Maths Curriculum

At the Federation, we have developed a systematic approach to the teaching of maths, ensuring that our children attain the necessary skills and knowledge to succeed in the next stage of their education. Children are given opportunities to develop their mathematical fluency, through regular practice of calculations and mental strategies – ranging from number bonds and times tables to increasingly complex written methods. Our children are also given regular problem-solving and reasoning challenges in all year groups: these allow them to use their maths practically, develop their logical, strategic thinking and apply these skills to a range of real-life contexts. There has also been an increased focus on encouraging children to explain their mathematical thinking, both in written and verbal form, using precise mathematical vocabulary and on using concrete mathematical resources to support learning. Teachers at the Federation plan maths lessons to suit the needs of their class. Each child completes a cold task at the start of each unit of maths, from which teachers identify common misconceptions, targeting these within their lessons; the curriculum is made accessible to SEND children through careful differentiation, use of pre-teaching and post-teaching strategies and, in some cases, through more formal interventions. Similar strategies are employed, alongside regular quick-fire fluency practice, to close any emerging gaps in understanding. Whilst mathematical units are taught as blocks, teachers make links between them and frequently revisit content from previous units, and previous year groups, within their new content: for example, in lessons focused on measure, children will have regular opportunities to practise their number and fraction skills. Children then have the opportunity to demonstrate and celebrate their progress at the end of the unit; they also use their mathematical skills across the curriculum, for example in computing or science work. As a result of the work of teachers exploring new approaches to the teaching of Maths, children at both schools are increasingly enthusiastic and confident in their Maths lessons.

NB - the curriculum below represents the typical progression in a typical year. Covid-19 has forced adaptations to this overview in 2020-2021 and teachers may feel the need to adjust their overview and the specific timings - whilst ensuring complete curriculum coverage - based on the emerging needs of their cohort. Opportunities for consolidation are also built into the long-term plans and the specific focus for these will change depending upon the needs of the specific cohort.

Early Years Foundation Stage

Programme of Study - Statutory Framework 2021

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

	Autumn	**Spring**	**Summer**
Nursery	Number songs/rhymes Number books Recite numbers past 5 Say one number for each item in order 1, 2, 3, 4, 5 Show fingers up to 5 Provide open ended problem solving activities and a wide variety of natural and	Subitising- develop recognition of up to 3 objects. Know that the last number reached when counting tells you the total quantity. Link numerals and amounts Compare quantities using language more than, fewer than. Experiment with their own symbols	Maths mark making Solve mathematical problems with numbers up to 5 Compare quantities using language more than, fewer than. Talk about 2D and 3D shapes Understand position through words alone. Describe a familiar routine

	man-made counting, shape and pattern resources.	Provide open ended problem solving activities and a wide variety of natural and man-made counting, shape and pattern resources.	Discuss routes and locations Make comparisons between objects relating to size, length, weight and capacity. Select shapes appropriately for building Combine shapes to make bigger ones Pattern making Provide open ended problem solving activities and a wide variety of natural and man-made counting, shape and pattern resources. Estimating through games - how many do you think are in this bag? Wow...there are lots of cars in the line. How many do you think there are?

Reception are following the:
NCETM - Mastering Number Programme
https://axis.ncetm.org.uk/mastering-number/overview-of-content/

This programme does not include shape, space and measure opportunities - these will be planned in through a weekly session and the continuous provision.

- Select, rotate and manipulate shapes to develop spatial reasoning skills.

- Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.
- Continue, copy and create repeating patterns.
- Compare length, weight and capacity.

Strands	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Subitising	-perceptually subitise within 3 -identify sub-groups in larger arrangements -create their own patterns for numbers within 4 -practise using their fingers to represent quantities which they can subitise -experience subitising in a range of contexts, including temporal patterns made by sounds.	-continue from first half-term -subitise within 5, perceptually and conceptually, depending on the arrangements.	-increase confidence in subitising by continuing to explore patterns within 5, including structured and random arrangements -explore a range of patterns made by some numbers greater than 5, including structured patterns in which 5 is a clear part -experience patterns which show a small group	-explore symmetrical patterns, in which each side is a familiar pattern, linking this to 'doubles'.	-continue to practise increasingly familiar subitising arrangements, including those which expose '1 more' or 'doubles' pattern -use subitising skills to enable them to identify when patterns show the same number but in a different arrangement, or when patterns are similar but have a different number -subitise structured	In this half-term, the children will consolidate their understanding of concepts previously taught through working in a variety of contexts and with different numbers.

			and ‘1 more’ -continue to match arrangements to finger patterns.		and unstructured patterns, including those which show numbers within 10, in relation to 5 and 10 -be encouraged to identify when it is appropriate to count and when groups can be subitised.	
Cardinality, ordinality and counting	-relate the counting sequence to cardinality, seeing that the last number spoken gives the number in the entire set -have a wide range of opportunities to develop their knowledge of the counting sequence, including through rhyme and song -have a wide range of opportunities to	-continue to develop their counting skills -explore the cardinality of 5, linking this to dice patterns and 5 fingers on 1 hand -begin to count beyond 5 -begin to recognise numerals, relating these to quantities they can subitise and count.	-continue to develop verbal counting to 20 and beyond -continue to develop object counting skills, using a range of strategies to develop accuracy -continue to link counting to cardinality, including using their fingers to represent quantities between 5 and 10	-continue to consolidate their understanding of cardinality, working with larger numbers within 10 -become more familiar with the counting pattern beyond 20.	-continue to develop verbal counting to 20 and beyond, including counting from different starting numbers -continue to develop confidence and accuracy in both verbal and object counting.	

	develop 1:1 correspondence, including by coordinating movement and counting -have opportunities to develop an understanding that anything can be counted, including actions and sounds -explore a range of strategies which support accurate counting.		-order numbers, linking cardinal and ordinal representations of number.			
Composition	-see that all numbers can be made of 1s -compose their own collections within 4.	-explore the concept of 'wholes' and 'parts' by looking at a range of objects that are composed of parts, some of which can be taken apart and some of which cannot -explore the composition of	-continue to explore the composition of 5 and practise recalling 'missing' or 'hidden' parts for 5 -explore the composition of 6, linking this to familiar patterns, including symmetrical	-explore the composition of odd and even numbers, looking at the 'shape' of these numbers -begin to link even numbers to doubles -begin to explore the composition of	-explore the composition of 10.	

		numbers within 5.	patterns -begin to see that numbers within 10 can be composed of '5 and a bit'.	numbers within 10.		
Comparison	-understand that sets can be compared according to a range of attributes, including by their numerosity -use the language of comparison, including 'more than' and 'fewer than' -compare sets 'just by looking'.	-compare sets using a variety of strategies, including 'just by looking', by subitising and by matching -compare sets by matching, seeing that when every object in a set can be matched to one in the other set, they contain the same number and are equal amounts.	-continue to compare sets using the language of comparison, and play games which involve comparing sets -continue to compare sets by matching, identifying when sets are equal -explore ways of making unequal sets equal.	-compare numbers, reasoning about which is more, using both an understanding of the 'howmanyness' of a number, and its position in the number system.	-order sets of objects, linking this to their understanding of the ordinal number system.	
Early Learning Goals	**Reception ELG Number** Have a deep understanding of number to 10, including the composition of each number. Subitise (recognise quantities without counting) up to 5.					

	Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. **ELG Numerical Patterns** Verbally count beyond 20, recognising the pattern of the counting system. Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed easily.

KS1 and KS2

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	**Place Value and Number** (statements will be adjusted to fit the needs of the class - initially working on place value to 10 and then to 20 in the Autumn term) Count to and across 20, forwards and backwards, beginning with 0 or 1, or from any given number.		**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.		**Measure: Capacity and Mass** Compare, describe and solve practical problems for mass/weight [for example, heavy/light, heavier than, lighter than]. Compare, describe and solve practical problems for capacity and volume [for example, full/empty, more than, less than, half, half full, quarter].	

	Count, read and write numbers to 20 in numerals; count in multiples of 2s, 5s and 10s. Identify 1 more and 1 less from any given number. 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. **Addition and Subtraction (within 10)** 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-digit numbers to 20, including 0. Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and	**Geometry: Shape** Recognise and name 2-D shapes [for example, rectangles (including squares), circles and triangles]. Recognise and name 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. **Geometry: Position and Direction** Describe position, direction and movement, including whole, half, quarter and three-quarter turns. **Fractions** Recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity. Recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity. **Measure**	Compare, describe and solve practical problems for time [for example, quicker, slower, earlier, later]. **Measure: Time** Measure and begin to record time (hours, minutes, seconds). Sequence events in chronological order using language [for example, 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. **Measure: Money** Recognise and know the value of different denominations of coins and notes. **Place Value and Number (to 100)**

	missing number problems such as 7 = ? – 9.	Compare, describe and solve practical problems for lengths and heights (for example, long/short, longer/shorter, tall/short, double/half). Measure and begin to record lengths and heights, mass/weight, volume/capacity.	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 2s, 5s and 10s. Identify 1 more and 1 less from any given number. 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. **Addition and Subtraction (building on Autumn term)** 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-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.	
Year 1 are also following the NCETM Mastering Number Programme (see above) - this will be as an additional short daily maths session.	**Subitising** Revisit subitising within 5 using perceptual subitising. Practise conceptual subitising of bigger numbers as they become more familiar with the patterns made by the numbers 5-10. **Cardinality, Ordinality and Counting** Explore the linear number system within 10, looking at a range of ordinal representations. Explore the link between the 'staircase ' pattern and a number track.	**Subitising** Continue to practise conceptually subitising numbers they have already explored the composition of. **Cardinality, Ordinality and Counting** Review the linear number system to 10 as they compare numbers. **Composition** Continue to explore the composition of the numbers 7–9 in-depth, linking this to their understanding of odd and even numbers Explore the composition of 10,	**Subitising** Continue to practise conceptually subitising numbers they have already explored the composition of. **Composition** Review the composition of numbers within 10, linking these to part-part-whole representations. Practise recalling missing parts for numbers within 10. **Comparison** Compare numbers within	**Subitising** Continue to practise conceptually subitising numbers they have already explored the composition of **Cardinality, Ordinality and Counting** Review the linear number system to 10, looking at a range of representations, including a number line. Explore the use of 'midpoints' to enable them to identify the location of other numbers. **Composition**	**Subitising** Continue to practise conceptually subitising numbers they have already explored the composition of. Conceptually subitise numbers within 20 as they become more familiar with the composition of numbers within 20. **Cardinality, Ordinality and Counting** Review the linear number system to 20, looking at a range of representations, including a number line Explore the use of 'midpoints' to enable them to identify the location of other numbers. **Composition**	**Subitising** Continue to use conceptual subitising, especially when using a rekenrek. **Composition** Apply their knowledge of the composition of numbers, to calculations within 10 and 20. **Comparison** Continue to draw on their knowledge of the relative size of numbers when answering questions using the inequality symbol. **Addition and Subtraction** Continue to practise recalling additive facts within 20,

	Composition Focus on the composition of numbers within 10, with a particular emphasis on the composition of numbers 6, 7, 8 and 9 as '5 and a bit', as well as exploring the composition of numbers 5 and 6 in-depth. Explore the composition of odd and even numbers, identifying that even numbers are made of 2s and odd numbers have 'an extra 1' – they will link this to the 'shape' of these numbers.	developing a systematic approach to finding pairs that sum to 10. **Comparison** Revisit what is meant by 'comparing' and see that quantities can be compared according to different attributes, including numerosity.	10, linking this to their understanding of the linear system Use the inequality symbol to create expressions, e.g. 7 > 2, and use the language of 'greater than' and 'less than'. Reason about inequalities, drawing on their knowledge of the composition of numbers, e.g. Is this true or false? 3 and 2 is less than 4. **Addition and Subtraction** Develop their recall of number bonds within 10, through the use of exercises which use written numerals but not the	Review the composition of odd and even numbers, linking this to doubles and near doubles. Explore the composition of the numbers 11–20, seeing representations which show the structure of these numbers as 'ten and a bit'. **Addition and Subtraction** Continue to develop their recall of bonds within 10, through the use of exercises which do NOT involve written equations, such as 4 + 3 = ? Identify doubles and near doubles through visual representations of odd and even	Continue to explore representations which expose the composition of numbers within 20. **Comparison** Compare numbers within 20, including questions which use the symbols +, <, >, or =, such as: True or false? 10 + 4 < 14 10 + 4 = 14 10 + 4 > 14 **Addition and Subtraction** Develop their fluency in additive relationships within 10, using a range of activities and games. Draw on their knowledge of the composition of numbers to complete written equations Revisit strategies for addition and subtraction within 10 and apply	applying their knowledge of the composition of numbers within 20 and strategies within 10.

			symbols +, – , or =.	numbers.	these to a range of questions, including written equations.	
Year 2	**Place Value and Number** Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or 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. **Addition and Subtraction** Solve one-step problems with addition and subtraction: using concrete		**Multiplication and Division** Recall and use multiplication and division facts for the 2, 5 and 10 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 (×), division (÷) and equals (=) signs Show 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		**Continue fractions** Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity. Write simple fractions e.g. 1/2 of 6 = 3 and recognise the equivalence of two quarters and one half. **Measure: Length, Capacity and Mass** Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) and mass (kg/g); to the nearest appropriate unit, using rulers, scales. Choose and use appropriate standard units to estimate and measure temperature (°C) and capacity (litres/ml) using thermometers and measuring vessels. Compare and order lengths, mass, volume/capacity and record the results using >, < and =.	

	objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods. Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. Add 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. 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. Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.	multiplication and division facts, including problems in contexts. **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 by quantity. Ask and answer questions about totalling and compare categorical data. **Geometry: Properties of Shape** Identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line. Identify and describe the properties of 3-D shapes,	**Review key learning - review of calculations, place value and operations.** **Time - extend from 15 minute intervals to 5 minute intervals.**

	Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. **Measure: Money** 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.	including the number of edges, vertices and faces. Identify 2-D shapes on the surface of 3-D shapes, for example a circle on a cylinder and a triangle on a pyramid. Compare and sort common 2-D and 3-D shapes and everyday objects. **Geometry - Position and Direction** Order and arrange combinations of mathematical objects in patterns. Use mathematical vocabulary to describe position, direction and movement, including distinguishing 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.	

		Measure: Time Compare and sequence intervals of time. 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. Know the number of minutes in an hour and the number of hours in a day. **Fractions** Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity. Write simple fractions e.g. 1/2 of 6 = 3 and recognise the equivalence of two quarters and one half.	

Year 2 are also following the NCETM Mastering Number Programme (see above) - this will be as an additional short daily maths session.	**Subitising** Develop conceptual subitising skills as they become more familiar with patterns made by numbers within 10 and understand their composition. Use perceptual and conceptual subitising when using a rekenrek. **Cardinality, Ordinality and Counting** Explore the linear number system within 10, looking at a range of representations. Compare number tracks and number lines and explore the use of 'midpoints' to enable them to identify the location	**Subitising** Continue to practise conceptually subitising numbers they have already explored the composition of. **Cardinality, Ordinality and Counting** Review the linear number system as they compare numbers. **Composition** Continue to explore the composition of the numbers 7–9 in-depth, linking this to their understanding of odd and even numbers. **Comparison** Compare numbers within 10, linking this to their	**Subitising** Continue to practise conceptually subitising numbers they have already explored the composition of, including 'teen' numbers when they have reviewed the composition of 11–19. **Composition** Review the composition of 11 to 19 as 'ten and a bit' and explore ways to represent this. **Addition and Subtraction/Number Facts** Focus on number bonds within 10	**Subitising** Continue to conceptually subitise the numbers 11–19 using a range of representations, which expose the structure of these numbers as 'ten and a bit'. **Cardinality, Ordinality and Counting** Revisit the structure of the linear number system within 20, making links between the midpoints of 5 and 10, and 15. **Composition** Review the composition of odd and even numbers, linking this to doubles and near doubles.	**Subitising** Revisit previous activities which develop their subitising skills. **Cardinality, Ordinality and Counting** Review the linear number system to 100, applying their knowledge of midpoints to place numbers on a structured number line – they will identify the multiples of 10 that come before and after a given number. **Composition** Revisit previous activities which develop their understanding of the composition of numbers within 10 and 20. **Comparison** Reason about equalities and inequalities using equations and answering questions, such as: True or false?	**Subitising** Revisit previous activities which develop their subitising skills. **Composition** Revisit previous activities which develop their understanding of the composition of numbers within 10 and 20. **Addition and Subtraction/Number Facts** Develop their fluency in additive relationships within 20, using a range of activities and games and revisiting previously taught strategies where necessary.

	of other numbers. **Composition** Focus on the composition of numbers within 10, with a particular emphasis on the composition of numbers 6, 7, 8 and 9 as '5 and a bit', as well as exploring the composition of numbers 5 and 6 in-depth. Explore the composition of odd and even numbers, identifying that even numbers are made of 2s and odd numbers have 'an extra 1' – they will link this to the 'shape' of these numbers. **Addition and Subtraction/Number Facts** Llink their growing understanding of	understanding of the linear number system. Use the inequality symbols to create expressions, e.g. 7 > 2, and use the language of 'greater than' and 'less than'. Draw on their knowledge of number bonds to answer questions in the form: True or false? 5 + 3 > 7 **Addition and Subtraction/Number Facts** Continue to practise recalling additive facts for numbers within 10, using a range of equations, games and picture problems.	presented in the part-part-whole structure, including identifying a missing 'part' and relating this to subtraction equations. Review strategies for adding 1 and 2 to odd and even numbers to subtraction facts presented in different ways. Apply their knowledge of the composition of 11–19 to calculations in which 10 is a part. Apply their knowledge of composition to facts involving 3 addends.	**Comparison** Continue to compare numbers within 20, including questions which use the symbols +, <, >, or = **Addition and Subtraction/Number Facts** Draw on their knowledge of the linear number system and apply this to calculations involving 1 more and 1 less, and pairs of numbers with a difference of 1. Use their understanding of the composition of odd and even numbers to find doubles and near doubles. Apply known	5 + 3 = 6 + 2 9 + 4 > 9 + 5 9 + 6 < 10 + 5 This will help them become fluent in the use of the inequality symbol as well as practising their number bond knowledge. **Addition and Subtraction/Number Facts** Become fluent in a range of strategies involving calculations within 20, using 'make 10' strategies to add, and subtracting through the tens boundary. Practise recalling number bonds through a range of activities and games which will encourage them to reason about sums and differences.	

	the composition of numbers within 10 to the related additive facts, including adding 2 to an odd or even number. Practise recalling facts in a variety of ways, including through solving simple picture problems and completing equations with a missing sum or addend.			facts to calculations involving larger numbers, e.g. 5 + 2, 15 + 2, 25 + 2.		
Year 3	**Place Value and Number** 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 strategies.		**Multiplication and Division** Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. Write and calculate mathematical statements for multiplication using the multiplication tables for Year 3, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.		**Fractions** 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 by 10. Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.	

	Read and write numbers up to 1000 in numerals and in words. Solve number problems and practical problems involving place value. **Addition and Subtraction** Add numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds. 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. Subtract numbers with up to three digits, using formal written methods of column subtraction.	Write and calculate mathematical statements for division using the multiplication tables for Year 3, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. 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. **Statistics** 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.	Recognise and show, using diagrams, equivalent fractions with small denominators. Add and subtract fractions with the same denominator within one whole (e.g. 5/7 + 1/7 = 6/7). Compare and order unit fractions, and fractions with the same denominator. Solve problems involving all the elements of the fractions domain. **Measure: Time** 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 compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight.

	Estimate 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.	**Measure: Length and Perimeter** Measure, compare, add and subtract lengths (m/cm/mm). Measure the perimeter of simple 2-D shapes **Measure: Mass and Capacity** Measure, compare, add and subtract mass (kg/g); volume/capacity (l/ml).	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. **Geometry: Properties of Shape** Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations; and describe them. Recognise that angles are a property of shape or 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. Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.

Year 4	**Place Value and Number** Count in multiples of 6, 7, 9, 25 and 1000. Find 1000 more or less than a given number. Count backwards through 0 to include negative numbers. Recognise the place value of each digit of a 4 digit number (thousands, hundreds, tens and units). Order and compare numbers beyond 1000. Identify, represent and estimate numbers, using different representations. Round numbers to the nearest 10, 100 or 1000. Solve number and practical problems that involve large positive numbers.	**Multiplication and Division** Unit continued from Autumn 1. Likely to focus upon multiplying two-digit and three digit numbers by a one-digit number using a formal written method. **Measure - Area and Perimeter** Find the area of rectilinear shapes by counting squares. **Fractions** Recognise and show, using diagrams, families of common equivalent fractions. Count up and down in hundredths and know that dividing an object by 100 creates hundredths as does dividing tenths by ten.	**Decimals** Find and write decimal equivalents using tenths and hundredths. Find and write decimal equivalents of ¼, ½ and ¾. Divide one and two digit numbers by 10 and 100 and can explain the effect this has on place value. Round decimals using tenths to the nearest whole number. Compare numbers with the same number of decimal places (up to two decimal places). Solve simple money and measure problems involving decimals with up to two decimal places. **Geometry - Property of Shape**

	Read Roman numerals up to 100 and know that the number system has changed to include 0 and place value. **Addition and Subtraction** Add numbers with up to four digits using the formal column method. Subtract numbers with up to four digits using the formal column method. Use estimating and inverse operations to check my answers. Solve two-step addition and subtraction problems, using different methods and explain why I used them. **Multiplication and Division** Recall times tables facts up to 12 x 12. Use place value and number facts to multiply and divide mentally, including multiplying by 1 and 0; dividing by 1; and multiplying together 3 numbers.	Solve problems involving fractions to calculate quantities and fractions to divide quantities. Add and subtract fractions with the same denominator. Solve simple money and measure problems involving fractions.	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. Identify acute and obtuse angles and compare and 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. Recognise where angles are greater than two right angles and know the term straight angle refers to two right angles together. Use line symmetry with two lines of symmetry. **Geometry - Position and Direction** Plot positions on a 2-D grid as positive number coordinates. Describe movements between positions as translations of a given unit to the left/right and up/down.

	Use factor pairs in mental calculations. Multiply two digit and three digit numbers by a one digit number using a formal written method. Solve problems involving multiplication and addition, including using the distributive law e.g. 3 x (12 + 14) =3 x 12 + 3 x 14. **Measure - Length and Perimeter** Find the area of rectilinear shapes by counting squares.		Plot points given and draw sides to complete a given polygon. **Statistics** Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. **Measure** Convert different units of measurement e.g. I can convert kilometres into metres or hours into minutes. Estimate, compare and calculate different measures, including money in pounds and pence. Read, write and compare time between analogue and digital 12-hour and 24-hour clocks.

			Solve problems where I need to convert units of time such as hours to minutes, minutes to seconds, years to months or weeks to days.
Year 5	**Place Value and Number** Read, write, order and compare numbers up to at least 1,000,000 (one million) and say the value of each digit. Use negative numbers in context when looking at temperature or money, counting forwards and backwards through 0. Keep multiplying a number by 10 or 100 up to 1,000,000 and count back. Round numbers up to 1,000,000 to the nearest 10, 100, 1000, 10,000 or 100,000. Solve number and practical problems that involve ordering and comparing numbers up to 1,000,000, counting	**Measure - Area and Perimeter** 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), square metres (m^2), and estimate the area of irregular shapes. **Fractions** Compare and order fractions whose denominators are all multiples of the same number. Find and name equivalent fractions of a given fraction.	**Consolidate Fractions, Decimals and Percentages.** **Geometry: Properties of Shape** Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. Draw shapes using given dimensions and angles. State and use properties of a rectangle (including squares) to deduce related facts. Distinguish between regular and irregular polygons, based on using reasoning about equal sides and angles. Use the properties of rectangles to find related facts, missing lengths and missing angles.

	forwards or backwards in steps, negative numbers, and rounding. Read Roman numerals up to 1000 and recognise years written in them. **Addition and Subtraction** Add and subtract numbers with more than 4 digits using written methods. Use rounding to check answers to calculations and determine levels of accuracy. Solve addition and subtraction problems needing more than one step and can work out which operation and method is the most suitable. Add and subtract numbers mentally with increasingly large numbers. **Multiplication and Division** Find multiples and factors of a number and can identify factors common to 2 different numbers.	Identify mixed numbers and improper fractions and convert from one to another such as 2/5 + 4/5 = 6/5 = 1 and 1/5. Add and subtract fractions whose denominators are all multiples of the same number. Multiply proper fractions by whole numbers using objects and pictures. **Decimals** Read and write decimal numbers as fractions such as 0.71 = 71/100. Identify and use thousandths and can explain how they relate to tenths and hundredths and their decimal equivalents. Write equivalent fractions of a given fraction including tenths and hundredths.	Estimate and compare acute, obtuse and reflex angles, understanding that angles are measured in degrees. Draw given angles and measure them in degrees. Identify angles at a point on a straight line and ½ a turn (total 180°). Identify angles at a point, a whole turn (total 360°) and other multiples of 90. **Geometry: Position and Direction** Identify, describe and represent the position of a shape following a reflection, using mathematical vocabulary to explain this. Identify, describe and represent the position of a shape following a translation using mathematical vocabulary to explain this. **Measure**

	Use vocabulary relating to prime numbers, prime factors and composite numbers. Work out if any given number up to 100 is a prime number and can recall prime numbers up to 19. Multiply numbers with up to 4 digits by a 1 or 2 digit number using formal written methods. Divide numbers with up to 4 digits by a 1 digit number, using formal written methods, and can show remainders. Multiply and divide whole and decimal numbers by 10,100 and 1000. Identify and use square numbers and their notation. Identify and use cube numbers and their notation. Solve problems involving multiplication and division, including using factors and multiples, squares and cubes.	Round numbers with two decimal places to the nearest whole number and to 1 decimal place. Read, write, order and compare numbers with up to three decimal places. Solve problems involving numbers with up to three decimal places. **Percentages** Identify the percent symbol (%) and how it relates to parts per hundred, hundredths and decimals. 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.	Convert between different forms of metric measurement e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre. Understand and compare equivalences between metric units and common imperial units. These might include: inches, pounds or pints. Estimate volume by using 1cm³ blocks to build cuboids (including cubes) and capacity by using water and different containers. Solve problems by converting between units of time. Use addition and subtraction to solve problems involving measure (such as length, mass, volume, money, using decimal notation.

	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. **Statistics** Solve comparison, sum and difference problems using information presented in a line graph. Complete, read and interpret information in tables, including timetables.		
Year 6	**Place Value** Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit.	**Geometry - Properties of Shape** Draw 2-D shapes using given dimensions and angles.	**Consolidation** Focus to be decided upon each year dependent on the needs of the children. **Problem-Solving and Investigations.**

	Round any whole number to a required degree of accuracy. Use negative numbers in context, and calculate intervals across 0. **Addition and Subtraction** Consolidate written columnar methods of addition and subtraction. Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. **Multiplication and Division** Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.	Recognise, describe and build simple 3-D shapes, including making nets. Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. **Geometry - Position and Direction** Describe positions on the full coordinates grid (all four quadrants).	Objectives will focus upon the central aims of the Maths national curriculum, using rich and sophisticated tasks: Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language. Solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

	Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. 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 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. Solve problems involving multiplication and division.	Draw and translate simple shapes on the co-ordinates plane, and reflect them in the axes. **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 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. **Measure** Solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places where appropriate.	

	Fractions and Decimals Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. Compare and order fractions, including fractions >1. Add and 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 (e.g. 1/4 × 1/2 = 1/8). Divide proper fractions by whole numbers (e.g. 1/3 ÷ 2 = 1/6). Associate a fraction with division to calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g.3/8). Identify the value of each digit to three decimal places and multiply and	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. Calculate the area of parallelograms and triangles. Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm3) and cubic metres (m3) and extending to other units, such as mm3 and km3. **Algebra**	

	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. **Percentages** Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. Solve problems involving the calculations of percentages (e.g. of measures) such as 15% of 360 and the use of percentages for comparison.	Express missing number problems algebraically. Use simple formulae expressed in words. Generate and describe linear number sequences. Find pairs of numbers that satisfy number sentences involving two unknowns. Enumerate all possibilities of combinations of two variables. **Statistics** Interpret and construct pie charts and line graphs and use these to solve problems. Calculate and interpret the mean as an average.	