	1. Number	2. Addition and Subtraction	3. Multiplication and Division	4. Fractions
Year 1	• Count to and across 100, forwards and backwards, beginning with 0 or 1, or from 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. • Read and write numbers from 1 to 20 in numerals and words.	• Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs • represent and use number bonds and related subtraction facts within 20 • Give a complete addition and subtraction fact family from one known fact. • add and subtract one-digit and two-digit numbers to 20, including zero • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations. • solve missing number problems such as 7 = ? - 9. (NB: This example **involves problem solving and an understanding of equals as a balance.** It is not an inverse of a Fact Family.)	• 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.	• recognise, find and name a $\frac{1}{2}$ as one of two equal parts of an : a.) object, b.) shape c.) quantity • recognise, find and name a $\frac{1}{4}$ as one of four equal parts of an : a.) object b.) shape c.) quantity

5. Measurement	6. Geometry – properties of shape	7. Geometry – position and direction	8. Statistics

Year 1 • Compare, describe and **solve practical problems** for:
  - lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half)
  - mass or weight (e.g. heavy/light, heavier than, lighter than)
  - capacity/volume (e.g. full/empty, more than, less than, quarter)
  - Time (quicker, slower, earlier, later.)
 	
• Measure and begin to record the following:
  - hours, minutes, seconds
  - lengths and heights
  - mass/weight
  - capacity and volume
 	
• Recognise and know the value of different denominations of coins and notes.
 	
• Sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening.
 	
• Recognise and use language relating to dates, including days of the week, weeks, months and years.
 	
• Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.
	• Recognise, name and describe:
	  - common 2-D shapes (e.g. rectangles (including squares), circles and triangles)
	
	  - common 3-D shapes (e.g. cuboids (including cubes), pyramids and spheres).
		• Describe position, directions and movements, including half, quarter and three-quarter turns.	

	1. Number	2. Addition and Subtraction	3. Multiplication and Division	4. Fractions

Year 2	• Count in steps of 2, 3, and 5 from 0, and in tens from any number, forwards or backwards.
	• Recognise the place value of each digit in a two-digit number (tens, ones)
	• **recognising odd and even numbers**
	• They begin to understand zero as a place holder.
	• Identify and show numbers using different representations, including on a number line or different apparatus.
	• Estimate numbers using different representations, including locating on a blank/ partially labelled number line.
	• Compare and order numbers from 0 up to 100; use
	‹ (less than) e.g. (6‹10)
	› (more than) e.g. (15›10)
	and = signs.
	• Read and write numbers to at least 100 in numerals.
	• Read and write numbers to 100 in words.
	• **Use place value and number facts to solve problems.**
		• Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.
		
		• **solve problems with addition and subtraction:**
		• using concrete objects and pictorial representations, including those involving numbers, quantities and measures
		• applying their increasing knowledge of mental and written methods
		• <u>ADD</u> numbers using concrete objects or 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 (commutative) BM: 'SWITCHER.'
		• <u>SUBTRACT</u> 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 (commutative) and subtraction of one number from another cannot
		• Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems. BM: 'FACT FAMILIES.'
			• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables,
			
			• Give a complete fact family from one known fact.'
			
			• Calculate Mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs
			
			• Understand that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot
			
			• **Solve problems involving multiplication and division,** using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.
				• Recognise, find, name and write fractions $\frac{1}{3}, \frac{1}{4}, \frac{2}{4}, \frac{3}{4}$
				Of a:
				- Length
				- Shape
				- Set of objects or quantity.
				
				• Write simple fractions e.g. $\frac{1}{2}$ of 6 = 3.
				
				• Recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.

	5. Measurement	6. Geometry – properties of shape	7. Geometry – position and direction	8. Statistics

Year 2	• Use appropriate standard units to estimate and measure to the nearest unit using rulers, scales, thermometers and measuring vessels
	   - length/height in any direction (m/cm)
	   - mass (kg/g)
	   - temperature (°C)
	   - capacity (litres/ml)
	
	• 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 particular value.
	• 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.**
	• 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.
	• Compare and sequence intervals of time.
		• Identify and describe the properties of 2-D shapes, including the number of sides, corners and symmetry in a vertical line (to include quadrilaterals and polygons.)
		
		• Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. (to include cuboids and prisms.)
		
		• Identify 2-D shapes on the surface of 3-D shapes, for example a circle on a cylinder and a triangle on a pyramid.
		
		• Compare and sort common 2-D and 3-D shapes and everyday objects.
			• Order and arrange combinations of mathematical objects in patterns and sequences.
			
			• Use mathematical vocabulary to describe position, direction and movement e.g. (above/ behind/ below/ forwards/ backwards/ left/ right.)
			
			• Distinguish between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise), and movement in a straight line.
				• 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 by quantity.
				
				• Ask and answer questions about totalling and comparing categorical data.

	1. Number	2. Addition and Subtraction	3. Multiplication and Division	4. Fractions
Year 3	• count from 0 in multiples of 4, 8, 50 and 100 • find 10 or 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 involving these ideas.**	• 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 numbers with up to three digits,. • using formal written methods of column addition to add numbers with up to three digits. • subtract numbers with up to three digits. • use formal written methods of column subtraction for numbers with up to three digits. • estimate the answer to a calculation and use inverse operations to check answers • **Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.**	• recall multiplication and division facts for the 3, 4 and 8 times tables • Give a multiplication and division 'fact family' from one known fact. • apply multiplication facts for the 3, 4 and 8 multiplication tables • apply division facts for the 3, 4 and 8 multiplication tables • Write and calculate mentally multiplication and division statements using the multiplication tables that they know including for two-digit numbers times one-digit numbers, using informal methods such as grid method and number lines. • Begin to use a formal method to multiply two digit numbers by one-digit. • **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.** (e.g. 3 hats and 4 coats, how many different outfits?; 12 sweets shared equally between 4 children; 4 cakes shared equally between 8 children Recipe for 1 litre - 3 oranges and 2 lemons. What fruit is needed for 4 litres?).	• count up and down in tenths • recognise that tenths arise from: - dividing an object into 10 equal parts - dividing one-digit numbers or quantities by 10 • recognise, find and write fractions of a discrete set of objects: unit fractions (eg. 1/4)and non-unit fractions (e.g. 2/4 or ¾)with small denominators (They begin to understand unit and non-unit fractions as numbers on the number line, and deduce relations between them, such as size and equivalence. They should go beyond the [0, 1] interval, relating this to measure.) • recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators • recognise and show, using diagrams, equivalent fractions with small denominators. • add and subtract fractions with the same denominator within one whole (e.g. $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$) • compare and order unit fractions, and fractions with the same denominators • **Solve problems that involve all of the above.**

	5. Measurement	6. Geometry – properties of shape	7. Geometry – position and direction	8. Statistics
Year 3	- measure, compare, add and subtract: lengths (m/cm/mm); - measure, compare, add and subtract: mass (kg/g); - measure, compare, add and subtract: volume/capacity (l/ml) - measure the perimeter of simple 2-D 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, - tell and write the time from using Roman numerals from I to XII, and - tell and write the time from 12-hour and 24-hour clocks - 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 - know the number of seconds in a minute and the number of days in each month, year and leap year - compare durations of events, for example to calculate the time taken by particular events or tasks.	- Draw (and describe) 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. (symmetrical and non-symmetrical polygons and polyhedral) - recognise that angles are a property of shape - recognise that angles are a description of a turn, 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 (using acute and obtuse) - identify horizontal and vertical lines and pairs of perpendicular and parallel lines.		- interpret and present data using bar charts, pictograms and tables **Solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.**

	1. Number	2. Addition and Subtraction	3. Multiplication and Division	4. Fractions
Year 4	- 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 beyond 1000 - identify, represent and estimate numbers using different representations - round any number to the nearest 10, 100 or 1000 **solve number and practical problems that involve all of the above and with increasingly large positive numbers** - 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.	- add numbers with up to 4 digits using the formal written methods of columnar addition where appropriate - subtract numbers with up to 4 digits using the formal written methods of columnar subtraction where appropriate - estimate and use inverse operations to check answers to a calculation **Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.**	- recall multiplication facts for multiplication tables up to 12 × 12 - recall division facts for multiplication up to 12x12 - use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1 dividing by 1; - Use place value and known facts when multiplying together three numbers - recognise and use factor pairs and commutativity in mental calculations (4x6 and 6x4) - multiply two-digit numbers by a one-digit number using formal written layout - multiply three-digit numbers by a one-digit number using formal written layout **solve problems involving multiplying and adding, including using the distributive law (partitioning) to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. (**correspondence questions such as the numbers of choices of a meal on a menu, or three cakes shared equally between 10 children.)	- recognise and show, using diagrams, families of common equivalent fractions - count up and down in hundredths (extend the use of the number line to connect fractions, numbers and measures.) - recognise that hundredths arise when dividing an object by one hundred 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 (eg 3/5 of 25)** - add and subtract fractions with the same denominator - recognise and write decimal equivalents of any number of tenths or hundredths - recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ - 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 - 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.**

	5. Measurement	6. Geometry – properties of shape	7. Geometry – position and direction	8. Statistics
Year 4	- Convert between different lengths (m/cm/mm); - Convert between different mass (kg/g); - Convert between different volume/capacity (l/ml) - measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres - find the area of rectilinear shapes by counting squares(relate area to arrays and multiplication.) - estimate, compare and calculate different lengths - estimate, compare and calculate different mass - estimate, compare and calculate different volume - estimate, compare and calculate different values of money in pounds and pence - read, write and convert time between analogue and digital 12- and 24-hour clocks **Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.**	- compare and classify geometric shapes based on their properties and sizes - Compare and classify quadrilaterals based on their properties and sizes - Compare and classify triangles based on their properties and sizes - identify acute and obtuse angles - compare angles up to two right angles by size - order angles up to two right angles by size - identify lines of symmetry in 2-D shapes presented in different orientations - complete a simple symmetric figure with respect to a specific line of symmetry. (draw symmetric patterns)	- describe positions on a 2-D grid as 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.	- interpret and present discrete and continuous data using appropriate graphical methods, using bar charts - interpret and present discrete and continuous data using appropriate graphical methods, using time graphs. **solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.**

	1. Number	2. Addition and Subtraction	3. Multiplication and Division	4. Fractions
Year 5	- read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit - count forwards or backwards in steps of powers of 10 (10/100/1000…)for any given number up to 1 000 000 - interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero - round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 **solve number problems and practical problems that involve all of the above** - read Roman numerals to 1000 (M) - recognise years written in Roman numerals	- add whole numbers with more than 4 digits, including using formal written methods (columnar addition) - subtract whole numbers with more than 4 digits, including using formal written methods (columnar subtraction) - add numbers mentally with increasingly large numbers - subtract numbers mentally with increasingly large numbers - use rounding to check answers to 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.**	- identify multiples and factors, including: finding all factor pairs of a number 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 - recall prime numbers up to 19 - 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 numbers mentally drawing upon known facts - 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 the notation for squared (^{2}) - recognise and use cube numbers, and the notation for cubed (^{3}) **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 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.**	- compare and order fractions whose denominators are all multiples of the same number - identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths - recognise mixed numbers and improper fractions - convert mixed numbers and improper fractions from one form to the other - write mathematical statements involving mixed numbers and improper fractions (> 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$]) - add fractions with the same denominator and denominators that are multiples of the same number - subtract fractions with the same denominator and denominators that are multiples of the same number - multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams - read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$] - 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 to one decimal place - read, write, order and compare numbers with up to three decimal places **solve problems involving number up to three decimal places** - recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred' - write percentages as a fraction with denominator 100, and as a decimal **solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.**

	5. Measurement	6. Geometry – properties of shape	7. Geometry – position and direction	8. Statistics
Year 5	• convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) • understand common imperial units such as inches, pounds and pints • understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres • calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) • estimate the area of irregular shapes • estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water] • **solve problems involving converting between units of time** • **use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.**	• identify 3-D shapes, including cubes and other cuboids, from 2-D representations • know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • draw given angles, and measure them in degrees (º) Identify: • angles at a point and one whole turn (total 360º) • angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180º) • other multiples of 90º • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	• identify, describe and represent the position of a shape following a reflection using the appropriate language, and know that the shape has not changed. • identify, describe and represent the position of a shape following a translation, using the appropriate language, and know that the shape has not changed.	• solve comparison, sum and difference problems using information presented in a line graph • complete information in tables, including timetables • read and interpret information in tables, including timetables

	1. Number	2. Addition, Subtraction, Multiplication and Division	4. Fractions	Ratio	Algebra
Year 6	• read, write, order 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.**	• 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 whole number using the formal written method of <u>long division</u> where appropriate, interpreting remainders according to the context • divide numbers up to 4 digits by a two-digit number using the formal written method of <u>short division</u> where appropriate, interpreting remainders according to the context • interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • perform mental calculations, including with mixed operations and large numbers • identify common factors, common multiples and prime numbers • use their knowledge of the order of operations to carry out calculations involving the four operations (2 + 1 x 3 = 5 and (2 + 1) x 3 = 9.) • **solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division** • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	• use common factors to simplify fractions • use common multiples to express fractions in the same denomination • compare and order fractions, including fractions > 1 • add fractions with different denominators and mixed numbers, using the concept of equivalent fractions • subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$] • divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$] • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$] • identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers 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 equivalences between simple fractions, decimals and percentages, including in different contexts. • use equivalences between simple fractions, decimals and percentages, including in different contexts.	• **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.**	• use simple formulae • generate and describe linear number sequences • express missing number problems algebraically • find pairs of numbers that satisfy an equation with two unknowns • enumerate possibilities of combinations of two variables.

	5. Measurement	6. Geometry – properties of shape	7. Geometry – position and direction	8. Statistics
Year 6	• **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 kilometres • recognise that shapes with the same areas can have different perimeters and vice versa • recognise when it is possible to use formulae for area of shapes • recognise when it is possible to use formulae for volume of shapes • calculate the area of parallelograms and triangles • calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].	• draw 2-D shapes using given dimensions and angles • recognise, describe and build simple 3-D shapes, including making nets • compare and classify geometric shapes based on their properties and sizes. • find unknown angles in any triangles, quadrilaterals, and regular polygons. • recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. • Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius	• describe positions on the full coordinate grid (all four quadrants) • draw and translate simple shapes on the coordinate plane, • draw and reflect simple shapes in the axes of a coordinate plane	• interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average.