
Has at least four sides (Has four sides or more).		
Has less than four sides		

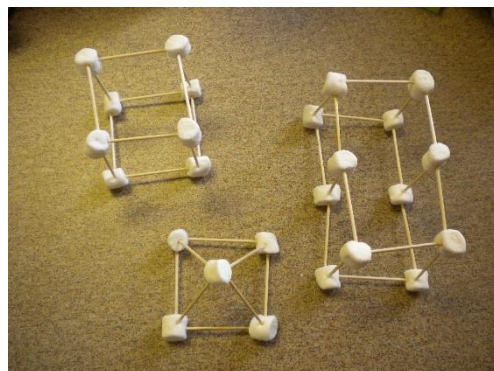
Tuesday: L.O- I can describe the properties of 3D shapes.

Key vocabulary: Vertice- A corner, where two or more lines meet.

Face: A face is a flat or curved surface on a 3D shape.

Edge: A line where two faces meet.

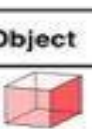


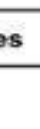


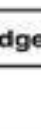
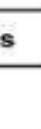

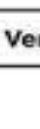
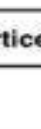
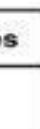

Today, you might like to try and have a go at making some of your own 3D shapes. You could make these using lollipop sticks and play doh or spaghetti and marshmallows also works really well. When you have constructed a 3D shape, can you label it's properties? How many faces does it have? How many vertices does it have? How many edges does it have?



Or could you write a riddle or some clues to help describe certain 3D shapes that another member of your family could guess!

What examples of 3D shapes can you spot around your house? Are there others you can think of beyond your house? Can you describe their properties?

If you would prefer to organise your information about 3D shapes in a table like we did with the 3D shapes, there is an example below.

3D Shape / Object		Faces	Edges	Vertices
Cube				
Cuboid				
Sphere				
Cylinder				
Cone				
Triangular Pyramid				
Square Pyramid				
Pentagonal Pyramid				
Hexagonal Pyramid				
Octagonal Pyramid				
Triangular Prism				
Pentagonal Prism				
Hexagonal Prism				
Octagonal Prism				

Wednesday: L.O- I can identify different types of angles.

When looking at different shapes, each shape is made up of angles. Some of these angles may be acute, a right-angle, obtuse, a straight line or a reflex. Can you remember what each of these angles look like? How many degrees does an angle need to be to acute or obtuse? Your challenge today is to create an informative poster on the different types of angles to help you and others remember them and how to spot them! Can you include how many degrees are in a full turn?

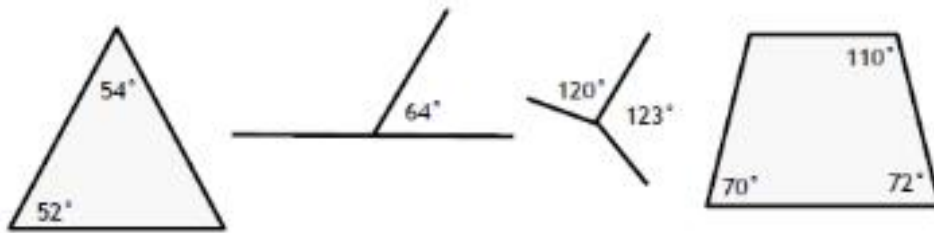
Thursday- L.O- I can identify missing angles in triangles and quadrilaterals.

Today we are going to use our knowledge of angles and look further into the properties of triangles. Your first challenge today is to look at the triangles below. What properties do they have? Are the edges all the same length or different, are all of their angles equal, some or none of them?

Did you know? The angles in a triangle add up to 180° and the angles in a quadrilateral (a 4 sided shape) add up to 360° . Can you have a go at the activity below using this knowledge? You don't have to print this out, you can just look at the questions and write down your answers.

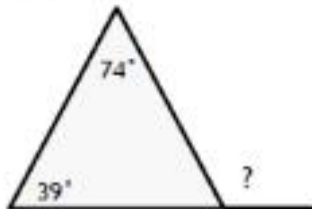
Fluency

Find the missing angles in each diagram.



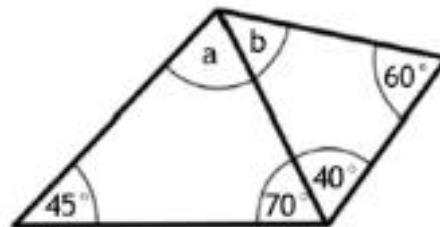
Misconception

Tom says the missing angle is 67° . Do you agree with Tom. Explain why?



Application

Find the angles marked with letter in this quadrilateral



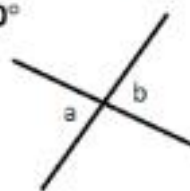
Problem solving

An isosceles triangle has an angle of 36° . What sizes could the other two angles be?

Reasoning

Is the following statement always true, sometimes true, or never true? Explain your answer.

$$a + b = 180^\circ$$



If you want a super challenge, have a go at this! You will need your knowledge of triangles for this- remember an equilateral triangle's angles are all equal and each is worth 60° . There are two equal angles in an isosceles triangle and there are 360° in a full turn- this should help! Good luck!

This is a Tangram Puzzle, Can you work out all of the angles made in the puzzle without measuring them?

a =	h =	o =
b =	i =	p =
c =	j =	q =
d =	k =	r =
e =	l =	s =
f =	m =	t =
g =	n =	u =
v =	w =	

Friday: L.O- I can work the volume of cubes and cuboids.

Today we are going to look at how we can work out the volume of a cube or a cuboid.

Defintion: Volume is the amount of space a 3D shape takes up.

To work out the volume of a cube or cuboid, you just need to multiply the height of the shape, by the width of the shape by the depth.

You could use Lego or building blocks at home build your own cubes and cuboids. You can then measure the height, depth and width in cm to work out the volume of the shape you have made!

You could even measure cubes and cuboids around the house and work out their volume! A tissue box? The toy box? A cereal box?

If you would like a printable activity to have a go at on finding the volume of cubes and cuboids, I have attached a sheet to the class webpage for you to have a go at.

Super challenge:

Can you have a go at the volume super challenge?

Challenge question 2:
These two shapes have the same volume.
Can you find the missing length?

