Progress Coverage - Mathematics

Expectations for progress: Place value

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recognise some numerals of personal significance.	Count, read and write numbers to 100 in numerals.	Recognise the place value of each digit in a two-digit number.	Recognise the place value of each digit in a three-digit number.	Recognise the place value of each digit in a four-digit number.	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.	Read and write numbers to 20 in numerals and words.	Compare and order numbers from 0 up to 100; use <, > and = signs.	Compare and order numbers up to 1000.	Order and compare numbers beyond 1000.	Read, write, order and compare numbers up to 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.
Subitise	Partition 2 digit numbers into tens and units.	Identify, represent and estimate numbers using different representations, including the number line.	Identify, represent and estimate numbers using different representations.	Round any number to the nearest 10, 100 or 1000.	Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.	Round any whole number to a required degree of accuracy.
Link number symbols with its cardinal number value.	Identify and represent numbers using objects and pictorial representations including the number line.	Read and write numbers to at least 100 in numerals and in words.	Read and write numbers to 1000 in numerals and in words.	Identify, represent and estimate numbers using different representations.	Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	
Count beyond 10.				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.	Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}).	
Compare numbers						

Expectations for progress: Addition

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Understand one more than and the relationship between consecutive numbers.	Count to, read and write numbers across 100.	Use partitioning and add 2 digit number.	Partition using columns for addition – involve crossing 10 then 100.	Formal column method of addition (4 digit numbers).	Introduce adding decimal in a column.	Add negative integers.
Understand the composition of numbers up to 10.	Number bonds 10, 20 & 100.	Apply written methods as well as concrete objects.	add and subtract numbers mentally, including: HTO+O, HTO+T and HTO+H	Involve 2 step problems.	Read, write & compare numbers to at least 1,000,000.	Consolidating & applying knowledge to solve problems.
Automatically recall number bonds for 0-5 and to 10.	Add 1 & 2 digit numbers to 20 including 0.	Adding 3 digit numbers using partitioning.	Add and subtract numbers with up to three digits, using formal written methods of columnar addition.	Adding 3 lots of four digit numbers.	Interpret negative numbers in context, calculate intervals across zero.	Perform mental calculations, including with mixed operations and large numbers.
In practical activities and discussion, beginning to use the vocabulary involved in addition.	Solve one step problems that involve addition using concrete objects and mentally.	Understanding of commutative law in relation to addition.	Estimate the answer to a calculation and use inverse operations to check answers	Doubling & halving 2, 3 & 4 digit number (odd numbers).	Solve number problems & practical problems.	
	Doubling & halving simple numbers.	Use inverse to check missing number problems.	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	Estimate and use inverse operations to check answers to a calculation.	Add and subtract numbers mentally with increasingly large numbers	
	Missing & number problems.	Doubling & halving including multiples of 12.		Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Add and subtract whole numbers with more than 4 digits, including using formal written methods.	
	Use language of equal to, more than.	Extend mental maths strategies to include number bonds.			Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.	
	Add simple 2 digit numbers together				Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	

Expectations for progress: Subtraction

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Understand one less than and the relationship between consecutive numbers.	Subtract by finding the difference on a number line.	Subtract by finding the difference on a number line.	Subtract by finding the difference on a number line.	Subtract using formal column method.	Subtract using formal column method.	Subtract using formal column method.
Uses the language of 'more' and 'fewer' to compare two sets of objects.	Numbers should extend as children become more confident. This then needs applying to problems both written and practical.	Begin to do larger jumps of 10 or 2.	Use a number line to make bigger jumps. Mixture of numbers counting onto the next whole 10, 100.	Application to number challenges using inverse to check.	Decimals (as money)	Decimals (as money)
In practical activities and discussion, beginning to use the vocabulary involved in subtraction.	Missing number sentences.	Extension work to involve 3 digit numbers.	Doubling / halving 2, 3 and 4 digit number.	Estimate and use inverse operations to check answers to a calculation.	Application to number challenges using inverse to check.	Application to number challenges using inverse to check.
	Application to number challenges using inverse to check.	Application to number challenges using inverse to check.	Application to number challenges using inverse to check.	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.		
			add and subtract numbers mentally, including: HTO+O, HTO+T and HTO+H			
			Add and subtract numbers with up to three digits, using formal written methods of columnar addition.			
			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.			

Expectations for progress: Multiplication

Year 1	Year 2	Year 3	Year 4	Year 5 & Year 6
Solve simple one step problems involving 'group of' concrete and pictorial objects.	2, 5, 10 times table and understand it as repeated addition.	Children should know all times tables by end of year.	Consolidate all times tables.	Consolidate all times tables.
	Learn these tables, extend to 3, 4 when confident.	Introduce multiplication in formal method. 2 by 1 digit	Formal column multiplication methods	Multiply multi digit numbers up to 4 digit whole numbers using formal method.
	Solve problems using materials, array & repeated addition.	Application to number challenges. Real life situations & problems.	2 & 3 digit x 1 digit. Extend to 4 digits in columns.	Multiply decimal numbers by 10, 100 and 1000.
	Calculate simple number sentences using table they know – begin to use grid method with higher ability.	Counting in multiples of 4, 8, 50 & 100. (6, 7, 9, 25 & 1000 extension)	Application to number challenges. Real life situations & problems.	Identify multiples, factors, common factors and prime numbers.
	Understand cumulative law with x link to +.			Recognise squared and cubed numbers.
	Application to number challenges. Real life situations & problems.			Application to number challenges. Real life situations & problems.

Expectations for progress: Division

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Solve simple one step problems involving division using concrete / pictorial objects.	Share between physically into groups, then put onto a number line.	Divide using formal method starting at 0.	Use place value to recall multiplication and division facts for all tables.	Use place value to recall multiplication and division facts for all tables.	Use place value to recall multiplication and division facts for all tables.
Using sharing to understand the concept.	Larger numbers.	Calculate with small remainders when confident.	Divide mentally using known facts.	Divide mentally using known facts.	Divide mentally using known facts.
Application into number challenges, use invers of known x tables to check answers.	Simple remainders.	Larger number.	Use times tables to divide by 2 & 3 digit number.	Use times tables to divide 4 digit by 2 & 3 digit numbers.	Use times tables to divide 4 digit by 2 & 3 digit numbers.
	To understand the inverse to prove it.	Apply to fractions.		Give remainders as a fraction / decimal.	Use knowledge of BODMAS to carry out calculations.
	Application into number challenges, use invers of known times tables to check answers.	Application into number challenges, use invers of times tables to check answers.			Give remainders as a fraction / decimal.

Expectations for progress: Fractions

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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.	Count up or down in tenths.	Count up or down in hundredths.	Recognise mixed numbers and improper fractions and convert from one to the other.	Use common factors to simplify fractions.
Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	Write simple fractions and recognise the equivalence of 2/4 and 1/2.	Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one digit numbers of quantities by 10.	Recognise that hundredths arise from dividing an object by 100 and dividing tenths by 10.	Write mathematical statements > 1 as a mixed number.	Use common multiples to express fractions in the same denomination.
		Compare and order unit fractions and fractions with the same denominators.	Recognise and show, using diagrams, families of common equivalent fractions.	Compare and order fractions whose denominators are all multiples of the same number.	Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.
		Recognise and show, using diagrams, equivalent fractions with small denominators.	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.	Identify, name and write equivalent fractions of a given fraction, representing visually, including tenths and hundredths.	Multiply simple pairs of proper fractions, writing the answer in its simplest form.
		Recognise, find and write fractions of a discrete set of objects with small denominators.	Add and subtract fractions with the same denominator.	Add and subtract fractions with the same denominator and denominators that are multiples of the same number.	Divide proper fractions by whole numbers.
		Add and subtract fractions with the same denominator within one whole.	Solve simple measure and money problems involving fractions and decimals to two decimal places.	Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.	
		Solve problems using all fraction knowledge.			

Expectations for progress: Decimals and percentages

Year 4	Year 5	Year 6
Recognise and write decimal equivalents of any number of tenths or hundredths	Read and write decimal numbers as fractions	Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction
Recognise and write decimal equivalents to 1/4, 1/2 and 3/4	Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	Identify the value of each digit in numbers given to three decimal places
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 two decimal places to the nearest whole number and to one decimal place.	Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.
Round decimals with one decimal place to the nearest whole number	Read, write, order and compare numbers with up to three decimal places	Multiply one-digit number with up to two decimal places by whole numbers
Compare numbers with the same number of decimal places up to two decimal places	Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal	Se written division methods in cases where the answer has up to two decimal places
	Solve problems involving number up to three decimal places	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 which require knowing percentage and decimal equivalents of 1/2 , 1/4 , 1/5 , 2/5 , 4/5 and those fractions with a denominator of a multiple of 10 or 25	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
		Solve problems, which require answers to be rounded to specified degrees of accuracy.
		Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Expectations for progress: Measurement

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
They use past, present and future forms accurately when talking about events that have happened or are to happen in the future. They develop their own narratives and explanations by connecting ideas or events.	Compare, describe and solve practical problems for: length/height, weight/mass, capacity/volume & time.	Choose and use appropriate standard units to estimate and measure length/height (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).	Convert between different units of measure estimate, compare and calculate different measures, including money in pounds and pence.	Convert between different units of metric measure.	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.
Can describe their relative position such as 'behind' or 'next to'.	Measure and begin to record length/height, weight/mass, capacity/volume & time.	Compare and order lengths, mass, volume/capacity and record the results using >, < and =.	Measure the perimeter of simple 2-D shapes.	Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.	Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.	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.
Compare weight, length and capacity.	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 the area of rectilinear shapes by counting squares.	Estimate volume and capacity.	Convert between miles and kilometres.
Select, rotate and manipulate shapes to develop spatial reasoning.	Sequence events in chronological order using language recognise and use language relating to dates, including days of the week, weeks, months and years.	Find different combinations of coins that equal the same amounts of money.	Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks.	Convert between different units of measure (e.g. Hours to minutes).	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.

Continue, copy and create repeating patterns.	Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.	Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.	Read, write and convert time between analogue and digital 12- and 24-hour clocks.	Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes.	Recognise when it is possible to use formulae for area and volume of shapes.
Beginning to use everyday language related to money.		Compare and sequence intervals of time	Know the number of seconds in a minute and the number of days in each month, year and leap year and compare durations of events.	Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	Calculate the area of parallelograms and triangles.
Orders and sequences familiar events.		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.			Solve problems involving converting between units of time.	Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units.
		Know the number of minutes in an hour and the number of hours in a day.				

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
They recognise, create and describe patterns.	Recognise and name common 2-D shapes (e.g. Square, circle, triangle) .	Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.	Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	Compare and classify geometric shapes, including quadrilaterals and triangles, based on properties and sizes.	Use the properties of rectangles to deduce related facts and find missing lengths and angles.	Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.
They explore characteristics of everyday objects and shapes and use mathematical language to describe them.	Recognise and name common 3-D shapes (e.g. Cubes, cuboids, pyramids & spheres).	Compare and sort common 2-D and 3-D shapes and everyday objects.	Draw 2D shapes.	Identify lines of symmetry in 2-D shapes presented in different orientations.	Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	Compare and classify geometric shapes based on their properties and sizes.
	Describe position, direction and movement, including whole, half, quarter and three-quarter turns.	Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces.	Make 3-D shapes using modelling materials.	Complete a simple symmetric figure with respect to a specific line of symmetry.	Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.	Draw 2-D shapes using given dimensions and angles and recognise, describe and build simple 3-D shapes, including making nets.
		Identify 2-D shapes on the surface of 3-D shapes.	Recognise 3-D shapes in different orientations and describe them.	Identify acute and obtuse angles and compare and order angles up to two right angles by size.	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.	Find unknown angles in any triangles, quadrilaterals, and regular polygons.
		Compare and sort common 2-D and 3-D shapes and everyday objects.	Recognise angles as a property of shape or a description of a turn.	Describe positions on a 2-D grid as coordinates in the first quadrant.	Draw given angles, and measure them in degrees (°).	Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
		Order and arrange combinations of mathematical objects in patterns and sequences.	Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn.	Describe movements between positions as translations of a given unit to the left/right and up/down.	Identify angles at a point and one whole turn (total 360°); at a point on a straight line and $\frac{1}{2}$ a turn (total 180°) and identify other multiples of 90°.	Describe positions on the full coordinate grid (all four quadrants).

		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 1/4 turns.	Identify whether angles are greater or less than right angle.	Plot specified points and draw sides to complete a given polygon.	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.	Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

Vocabulary coverage - Mathematics

"The national curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions."
National Curriculum in England, Department for Education, 2013

Using correct mathematical language is crucial for thinking, learning and communicating mathematically. Children may build knowledge through remembering information that they hear, but it is only when they put these ideas into their own words that it becomes clear whether concepts have been learned effectively. It is in listening to children talking about mathematics that we, as teachers, can best assess what they are actually learning and understanding. This enables us to identify and address any misconceptions that might be developing.
We need to encourage children to explain what they are doing and why they are doing it. We must offer them opportunities to use mathematical language frequently, for example by participating in paired activities, group discussions and games as well as other dialogues. This will help children to learn new vocabulary, to use words they already know more accurately, and to express new ideas and new thinking.

It is important to introduce children to the correct vocabulary at the appropriate time and within a suitable context. It is often helpful to do this using relevant real-life objects, mathematical manipulatives and visual representations such as pictures and diagrams. All children need regular, planned opportunities to develop their mathematical vocabulary in order that they become familiar with the language and are not confused by mathematical terms. They need to acquire the words necessary for them to take part in lessons and activities, respond to questions correctly and carry out tasks successfully. Fun games and activities, such as the following example, can be a useful way to rehearse words and their meanings regularly.

Please note: progression through each year group's vocabulary is intended to build on that taught in the previous year group.

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number	**Zero** *Nothing at all* **Number** *Used to count* **one, two, three … to twenty and beyond** **equal** *is the same as* **pattern** *a repeated sequence* **count** *to list the numbers to find the total*	In addition to all previous vocabulary… **numeral / digit** *A symbol which represents an amount* **forwards** *Counting by adding one more every time* **Backwards** *Counting by removing one every time* **>** *greater than* < less than **Numbers up to 100**	In addition to all previous vocabulary… **tally** *a record of an amount* **sequence** *a list of number or objects in a special order*	In addition to all previous vocabulary… **Roman numerals** *Letters representing numbers in the Roman numerical system* **Numbers up to 1000**	In addition to all previous vocabulary… **Consecutive** *Numbers that follow each other, in the right order* **Integer** *A whole number* **negative number** *A number less than zero* **Ascending** *From smallest to largest* **Descending** *From largest to smallest*	In addition to all previous vocabulary… **≥** *Greater than or equal to* **≤** *Less than or equal to* **Numbers up to 1 million**	In addition to all previous vocabulary… **Numbers to 10 million**
Place Value	**Greater** *Bigger than* **Less** *Smaller than* **one more** *The number that comes next* **one less** *The number that comes before* **order** **compare** *What is the same and different* **ones** *single symbol used to make a numeral*	In addition to all previous vocabulary… **equal to** *the same as* **tens** *ten ones* **half-way between** *the exact middle* **representation** *A visible model*	In addition to all previous vocabulary… **Hundreds** *Ten tens* **one-, two- or three-digit number** *A number represented by _ digits* **place value** *the value of each digit in a number* **exchange** *to take an equivalent amount* **increase** *Getting bigger* **Decrease** *Getting smaller*	In addition to all previous vocabulary… **three-digit** *A number represented by 3 digits*	In addition to all previous vocabulary… **thousands** *one hundred tens* **tenths** *ten equal parts in a whole* **hundredths** *one hundred equal parts in a whole*	In addition to all previous vocabulary… **Thousandths** *one thousand equal parts in a whole* **Unitising** *To count as a single unit*	In addition to all previous vocabulary… **Ten thousandths** *ten thousand equal parts in a whole*

Estimating	**nearly** *close to*	In addition to all previous vocabulary... **Estimate** *A sensible guess*	In addition to all previous vocabulary... **Exact** *A precise amount*	In addition to all previous vocabulary... **approximate** *close to the actual amount* **round** *To the closest group of*	In addition to all previous vocabulary... **Conjecture** *a conclusion based on evidence*	**Consolidate previously taught**	**Consolidate previously taught**
Addition and subtraction	**answer** *a solution to a problem* **add** *bring two or more numbers together to make a total* **double** *same number added twice* **take away** *remove a number of items from a set* **total** *how many altogether* **equal** *is the same as*	In addition to all previous vocabulary... **Pictorial Representation** *to use pictures to show the maths* **Concrete objects** *To use objects to show the maths* **Mental** *do it in your head* **subtract** *take away* **addition** *a number to be added to another* **number bonds** *a pair of numbers with a particular total* **partitioning** *splitting numbers into tens and ones* **inverse** *the opposite of another operation*	In addition to all previous vocabulary... **sum** *the result of one or more additions* **subtract** *take away, the inverse of addition* **column addition/ subtraction** *addition/subtraction by writing one number below the other and working from right to left* **tens boundary** *when numbers jump over a multiple of 10* **difference** *numerical difference found by comparing quantities* **commutative** *can be done in any order*	In addition to all previous vocabulary... **Hundreds boundary** *when numbers jump over a multiple of 100* **near double** *one away from a double* **operation** *a mathematical process: addition, subtraction, multiplication and division*	In addition to all previous vocabulary... **Two-step problem** *a problem that requires two operations to solve it*	In addition to all previous vocabulary... **Minuend** *The number to be subtracted from* **Subtrahend** *The number being subtracted* **Addend** *A number being added to another*	In addition to all previous vocabulary... **Order of operations** *Sequence in which operations should be solved*
Multiplication and division	**Equal** *Exactly the same* **Sharing** *put into equal groups* **Doubling** *same number added twice* **halving** *Dividing into two equal groups* **lots of** *groups of*	In addition to all previous vocabulary... **Multiply /multiplication** *add equal groups* **Divide / division** *Sharing into equal groups* **array** *arranged objects in rows and columns*	In addition to all previous vocabulary... **repeated addition** *adding the same number repeatedly* **repeated subtraction** *subtracting the same number repeatedly* **odd numbers** *whole number which can't be divided into two equal groups* *1,3,5,7,9*	In addition to all previous vocabulary... **multiple** *The result of multiplying an integer by another integer* **Factor** *Two or more numbers which divides a number without a remainder* **product** *the result of multiplying two numbers*	In addition to all previous vocabulary... **Derived facts** *Taken from other known facts* **remainder** *the amount left over after a division*	In addition to all previous vocabulary... **Factor pairs** *Pair of numbers which multiply together to give a product* **square number** *A number multiplied by itself* **prime number**	In addition to all previous vocabulary... **Factorise** *Express an integer as the product of its factors* **prime factor** The factors of a number that are prime **long division**

			even numbers *whole number which can be divided into two equal groups* *0,2,4,6,8*	**inverse** *the opposite of another operation* **formal method** *setting out working in column form*		*Can only be divided by itself and one* **long multiplication** *Multiplying two numbers by a number with two or more digits* **short division** Bus stop method when the divisor is less than 10 **remainders** *The amount left over after a division* **Quotient** *The result of a division*	*Division by more than a single digit (chunking)* **common factor** *An integer which is a factor of two or more integers.* **common multiple** *An integer which is a multiple of two or more integers.*
Fractions (including decimals, percentages, ratio and proportion)	**Half** *One of two equal parts* **Double** *Same amount added twice* **Whole** *All of* **Share** *Split into equal groups*	In addition to all previous vocabulary… **quarter** *One of four equal parts* **Fraction** *An equal part of a whole* **equal part** *All parts exactly the same size*	In addition to all previous vocabulary… **Three quarters** *Three out of four equal parts* **One third** *One of three equal parts* **Equivalent** *The same*	In addition to all previous vocabulary… **equivalent fraction** *Two or more fractions with the same value* **Numerator** *The number of parts out of the whole* **denominator** *The number of equal parts in the whole* **Tenths** *One out of ten equal parts* **Unit fraction** *A fraction where the numerator is one* **Non-unit fraction** *A fraction where the numerator is greater than one* **Compare** *To say which is greater or smaller*	In addition to all previous vocabulary… **Decimal** *An integer and a part separated by a decimal point* **One/two decimal place** *The number of digits after the decimal point* **decimal equivalent** *A decimal which has the same value as a fraction* **Tenth** *One of ten equal parts* **Hundredth** *One of one hundred equal parts*	In addition to all previous vocabulary… **Proper fraction** *The numerator is less than the denominator* **Improper fraction** *The numerator is greater than the denominator* **Mixed number fraction** *An integer and a fraction* **Simplify** *A fraction in its simplest form by finding the lowest common factor* **Percent** *One part per hundred* **Thousandth** *One of one thousand equal parts*	In addition to all previous vocabulary… **Ratio** *The relative sizes o two or more values* **Simplest form** *A fraction in its simplest form by finding the lowest common factor* **Degree of accuracy** *A measure of the accuracy of a quantity.*
Algebra							**formula** *a way to represent calculations using letters* **variable**

							An unknown number in an equation which can take different values – shown by a letter or number **Substitute** Put in the place of another **Linear number sequence** *A set of numbers ordered according to a rule.*
Measurement Length Capacity and volume Weight Temperature	**Measure** *To find the size* **Mass** *How heavy something is* **wide** *More than normal width* **Narrow** *Less than normal width* **Balances** *Both sides have the same mass* **Heavy** *More than normal mass* **light** *Less than normal mass* **Full** *Containing as much as possible* **Empty** *Containing nothing*	In addition to all previous vocabulary… **ruler** *Used to measure distances with regular intervals* **volume** *The amount of space a 3D object takes up* **Capacity** *The amount something can hold* **half/quarter full** *Holding half/quarter of its capacity* **Length** *The distance between two points* **Height** *The distance between top to bottom*	In addition to all previous vocabulary… **Weighing scale** *Measure the mass sitting on them* **Gram/Kilogram** *Unit of measure for weight and mass* **Meter/millimeter** *Unit of measure for length* **Temperature** *A measure of warmth of an object* **Degree** *A unit to measure temperature*	In addition to all previous vocabulary… **Distance** *How far it is from one thing to another* **Perimeter** *The length around the outside of a shape* **Centigrade** *A unit used to measure temperature*	In addition to all previous vocabulary… **Depth** *The distance from top to bottom or back to front* **Width** *The measurement of the distance of the side of an object* **Area** *A measure of the space inside of a 2D shape* **Measuring cylinder** *A container used to measure volumes of liquid* **Convert** *To change a value from one to another*	In addition to all previous vocabulary… **Imperial unit** *Old units of length including miles, ft and inch.* **Pint/gallon** *Imperial units to measure volume of liquid* **Metric unit** *Used to measure length, weight or volume in mm, cm, m and km.*	In addition to all previous vocabulary… **Circumference** *The distance around the edge of a circle* **Tonne** *A unit of mass equal to 1000 kg* **Pound/Ounce** *Imperial unit of mass* **Miles** *Imperial unit of distance*
Time	**Time** *When something happens or how long it takes* **Today** *The present day* **Yesterday** *The day before today*	In addition to all previous vocabulary… **Hour** *60 minutes* **Minute** *60 seconds* **o'clock** *The hour*	In addition to all previous vocabulary… **Fortnight** *Two weeks, 14 days* **Month** *Unit of time used in calendars*	In addition to all previous vocabulary… **Century** *100 years* **a.m** *Ante meridiem – before noon* **p.m**	In addition to all previous vocabulary… **leap year** *Extra day added to the shortest month, 366 days in total* **Millennium**	In addition to all previous vocabulary… **Timetable** *A table information showing when things will happen* **Arrive**	In addition to all previous vocabulary… **Greenwich Mean Time** *Time calculated using the sun at its highest point*

	Tomorrow *The day after today* **Clock / Watch** *A device to measure time* **Week** *Seven days* **Weekend** *Saturday and Sunday* *Children should use confidently:* **days of the week, Monday, Tuesday ...** **day, week** **morning, afternoon, evening, night** **bedtime, dinner time** **playtime**	**Half past** *30 minutes after the hour* **Hands** *Parts on a clock showing how many hours and minutes* *Children should use confidently:* **months of the year (January, February ...)** **seasons: spring, summer, autumn, winter**	**Year** *365 days* **Quarter past** *15 minutes after the hour* **Quarter to** *45 minutes after the hour, 15 minutes before the next hour* **Digital** *A clock where time is shown by digits* **Analogue** *A clock where time is shown by hands on a dial*	*Post meridiem – after noon* **12-hour clock time** *24 hours are divided into am and pm* **24-hour clock time** *Runs from midnight to midnight*	*1000 years*	*Reach a place at the end of a journey* **Depart** *Leave a place at the start of a journey*	**British Summer Time** *Daylight savings time in summer when clocks go forward*
Money	**Money** *What people use to buy things* **Coin** *A piece of metal money that is small, flat and round* **Spend** *To pay money* **Pay** *To give money to*	In addition to all previous vocabulary... **Pence** *The smallest unit of money* **Pound** *100 pence* **Dear** *Costs a lot of money* **Cheap** *Costs little money* **Total** *How much altogether*	In addition to all previous vocabulary... **Change** *How much is returned after paying*	**Consolidate previously taught**	**Consolidate previously taught**	In addition to all previous vocabulary... **Discount** *A reduction in price* **Currency** *Official money of a country*	In addition to all previous vocabulary... **Profit** *The amount of money made that is more than was put in at the start* **Loss** *Making less money than is spent*
Properties of shape	**shape** *The form of an object* **pattern** *a repeated sequence* **flat** *A straight and even surface* **Round** *Shaped like a circle or a ball*	In addition to all previous vocabulary... **Symmetrical** *Either side is a reflection of the other* **repeating pattern** *A series repeated more than one time* **cuboid** *3D shape with 6 flat*	In addition to all previous vocabulary... **Surface** *A face of a 3D shape* **line symmetry** *A line which cuts a shape perfectly in half* **Pentagon**	In addition to all previous vocabulary... **Perimeter** *The length around the outside of a shape* **Angle** *Measure of a turn in degrees* **degree** *A measure for angles*	In addition to all previous vocabulary... **Area** *A measure of the space inside of a 2D shape* **Quadrilateral** *A 4 sided 2D shape* center	In addition to all previous vocabulary... **Congruent** *Two shapes that are the same size and shape* **axis of symmetry** *A line through a shape so that each*	In addition to all previous vocabulary... **Circumference** *The distance around the outside of a shape* **Net** *A pattern you can cut and fold to make*

	Straight *A side with no curves* **rectangle** *A shape with 4 straight sides and 4 vertices* **square** *A shape with 4 even straight sides* **Circle** *A shape with one curved side* **triangle** *A shape with 3 straight sides*	*faces* **cylinder** *3D shape with 2 flat circular faces and 1 curved face* **3D** *Three dimensional, solid shape can be touched* **2D** *Two dimensional, flat shape* **Face** *Flate or curved surface on a 3D shape* **Edge** *Where 2 faces on a shape come together* **Vertices** *corners* **Pyramid** *3D shape with a square base and 4 triangular faces.* **Sphere** *3D shape with 1 curved face* **Cone** *3D shape with a circular base, one curved face and a point*	*A 2D shape with 5 edges and 5 vertices* **Hexagon** *A 2D shape with 6 edges and 6 vertices* **Octagon** *A 2D shape with 8 edges and 8 vertices*	**perpendicular lines** *Lines that cross another line at a 90 degree angle* **parallel lines** *Two lines that are always the same distance apart and never meet* **right-angled** *90 degree angle* **prism** *3D shape with 2 identical triangular bases and 4 flat sides*	**Acute angle** *An angle between 0 and 90 degrees* **Obtuse angle** *An angle greater than 90 degrees* **Reflect** *A transformation resulting in a mirror image* **Regular** *2D shape where all interior angles and sides measure the same* **Irregular** *A shape where all sides and angles are any length and size* **Rectilinear** *A shape with straight sides and right angles* **Equilateral triangle** *All 3 sides are an equal length, all 3 angles are equal* **Isosceles triangle** *2 sides are an equal length, 2 angles are an equal size* **Scalene triangle** *All sides and angles are different* **Heptagon** *A 2D shape with 7 angles and 7 sides* **Quadrilateral** *A 4 sides shape* **Spherical** *Like a sphere round*	*side is a mirror image* **reflective symmetry** *A share or pattern reflected in a mirror or a line of symmetry* **x-axis** *horizontal line in a graph* **y-axis** *The vertical line in a graph* **Octahedron** *3D shape with 8 faces, 12 edges and 6 vertices* **Parallelogram** *4 sided shape with 2 pairs of parallel lines that are equal in length* **Tetrahedron** **Polyhedron**	*a model of a solid shape* **Kite** *Quadrilateral with 2 pairs of sides which are equal length* **Intersecting lines** *A pair of lines which cross at a point* **scale factor** *Enlarge a shape and each side is multiplied by the same number* **Radius** *The distance half way across the circle* **Diameter** *The distance across the middle of a circle* **Quadrant** *A quarter of a circle or its circumference* **Reflex angle** *An angle greater than 180 degrees and less than 360 degrees*
Position and direction	**Position** *Where something is* **Over** *Directly on top* **Underneath** *Directly below*	In addition to all previous vocabulary... **Center** *The exact middle* **Whole turn**	In addition to all previous vocabulary... **Route** *A way taken to get*	In addition to all previous vocabulary... **Compass point** *North, South, East or West*	In addition to all previous vocabulary... **Translate** *Moving a shape up,*	In addition to all previous vocabulary... **Coordinate**	**Consolidate previously taught**

	Opposite *Facing something* **Between** *In the middle*	*A turn through all four parts of a circle: facing in the same direction to where it started* **Half turn** *A turn through two of the four parts of a circle: facing in the opposite direction to where it started* **Quarter turn** *A turn through one of the four parts of a circle* **Three quarter turn** *A turn through three of the four parts of a circle*	*from start to a destination.* **Clockwise** *In the same direction as the hands on a clock* **Anticlockwise** *In the opposite direction as the hands on a clock*	**Horizontal** *A line that runes right and left across a page* **Vertical** *A line that runs up and down across a page* **Diagonal** *A straight line joining two opposite corners*	*down or from side to side* **Rotate** *A circular movement* **Reflection** *A transformation resulting in a mirror image* **Compass** *Shows the direction of magnetic North*	*A point on a grid with 2 numbers to identify its position* **Protractor** *An instrument used to measure angles in degrees*	
Statistics	**Count** *to list the numbers to find the total* **sort** *To group in a special way*	In addition to all previous vocabulary… **Vote** *Decide on something by saying what you want* **Table** *Information in rows and columns* **Tally chart** *A table used for counting using marks*	In addition to all previous vocabulary… **Graph** *Shows information as an image* **Block graph** *Shows information using blocks* **Pictogram** *Chart using pictures or symbols to give information* **Key** The part of a graph that explains the symbols used **Compare** *Say what is the same and what is different*	In addition to all previous vocabulary… **Chart** *A visual representation of data* **Bar chart** *Displaying information by using rectangular bars of different heights* **Frequency table** *The number of times something occurs* **Carroll diagram** *A way of sorting numbers and shapes by their traits.* **Venn diagram** *Uses circles to show the relationship among groups of things* **Axis** *The reference line used to measure on graphs and grids* **x-axis** (horizontal) **y-axis** (vertical)	In addition to all previous vocabulary… **Data** *A collection of information gathered by observation or measurement* **Comparison** *What is the same or different about two or more things* **Continuous data** *Data which can take any value* **Line graph** *Shows information which changes over time*	In addition to all previous vocabulary… **Bar line chart** *Show quantity alongside changes over time* **Timetable** *A table information showing when things will happen* **Two-way table** *Presenting data from more than one category to see the frequency of each category.*	In addition to all previous vocabulary… **Pie chart** *A graph where a circle is divided into sectors to represent a proportion* **Mean** *Average; a central value of a set of values. Add up all the numbers and divide by how many numbers there are.* **Statistics** *Gathering information, summarising it and deciding what it means.* **Distribution** *How data is spread out* **Outcome** *A result that depends on probability* **Proportion** *A portion or part in relation to a whole*