Amberley CE Primary School

St. James' CE Primary School, Coldwaltham

At Arun Villages Federation, we care for EVERYONE. We embrace challenges and all opportunities to learn, recognising the value of education and persevering even when it feels difficult.

We are uncompromising in our aspirations, proud of our – and each other's - achievements and look forward to embracing the experiences the wider world offers.

Respect, Kindness, Honesty, Positivity and Teamwork

SUBJECT: Maths

Intent:

Across the Arun Villages Federation, we recognise that Maths is a skill we use on a daily basis and is an essential part of everyday life, as well as being an important creative discipline that helps us to understand patterns in the world around us. We want all pupils to develop a sense of curiosity about Maths but also develop a clear understanding. We aim to foster positive "can do" attitudes and we promote the fact that 'We can all do maths!' We believe all children can achieve in mathematics, and teach for secure and deep understanding of mathematical concepts through manageable steps, using a range of strategies and enhancing our provision through the use of a followed Maths Scheme, both at School and at Home. We use mistakes and misconceptions as an essential part of learning and provide challenge through rich and sophisticated problems.

Mathematics forms an important part of our broad and balanced curriculum where we endeavour to ensure that children develop an enjoyment and enthusiasm for Maths that will stay with them throughout their lives and empower them in future life. We believe that unlocking mathematical fluency is an essential life skill for all learners and is a pre-requisite to being able to reason and solve problems mathematically. Our aim is to develop a positive culture of deep understanding, confidence and competence in Maths that produces strong, secure learning. Our Maths curriculum is progressive and builds year on year, taking account of key vocabulary and key questions which help to develop a schemata of knowledge in the different domains of Maths.

We aim for all pupils to: become fluent in the fundamentals of mathematics so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately; be able to solve problems by applying their mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios; reason mathematically by following a line of enquiry and develop and present a justification, argument or proof using mathematical language; have an appreciation of number and number operations, which enables mental calculations and written procedures to be performed efficiently, fluently and accurately to be successful in mathematics.

Implementation:

Across the Arun Villages Federation, teachers plan maths lessons following the White Rose Maths Scheme of work. Maths is taught daily as a discrete lesson. The use and secure understanding of maths knowledge and skills are also threaded through other areas of the curriculum in order to provide relevant opportunities to use and apply. Children learn using a range of resources, which support a concrete, pictorial and abstract approach guiding them through their understanding of mathematical processes. Children learn in differentiated small group and mixed ability whole class lessons. Their progress in maths is carefully tracked through a range of assessment strategies to ensure teachers identify where children require support or challenge to assist their progress. Timely intervention is provided by the class teacher or support staff to address any misconceptions or gaps in understanding to enable children to confidently progress towards their next lesson. More confident mathematicians are challenged to show their mastery of maths concepts through investigations and problem solving tasks. We use and select from a range of schemes of work including White Rose, Nrich Maths and My Maths and use the Bar Modelling technique to encourage understanding of concrete and pictorial problems solving methods which further support the abstract understanding. Resources, such as Numicon, are carefully selected to enable early understanding within maths and as a tool for intervention work.

Children secure key number facts through our programme of mental maths challenges (including times tables awards/certificates and Times Tables Rock Stars competitions) progressing through levels so that number bonds and times tables facts are fluently recalled and applied. Children are motivated by the opportunity for recognition both in school and at home for successes along their maths learning journey.

By engaging children in whole school challenges we maintain a high profile for the teaching and learning of maths. Through cross-curricular practical activities we make maths relevant to children's lived experiences.

Impact:

Across the Arun Villages Federation children confidently use a range of strategies and resources when tackling maths activities. They make connections and apply mathematical knowledge both within maths lessons and across the curriculum. Children are confident when talking about their maths learning and engage enthusiastically in maths activities–our children enjoy maths.

Subject Progression Map – Whole School

Cycle A

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cycle A Substantive Knowledge		• count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens • given a number, identify one more and one less • identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least • read and write numbers from 1	• count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward • recognise the place value of each digit in a two-digit number (tens, ones) • identify, represent and estimate numbers using different representations, including the number line • compare and order numbers from 0 up to 100; use and = signs • read and write numbers to at least 100 in numerals and in words • use place value and number facts to solve problems.	• count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number • recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • compare and order numbers up to 1000 • identify, represent and estimate numbers using different representations • read and write numbers up to 1000 in numerals and in words • solve number problems and practical problems involving these ideas.	• measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using both £ and p in practical • contexts • tell and write the time from an analogue clock, 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	• read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000	• read, write, order and compare numbers up to 10 000 000 and determine the value of each digit • round any whole number to a required degree of accuracy • use negative numbers in context, and calculate intervals across zero • solve number and practical problems that involve all of the above. • multiply multi-digit numbers up to 4 digits by a two-digit whole number using the

		to 20 in numerals and words. • read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs • represent and use number bonds and related subtraction facts within 20 • add and subtract one-digit and two-digit numbers to 20, including zero • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = – 9. • solve one-step problems involving multiplication and division, by	• solve problems with addition and subtraction: • using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing knowledge of mental and written methods • recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • add and subtract numbers using concrete objects, pictorial representations, and mentally, including: • a two-digit number and ones • a two-digit number and tens	• add and subtract numbers mentally, including: • a three-digit number and ones • a three-digit number and tens • a three-digit number and hundreds • add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction • estimate the answer to a calculation and use inverse operations to check answers • solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction • recall and use multiplication 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 • 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]. • measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes	• solve number problems and practical problems that involve all of the above • read Roman numerals to 1000 (M) and recognise years written in Roman numerals. • add and subtract whole numbers with more than 4 digits, including using formal • written methods (columnar addition and subtraction) • add and subtract numbers mentally with increasingly large numbers • use rounding to check answers to calculations and determine, in the context of a • problem, levels of accuracy • solve addition and subtraction multi-step	• formal written method of long multiplication • 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 the context • perform mental calculations, including with mixed

		calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. • recognise, find and name a half as one of two equal parts of an object, shape or quantity • recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. • compare, describe and solve practical problems for: • lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] • mass/weight [for example, heavy/light,	• two two-digit numbers • adding three one-digit numbers • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. • 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 facts for the 3, 4 and 8 multiplication tables • write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods • solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	• add and subtract amounts of money to give change, using both £ and p in practical • contexts • tell and write the time from an analogue clock, including using Roman numerals from • I to XII, and 12-hour and 24-hour clocks • estimate and read time with increasing accuracy to the nearest minute; record and • compare time in terms of seconds, minutes and hours; use vocabulary such as • o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the	problems in contexts, deciding which • operations and methods to use and why. • identify multiples and factors, including finding all factor pairs of a number, and • common factors of two numbers • know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers • establish whether a number up to 100 is prime and recall prime numbers up to 19 • multiply numbers up to 4 digits by a one- or two-digit number using a formal written • method, including long multiplication for	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 addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • solve problems involving addition, subtraction, multiplication and division • use estimation to check answers to calculations and determine, in

		heavier than, lighter than] • capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] • time [for example, quicker, slower, earlier, later] • measure and begin to record the following: • lengths and heights • mass/weight • capacity and volume • time (hours, minutes, seconds) • recognise and know the value of different denominations of coins and notes • sequence events in chronological order using language [for example, before and after, next, first, today, yesterday,	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 multiplication and division facts, including problems in contexts • recognise, find, name and write fractions 3 1 , 4 1 , 4 2 and 4 3 of a length, shape, set of objects or quantity	• 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 1 • recognise, find and write fractions of a discrete set of objects: unit fractions and nonunit fractions with small denominators • recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators • recognise and show, using diagrams, equivalent fractions with small denominators • add and subtract fractions with the same	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]. • measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using both £ and p in practical • contexts • tell and write the time from an analogue clock, including using Roman numerals from	two-digit numbers • multiply and divide numbers mentally drawing upon known facts • divide numbers up to 4 digits by a one-digit number using the formal written method • of short division and interpret remainders appropriately for the context • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 • recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) • solve problems involving multiplication and division	the context of a problem, an appropriate degree of accuracy. • use common factors to simplify fractions; use common multiples to express fractions • in the same denomination • compare and order fractions, including fractions > 1 • add 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

		tomorrow, morning, afternoon and evening] • recognise and use language relating to dates, including days of the week, weeks, months and years • tell the time to the hour and half past the hour and draw the hands on a clock face to show these times • recognise and name common 2-D and 3-D shapes, including: • 2-D shapes [for example, rectangles (including squares), circles and triangles] • 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. • describe position, direction and movement, including whole, half, quarter and	• write simple fractions for example, 2 1 of 6 = 3 and recognise the equivalence of 4 2 and 2 1 . • choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • compare and order lengths, mass, volume/capacity and record the results using >, < and = • recognise and use symbols for pounds (£) and pence (p);	denominator within one whole [for example, 7 5 + 7 1 = 7 6] • compare and order unit fractions, and fractions with the same denominators • solve problems that involve all of the above. • measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using both £ and p in practical • contexts • tell and write the time from an analogue clock, 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 and hours; use vocabulary such as • o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, • year and leap year • compare durations of events [for example to calculate the time taken by particular • events or tasks].	including using their knowledge • of factors and multiples, squares and cubes • solve problems involving addition, subtraction, multiplication and division and a • combination of these, including understanding the meaning of the equals sign • solve problems involving multiplication and division, including scaling by simple • fractions and problems involving simple rates. • compare and order fractions whose denominators are all multiples of the same • number	• divide proper fractions by whole numbers • associate a fraction with division and calculate decimal fraction equivalents • identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • multiply one-digit numbers with up to two decimal places by whole numbers • use written division methods in cases where the answer has up to two decimal places • solve problems which require

		three quarter turns.	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 • 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.	• 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 and hours; use vocabulary such as • o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, • year and leap year • compare durations of events [for example to calculate the time taken by particular • events or tasks].	• measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using both £ and p in practical • contexts • tell and write the time from an analogue clock, 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 and hours; use	• identify, name and write equivalent fractions of a given fraction, represented visually, • including tenths and hundredths • recognise mixed numbers and improper fractions and convert from one form to the • other and write mathematical statements > 1 as a mixed number • add and subtract fractions with the same denominator and denominators that are • multiples of the same number • multiply proper fractions and mixed numbers by whole numbers, supported by • materials and diagrams	answers to be rounded to specified degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. • solve problems involving the relative sizes of two quantities where missing values • can be found by using integer multiplication and division facts • solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison

			• identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line • identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces • identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] • compare and sort common 2-D and 3-D shapes and everyday objects. • interpret and construct simple pictograms, tally charts, block diagrams and simple tables • ask and answer simple questions by counting the	• measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using both £ and p in practical • contexts • tell and write the time from an analogue clock, 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 and hours; use	vocabulary such as • o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, • year and leap year • compare durations of events [for example to calculate the time taken by particular • events or tasks]. • measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using	• read and write decimal numbers as fractions • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare numbers with up to three decimal places • solve problems involving number up to three decimal places • recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write	• solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. • use simple formulae • generate and describe linear number sequences • express missing number problems algebraically • find pairs of numbers that satisfy an equation with two unknowns • enumerate possibilities of combinations of two variables. • Pupils should be introduced to the use of

			number of objects in each category and sorting the categories by quantity • ask and answer questions about totalling and comparing categorical data.	vocabulary such as • o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, • year and leap year • compare durations of events [for example to calculate the time taken by particular • events or tasks]. • measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using	both £ and p in practical • contexts • tell and write the time from an analogue clock, 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 and hours; use vocabulary such as • o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, • year and leap year	percentages as a fraction with denominator 100, and as a decimal • solve problems which require knowing percentage and decimal equivalents of 2 1 , 4 1 ,5 1 , 5 2 , 5 4 and those fractions with a denominator of a multiple of 10 or 25. • convert between different units of metric measure (for example, kilometre and metre; • centimetre and metre; centimetre and millimetre; gram and kilogram; litre and • millilitre) • understand and use approximate equivalences between metric units and common	symbols and letters to represent variables and unknowns in mathematical situations that they already understand, such as: • missing numbers, lengths, coordinates and angles • formulae in mathematics and science • equivalent expressions (for example, a + b = b + a) • generalisations of number patterns • number puzzles (for example, what two numbers can add up to). • solve problems involving the calculation and conversion of units of measure, using

				both £ and p in practical contexts • tell and write the time from an analogue clock, including using Roman numerals from • I to XII, and 12-hour and 24-hour clocks • estimate and read time with increasing accuracy to the nearest minute; record and • compare time in terms of seconds, minutes and hours; use vocabulary such as • o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, • year and leap year	• compare durations of events [for example to calculate the time taken by particular • events or tasks]. • 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. • describe positions on a 2-D grid as coordinates in the first quadrant	• imperial units such as inches, pounds and pints • measure and calculate the perimeter of composite rectilinear shapes in centimetres • and metres • calculate and compare the area of rectangles (including squares), and including • using standard units, square centimetres (cm2) and square metres (m2) and estimate • the area of irregular shapes • estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] • and capacity [for example, using water]	• decimal notation up to three decimal places where appropriate • use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places • convert between miles and kilometres • recognise that shapes with the same areas can have different perimeters and vice versa • recognise when it is possible to use formulae for area and

				• compare durations of events [for example to calculate the time taken by particular • events or tasks].	• describe movements between positions as translations of a given unit to the left/right • and up/down • plot specified points and draw sides to complete a given polygon • interpret and present discrete and continuous data using appropriate graphical • methods, including bar charts and time graphs. • solve comparison, sum and difference problems using information presented in bar • charts, pictograms, tables and other graphs.	• solve problems involving converting between units of time • use all four operations to solve problems involving measure [for example, length, • mass, volume, money] using decimal notation, including scaling • identify 3-D shapes, including cubes and other cuboids, from 2-D representations • know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • draw given angles, and measure them in degrees (o) • identify: angles at a point and	volume of shapes • calculate the area of parallelograms and triangles • calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3]. • draw 2-D shapes using given dimensions and angles • recognise, describe and build simple 3-D shapes, including making nets • compare and classify geometric shapes based on their properties

						one whole turn (total 360o) • angles at a point on a straight line and 2 1 a turn (total 180o) • other multiples of 90o • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles. • identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed • solve comparison, sum and difference	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. • describe positions on the full coordinate grid (all four quadrants) • draw and translate simple shapes on the coordinate plane, and

						• problems using information presented in a line graph • complete, read and interpret information in tables, including timetables	reflect them in the axes • interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average. • interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average.
Key Vocabulary							
Assessment							

Subject Progression Map – Whole School

Cycle B

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cycle B Substantive Knowledge		• count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens • given a number, identify one more and one less • identify and represent numbers using objects and	• count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward • recognise the place value of each digit in a two-digit number (tens, ones) • identify, represent and estimate numbers using different representations, including the number line	• 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	• measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using both £ and p in practical • contexts • tell and write the time from an	• read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • interpret negative numbers in context, count forwards and	• read, write, order and compare numbers up to 10 000 000 and determine the value of each digit • round any whole number to a required degree of accuracy • use negative numbers in context, and calculate intervals across zero

		pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least • read and write numbers from 1 to 20 in numerals and words. • read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs • represent and use number bonds and related subtraction facts within 20 • add and subtract one-digit and two-digit numbers to 20, including zero • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial	• 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. • solve problems with addition and subtraction: • using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing knowledge of mental and written methods • recall and use addition and subtraction facts to 20 fluently, and derive and use	using different representations • read and write numbers up to 1000 in numerals and in words • solve number problems and practical problems involving these ideas. • add and subtract numbers mentally, including: • a three-digit number and ones • a three-digit number and tens • a three-digit number and hundreds • add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction • estimate the answer to a calculation and use inverse	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 and hours; use vocabulary such as • o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, • year and leap year • compare durations of events [for example to calculate the time	backwards with positive and negative whole numbers, including through zero • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • solve number problems and practical problems that involve all of the above • read Roman numerals to 1000 (M) and recognise years written in Roman numerals. • add and subtract whole numbers with more than 4 digits, including using formal • written methods (columnar addition and subtraction) • add and subtract numbers mentally with	• solve number and practical problems that involve all of the above. • multiply multi-digit numbers up to 4 digits by a two-digit whole number using the • formal written method of long multiplication • divide numbers up to 4 digits by a two-digit whole number using the formal written • method of 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

		representations, and missing number problems such as 7 = – 9. • solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. • recognise, find and name a half as one of two equal parts of an object, shape or quantity • recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. • compare, describe and solve practical problems for: • lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]	related facts up to 100 • add and subtract numbers using concrete objects, pictorial representations, and mentally, including: • a two-digit number and ones • a two-digit number and tens • two two-digit numbers • adding three one-digit numbers • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	operations to check answers • solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction • recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods • solve problems, including missing	taken by particular • events or tasks]. • measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using both £ and p in practical • contexts • tell and write the time from an analogue clock, 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	increasingly large numbers • use rounding to check answers to calculations and determine, in the context of a • problem, levels of accuracy • solve addition and subtraction multi-step problems in contexts, deciding which • operations and methods to use and why. • identify multiples and factors, including finding all factor pairs of a number, and • common factors of two numbers • know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers • establish whether a number up to 100 is prime and	of short division where appropriate, interpreting remainders according to the context • perform mental calculations, including with mixed operations and large numbers • identify common factors, common multiples and prime numbers • use their knowledge of the order of operations to carry out calculations involving the four operations • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

		• mass/weight [for example, heavy/light, heavier than, lighter than] • capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] • time [for example, quicker, slower, earlier, later] • measure and begin to record the following: • lengths and heights • mass/weight • capacity and volume • time (hours, minutes, seconds) • recognise and know the value of different denominations of coins and notes • sequence events in chronological order using language [for example, before and after, next,	• 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	number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. • 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 1 • recognise, find and write fractions of a discrete set of objects: unit fractions and nonunit fractions with small denominators • recognise and use fractions as numbers: unit fractions and non-	• compare time in terms of seconds, minutes and hours; use vocabulary such as • o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, • year and leap year • compare durations of events [for example to calculate the time taken by particular • events or tasks]. • measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes	recall prime numbers up to 19 • multiply numbers up to 4 digits by a one- or two-digit number using a formal written • method, including long multiplication for two-digit numbers • multiply and divide numbers mentally drawing upon known facts • divide numbers up to 4 digits by a one-digit number using the formal written method • of short division and interpret remainders appropriately for the context • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	• solve problems involving addition, subtraction, multiplication and division • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. • use common factors to simplify fractions; use common multiples to express fractions • in the same denomination • compare and order fractions, including fractions > 1 • add and subtract fractions with different denominators and mixed

		first, today, yesterday, tomorrow, morning, afternoon and evening] • recognise and use language relating to dates, including days of the week, weeks, months and years • tell the time to the hour and half past the hour and draw the hands on a clock face to show these times • recognise and name common 2-D and 3-D shapes, including: • 2-D shapes [for example, rectangles (including squares), circles and triangles] • 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. • describe position, direction and movement,	methods, and multiplication and division facts, including problems in contexts • recognise, find, name and write fractions 3 1 , 4 1 , 4 2 and 4 3 of a length, shape, set of objects or quantity • write simple fractions for example, 2 1 of 6 = 3 and recognise the equivalence of 4 2 and 2 1 . • choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers	unit fractions with small denominators • recognise and show, using diagrams, equivalent fractions with small denominators • add and subtract fractions with the same denominator within one whole [for example, 7 5 + 7 1 = 7 6] • compare and order unit fractions, and fractions with the same denominators • solve problems that involve all of the above. • measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes	• add and subtract amounts of money to give change, using both £ and p in practical • contexts • tell and write the time from an analogue clock, 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 and hours; use vocabulary such as • o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the	• recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) • solve problems involving multiplication and division including using their knowledge • of factors and multiples, squares and cubes • solve problems involving addition, subtraction, multiplication and division and a • combination of these, including understanding the meaning of the equals sign • solve problems involving multiplication and division, including scaling by simple	numbers, using the concept of equivalent fractions • multiply simple pairs of proper fractions, writing the answer in its simplest form • divide proper fractions by whole numbers • associate a fraction with division and calculate decimal fraction equivalents • identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • multiply one-digit numbers with up to two decimal places

		including whole, half, quarter and three quarter turns.	and measuring vessels • compare and order lengths, mass, volume/capacity and record the results using >, < and = • recognise and use symbols for pounds (£) and pence (p); combine amounts to make a 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 • compare and sequence intervals of time • tell and write the time to five	• add and subtract amounts of money to give change, using both £ and p in practical • contexts • tell and write the time from an analogue clock, including using Roman numerals from • I to XII, and 12-hour and 24-hour clocks • estimate and read time with increasing accuracy to the nearest minute; record and • compare time in terms of seconds, minutes and hours; use vocabulary such as • o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the	number of days in each month, • year and leap year • compare durations of events [for example to calculate the time taken by particular • events or tasks]. • measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using both £ and p in practical • contexts • tell and write the time from an analogue clock, including using Roman numerals from	• fractions and problems involving simple rates. • compare and order fractions whose denominators are all multiples of the same • number • identify, name and write equivalent fractions of a given fraction, represented visually, • including tenths and hundredths • recognise mixed numbers and improper fractions and convert from one form to the • other and write mathematical statements > 1 as a mixed number • add and subtract fractions with the same denominator and	by whole numbers • use written division methods in cases where the answer has up to two decimal places • solve problems which require answers to be rounded to specified degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. • solve problems involving the relative sizes of two quantities where missing values • can be found by using integer multiplication and division facts

			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. • identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line • identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces • identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]	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]. • measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using both £ and p in practical • contexts • tell and write the time from an analogue clock, 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 and hours; use vocabulary such as • o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, • year and leap year • compare durations of events [for example to calculate the time taken by particular • events or tasks].	denominators that are • multiples of the same number • multiply proper fractions and mixed numbers by whole numbers, supported by • materials and diagrams • read and write decimal numbers as fractions • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare numbers with up to three decimal places	• solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison • solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. • use simple formulae • generate and describe linear number sequences • express missing number problems algebraically

			• compare and sort common 2-D and 3-D shapes and everyday objects. • interpret and construct simple pictograms, tally charts, block diagrams and simple tables • ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • ask and answer questions about totalling and comparing categorical data.	• 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 and hours; use vocabulary such as • o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, • year and leap year • compare durations of events [for example to calculate the time taken by particular • events or tasks].	• measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using both £ and p in practical • contexts • tell and write the time from an analogue clock, 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 and hours; use	• solve problems involving number up to three decimal places • recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal • solve problems which require knowing percentage and decimal equivalents of 2 1 , 4 1 ,5 1 , 5 2 , 5 4 and those fractions with a denominator of a multiple of 10 or 25. • convert between different units of metric measure (for example, kilometre and metre;	• find pairs of numbers that satisfy an equation with two unknowns • enumerate possibilities of combinations of two variables. • Pupils should be introduced to the use of symbols and letters to represent variables and unknowns in mathematical situations that they already understand, such as: • missing numbers, lengths, coordinates and angles • formulae in mathematics and science • equivalent expressions (for example, a + b = b + a)

				• measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); • volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using both £ and p in practical • contexts • tell and write the time from an analogue clock, 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 and hours; use	vocabulary such as • o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, • year and leap year • compare durations of events [for example to calculate the time taken by particular • events or tasks]. • 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	• centimetre and metre; centimetre and millimetre; gram and kilogram; litre and • millilitre) • understand and use approximate equivalences between metric units and common • imperial units such as inches, pounds and pints • measure and calculate the perimeter of composite rectilinear shapes in centimetres • and metres • calculate and compare the area of rectangles (including squares), and including • using standard units, square centimetres (cm2) and square	• generalisations of number patterns • number puzzles (for example, what two numbers can add up to). • solve problems involving the calculation and conversion of units of measure, using • decimal notation up to three decimal places where appropriate • use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places

				vocabulary such as • o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, • year and leap year • compare durations of events [for example to calculate the time taken by particular • events or tasks].	• 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. • describe positions on a 2-D grid as coordinates in the first quadrant • describe movements between positions as translations of a given unit to the left/right • and up/down • plot specified points and draw sides to complete a given polygon • interpret and present discrete and continuous data using appropriate graphical • methods, including bar charts and time graphs.	metres (m2) and estimate • the area of irregular shapes • estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] • and capacity [for example, using water] • solve problems involving converting between units of time • use all four operations to solve problems involving measure [for example, length, • mass, volume, money] using decimal notation, including scaling • identify 3-D shapes, including cubes and other cuboids, from 2-D representations	• convert between miles and kilometres • recognise that shapes with the same areas can have different perimeters and vice versa • recognise when it is possible to use formulae for area and volume of shapes • calculate the area of parallelograms and triangles • calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3]. • draw 2-D shapes using given

					• solve comparison, sum and difference problems using information presented in bar • charts, pictograms, tables and other graphs.	• know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • draw given angles, and measure them in degrees (o) • identify: angles at a point and one whole turn (total 360o) • angles at a point on a straight line and 2 1 a turn (total 180o) • other multiples of 90o • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	dimensions and angles • recognise, describe and build simple 3-D shapes, including making nets • compare and classify geometric shapes based on their properties and sizes 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

						• 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 • solve comparison, sum and difference problems using information presented in a line graph • complete, read and interpret information in tables, including timetables	find missing angles. • describe positions on the full coordinate grid (all four quadrants) • draw and translate simple shapes on the coordinate plane, and reflect them in the axes • interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average. • interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average.

Cycle A Disciplinary Knowledge		**Number - Number and Place Value** I can count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. I can count, read and write numbers to 100 in numerals and count in multiples of twos, fives and tens. I can, given a number, identify one more and one less. I can identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more	**Number Number and Place value** I can count in steps of 2, 3, 5 and 0, and in tens from any number, forward and backward. I can recognise the place value of each digit in a two-digit number (tens, ones). I can identify, represent and estimate numbers using different representations, including the number line. I can compare and order numbers from 0 up to 100; use <,> and = signs. I can read and write numbers to at least 100 in numerals and words. Use place value and number	Read, and write numbers to at least 1000 in numerals and words. Count from 0 – 96 in 8s. Compare and order numbers up to 1000 using =, > and <. Add numbers with up to 3-digits, using the column method with carrying and exchanging. Subtract numbers with up to 3-digits, using the column method with carrying and exchanging. Estimate the answer to a calculation. Use inverse operations to check answers. Solve missing number addition	Read Roman numerals to 100. Count backwards through zero and understand that -2 is greater than -3. Order numbers up to 10,000 using =, > and <. Count in multiples of 9 and 25. Round any numbers up to 10,000 to the nearest 1000. Solve 2-step problems by deciding which operation to use and why. Make a sensible estimate and check the answer using the inverse operation. Answer multiplication and division facts for	Count forwards and backwards in steps of 1,000 and 100,000 from any number up to 1,000,000. Round any number up to 1,000,000 to the nearest 100,000 10,000, 1000, 100 and 10. Read Roman numerals to 1000(M) and recognise years written in Roman numerals. Solve number problems and practical problems that involve all these aspects. Mentally add and subtract any 2 and 3-digit numbers. Add and subtract any 1000s number	Add and subtract using negative numbers. Perform mental calculations, including with mixed operations and large numbers. Divide numbers up to 4-digits by a 2-digit whole number up to 20 using the efficient written method and interpret remainders as whole number remainders, fractions or by rounding, as appropriate for the context. Solve multi-step problems involving the 4 rules and use estimations to check answers to calculations.

		than, less than (fewer), most, least. I can read and write numbers from 1 to 20 in numerals and words. **Number - Addition and Subtraction** I can read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs. I can represent and use number bonds and related subtraction facts within 20. I can add and subtract one-digit and two-digit numbers to 20, including zero.	facts to solve problems. Number Addition and Subtraction I can solve problems with addition and subtraction by: Using concrete objects and pictorial representations, including those involving numbers, quantities and measures. Applying my increasing knowledge of mental and written methods. Recalling and using addition and subtraction facts to 20 fluently, and deriving and using related facts to 100. I can Add and subtract numbers using concrete objects, pictorial	and subtraction problems. Solve more complex addition and subtraction problems. Mentally add and subtract a 3-digit number and a hundreds number. Multiply a 2-digit number by a single digit using a simple grid. Answer multiplication and division facts for the 2, 3, 4, 5, 8, 10, 11 times tables very quickly. Solve problems, including missing number problems. Solve maths problems e.g. 3 hats and 4 coats – how many different outfits? Show using diagrams, equivalent fractions with	multiplication tables up to 12x12 very quickly. Say all the square numbers. Work out the factor pairs and use them in mental calculations. Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written method. Solve more complex problems. Calculate the prime factors and work out the factors within any number up to 144 Calculate decimal equivalents to 1/4, 1/2 and 3/4. Round decimals with one decimal place to	from any 5-digit number. Identify multiples and be able to find all factor pairs. Recognise and use squared and cubed numbers and the correct notation. Use the square root sign √. Solve problems where larger numbers are used by decomposing them into their factors. Multiply numbers up to 4-digits by a 1-digit and 2-digit number using an efficient written method. Divide numbers up to 4-digits by a 1-digit number using short division written method. Solve problems including scaling by	Use my knowledge of the order of operations to carry out calculations involving the 4 operations. 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 x 1/2) Divide proper fractions by whole numbers (e.g. 1/3 ÷ 2 = 1/6). Multiply 1-digit numbers with up to 2 decimal places by whole numbers.

		I can solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = - 9. **Number - Multiplication and Division** I can 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. **Number – Fractions** I can recognise, find and name a	representation, and mentally including: A two-digit number and ones. A two-digit number and tens. Two two-digit numbers. Adding three one-digit numbers. Showing that addition of two number can be done in any order (commutative) and subtraction of one number from another cannot. Recognising and using the inverse relationship between addition and subtraction and using this to check calculations and solve missing number problems.	small denominators. Add and subtract fractions with the same denominator up to one whole. Find pairs of fractions that add up to a whole. Solve fraction problems using what I know so far about fractions. Find non unit fractions with small denominators of a set of objects. Add and subtract amounts of money up to £100. Give change from £10. Tell and write the 12-hour and 24-hour time using Roman numerals. Read time to the nearest minute and use	the nearest whole number. Order numbers with the same number of decimal places up to one decimal place. Calculate equivalent fractions of a given fraction including tenths and hundredths. Add and subtract fractions with the same denominator. Know the formula for measuring the area of a square or rectangle. Know the formula for measuring the perimeter of a square or rectangle. Solve simple measure and money problems involving fractions and decimals to two decimal places.	simple fractions and problems involving simple rates. Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those with a denominator of a multiple of 10 or 25. Mentally add and subtract tenths and mixed numbers with tenths. Add and subtract decimals up to 3 decimal places. Compare and order fractions whose denominators are all multiples of the same number. Add and subtract fractions with the same	Use written division methods in cases where the answer has up to 2 decimal places. Solve problems which require answers to be rounded to specified degrees of accuracy. Find a percentage of any given number. Solve problems involving the relative sizes of 2 quantities. Solve problems involving unequal sharing and grouping e.g. 3/5 of the class are boys etc. Solve problems involving similar shapes where the scale factor is known or can be found.

		half as one of two equal parts of an object, shape or quantity. I can recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. **Measurement** I can compare, describe and solve practical problems for: • lengths and heights [for example, long/short, longer/ shorter, tall/short, double/half] • mass/weight [for example, heavy/light, heavier than, lighter than] • capacity and volume [for example,	Number Multiplication and Division I can recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. I can calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs. I can show that multiplication for two numbers can be done in any order (commutative) and division of one	a.m./p.m., morning, afternoon, noon and midnight. Calculate how long events or tasks will take. Draw horizontal, vertical, perpendicular and parallel lines. Know a right angle has 90° and a straight angle has 180°. Use a compass to draw a circle with a radius up to 10c.m. Solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in tables.	Compare 2-D 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. Calculate the perimeter of a rectilinear figure in centimetres and metres. Calculate the area by counting the squares. Solve a problem by collecting data, presenting it in a bar chart and interpreting it. Solve a problem by collecting data, presenting it in a line graph and interpreting it.	denominator and related fractions; write mathematical statements >1 as a mixed number. Multiply proper fractions and mixed numbers by whole numbers up to 10, supported by materials and diagrams. Convert metric to common imperial units and imperial to metric. Measure and calculate the perimeter of composite rectilinear shapes in cm and m. Calculate and compare the areas of squares and rectangles using square centimetres and square metres and estimate	Solve simple ratio and proportion problems. Reduce a given ratio to its lowest terms. Find pairs of numbers that satisfy number sentences involving two unknowns e.g. what is 2a+3b if a=2 and b=3. Work out all possibilities of combinations of two variables. Recognise that shapes with the same areas can have different perimeters and vice versa. Calculate the area of parallelograms and triangles and be able to use the correct formulae. Calculate the volume of

		full/empty, more than, less than, half, half full, quarter] • time [for example, quicker, slower, earlier, later] I can measure and begin to record the following: • lengths and heights • mass/weight • capacity and volume • time (hours, minutes, seconds)	number from another cannot. I can solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. Number Fractions I can recognise, find, name and write fractions 1 3 1 4 2 4 3 4 of a length, shape, set of objects or quantity.			the area of irregular shapes. Draw squares, rectangles and all triangles using given dimensions (to the nearest millimetre) and angles with a protractor. State and use the properties of a rectangle (including squares) to deduce related facts. Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. Identify multiples of 90°; angles at a point on a straight line and ½ a turn (total 180°); angles at a point and one	cubes and cuboids using centimetre cubed and cubic metres and extending to other units, such as mm cubed and km cubed. Classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons. Find unknown angles where they meet at a point and are on a straight line and are vertically opposite. Find missing angles in a parallelogram, rhombus and trapezium by working out diagonally

			I can write simple fractions for example 1 2 of 6 = 3 and recognise the equivalence of 2 4 and1 2 . Measurement I can choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (ml/litres) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. I can compare and order lengths, mass, volume/capacity			whole turn (total 360°); reflex angles and compare different angles. Identify, describe and represent the position of a shape following a reflection or translation in all four quadrants, using the appropriate language, and know that the shape has not changed. Solve problems using information presented in line graphs. Interpret information stored in a pie chart.	opposite angles. Draw and translate simple shapes on the co-ordinate plane, reflect them in the axes and rotate around a point. Interpret and construct pie charts and use these to solve problems using my knowledge of angles, fractions and percentages. Interpret and construct line graphs and use these to solve problems.

			and record the results using >, < and =. I can recognise and use symbols for pounds (£) and pence (p) and combine amounts to make a particular value. I can find different combinations of coins that equal the same amounts of money. I can solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. I can compare and sequence intervals of time. I can 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. I know the number of minutes in an hour and the number of hours in a day. Geometry Properties of shapes I can identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line. I can identify and describe the properties of 3D shapes, including the number of edges, vertices and faces. I can identify 2D shapes on the surface of 3D shapes (a				

			circle on a cylinder and a triangle on a pyramid). I can compare and sort common 2D and 3D shapes and everyday objects. Geometry Position and Direction I can order and arrange combinations of mathematical objects in patterns and sequences. I can use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for				

			quarter, half and three-quarter turns (clockwise and anti-clockwise). Statistics I can interpret and construct simple pictograms, tally charts, block diagrams and simple tables. I can ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. I can ask and answer questions about totalling and comparing categorical data.				
Key Vocabulary							
Assessment							
