	Α	rea of Maths	= Shape, Spo	ace, Geome	ry and Positio	on	
Declarative knowledge	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
SSGP Automatically recall Blue highlight = Roche's Specific Expectations Red font = Roche's Priorities for Revisiting	I know what a repeating pattern is. E.g. (AB, ABB and ABBC)	The names of common 2D shapes (rectangles, including squares, triangles and circles) The names of 3D shapes (Cuboids, including cubes, pyramids and spheres)	Identify and describe the properties of 2-D shapes, including the number of sides, and lines symmetry in a vertical line. (Introduce pentagons, hexagons, octagons.) Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. (Introduce prisms.) Identify 2-D shapes on the surface of 3-D shapes. Declare the difference between common 2-D and 3-D shapes and everyday objects.	Angles as a property of shape or a description of a turn. Right angles, recognise that 2 right angles make a half- turn, 3 make three- quarters of a turn and 4 a complete turn; Horizontal, vertical, parallel and perpendicular lines (Definitions = Declarative Know an acute angle is less than a right angle and an obtuse angle is more than a right angle. (Non stat guidance)	Classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. (6 quadrilaterals + 3 triangles) Identify lines of symmetry in 2-D shapes presented in different orientations. (Dec. = What is a line of symmetry?) Describe positions on a 2-D grid as coordinates in the first quadrant. (Dec. = Know which way around the co- ordinates go. Know and label the X and Y axis.)	Know angles are measured in degrees. (Introduce reflex angles.) Identify: angles at a point and 1 whole turn (total 360°) angles at a point on a straight line and half a turn (total 180°) other multiples of 90°. (Dec. = define the definitions by degrees.) Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	Name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. Recognise angles where they meet at a point, are on a straight line, or are vertically opposite. (Introduce – Vertically opposite)

Year	1					
Year group:	NC L.O.	Practical	Pictorial	Abstract	Problem Solving	Reasoning
group: 1	[KEY] Recognise and name common 2-D and 3-D shapes, including 2-D shapes [for example, rectangles (including squares), circles and triangles].	Make it! SAY IT 2-D shapes from the maths cupboard. 2-D shapes seen in the classroom (Shape hunt).	Show it/Draw it! SAY IT Tick the names of the two shapes in this picture. Tick two. triangle square	Read/Write it! SAY IT	Join dots to make 2 more triangles. Use a ruler.	Sarah is thinking of a 2-D shape. Sarah's shape has four straight sides. Write down two shapes that Sarah could be thinking of.
			circle hexagon		•	

					Here is part of a shape.	
					Compare yours with a partner.	
					What is the same and what is different?	
2020 Guid	dance	1G-1 Recogn are not alway 1G-2 Compo orientations. Year 1 docum	ise common 2D and 3D sha ys similar to one another. Ise 2D and 3D shapes from s nent, pages 35-39	pes presented in different orier maller shapes to match an exa	tations, and know that rectangles, trid	angles, cuboids and pyramids to place them in particular
1	[KEY] Recognise and name common 2-D and 3-D shapes, including 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].	3-D shapes from the maths cupboard. 3-D shapes seen in the classroom (Shape hunt). K'Nex	cube cylinder cuboid		Fred draws round the bottom of a cone.	Some 3-D shapes have been sorted. When they been sorted correctly? Explain how you know. How many ways can you sort the shapes below?

			Match the shapes above with their correct names.			
2020 Guido	ance	1G-1 Recogn are not alway 1G-2 Compo orientations. Year 1 docum	ise common 2D and 3D sho ys similar to one another. se 2D and 3D shapes from s nent, pages 35-39	pes presented in different orien maller shapes to match an exa	tations, and know that rectangles, tric	angles, cuboids and pyramids to place them in particular

1	Describe position, direction and movement, including whole, half, quarter and three-quarter turns. (Remember ordinal language, first, second, third)	Bee-bots Walking commands Position in the line	Draw what each shape will look like once it has turned a: • quarter turn clockwise • half turn clockwise • three quarter turn clockwise • full turn clockwise	Put o bea Put y Mov acro Tick stop	a tick t d. $\sqrt{2}$ our fir e your oss 3 sc $(\sqrt{2})$ the s on.	nger on finger quares. e anima	Start.	quai	olack	Mo The pink doughnuts are on the left. The pink doughnuts are on the right. Alex
				Con 'left' posi'	nplete and tion of £1 coin.	the ser right' to the co	atence o desc ns.	es us cribe	ing the of the	Who is correct? Explain how you know.

I			The 50p coin is to the	
			the 1p coin.	
			The Operation is to the	
			The 2p coin is to the of the	
			50p coin	
	1		1	

Year	2								
Year group:	NC L.O.	Practical	Pictorial	Abstract	Problem Solving	Reasoning			
		Make it! SAY IT	Show it/Draw it! SAY IT	Read/Write it! SAY IT					
2	[EXS] [KEY] Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.	2D Shapes (Every day and mathemati cal) Mirrors Rulers	2D Shapes (Every day and mathematical) Draw a line of symmetry on each shape:	 Questions that do not involve pictorial images: Tick the sentences that are correct: A square has sides of equal length. A square has curved sides. A square has lines of symmetry. A square has five sides. 	Cut a square piece of paper as shown below.	How do you know that is a? Captain conjecture says: All of these shapes are rectangles because they all have four sides.			
2020 Guid	dance	2G-1 Use predifferences in	2G-1 Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties. Year 2 document, pages 35-38						

2	[EXS] [KEY] Identify	2D and 3D	3D Shapes (Every day	Questions that do not	Mastery with Greater Dept	How do you know that is a?
	and describe the	Shapes	and mathematical)	involve pictorial images:	Jack has made a cube using 12 sticks and 8 balls of mod	
	properties of 3-D	(Every day				
	shapes, including	and			Ŷ ₩ Ŷ	\checkmark Which statement is false?
	the number of	mathemati		Two of these sentences are correct.		
	edges, vertices and	cal)		lick (✔) them.		
	faces.			A cube has curved faces.	What shape could he make with:	
				A cube has braces.	6 sticks and 4 balls of clay?	
	Identify 2-D shapes			A cube has more than 6 corners.	4 long sticks, 8 short sticks 8 balls of clay?	A It has a square hass
	on the surface of 3-D			A cube has rewer than 6 edges.	· · · · · g - · · · · , - · · · · · · · · · · · · ·	A it has a square base
	shapes [for example,					B It has 5 vertices
	a circle on a cylinder					C It has 7 edges
	and a friangle on a				Mastery	
	pyramid].				We are going to make a box as shown.	How do you know?
					Which quadrilaterals shown below do we need? How many of each do we need?	
					1 cm	
					1 cm	
					AB	
					C C	
					E F	
2020 Guidance		2G-1 Use pre	cise language to describe t	he properties of 2D and 3D shap	oes, and compare shapes by reasonin	g about similarities and
		differences in	properties. Year 2 docume	nt, pages 35-38		

2	Order and arrange combinations of mathematical objects in patterns and sequences.	Mathemati cal objects – mostly 2D.	Pictures of shapes and mathematical objects.	Here are two shape patterns.	Fill in the missing shape to complete the pattern: Explain how you chose your shape. If the pattern continued what would be the tenth shape?
2	Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti- clockwise).	Objects to rotate. Beebots. Clocks. (Can do practically in PE.)	Images to rotate.	The turtle is rotated clockwise $\begin{array}{c} & & \\ & & \\ \hline \\ \hline$	I think I have rotated this hexagon a quarter turn clockwise. True or False? How do you know? If false how much have I rotated the hexagon? If I rotate an object half a turn clockwise OR anticlockwise it will end up in the same position. Always true, sometimes true, never true?

Year	3					
Year group:	NC L.O.	Practical	Pictorial	Abstract	Problem Solving	Reasoning
		Make it! SAY IT	Show it/Draw it! SAY IT	Read/Write it! SAY IT		
3	[KEY] Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn. Recognise angles as a property of shape or a description of a turn.	Angle hunt, looking for angles around the room. Rulers with right angle corners Beebot turns	Drawing right angles in books. Identifying right angles in shapes. How many right angles does this shape have:	A shape has 4 right angles. It has 4 sides which are not all the same length. Write the name of this shape.	Sort the shapes based on the number of right angles they have. Record your answer in a table.	The arrow on a spinner started in this position. After making a turn it ended in this position. Jack says, The arrow has moved a quarter turn anti-clockwise. Alex says, The arrow has moved a three-quarter turn clockwise. Who do you agree with?

					Tick the shape that shows how it looks after the turn.	
2020 Guid	dance	3G-1 Recogn orientations. Year 3 docum	nise right angles as a propert nent, pages 61-64	y of shape or a description of c	a turn, and identity right angles in 2D st	napes presented in different
3	[KEY] Identify whether angles are greater than or less than a right angle. Recognise angles as a property of shape or a description of a turn.	Children can create a 'Right Angle Tester' And use this to find angles that are less than or greater	This angle is less than a right angle. It is called an angle. This angle is more than a right angle.		Look at this shape. Tick (✓) each angle that is less than a right angle.	James says: My triangle has three acute angles. Do you agree with James? Explain why / why not.

		than a right angle Corner of a ruler to check whether angles are greater or less than 90°	It is called an angle. Draw three acute angles Draw three obtuse angles Draw a triangle with three acute angles		Here is a diagram for sorting shapes. One of the shapes is in the wrong place. Put a cross (X) on it.	
3	Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	2D shapes with parallel and perpendicu lar lines Objects around the room (tables, doors, pattern of the ceiling)	Tick the two shapes that have exactly one pair of parallel lines.	Complete these sentences: A line that runs from left to right across the page is called a line. A line that runs straight up and down the page is called a line. Parallel lines will always / sometimes / never meet. Perpendicular lines meet at acute / obtuse / right angles.	Complete the table:	Sally says: "The lines below are not parallel." Explain how Sally can convince her teacher that she is correct.

			The shape has vertical and horizontal lines.	Draw a letter from the alphabet that has vertical lines but no horizontal lines. Now draw a shape that has horizontal lines but no vertical lines. Can you draw a letter that has both horizontal and vertical lines ?		
3	Draw 2-D shapes and make 3-D shapes using modelling materials. Do the 2-D Shape part first so the 3-D links to the next objective.	Rulers K'nex Lego 2-D shapes for drawing around Polydron	Describe this quadrilateral. It has angles. It has right angle(s). It has obtuse angle(s). It has acute angle(s). It has lines of symmetry.	Draw the following shapes in your book: A square with sides of 4cm A triangle with one obtuse angle A quadrilateral with only one pair of parallel lines. A rectangle whose length is double its width.	Draw at least one shape in each section of the diagram. At least one shape in each section angles 4 sided Not 4 sided I have 9 straws and 6 balls of Play- Doh. What 3-D shape can I create using all of	Rosie describes a 2-D shape. My shape has 2 pairs of parallel sides. The lengths of the sides are not all equal. Draw the shape that Rosie is describing. Could this square be Rosie's shape? Explain why.

		Draw anoth that has the properties.	er shape 9 same		the straws and Play-Doh? Have a go at making it.	Rosie says, I can create a model of a square-based pyramid using 3 straws and 3 balls of Play-Doh. Explain the mistake Rosie has made.
						How many straws and balls of Play-Doh would you need to create a pyramid?
2020 Guidance		3G–2 Draw polygons by jo	ining marked p	oints, and identify parallel and	perpendicular sides. Year 3 documen	t, pages 64-66.



Year	ear 4									
Year group:	NC L.O.	Practical	Pictorial	Abstract	Problem Solving	Reasoning				
		Make it! SAY IT	Show it/Draw it! SAY IT	Read/Write it! SAY IT						
4	Identify acute and obtuse angles and compare and order angles up to two right angles by size.	Rulers 2-D shapes Constructio n equipment (K'nex to make angles) Angle hunt around the classroom	 Place two pieces of masking tape on the desk to make an angle. Now put your ruler along one of the strips in push it to the corner where the strip meets the second strip. Does your second strip go underneath your ruler? If it does you have an acute angle. If the second strip does not go behind the ruler you have an obtuse angle. If your ruler fits the corner of the two strips perfectly you have a right-angle. 	Here are five angles marked on a grid of squares.	Here are 5 angles on dotted paper:	I know the angle is not obtuse.				

				Draw a cross in the corner with the smallest angle.		Angle A Angle B Angle A Angle B Angle B is bigger than Angle A because it has longer sides. Non Do you agree with Ron? Explain your thinking.
4	[KEY] Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. Suggested order: Triangles, Quads, other regular and irregular polygons, curved shapes.	2-D shapes Constructio n kits (K'nex, Lego, DM's building kit) Shape hunting around the classroom	This is a All 4 sides are	Draw and label: A square A rectangle A quadrilateral with only one pair of parallel lines A right-angled triangle An irregular pentagon Join dots on the grid to make a quadrilateral that has 3 acute angles.	Sort the shapes below into the Venn diagram on the right: A C B E	Maisie has a square and cuts it along the dotted line to make two triangles: Faye says "Maisie has made 2 isosceles triangles"



2020 Guide	ance	4G-2 Identify reperimeter of re	egular polygons, including equi gular and irregular polygons. Ye	lateral triangles and squares, as tho ear 4 document, pages 63-67.	se in which the si	de-lengths ar	e equal and	the angles are equal. Find the
4	[KEY] Identify lines of symmetry in 2-D shapes presented in different orientations.	Folding paper shapes Symmetry hunt around the class Mirrors	These diagrams are made from regular octagons. Draw the line of symmetry on each diagram. Use a ruler.		Sort the shap	nmetrical shap	table.	Always, Sometimes, Never. A four-sided shape has four lines of symmetry. A triangle has 1 line of symmetry unless you change the orientation. Is Jack correct? Prove it.

2020 Guid	ance	4G-3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry. Year 4 document, pages 67-70.						
4	Complete a simple symmetric figure with respect to a specific line of symmetry.	Mirrors Symmetric al figures	Complete these shapes:		Colour the squares to make the patterns symmetrical:	<image/> <image/> <text></text>		
2020 Guidance		4G-3 Identify li with respect to	ne symmetry in 2D shapes prese a specified line of symmetry. Ye	entea in different orientations. Refle ear 4 document, pages 58-62.	ct snapes in a line of symmetry and compl	ere a symmetric tigure or pattern		







Year	'ear 5								
Year group:	NC L.O.	Practical	Pictorial	Abstract	Problem Solving	Reasoning			
Objectives running through the unit		Identi	fy other multiples of 90°.						
		Make it! SAY IT	Show it/Draw it! SAY IT	Read/Write it! SAY IT					
5	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.	Rulers 2-D shapes Constructio n equipment (K'nex to make angles) Angle hunt around the classroom	Look at the angles below and write whether they are acute, obtuse, or reflex:	In your book draw: • A right angle • An acute angle • An obtuse angle • A straight angle (You need a point of measure) • A reflex angle • A revolution	In the questions, below all of Harry's movement is in a clockwise direction. If Harry is facing North and turns through 180 degrees, in which direction will he be facing? If Harry is facing South and turns through 180 degrees, in which direction will he be facing? What do you notice? If Harry is facing North and wants to face SW how many degrees must he turn? From this position how many degrees must he travel through to face North again?	The circle is divided into quarters by the two diameter lines and four angles A, B, C and D are marked. Are the statements below true or false?			

			Estimate the size of angle x Circle the closest estimate. 170° 310° 190° 260° 180°		N NEE E	 Angle B is an obtuse angle. Explain your reasoning. Mr Moore estimates the angle labelled x below to be 60° X Mr Moore cannot be correct because Miss Palk says, "You can't draw an obtuse angle and two acute angles on a straight line". Is Miss Palk correct? Prove your answer with a diagram
2020 Guid	ance	5G–1 Compare	e angles, estimate and measure	e angles in degrees (°) and draw ar	l ngles of a given size. Year 5 document, pa	ges 67-70
		Dulor	Estimate the size of the	Drowy on acting site of the		
5	[KEY] Draw given angles and measure them in degrees (°).	Protractors	Estimate the size of the angles and then use a protractor to measure them to the nearest degree. How close were your estimates?	Draw an estimate of the following angles: A. 45° B. 150° C. 178° Now measure your angles. What is the difference between your estimate and measurement?	Here is a sketch of a triangle. It is not drawn to scale. 7cm 48° 10cm Draw the full-size triangle accurately, below.	Inree children are measuring angles. Can you spot and explain their mistake?

2020 Cuid				angles in degrees (°) and draw a	Use an angle measurer (protractor) and a ruler. One line has been done for you.	My angle measures 135° () My angle measures 55° () Dora My angle measures 35° () My angle measures 35° () () () () () () () () () () () () ()
2020 Guido	ance	5G–1 Compare	e angles, estimate and measure	e angles in degrees (°) and draw an	igles of a given size. Year 5 document, pag	ges 6/-/0
5	Identify angles at a point on a straight line and a turn (total 180°).	Rulers Protractors	Calculate the size of angle y in this diagram. Do not use a protractor (angle measurer).	There are five angles on a straight line. Two of them are 32° and 43°, and the other three angles are all equal. Prove that the other three angles are 35°	AB is a straight line. What is the value of y?	Below is a square touching a straight line. Calculate angle a. Explain how you got your answer.

5	Identify angles at a point and one whole turn (total 360°).	Rulers Protractors	This shape is three- quarters of a circle.	Complete the sentences: ¹ / ₄ of a turn = 1 right angle = 90° ¹ / ₂ of a turn = right angles	Calculate the size of angle p in the diagram. Do not use a protractor (angle measurer).	Sam measures all three angles around a single point:
				=° of a turn = 3 right angles =°	p 102°	
			How many degrees is angle x?	A full turn = right angles = °		Sam says: I need to measure all three angles around the point to find
						Do you agree with Sam?
						Sam measures the angles to be 120°, 187° and 145°.
						Explain how you know that at least one of Sam's measurements is incorrect.
5	Use the properties of rectangles to deduce related facts and find missing lengths and angles.	Rulers 2-D shapes	Look at the square and the rectangle. What's the same? What's	Draw all the unique rectangles with an area of 20 squares. Draw a rectangle with an area of 24 squares and a perimeter of 22 square- lengths.	The twelve points on this circle are equally spaced. Join four points to make a square. Use a ruler.	Mr Moore is trying to make a tiled rectangle for his bathroom wall. He has 13 square tiles and doesn't want to cut them. Explain why he can only draw one unique rectangle.

	(Lots of this will be covered in measurement)		different?			
5	[KEY] Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	Regular and irregular 2-D shapes Identifying irregular shapes in the classroom	Draw a regular polygon and an irregular polygon on the grids.	Identify the regular and irregular quadrilaterals.	Here are four shapes in a Carroll diagram.	Here is a pentagon: Not drawn accurately Each side of the pentagon is the same length. Is the shape a regular pentagon? Circle Yes or No. Yes / No Explain your answer.

						Always, sometimes or never true? • A regular polygon has equal sides but not equal angles. • A triangle is a regular polygon. • A rhombus is a regular polygon. • The number of angles is the same as the number of sides in any polygon.
5	Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. GD objective: Identify and create 3-D shapes, including cubes and other cuboids, from 2-D representations.	3-D shapes Nets Covering 3- D shapes in paint and then rolling it on paper to create nets.	What shapes do you make when these 2-D representations (nets) are cut out and folded up to make 3-D shapes?	Draw a net of the following objects:	Jack has two square-based pyramids that are the same size. He sticks the square faces together to make a new 3-D shape. How many faces and how many edges does his new 3-D shape have?	Amir says, If two 3-D shapes have the same number of vertices, then they also have the same number of edges. Do you agree? Explain why.

	Draw the 2-D representation (net) that will make this cuboid when cut out and folded up.	Gabs is thinking of a 3-D shape. She says, 'My shape has five faces. One face is a square, the rest are triangles.' What is the name of the 3-D shape? Shape C Shape C Complete the table.	



Year	(ear 6						
Year group:	NC L.O.	Practical	Pictorial	Abstract	Problem Solving	Reasoning	
Objectives running through the unit							
6	[EXS] [KEY] Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	Tape on desks for measuring vertically opposite angles.		2° 19° 45° 50° 75° \rightarrow	Bill has calculate you agree? $= 1 = 130^{\circ}$ $= 2 = 55^{\circ}$	Take a piece of paper and draw a large 'X'. Mark the angles on as shown. Measure the angles you have drawn. What do you notice about angles b and d? What do you notice about angles a and c? Is this always the case? Investigate with other examples.	

6	[EXS] [KEY] Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.		Classify the quadrilaterals using the diagram below: Has a right angle All sides have equal length Not all sides have equal length B C C D F	Use your knowledge of properties of shapes to find the missing lengths / angles in the shapes below:	Two equilateral triangles are arranged together as shown below:	Investigate the <u>sum</u> of the internal angles by doing this: Repeat the idea but with quadrilaterals (see below): Use delow): Jack says: The unknown angle is 124°. Prove that Jack is wrong using; a) a calculation. b) your knowledge of angle types.
6	Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.	Circular objects to measure	Cut out the circles below:	If a circle has a radius of 20cm, what is the diameter? If a circle has a diameter of 56cm, what is the radius? If a tiny circle has a radius of 0.243cm, what is the diameter?	The diagram shows a right- angled triangle inside a circle. The triangle has two vertices touching the circumference of the circle and a third touching the centre of the circle. The circle has a diameter of 12cm .	Measure the diameter and radius of 3 circles in the classroom. Is there a relationship between the radius and diameter? Could you express any relationship algebraically?

		Fold the circles in half, unfold, the fold in half along a different line. The point where the two folds meet is the centre point. Measure the length from the centre of the circle to the edge of the circle. This is the radius. Now measure the length of one of the complete folds, through the centre point. This is the diameter.		What is the area of the triangle?	
6	Draw 2-D shapes using given dimensions and angles. GD objective: Draw 2-D shapes to different scales using given dimensions and angles.	Here is a sketch of a quadrilateral. It is not drawn to scale.	Draw an equilateral triangle with side lengths of 6 cm. Draw a rectangle with a perimeter of 24cm Draw a right-angled triangle with an area of 10cm ²	Eva has drawn a scalene triangle. Angle A is the biggest angle. Angle B is 20° larger than angle C. Angle C is the smallest angle, and it is 70° smaller than angle A. Use a bar model to help you calculate the size of each angle, then construct Eva's triangle.	

			below. Use a protractor (angle measurer) and a ruler. Two of the lines have been drawn for you.		Is there more than one way to construct the triangle?	
2020 Guide	ance	6G-1 Draw, co	mpose, and decompose shape	es according to given properties, in	L cluding dimensions, angles and area, and	solve related problems.
6	Recognise, describe and build simple 3-D shapes, including making nets.		Draw possible nets of these three-dimensional shapes.	What three-dimensional shape can be made from these nets?	This is a drawing of a pentagonal prism. Tick (✓) the one shape that is a net for the pentagonal prism.	





