St Mary's Horsforth Catholic Voluntary Academy Knowledge Progression for Maths 2023-24

PLACE VALUE						
Counting						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
subitise link the number symbol (numeral) with its cardinal number value count from 0-20 count an irregular arrangement of up to 10 objects	count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number			count backwards through zero to include negative numbers	interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero	use negative numbers in context, and calculate intervals across zero
count objects, actions and sounds	count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward	count from 0 in multiples of 4, 8, 50 and 100;	count in multiples of 6, 7, 9, 25 and 1 000	count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000	
count beyond ten	given a number, identify one more and one less		find 10 or 100 more or less than a given number	find 1 000 more or less than a given number		
Comparing Numbers						
compare quantities of identical objects compare quantities of	use the language of: equal to, more than, less than (fewer), most, least	compare and order numbers from 0 up to 100; use <, > and = signs	compare and order numbers up to 1 000	order and compare numbers beyond 1 000 compare numbers with the same number of decimal	read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit	read, write, order and compare numbers up to 10 000 000 and determine the value of each digit

non-identical objects compare groups up to 10 use the language of more than and fewer than				places up to two decimal places		
IDENTIFYING, REPRESENTING AND ESTIMATING NUMBERS						
select the correct numeral to represent 1-5, then 1-10 objects explore the composition of numbers to ten	identify and represent numbers using objects and pictorial representations including the number line	identify, represent and estimate numbers using different representations, including the number line	identify, represent and estimate numbers using different representations	identify, represent and estimate numbers using different representations		

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READING AND WRITING NUMBERS						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
write the correct numeral for a given number	read and write numbers from 1 to 20 in numerals and words. read and write	read and write numbers to at least 100 in numerals and in words	numbers up to 1 000 in numerals and in words	read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit read Roman numerals to 1 000 (M) and recognise years written in Roman numerals.	read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
UNDERSTANDING PLACE VALUE						
		recognise the place value of each digit in a two-digit number (tens, ones)	recognise the place value of each digit in a three-digit number (hundreds, tens, ones)	recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)	read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit	read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
ROUNDING						
				round any number to the nearest 10, 100 or 1 000	round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000	round any whole number to a required degree of accuracy
PROBLEM SOLVING						
		use place value and number facts to solve problems	solve number problems and practical problems involving these ideas.	solve number and practical problems that involve all of the above and with increasingly large positive numbers	solve number problems and practical problems that involve all of the above	solve number and practical problems that involve all of the above

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ADDITION AND SUBTRACTION						
NUMBER BONDS						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
automatically recall number bonds for numbers 0-5 and some to 10 number bonds 10 (tens frame) number bonds to 10 (part-part whole model)	represent and use number bonds and related subtraction facts within 20	recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100				
MENTAL CALCULATIONS						
Understand the 'one more than/one less than' relationship Find one more and one less Combine two groups to find the whole Adding by counting on Subtract by counting back	add and subtract one-digit and two-digit numbers to 20, including zero	add and subtract numbers using concrete objects, pictorial representations, and mentally, including: * a two-digit number and ones * a two-digit number and tens * two two-digit numbers * adding three one-digit numbers	add and subtract numbers mentally, including: * a three-digit number and ones * a three-digit number and tens * a three-digit number and hundreds		add and subtract numbers mentally with increasingly large numbers	perform mental calculations, including with mixed operations and large numbers

	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs	show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot				use their knowledge of the order of operations to carry out calculations involving the four operations
WRITTEN CALCULATIONS						
	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs		add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	
INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	estimate the answer to a calculation and use inverse operations to check answers	estimate and use inverse operations to check answers to a calculation	use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.
PROBLEM SOLVING						
Sorting into groups	solve one-step problems that involve addition and subtraction, using concrete	solve problems with addition and subtraction: * using concrete objects and	solve problems, including missing number problems, using number facts,	solve addition and subtraction two-step problems in contexts, deciding which operations	solve addition and subtraction multi-step problems in contexts, deciding which operations	solve addition and subtraction multi-step problems in contexts, deciding which operations

	objects and pictorial representations, and missing number problems such as 7 = □ - 9	pictorial representations, including those involving numbers, quantities and measures * applying their increasing knowledge of mental and written methods	place value, and more complex addition and subtraction	and methods to use and why	and methods to use and why	and methods to use and why
						Solve problems involving addition, subtraction, multiplication and division

MULTIPLICATION AND DIVISON						
MULTIPLICATION AND DIVISION FACTS						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Doubling Halving and sharing Odds and evens	count in multiples of twos, fives and tens	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward	count from 0 in multiples of 4, 8, 50 and 100	count in multiples of 6, 7, 9, 25 and 1 000	count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000	
		recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	recall multiplication and division facts for multiplication tables up to 12 × 12		
MENTAL CALCULATIONS						
			write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods	use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers	multiply and divide numbers mentally drawing upon known facts	perform mental calculations, including with mixed operations and large numbers
		show that multiplication of two		recognise and use factor pairs and	multiply and divide whole numbers	

		numbers can be done in any order (commutative) and division of one number by another cannot		commutativity in mental calculations	and those involving decimals by 10, 100 and 1000	

WRITTEN CALCULATIONS						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods	multiply two-digit and three-digit numbers by a one-digit number using formal written layout	multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers	multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
					divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context	divide numbers up to 4-digits by a two-digit whole number using the formal written method of short division where appropriate for the context divide numbers up to 4 digits by a two-digit whole number

						using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context

PROPERTIES OF NUMBERS: MULTIPLES, FACTORS, PRIMES, SQUARE AND CUBE NUMBERS						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				recognise and use factor pairs and commutativity in mental calculations	identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers establish whether a number up to 100 is prime and recall prime numbers up to 19	identify common factors, common multiples and prime numbers
					recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) such as mm3 and km3	calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm3) and cubic metres (m3), and extending to other units
ORDER OF OPERATIONS						
						use their knowledge of the order of operations to carry out calculations involving the four operations
INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS						
			calculation and use inverse operations to check answers	estimate and use inverse operations to		use estimation to check answers to calculations and

				check answers to a calculation		determine, in the context of a problem, levels of accuracy

PROBLEM SOLVING						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects	solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	solve problems involving addition, subtraction, multiplication and division
					solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	
					solve problems involving multiplication and division,	solve problems involving similar shapes where the

					including scaling by simple fractions and problems involving simple rates	scale factor is known or can be found

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FRACTIONS, DECIMALS AND PERCENTAGES						
COUNTING IN FRACTIONAL STEPS						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Pupils should count in fractions up to 10, starting from any number and using the1/2 and 2/4 equivalence on the number line (Non Statutory Guidance)	count up and down in tenths	count up and down in hundredths		
	RECOGNISING FRACTIONS					
	recognise, find and name a half as one of two equal parts of an object, shape or quantity	recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity	recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators	recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten	recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	
	recognise, find and name a quarter as one of four equal parts of an object, shape or quantity		recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10. recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators			
	COMPARING FRACTIONS					

			compare and order unit fractions, and fractions with the same denominators		compare and order fractions whose denominators are all multiples of the same number	compare and order fractions, including fractions >1

COMPARING DECIMALS						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				compare numbers with the same number of decimal places up to two decimal places	read, write, order and compare numbers with up to three decimal places	identify the value of each digit in numbers given to three decimal places
ROUNDING						
				round decimals with one decimal place to the nearest whole number	round decimals with two decimal places to the nearest whole number and to one decimal place	solve problems which require answers to be rounded to specified degrees of accuracy
EQUIVALENCE						
		write simple fractions e.g. 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.	recognise and show, using diagrams, equivalent fractions with small denominators	recognise and show, using diagrams, families of common equivalent fractions	identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	use common factors to simplify fractions; use common multiples to express fractions in the same denomination
				recognise and write decimal equivalents of any number of tenths or hundredths	read and write decimal numbers as fractions (e.g. 0.71 = 71/100) recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8)
				recognise and write decimal	recognise the per cent symbol (%) and understand that per	recall and use equivalences between simple fractions,

				equivalents to 1/4; 1/2; 3/4	cent relates to "number of parts per hundred", and write percentages as a fraction with denominator 100 as a decimal fraction	decimals and percentages, including in different contexts.

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ADDITION AND SUBTRACTION OF FRACTIONS						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			add and subtract fractions with the same denominator within one whole (e.g. 5/7 + 1/7 = 6/7)	add and subtract fractions with the same denominator	add and subtract fractions with the same denominator and multiples of the same number recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. 2/5 + 4/5 = 6/5 = 11/5)	add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
MULTIPLICATION AND DIVISION OF FRACTIONS						
					multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. 1/4 × 1/2 = 1/8) multiply one-digit numbers with up to two decimal places by whole numbers divide proper fractions by whole numbers (e.g. 1/3 ÷ 2 = 1/6)

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MULTIPLICATION AND DIVISION OF DECIMALS						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths		multiply one-digit numbers with up to two decimal places by whole numbers multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8) use written division methods in cases where the answer has up to two decimal places

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PROBLEM SOLVING						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			solve problems that involve all of the above	solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number	solve problems involving numbers up to three decimal places	
				solve simple measure and money problems involving fractions and decimals to two decimal places.	solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those with a denominator of a multiple of 10 or 25.	

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RATIO AND PROPORTION						
Statements only appear in Year 6 but should be connected to previous learning, particularly fractions and multiplication and division						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
						solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison solve problems involving similar shapes where the scale factor is known or can be found solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

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ALGEBRA						
EQUATIONS						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and ***missing number problems*** *such as 7 = □ - 9*	*recognise and use the inverse relationship between addition and subtraction and use this to check calculations and* ***missing number*** *problems.*	solve problems, *including* ***missing number*** *problems, using number facts, place value, and more complex addition and subtraction.* solving multiplication and division, including integer scaling		*use the properties of rectangles to deduce related facts and find* ***missing lengths and angles***	express missing number problems algebraically
		recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100				find pairs of numbers that satisfy number sentences involving two unknowns
	represent and use number bonds and related subtraction facts within 20					enumerate all possibilities of combinations of two variables
FORMULAE						
				Perimeter can be expressed algebraically as 2(a + b) where a and b are the dimensions in the same unit		use simple formulae *recognise when it is possible to use* ***formulae*** *for area and volume of shapes*
SEQUENCES						

	sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening	*compare and sequence intervals of time* order and arrange combinations of mathematical objects in patterns				generate and describe linear number sequences

MEASUREMENT						
COMPARING AND ESTIMATING						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Select, rotate and manipulate shapes in order to develop spatial reasoning skills.	compare, describe and solve practical problems for: * lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half] * mass/weight [e.g. heavy/light, heavier than, lighter than] * capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter] * time [e.g. quicker, slower, earlier, later]	compare and order lengths, mass, volume/capacity and record the results using >, < and =	estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight	estimate, compare and calculate different measures, including money in pounds and pence	calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes	calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm3) and cubic metres (m3), and extending to other units such as mm3 and km3.
	sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]	compare and sequence intervals of time	compare durations of events, for example to calculate the time taken by particular events or tasks			
MEASURING AND CALCULATING						

Compare length, weight and capacity Daily routine Recognise length, height and distance Understand the difference between weight and capacity	measure and begin to record the following: * lengths and heights * mass/weight * capacity and volume * time (hours, minutes, seconds)	choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels	measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)	estimate, compare and calculate different measures, including money in pounds and pence	use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.	solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
			measure the perimeter of simple 2-D shapes	measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres	measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	recognise that shapes with the same areas can have different perimeters and vice versa
	recognise and know the value of different denominations of coins and notes	recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value	add and subtract amounts of money to give change, using both £ and p in practical contexts			
		find different combinations of coins that equal the same amounts of money		find the area of rectilinear shapes by counting squares	calculate and compare the area of squares and rectangles including using standard units, square centimetres	calculate the area of parallelograms and triangles calculate, estimate and compare volume of cubes and

		solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change			(cm2) and square metres (m2) and estimate the area of irregular shapes *recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)*	cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [e.g. mm3 and km3]. recognise when it is possible to use formulae for area and volume of shapes

TELLING THE TIME						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Daily routine Order and sequence events measure short periods of time	tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.	tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks	read, write and convert time between analogue and digital 12 and 24-hour clocks		
	recognise and use language relating to dates, including days of the week, weeks, months and years	know the number of minutes in an hour and the number of hours in a day.	estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such	solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	solve problems involving converting between units of time	

			as a.m./p.m., morning, afternoon, noon and midnight			
CONVERTING						
		know the number of minutes in an hour and the number of hours in a day.	know the number of seconds in a minute and the number of days in each month, year and leap year	convert between different units of measure (e.g. kilometre to metre; hour to minute)	convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)	use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
				read, write and convert time between analogue and digital 12 and 24-hour clocks	solve problems involving converting between units of time	solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
				solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	understand and use equivalences between metric units and common imperial units such as inches, pounds and pints	convert between miles and kilometres

GEOMETRY: PROPERTIES OF SHAPE						
IDENTIFYING SHAPES AND THIER PROPERTIES						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can	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
recognise 2-D and 3-D shapes; using mathematical terms selects a particular named shape		identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]				illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
DRAWING AND CONSTRUCTING						
Make simple patterns			draw 2-D shapes and make 3-D shapes using modelling	complete a simple symmetric figure with respect to a	draw given angles, and measure them in degrees (o)	draw 2-D shapes using given dimensions and angles

Explore more complex patterns			materials; recognise 3-D shapes in different orientations and describe them	specific line of symmetry		

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COMPARING AND CLASSIFYING						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
order two or three items by length and height order two items by weigh or capacity		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 properties and sizes	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 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 360o) * angles at a point on a straight line and ½ a turn (total 180o) * other multiples of 90o	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			

GEOMETRY: POSITION AND DIRECTION						
POSITION, DIRECTION AND MOVEMENT						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
describe the position of an object	Describe position, direction and movement, including half, quarter and three-quarter turns.	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)		describe positions on a 2-D grid as coordinates in the first quadrant	identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	describe positions on the full coordinate grid (all four quadrants)
				describe movements between positions as translations of a given unit to the left/right and up/down		draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
				plot specified points and draw sides to complete a given polygon		
PATTERN						
Continue, copy and create repeating patterns		order and arrange combinations of mathematical objects in patterns and sequences				

Use common shapes to create patterns and build models						

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STATISTICS						
INTERPRETING, CONSTRUCTING AND PRESENTING DATA						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		interpret and construct simple pictograms, tally charts, block diagrams and simple tables	interpret and present data using bar charts, pictograms and tables	interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	complete, read and interpret information in tables, including timetables	interpret and construct pie charts and line graphs and use these to solve problems
		ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity				
		ask and answer questions about totalling and comparing categorical data				
SOLVING PROBLEMS						
			solve one-step and two-step questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	solve comparison, sum and difference problems using information presented in a line graph	calculate and interpret the mean as an average

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