Maths Yearly Rolling Programme

Cycle	Autumn	Spring	Summer
1 and 2	Number and place value Addition and subtraction Multiplication and division Geometry – position and direction Fractions Measurement Statistics From Year 2 Geometry – properties of shape	Number and place value Addition and subtraction Multiplication and division Geometry – position and direction Fractions Measurement Statistics From Year 2 Geometry – properties of shape Year 6 Ratio and proportion Algebra	Number and place value Addition and subtraction Multiplication and division Geometry – position and direction Fractions Measurement Statistics From Year 2 Geometry – properties of shape Year 6 Ratio and proportion Algebra

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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number and Place Value	Count and across 100, forwards and backwards, beginning with 0 or 1 or any given number. Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens. Given a number, identify one more and one less. Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least.	Count in steps of 2, 3 and 5 from 0, and in tens from any number, forward and backward. Recognise the place value of each digit in a two-digit number (tens, ones) Identify, represent and estimate numbers using different representations, including the number line. Compare and order numbers from 0 up to 100; use <, > and = signs. Read and write numbers to at least 100 in numerals and in words. Use place value and number facts to solve problems.	Count from 0 in multiples of 4, 8, 50 and 100 more or less than a given number. Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) Compare and order numbers up to 1000. Identify, represent and estimate numbers using different representations. Read and write numbers up to 1000 in numerals and in words. Solve number problems and practical problems	Count in multiples of 6, 7, 9, 25 and 1000. Find 1000 more or less than a given number. Count backwards through zero to include negative numbers. Recognise the place value of each digit in a four- digit number (thousands, hundreds, tens and ones) Order and compare numbers using different representations. Round any number to the nearest 10, 100 or 1000. Solve numbers and practical problems	Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit. Count forwards and backwards in steps of powers of 10 for any given number up to 1,000,000. Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero. Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000.	Read, Write and compare numbers up to 10,000,000 and determine the value of each digit. Round any whole number to a required degree of accuracy. Use negative numbers in context, and calculate intervals across zero. Solve number and practical problems that involve all of the above.

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	Read and write numbers from 1 to 20 in numerals and words.		involving the ideas above.	that involve all of the above and with increasingly large positive numbers. Read Roman numerals to 100 (I-C) and know that over time the numeral system changed to include the concept and zero and place value.	Solve number problems and practical problems that involve all the above. Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	
Addition and Subtraction	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. Represent and use number bonds and related subtraction facts within 20. Add and subtract one-digit and two	Solve problems with addition and subtraction. • Using concrete objects as pictorial representations including those involving numbers, quantities and measures. • Applying their increasing knowledge of mental and	Add and subtract numbers mentally, including: • A three digit number • A three digit number and tens. • A three digit number and hundreds.	Add and subtract whole numbers with more than 4 digits using the formal written methods and columnar addition and subtraction where appropriate. Estimate and use inverse operations to check answers and calculation.	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Add and subtract numbers mentally with increasing large numbers. Use rounding to check answers to	Use their knowledge of the order of operations to carry out calculations involving the four operations. Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

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	digit numbers to 20, including 0. Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems, Such as 7 = ( ) – 9.	written methods. Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. 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 Show that addition of two numbers can be done in any order (communicative) and subtraction of one number from another cannot.	Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. Estimate the answer to a calculation and use inverse operations to check answers. Solve problems, including missing number problems, using facts, place value, and more complex addition and subtraction.	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	calculations and determine, in the context of a problem, levels of accuracy. Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	Solve problems involving addition and subtraction. Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.

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		Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.				
Multiplication and Division	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.	Recall and use multiplication tables, including recognising odd and even numbers. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs. Show the multiplication of two numbers can be done in any order communicative and division of one number by another cannot. Solve problems involving multiplication	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. 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.	Recall multiplication and division facts for multiplication tables up to 12x12. 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. 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. Solve problems involving multiplication and division where larger numbers are used by decomposing them into their factors. Know and use the vocabulary and prime factors and composite (non-prime) 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 two digit number whole number using the formal written method of long division and interpret remainders as whole number remainders, fractions or by rounding as

		and division, using materials, arrays, repeated addition, mental methods, and division facts, including problems in contexts.	Solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects.	Multiply two-digit and three-digit numbers by a one digit number using formal written layout. Solve problems involving multiplying and adding, including using the distributive law to multiply two digit number by one digit integer scaling problems and harder correspondence problems such as n objects are connected to m objects .	Establish whether a number up to 100 is prime and recall prime numbers up to 19. Multiply and divide numbers mentally drawing upon known facts. 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. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. Recognise and use square numbers and cube	appropriate for the context. Divide numbers up to 4 digits by a two digit number using the formal written method of short division where appropriate interpreting remainders according to the context. Perform mental calculations, including mixed operations and large numbers. Identify common multiples and prime numbers. Use their knowledge of the order of operations to carry out calculations involving the four operations.

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					numbers, and the notion for squared (2) and cubed (3). 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, including scaling by simple fractions and problems involving simple rates.	Solve problems involving addition, subtraction, multiplication and division. Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.
Fractions	Recognise, find and name a half as one of two equal parts of an object, shape or quantity. Recognise, find and name a quarter as one of four equal parts of	Recognise, name, find and write fractions 1/3, ¼, 2/4, and ¾ of a length, shape, set of objects or quantity. Write simple fractions e.g. ½ of 6 = 3 and recognise the equivalence of 2/4 and 1/2.	Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities of 10.	Recognise and show using diagrams, families of common equivalent fractions. Count up and down in hundredth; recognise that	Compare and order fractions whose denominators are all multiples of the same number. Identify, name and written equivalent fractions of a given fractions of	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. Compare and order fractions >1

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	an object, shape or quantity.		Recognise, find and write fractions of a discrete set of objects; unit fractions and nonunit fractions with small denominators. Recognise and show using diagrams, equivalent fractions with small denominators. Add and subtract fractions with same denominator within one whole. (5/7 + 1/7 =6/7) Compare and order unit fractions with the same denominators solve problems that involve all the above.	hundredths arise when dividing an object by 100 and dividing tenths by ten. 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. Add and subtract fractions with same denominator. Recognise and write decimal equivalents of any number of tenths and hundredths. Recognise and write decimal	a given fraction, represented visually, including tenths and hundredths. Recognise mixed numers and improper fractions and convert them from one form to the other and write mathematical statements > 1 as a mixed number (2/5 + 4/5 = 6/5 = 11/5) Add and subtract fractions with the same denominator and multiples of the same number. Multiply proper fractions and mixed numbers, supported by materials and diagrams.	Add and subtract fractions with different denomination and mixed numbers, using the concept of equivalent fractions. Multiply simple pairs of proper fractions, writing the answer in its simplest form. (1/4 x ½ = 1/8) Divide proper fractions by whole numbers (1/3 divided by 2 =1/6) Associate fraction with division and calculate decimal fraction equivalents (0.375 for a simple fraction (3/8) Identify the value of each digit to three decimal places and

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				equivalents to ¼ ½ ¾ 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 units tenths and hundredths. Round decimals with one decimal place to the nearest whole number. Compare numbers with the same number of decimal places up to two decimal places. Solve simple measure and money problems involving fractions and decimals to two decimal places.	Read and write decimal numbers as fractions (0.71 = 71/100) Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. Round decimals with two decimal places to the nearest whole number and decimal equivalents. Read, write order and compare numbers up to 3 decimal places. Recognise % symbol as parts of 100 write percentages as a fraction with denominator 100	multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places. Multiply one-digit numbers with up to two decimal places by whole numbers. Use written division methods in cases where the answer has up to two decimal places. Solve problems which require answers to be rounded to specified degrees of accuracy. Recall and use equivalences between simple fractions, decimals and percentages,

					and as a decimal fraction. Understand decimal and percentage equivalents of ½ ¼ 1/5 2/5 4/5	including in different contexts.
Ratio and Proportion						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 e.g. of measures 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.
Algebra						Express missing number problems algebraically. Use simple formulae. Generate and describe linear number sequences. Find pairs of numbers that satisfy number sequences. Enumerate possibilities of combination of two variables.

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Measurement	Compare, describe and solve practical problems for lengths and heights. Long short tall short double half Mass/ weight heavy or light heavier than lighter than. Capacity and volume full empty more less than half half full, quarter. Time faster slower earlier later Record Lengths and heights Mass/weight Capacity Volume Time HMS Recognise and know the different	Choose appropriate standard units to estimate and measure length/height in any direction (m/cm) mass(kg/g), temp degrees C, capacity litres/ml, to the nearest appropriate unit, using rulers, scales thermometers and measuring vessels. Compare and order lengths, mass, volume/capacity and record the results using >< and =. Recognise and use symbols for pounds £ and pence p. combine amounts to make a value. Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.	Measure compare add and subtract; lengths (M/CM/mm) volume/capacity (l/ml) Measure the perimeter of simple 2d shapes. Add and subtract amounts of money to give change, using both £ and p in practical contexts. Tell and write the time from an analogue clock, including using roman numerals from I to XII and 12 hour and 24 hour clocks. Estimate and read time with increasing accuracy to the nearest minute; record and	Convert between different units of measure km to m, hour to minute Measure and calculate the perimeter of a rectilinear figure (including squares in cm and m. Find areas of rectilinear shapes by counting squares. Estimate compare and calculate different measures including money in pounds and pence. Read and write and Convert time between analogue and digital 12 and 24 hour clocks. Solve problems involving converting from	Convert between different units of metric measurement km, m, cm, m, g, kg, l, mm. Understand and use equivalences between metric units of common imperial units such as inches pounds and pints. Measure and calculate the perimeter of composite rectilinear shapes in cm and m. Calculate and compare the area of squares and rectangles including using standard units, square centimetres, cm2, and square meters m2, and estimate	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. 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. Convert between miles and km Recognise that shapes with the same area can

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	denominators of coins and notes Sequence events in chronological order and use language; yesterday, tomorrow, weeks months years. Use language that relates to dates, days of the week, weeks etc. Tell the time house and half past the hour draw hands on clock face.	Find different combinations of coins that equal the same amounts of money. Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. Compare and sequence intervals of time. Tell and write time to five minutes, including quarter past to the hour and draw the hands on a clock face to show these times. Know the number of minutes in an hour and the number of hours in a day.	compare time in terms of seconds minutes, hours and o'clock; use vocab such as a.m p.m morning afternoon noon midnight. Know number of seconds in a minute and number of days in each month, year and leap year. Compare duration of events calculate time taken by particular events or tasks.	hours to minutes; mins to sec years to months weeks to days.	the areas of irregular shapes. Estimate volume using cm3 blocks to build cubes and cuboids and capacity using water. Solve problems involving converting between units of time. Use all four operations to solve problems involving measure length, mass, volume money using decimal notation including scaling.	have different perimeters and vice versa. Recognise when it is possible to use formulae for area and volume of shapes. Calculate the area of parallelograms and triangles. Calculate estimate and compare volume of cubes and cuboids using standard units including cm3 and cubic meters m3 and extending to other units such as mm3 and km3.
Geometry: Properties of Shape	Recongise and name common 2d and 3d shapes; 2d – rectangles,	Identify and describe properties of 2d shapes sides and symmetry in a vertical line.	Draw 2d shapes and make 3d shapes using modelling. Recognise 3d	Compare and classify geometric shapes including quadrilaterals and triangles. Based	Identify 3d shapes including cubes and other cuboids from 2d representations.	Draw 2d shapes give dimensions and angles.

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	squares circles and triangles. 3d – cuboids, cubes, pyramids, spheres.	‘’ ‘’ properties of 3d shapes including edges vertices and faces. Identify 2d shapes on the surface 3d shapes for example a circle on a cylinder and a triangle on a pyramid. Compare and sort common 2d and 3d shapes and everyday objects.	shapes in different orientations and describe them. Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	on their properties and sizes. Identify acute and obtuse angels and compare and order angles up to two right angels by size. Identify lines of symmetry in 2d shapes represented different orientations. Do one line symmetry.	Know angels are measures in degrees; estimate and compare acute obtuse and reflex angles. Draw given angles, and measure them in degrees. Identify angles at a point and one whole turn 360 degrees.half turn 180 And multiples of 90degrees Use the properties of rectangles and deduce related facts and find missing lengths and angles. Distinguish between regular and irregular polygons based on reasoning about	Recognise, describe and build simple 3d shapes and make nets Compare and classify geometric shapes based on their properties. Illustrate and name parts of circles radius diameter circumference is twice radius. Recognise meeting angles at a point, straight line or vertically opposite and find missing angles.

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					equal sides and angles.	
Geometry: Position and Direction	Describe position, direction and movements including half quarter and three quarter turns.	Order and arrange combinations of mathematical objects in patterns and sequences. Use mathematical vocab to describe position, direction and movement including distinguishing between rotation as a turn clockwise and anti clockwise, movement in a straight line.	Recognise angels are in shapes. Identify right angles, two right angles make a half turn. 3 makes ¾ and 4 is a whole turn. Greater or less than right angle.	Describe positions of 2d shapes in coordinates in the first quadrant Describe movements between positions as translations of a given unit to the left/right and up/down. Plot specified points and draw sides to complete a given polygon.	Identify and describe and represent position of shapes following reflection and translation using appropriate language and know that the shape has not changed.	Describe positions on the full coordinates grid all four quadrants Draw and translate simple shapes on the coordinate plane and reflect them in axes.
Statistics		Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. Ask and answer simple questions by counting the number of objects in each category and sorting the categories quantity. Ask and answer questions about	Interpret and represent data using bar charts pictograms and tables. Solve one step and two step questions such as 'how many more?' 'how many fewer?' using info presented in scaled bar charts and	Interpret and represent discrete and continuous data using appropriate graphical methods including bar charts and time graphs. Solve comparison sum and difference problems using	Solve comparison sum and difference problems using information presented in a line graph. Complete and read interpret info in tables including time tables.	Interpret and construct pie charts and line graphs and use these to solve problems calculate and interpret the mean as an average.

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		totalling and comparing categorical data.	pictograms and tables.	information presented in bar charts, pictograms, tables and other graphs.		