HILLSBOROUGH
NURSERY & PRIMARY SCHOOL

Hillsborough Primary school
Maths Content and progression

Geometry

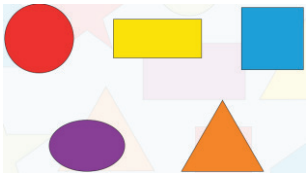
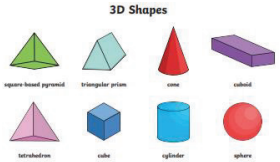
Progression of skills

Geometry: Properties of Shape						
Identifying shapes and their properties						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore the characteristics of everyday objects and shapes and use mathematical language to describe them.	recognise and name common 2-D and 3-D shapes, including: * 2-D shapes [e.g. rectangles (including squares), circles and triangles] * 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].	identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line		identify lines of symmetry in 2-D shapes presented in different orientations	identify 3-D shapes, including cubes and other cuboids, from 2-D representations	recognise, describe and build simple 3-D shapes, including making nets
		identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces				illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
		identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]				
	Drawing and constructing					
			draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	complete a simple symmetric figure with respect to a specific line of symmetry	draw given angles, and measure them in degrees (°)	draw 2-D shapes using given dimensions and angles
						recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties)

	Identifying shapes and their properties					
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	recognise and name common 2-D and 3-D shapes, including: * 2-D shapes [e.g. rectangles (including squares), circles and triangles] * 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].	identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line		identify lines of symmetry in 2-D shapes presented in different orientations	identify 3-D shapes, including cubes and other cuboids, from 2-D representations	recognise, describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing)
		identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces				illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
		identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]				
	Drawing and constructing					
			draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	complete a simple symmetric figure with respect to a specific line of symmetry	draw given angles, and measure them in degrees (°)	draw 2-D shapes using given dimensions and angles
						recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties
	Comparing and Classifying					
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		compare and sort common 2-D and 3-D shapes and everyday objects		compare and classify geometric shapes, including quadrilaterals and triangles, based on their	use the properties of rectangles to deduce related facts and find missing lengths and angles	compare and classify geometric shapes based on their properties and sizes and find unknown

				properties and sizes		angles in any triangles, quadrilaterals, and regular polygons
				distinguish between regular and irregular polygons based on reasoning about equal sides and angles		
	Angles					
			recognise angles as a property of shape or a description of a turn		know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	
			identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle	identify acute and obtuse angles and compare and order angles up to two right angles by size	identify: * angles at a point and one whole turn (total 360°) * angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°) * other multiples of 90°	recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
			identify horizontal and vertical lines and pairs of perpendicular and parallel lines			

Year 2.

NC Objective	Learning Objectives	Pre-learning	Methods from Calculation Policy	Key Questions for GDS
Recognise and name common 2-D and 3-D shapes, including: * 2-D shapes [e.g. rectangles (including squares), circles and triangles]	Identify and name squares. Identify and name rectangles. Identify and name circles. Identify and name triangles. Vocabulary 2D shapes Rectangle Square triangle Circle	Children should be able to Identify these shapes with their names. triangle square circle rectangle	Pupils to be introduced to 2D shapes and helped to name them accurately. Pupils could be provided with 2D shapes of different dimensions and asked to group them into 4 sets: circles; triangles; squares and rectangles.	**Triangle, Square, Circle** Which is the odd one out? Explain your answer.
Summer term Recognize and name 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].	Name and recognise a spheres. Name and recognise a cube. Name and recognise a cuboid Name and recognise cylinders.	Identify these 2D shapes  I have 4 sides, what am I? I have 3 sides, what am I?	An emphasis should be placed upon **identifying and describing the properties of shapes.** It is important that pupils develop the correct mathematical language to do so. **Identify and describe 3D shapes e.g cubes ,pyramids and sphere** 	What objects could you make out of a sphere, cube and cuboid? What could you build using these shapes? Use different pyramids, cubes, cuboids, cylinders, cones and spheres to attempt to build the tallest tower. Which shapes are best to build with? Which shapes could go on top?

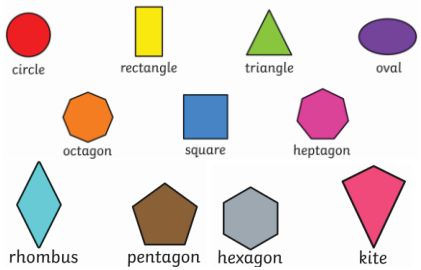
<table>
<tr><th>NC Objective</th><th>Learning Objectives</th><th>Pre-learning</th><th>Methods from Calculation Policy</th><th>Key Questions for GDS</th></tr>
<tr>
<td>Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</td>
<td>Identify 2D shapes according to sides and number of edges etc.

Identify simple 3D shapes according to vertices, edges, faces etc.

Identify a line of symmetry in simple shapes.

Make my own symmetrical shapes.

<u>Vocabulary</u>
surface
line symmetry
rectangular
circular
triangular
pentagon
hexagon
octagon
mirror line
pattern</td>
<td>Children should be able to name the different 2D shapes

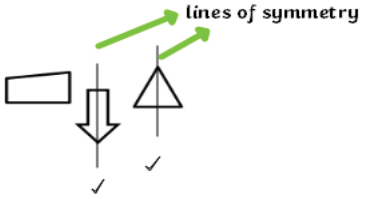
 
</td>
<td>Remind pupils of the correct terminologies to describe the properties of 2D shapes: sides (edges) and corners (vertices) by showing large shapes.

Complete this table (use concrete objects to help)

<table>
<tr><th colspan="5">2D shapes</th></tr>
<tr><td></td><td>Sides</td><td>Vertices</td><td>Faces</td><td>Edges</td></tr>
<tr><td>Circle</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
<tr><td>Square</td><td>4</td><td>4</td><td>1</td><td>4</td></tr>
<tr><td>Triangle</td><td>3</td><td>3</td><td>1</td><td>3</td></tr>
<tr><td>Rectangle</td><td>4</td><td>4</td><td>1</td><td></td></tr>
</table>

Children should understand the term line of symmetry or mirror line

Tick the shapes with a line of symmetry

 
</td>
<td>Draw a car, van or train that includes at least 1 square, 3 rectangles, 2 triangles and at least 4 circles.

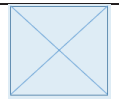
Draw a shape for a friend.
-How many lines of symmetry can they find?
-Can you now draw a shape with more lines of symmetry?
-Is this similar to another shape? Why?</td>
</tr>
<tr>
<td>Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</td>
<td>Identify 3D shapes by recognising number of edges, vertices & faces they have

Describe 3D shapes by describing the number of edges, vertices & faces they have

Use the terms edge, vertex/vertices and face accurately</td>
<td>Children should be able name a range of 3D shapes such as cube, cuboid, sphere pyramids

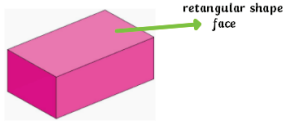
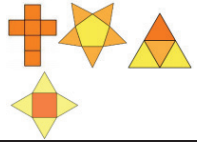
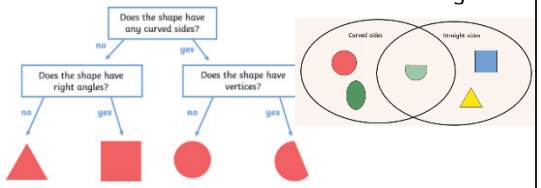
</td>
<td>Ensure pupils are familiar with the terminologies associated with 3D shapes: edges, vertices and faces

Complete this table (use concrete objects to help)

<table>
<tr><th colspan="4">3D shapes</th></tr>
<tr><td></td><td>No. of faces</td><td>No. of vertices</td><td>No. of edges</td></tr>
<tr><td>Cube</td><td>6</td><td>8</td><td>12</td></tr>
<tr><td>Cuboid</td><td>6</td><td>8</td><td>12</td></tr>
</table></td>
<td> 

Cut a square into 4 in the way shown.

Re-arrange the pieces to make other shapes.
Describe the properties of the new shapes you have made using correct terminology.</td>
</tr>
</table>

	Vocabulary Edges vertex vertices face		<table><tr><td>Cylinder</td><td>3</td><td>0</td><td>2</td></tr><tr><td>Sphere</td><td>1</td><td>0</td><td>0</td></tr></table>	
Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]	Describe 3D shapes according to their 2D make up Begin to explore the nets of 3D shapes according to 2D shapes contained within them Vocabulary Net surface	As above	Show pupils 3D shapes and ensure that they know their names. Explore with pupils the 2D shapes seen on 3D shapes. Look for some 3D shapes in the indoor and outdoor environment. Name a 3D shape that has a rectangle as one of its faces? Cuboid 	Use the straws provided to create 3D shapes using the correct properties. What shapes do you notice on the faces? Abigail is folding paper to make a 3D shape. Work out the shapes she has made by looking at her folded papers. 
Compare and sort common 2-D and 3-D shapes and everyday objects	Use the terms 'has' or 'has not' when comparing shapes. Sort 2D and 3D shapes by given criteria. Sort 2D and 3D shapes by criteria that I generate myself. Spot examples of 2D and 3D shapes in everyday life. Vocabulary Edges vertex vertices face	Look closely at a range of 3D shapes. Start with a cube and cuboid and consider the 2D shapes that make up each of the 3D shapes looked at.	Remind pupils of where they can find examples of the 3D shapes looked at in the outside environment, pointing out that some of the shapes are chosen for a range of properties that they have, e.g. strength of triangles and pyramids. This is a branching diagram. Branching diagrams are used to sort things by asking questions that can be answered 'yes' or 'no'. Venn diagram 	Is it always, sometimes or never true that if you fold a rectangle in half, you will get a square? Prove it

Year 3.

<table>
<tr><th>NC Objective</th><th>Learning Objectives</th><th>Pre-learning</th><th>Methods from Calculation Policy</th><th>Key Questions for GDS</th></tr>
<tr>
<td rowspan="2">Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them</td>
<td>Identify 2D shapes according to sides and number of edges etc.

Identify simple 3D shapes according to vertices, edges, faces etc.

Use the terms sides and vertices when describing 2D shapes.

Spot examples of 2D and 3D shapes in everyday life.

Make 3D shapes using modelling materials.</td>
<td rowspan="2">Ensure pupils are familiar with the terminologies associated with 3D shapes: edges, vertices and faces

Complete this table (use concrete objects to help)

<table>
<tr><th colspan="4">3D shapes</th></tr>
<tr><td></td><td>No. of faces</td><td>No. of vertices</td><td>No. of edges</td></tr>
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<tr><td>Sphere</td><td>1</td><td>0</td><td>0</td></tr>
</table>
</td>
<td rowspan="2">What 3D shape will each net make?

cuboid square-based pyramid tetrahedron

What is this shape made up of?

Cubes</td>
<td rowspan="2">Look through a magazine/newspaper and identify the shapes you see. Organise them into different groups.
Do some shapes fit into more than one group?
Why?

Use 6 cubes. How many different shapes can you make?
Can you try and draw them?
Dotted paper may help.

 </td>
</tr>
<tr>
<td><u>Vocabulary</u>
perimeter
pentagonal
hexagonal
octagonal
quadrilateral
right-angled
parallel, perpendicular
hemisphere</td>
</tr>
<tr>
<td>Recognise angles as a property of shape or a description of a turn</td>
<td>Know that the opening between 2 lines joined at a point is known as an angle and can be measured in degrees.

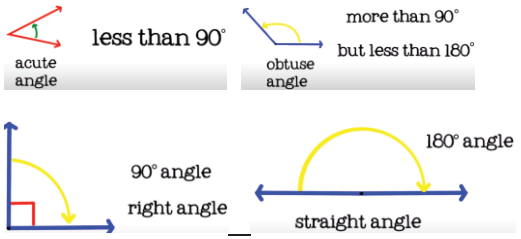
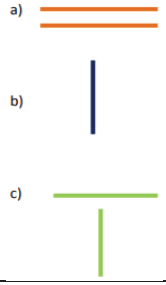
Know that the measurement of degrees is greater when the opening is wider.</td>
<td><u>No previous learning</u></td>
<td>Chilfren should understand that two straigt lines joined at a point is called an angle. The space in between is called a degree.

angle: the amount of turn between two lines that meet each other

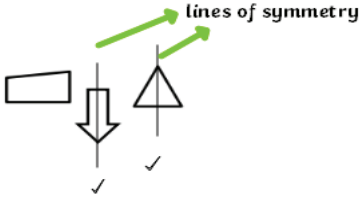
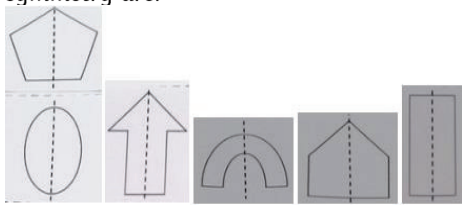
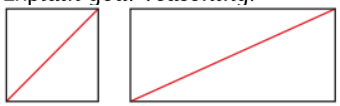
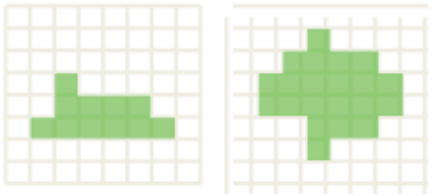
Children should be able to name and identfiy the</td>
<td>Which of these could be angles?

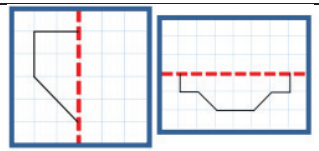
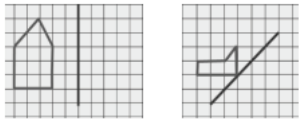
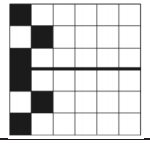
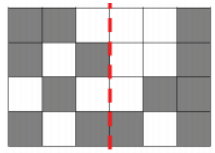
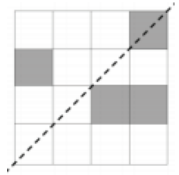
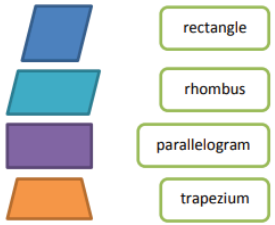
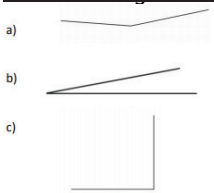
90°
-75°
90°c

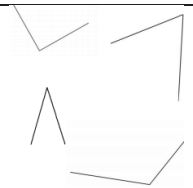
Explain your choices to a partner.</td>
</tr>
</table>

	Know that an angle is a measure of turn. Know that a right angle has 90 degrees and is written as 90°. Know that two right angles put together make a straight line and is equivalent to 180°. Know that 2 right angles is a half turn. Know that 4 right angles is a full turn. Identify angles that are smaller than a right angle. Identify angle that are larger than right angles. Vocabulary Full turn equivalent		following angles.  	
identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle	Vocabulary	As above	As above	
Identify horizontal and vertical lines and pairs of perpendicular and parallel lines	Vocabulary perimeter pentagonal hexagonal octagonal quadrilateral right-angled parallel, perpendicular hemisphere		Draw a line so that it is perpendicular to the one given Draw a line that is parallel to the one given Circle the horizontal line 	Odd one out. Explain which is different to the others. 

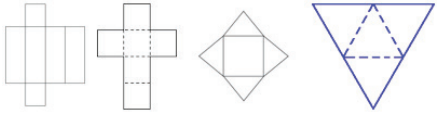
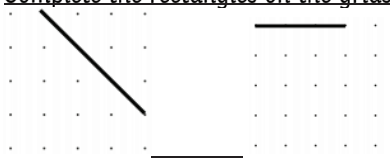
Year 4.

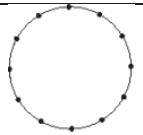
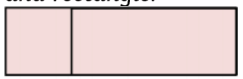
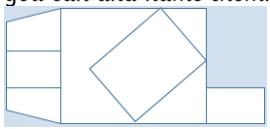
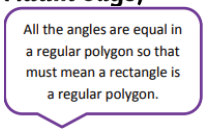
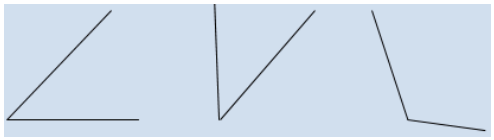
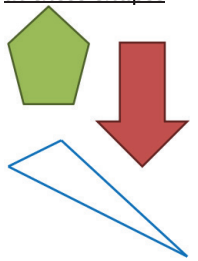
NC Objective	Learning Objectives	Pre-learning	Methods from Calculation Policy	Key Questions for GDS
identify lines of symmetry in 2-D shapes presented in different orientations	Define and show understanding of symmetry Show lines of symmetry in an equilateral or isosceles triangle (in different orientations) Show lines of symmetry in a quadrilateral (in different orientations) Show lines of symmetry in circle Create simple symmetrical figures and show lines of symmetry Recognise lines of symmetry in given shapes Vocabulary Line construct, Sketch centre angle, right-angled base, square-based size reflect, reflection	Build on from year 2 Children should understand the term **line of symmetry or mirror line** Tick the shapes with a line of symmetry  	Children should understand what the line if symmetry is and how to identify a line of symmetry Focus on the term 'symmetry' and talk about its origin. Let pupils fold paper and then hold the folded line and cut at the 'open' end and then open to see their symmetrical shape. Show some of the regular shapes we know and get pupils to look at where their lines of symmetry are. 	Tom says, 'In each of these shapes the red line is a line of symmetry.' Do you agree? Explain your reasoning.  Colour in one more square on each pattern to create a shape with a line of symmetry. 
complete a simple symmetric figure with respect to a specific line of symmetry			Complete the shape with respect to the line of symmetry	Colour in extra squares to complete a symmetrical pattern.

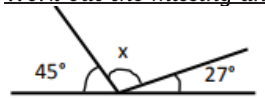
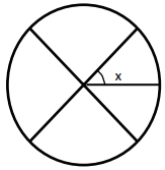
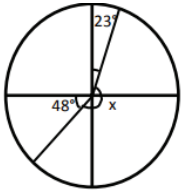
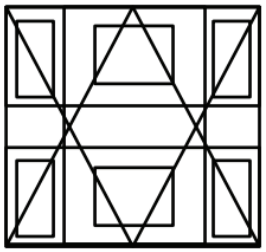
	Vocabulary	As above	 Reflect the shape in the mirror line  Shade in the squares to complete a symmetrical pattern 	Colour in extra squares to complete a symmetrical pattern.  
compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	Sort shapes according to their properties using correct vocabulary. Draw and classify shapes based on given criteria, then sort Vocabulary Quadrilateral Properties Classify criteria	**Remind pupils of previous learning related to:** Names of shapes, both 2D and 3D; the terms parallel, vertical and horizontal; right angles; quadrilateral; Give pupils a set of properties and get them to draw them on a white board, eg, a triangle with a right angle. The use of 'feely bag' can still help some pupils who may be struggling with the use of correct terminology.	Match the quadrilaterals to their names  rectangle rhombus parallelogram trapezium Describe what is the same and different about these three triangles: 	Can you fill in each of the boxes below with a different shape? Can you name each shape? | | Has a right angle | Has no equal sides | | --- | --- | --- | | Has 4 or more sides | | | | Has three sides | | | | Has an obtuse angle | | |
Identify acute & obtuse angles & compare & order angles up to two right angles by size.	Know that an angle smaller than a right angle is known as an acute angle. Know that an angle larger than a right angle is known as an obtuse angle Identify and describe an acute angle	**Remind pupils of the previous learning related to right angles.** Look around the classroom; the playground and the wider environment and find right angles; acute angles and obtuse angles. Remind pupils of the vocabulary	Label the angles below as acute, right or obtuse.  a) b) c) Order the angles from smallest to largest. Label them acute, right or obtuse	**Create Triangles** Create a triangle that has 2 acute and one obtuse angle. Create a triangle that has 3 acute angles. Create a triangle that has one right angle and two acute angles. Why can you not create a triangle with

	Identify and describe an obtuse angle Compare and order angles by size Vocabulary Right angle Acute angle Straight line Obtuse angle	associated with angles: acute; obtuse; and right angle. Look at the angles within a triangle and note acute and obtuse ones.		two obtuse angles? Explain.

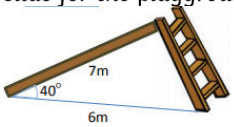
Year 5.

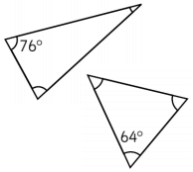
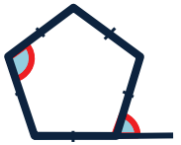
NC Objective	Learning Objectives	Pre-learning	Methods from Calculation Policy	Key Questions for GDS
identify 3-D shapes, including cubes and other cuboids, from 2-D representations	Identify 3D shapes from 2D images. Vocabulary radius, diameter congruent axis of symmetry, reflective symmetry x-axis, y-axis, quadrant octahedron	**Remind pupils** of the learning already covered in previous years about 2D and 3D shapes. Use 3D shapes with pupils and ensure that they know the names of each of the 3D shapes. Look at a range of nets and remind pupils of the terms associated with nets and 3D shapes. Remind pupils about the learning covered about drawing angles and using a protractor. Help pupils to set out and draw angles very accurately.	What shape am I? a) My faces are made up of a square and four triangles. b) My faces are made up of rectangles and triangles Look at these nets, make a drawing of their equivalent 3D shapes: 	Create cubes and cuboids by using multilink. Can you draw these on isometric paper? Which part is difficult? Would it be harder if you had to draw something other than squares or rectangles?
use the properties of rectangles to deduce related facts and find missing lengths and angles	Calculate missing lengths and angles using known facts Vocabulary Dimension	**As above**	Complete the rectangles on the grids below  Join 4 dots together to make a rectangle	A rectangular classroom has a perimeter between 20 and 25 cm. What could the dimensions be? A shape is made up of a square

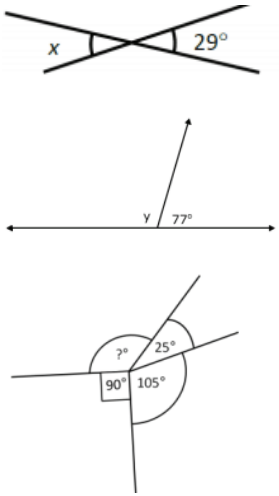
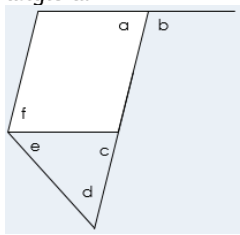
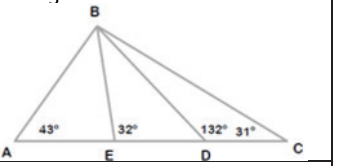
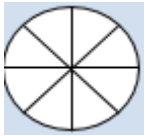
				and rectangle.  The perimeter of the shape is 70cm. The area of the square is 121cm2 What is the area of the rectangle?
Distinguish between **regular& irregular polygons** based on reasoning about equal sides & angles.	Use known facts to explain differences between shapes <u>Vocabulary</u> Regular shapes Irregular shapes	**Provide pupils with a definition for each of these shapes**: Parallelogram Rhombus Kite Quadrilateral Trapezium Help them to name the polygons that have more than 4 sides. Play the description game. I have 4 sides; 2 of my angles are 90°, etc.	Look at the shape below. Find as many regular and irregular shapes as you can and name them:  Draw a regular polygon and an irregular polygon on the grids below. 	**Always, sometimes, never**. The number of equal angles is the same number of equal sides in a regular polygon **Adam says,**  Is Adam correct? Why?
know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	-Know that 90° is equivalent to a quarter turn -Know that 180° is equivalent to a half turn -Know that 270° is equivalent to a three-quarter turn -Know that 360° is equivalent to a full turn -Estimate, compare and measure angles in <u>Vocabulary</u> protractor	Ensure that pupils are secure with the idea of angles and turns, for example a quarter turn is measured as 90°. Know that angles are measured precisely using a protractor. Know that it is easy to classify angles into acute; obtuse and reflex as well as using the term right angle and a straight line. **Re-emphasise** the idea of an angle being something opening from a given point. Introduce pupils to the term protractor and model how to use one.	-Draw 3 acute angles and then use a protractor to measure them to the nearest degree. -Draw 3 obtuse angles and then use a protractor to measure them to the nearest degree. Why is it helpful for protractors to be transparent? <u>First estimate and then measure the following angles:</u> 	<u>Estimate and measure the angles in these shapes</u>  Record your results in a table. Work out how close you were. Did you notice anything or find any easier?

identify: * angles at a point and one whole turn (total 360°) * angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°) * other multiples of 90°	-Know that 180° is equivalent to a half turn -Know that 270° is equivalent to a three-quarter turn -Know that 360° is equivalent to a full turn -Estimate, compare and measure angles in Vocabulary As above	As above	Work out the missing angles.   	How many right angles can you find? 
draw given angles, and measure them in degrees (°)	drawings, identifying acute, obtuse and reflex angles =Able to use a protractor to measure angles -Able to use a protractor to draw angles	As above	Complete practically Draw an obtuse angle that is a multiple of 5 and 3 Can your partner check it? • Draw an acute angle that has a factor of both 4 and 6 • What do the angles in a triangle add up to?	Complete practically Class 5 are given one angle in an isosceles. It is 50° Carol says The other angles are 65° because two angles are equal in an isosceles triangle. Is she correct? Explain why

Year 6.

NC Objective	Learning Objectives	Pre-learning	Methods from Calculation Policy	Key Questions for GDS
draw 2-D shapes using given dimensions and angles	Draw a square and an equilateral triangle accurately having been given the length of a side Draw a rectangle accurately having been given the length and breadth. Draw an isosceles triangle accurately having been given the length of the base. Draw a triangle to a given set of angles and sides Draw pentagons and hexagons to given criteria Vocabulary	Remind pupils about using a protractor. Remind pupils of the need for accuracy. A quick reminder about the use of rulers will probably be needed also. Focus on regular polygons such as pentagons; hexagons and octagons and ensure pupils are aware of the angles formed by these regular polygons.	Draw 5 squares with the following sides: 5cm 7cm 10cm 12cm 15cm Knowing what you know about area and perimeter; What is the difference between the area and perimeter of the smallest and largest square? Here is a sketch of a triangle: Draw an accurate full size diagram of the triangle.	Mr Buckton is designing a slide for the playground.  Use a scale of 1cm to represent 1m. Make an accurate drawing of the side of the slide. How long must Mr Buckton make the ladder?
recognise, describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing)	Know what the net for a cube looks like Create a cube from a net Make a net to create a cube Know what the net for a cuboid looks like Create a cuboid from a net Make a net to create a cuboid Make a net to create a square based pyramid Make a net to create a triangular based pyramid Vocabulary concentric, arc net, open, closed, intersecting, intersection circumference	Revise previous learning on 3D shapes. Remind pupils of the names of the most common 3D shapes: cube; cuboid; square and triangular based pyramids; cylinder; etc. Explore the nets of these shapes and recognise how they change according to their sizes.	Make a net for a cube where the faces are 5cm x 5cm. Set out the net and create a cube from your net. Now create a cuboid where there are 4 faces 8cm x 5cm and 2 faces 5cm x 5cm Examine a square-based pyramid and work out its net. Create a net for a square-based pyramid where the base square has a side of 5cm. Make a net where each of the triangles is an equilateral triangle and then one where each of the triangles is an isosceles triangle.	**Creating cubes and Cuboids** Given the volume create a cube or cuboid. Draw a net for a cube or cuboid that has a volume of 24 cm^3. Draw a net for a cube or cuboid that has a volume of 36 cm^3. Draw a net for a cube or cuboid that has a volume of 48 cm^3.

compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons	Classify triangles in terms of their properties Know that an equilateral triangle has three angles of 60º and three equal sides Know that an isosceles triangle has two sides which are equal and two angles which are equal Describe a right angled triangle according to its properties Know that angles in a triangle always total 180º Describe a square and a rectangle according to their properties Know the properties of: parallelogram, rhombus and trapezium Know that interior angles in a quadrilateral total 360º Accurately measure angles in any shape Accurately calculate missing angles in triangles and quadrilaterals on a line and at a point Sort and classify shapes according to similarities and differences <u>Vocabulary</u>	There are many revisory aspects to this unit. However, this unit is designed to ensure that pupils are very confident in knowing the properties of triangles and quadrilaterals. There are many terminologies for pupils to get used to, some they will have met before. Make sure pupils know and are familiar with the terms equilateral; isosceles; quadrilateral; rhombus; trapezium; rectangle; square and parallelogram. Make sure pupils know how to measure angles of both triangles and quadrilaterals.	Draw a triangle that has one side of 8cm and an angle of 65° and another of 35°. Draw another that has one side of 10cm a 90° angle and another angle of 60° **Find the missing angles in the isosceles triangles**  	The interior angles of a pentagon add up to 540○ . Use this fact to find the missing angles in the diagram below 

recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles	Given two angles in a triangle, calculate the missing angle Given information about angles in a quadrilateral, calculate missing angles Calculate missing angles in parallelogram, rhombus and trapezium from calculating diagonally opposite angles Calculate missing angles on a line Calculate missing angles where they are opposite **Vocabulary** Vertically opposite parallel lines diagonally opposite	**Remind pupils** about the sum of the three angles in a triangle and about the sum of the four angles in a quadrilateral. Make sure they are measuring accurately using protractors. Pupils should be able to estimate what a 30°; 60° and a 45° angle look like. Remind pupils of which angles are the same in various formations such as two lines that cross; a line joining two parallel lines, etc.	Find the missing angles in the diagrams below. 	If angle a = 75° work out angle b, angle c and angle f. If angle e = 45°work out angle d.  Calculate angle B in the triangle below. 
illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius	Know that the line across the centre of a circle is known as the diameter Know that the distance from the centre of a circle to the arc of the circle is the radius Know the distance around the outside of the circle is called the circumference Know the diameter of the circle is twice the radius Vocabulary Circumference Segment Diameter Radius	There needs to be time spent on ensuring that pupils know the appropriate vocabulary associated with circles. The terms radius; diameter and circumference needs to be known by all pupils. Use a large string to show what is meant by radius; diameter and circumference.	Write an accurate description of the following: Circumference Radius Diameter Semi-circle	A farmer has a circular field which has a diameter of 30 metres. He creates 6 equal segments as shown:  He fences in each of the segments. How much fencing does he need for: The segments The circumference of the field (approximate) Using your knowledge of the area of a triangle, work out

				what the approximate area of each segment. What is the approximate perimeter of each of the segments?