Long Term Individual Subject Curriculum Plan 2019-20						
Subject- Maths						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	For skills covered in the EYFS please refer to the Maths section in The EYFS Lancashire Planning Document page 89.					
Y1	**Number and Place Value** • Recognise and create repeating patterns using three numbers. • Count to at least 50 from 1 or 0 forwards and backwards. • Count in 2s, 5s and 10s from 0. • Read and write numbers to 20 in numerals. • Read and write 'tens' numbers to 100. • Understand the difference between 'teens' numbers and multiples of tens. • Read numbers in words from 1-20. • Identify the value of tens and ones in a two-digit number. • Compare two groups of objects (up to 20).	**Sequencing and sorting** • Recognise and create a repeating pattern using three objects and shapes. **Fractions** • Use concrete materials to split the whole into equal parts and recognise that each part is a unit fraction of the whole. • Split 2-D shapes into equal parts and recognise that each part is a unit fraction of the whole shape. • Find a half of a shape. • Find a half of an object. • Find a quarter of a shape. **Capacity and Volume**	**Number and Place Value** • Count to 100 from any number forwards and backwards. • Count objects in 2s, 5s and 10s. • Read and write numbers to 100. • Correctly place a number from 1 to 20 on the number line with partial demarcation. • Compare three or more groups of objects (up to 20). • Identify numbers on a number track and identify one more and one less. • Using concrete materials, add and subtract ten from the group, recognising that	**Length** • Measure and record lengths and heights using rulers and metre rules with manageable standard units (m/cm) within children's range of counting competence. **Addition and Subtraction** • Write mathematical statements involving addition (+), subtraction (-) and equals (=) signs when representing a simple problem, including where the = sign is at the start of the calculation, and identify which	**Number and Place Value** • Count to and across 100, forwards and backwards, from any given number. • Count in multiples of 2, 5 and 10. • Read and write numbers to 100 in numerals. • Read and write numbers from 1 to 20 in numerals and words. • Begin to recognise the place value of numbers beyond 20 (tens and ones). • Correctly place a number from 1 to 20 on the number line with start and end demarcation only. • Identify and represent numbers using objects	**Time** • Measure and record time using hours. • Solve practical problems for time. • Recognise and use the language related to dates. • Know that two weeks is called a fortnight. • Use language of today, yesterday and tomorrow. • Sequence events in chronological order using language (for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening. • Tell the time to the hour and half past the hour and draw the

	• Using concrete materials, identify one more and one less. • Using concrete materials and jottings, represent two-digit numbers. • Using concrete materials, arrange any amount into groups of two. • Identify that the numbers that are even are those used when counting in twos from zero and the rest are odd. **Length and Mass/weight** • Measure and record lengths and heights using uniform non-standard units within children's range of counting competence. • Measure and record mass/weight using uniform non-standard units within children's range of counting competence. • Describe a length using the language of long and short and a height using tall and short. • Compare two lengths using the language of longer and shorter and a height using taller and shorter.	• Measure and record capacity and volume using uniform non-standard units within children's range of counting competence. • Describe a capacity or volume using the language of full, empty, half full, nearly full, nearly empty. • Compare two capacities or volumes using the language of more and less including when different containers are used. **Money** • Recognise 1p, 2p, 5p, 10p and 20p coins by colour, shape, size and/or numerals/words. • Exchange a 2p, 5p, 10p and 20p coin for the correct number of 1p coins. **Time** • Measure and record time using seconds. • Compare the duration of two events using the language of quicker and slower. • Know and use the days of the week and how	the ones digit does not change. • Compare two numbers (up to 50) represented using concrete materials saying which is more and which is fewer. **Mass/Weight** • Measure and record mass/weight using balance scales with manageable standard units (kg/g) within children's range of counting competence. **2D and 3D Shape** • Identify common 2-D shapes from within a wider selection that includes a full range of shapes e.g. finding all the squares within a selection of quadrilaterals. • Identify common 3-D shapes from within a wider selection that includes a full range of shapes e.g. finding all the cuboids within a selection of 3-D shapes. **Counting and Money**	groups in the number sentence are the parts and which is the whole. • Use concrete materials to represent addition facts for twenty. • Use concrete materials to explore the relationship between addition and subtraction number sentences for 20. • Add a one- and two-digit number using an appropriate strategy. • Subtract a one-digit from a two-digit number using an appropriate strategy. • Use concrete materials to create linked calculations. • Use concrete materials to solve a missing number problem where a digit is given first. **Fractions** • Split quantities into equal parts and recognise that each part is a unit fraction	and pictorial representations including the number line. • Use the language of: equal to, more than, less than (fewer), most, least. • Given a number, identify one more and one less. • Identify the number in a 100 square and recognise that the number below is ten more and the number above is ten less. • Given a number identify ten more or less. • Use a labelled number line to order numbers to 50. • Recognise and create a repeating pattern using more than three numbers. • Identify odd and even numbers linked to counting in twos from 0 and 1. • Solve problems and practical problems involving all of the above. **Addition and Subtraction**	hands on a clock face to show these times. **Multiplication and Division** • Recall and use doubles of all numbers to 10 and corresponding halves. • 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. **Subtraction- Difference** • Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. • Use concrete materials to represent subtraction facts from twenty. • Represent and use number bonds and

	• Describe a mass/weight using the language of heavy and light. • Compare two masses/weights using the language of heavier and lighter. **Addition and Subtraction** • Identify whether one-step problems are addition or subtraction and solve accordingly. • Interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs and model them using pictures or practical equipment, including where the = sign is at the start of the calculation. • Use concrete materials to represent addition facts for ten. • Use concrete materials to explore the relationship between addition and subtraction number sentences. • Use concrete materials to represent subtraction facts from ten. • Add using a counting on method and subtract using a take away method.	many days there are in one week. • Know and use the months of the year and how many months are in one year. • Use language of before, after, next and first. • Use language of morning, afternoon and evening.	• Recognise and know the value of 50p, £1 and £2 coins by colour, shape, size and/or numerals/words. • Recognise and know the value of £5, £10 and £20 notes. **Multiplication and Division** • Recall doubles for six to ten. • Recall halves for even numbers from 12 to 20.	of the whole quantity. • Find a half of an even quantity. • Find a quarter of an object. **Position and Direction** • Describe turning movements for whole and half turns. • Describe turning movements using left and right. • Describe position using the terms top, middle and bottom. • Describe position using the terms on top of, in front of, above, below, between, around, inside and outside. • Describe direction using forwards, backwards, up, down, sideways, left and right. **Time** • Measure and record time using minutes. • Compare two events using the language of earlier and later.	• Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. • Use concrete materials to represent subtraction facts from twenty. • Represent and use number bonds and related subtraction facts within 20. • Add and subtract one-digit and two-digit numbers to 20, including zero (using concrete objects and pictorial representations). • Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. **Capacity and Volume** • Measure and record capacity and volume using measuring vessels with manageable standard units (litres/ml) within	related subtraction facts within 20. • Add and subtract one-digit and two-digit numbers to 20, including zero (using concrete objects and pictorial representations). • Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. **Measurement – Length and Mass/Weight** • Measure and record mass/weight using weighing scales with a simple scale and manageable standard units (kg/g) within children's range of counting competence. • Solve practical problems for length and height. • Solve practical problems for mass/weight. **Sorting/Statistics**

	2D and 3D Shape • Name common 2-D shapes including when presented in different orientations. • Name common 3-D shapes including when presented in different orientations.			• Tell the time to the hour. • Tell the time to the half hour recognising that the hour hand will not be exactly on the hour. • Draw the hands on a clock to show times to the hour.	children's range of counting competence. • Solve practical problems for capacity and volume. **Fractions** • Understand that a fraction can describe part of a whole. • Understand that a unit fraction represents one equal part of a whole. • Recognise, find and name a half as one of two equal parts of an object, shape or quantity (including measure). • Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity (including measure). **Position and direction** • Describe turning movements for three-quarter turns including using left and right. • Describe movement, including whole, half, quarter and three-quarter turns. • Describe position and direction using the terms near, close, far,	• Sort objects, numbers and shapes to a given criterion and their own. • Present and interpret data in block diagrams using concrete materials. • Ask and answer simple questions by counting the number of objects in each category. • Ask and answer questions by comparing categorical data.

					before, after and the ordinal numbers. • Recognise and create a repeating pattern using more than three objects and shapes. **2D and 3D Shape** • Recognise and name common 2-D shapes, including rectangles (including squares), circles and triangles. • Recognise and name common 3-D shapes, including cuboids (including cubes), pyramids and spheres.	

Year 1 Vocabulary

Number and place value

number, count, more (than), less (than), fewer, greater, most, least, units, ones, tens, hundreds, exchange, digit, equal to, estimate, guess, roughly, about the same as, multiple, odd, even

Measurement

measure, compare, more (than), less (than), equal to, estimate, guess, roughly, about the same as, length, width, height, depth, long, short, tall, high, low, wide, narrow, deep, shallow, thick, thin, longer, shorter, taller, higher, longest, shortest, tallest, highest, far, near, close, metre, ruler, metre stick, weigh(s), balances, heavy, light, heavier, lighter, heaviest, lightest, balance, scales, mass/weight, double, half, full, half full, empty, holds, container, size, nearly, close to, just over, just under, more than , less than

Multiplication and Division

add, addition, repeated addition, multiplication, multiply, lots of, groups of, times, double, array, row, column, rectangle, number pattern, multiple, twice, three times, four times… as long/wide/heavy/much etc., divide, division, equal sharing, subtract, subtraction, repeated subtraction, equal grouping, lots of, groups of, halve, array, row, column, rectangle

Position and Direction

position, over, under, underneath, above, below, top, bottom, side, on, in, outside, inside, around, in front, behind, front, back, before, after, beside, next to, opposite, apart, between, middle, edge, centre, direction, journey, left, right, up, down, forwards, backwards, sideways, across, close, far, near, along, though, to, from, towards, away from, half, quarter, three-quarter(s), turn

Time

time, days of the week, months of the year, seasons, day, week, month, year, weekend, birthday, holiday, morning, afternoon, evening, night, midnight, bedtime, dinnertime, playtime, today, yesterday, tomorrow, before, after, next, first, last, now, soon, early, earlier, late, later, quick, quicker, quickest, quickly, fast, faster, fastest, slow, slower, slowest, slowly, old, older, oldest, new, newer, newest, takes longer, takes less time, day, hour, minute, second, clock, watch, hands, face

Addition and Subtraction

+, add, more, plus, make, sum, total, altogether, put together, score, double, near double, one more, two more… ten more, subtract, take (away), minus, leave, one less, two less… ten less, difference between, distance between, half, halve, =, equals, sign, is the same as

Statistics

count, block graph, represent, group, set, same, different, most popular, most common, least popular, least common

Shape

shape, 2-D, flat, side, straight, curved, circle, triangle, square, rectangle, oblong, pentagon, hexagon, octagon, 3-D, solid, face, edge, vertex (vertices), point, flat, curved, end, cube, cuboid, pyramid, sphere, cone, cylinder, surface

Sequencing and Sorting

pattern, sequence, repeat(ing), match, symmetrical, order, first, second, third etc., last, before, after, next, between, above, below, odd, even, every other, sort, count in 2s, group, set, same, different, table, diagram, numbers, shapes (and properties)

Fractions

fraction, part, equal parts, one whole, one half, two halves, one quarter, two… three… four quarters, (numerator, denominator)

Money

money, coin, note, penny, pence (p), pound (£), price, cost, buy, sell, spend, spent, pay, change, dear, costs more, cheap, costs less, cheaper, costs the same as, total, amount, value, exchange, double, half

Y 2	**Number and Place Value** • Count in steps of 10 forwards and backwards. • Identify and discuss patterns on a 100 square when counting in steps of 2 or 5 from 0 and tens from any number. • Read and write numbers up to 100 in words. • Make and identify a two digit number up to 100 using concrete materials. • Say what each digit represents in a two-digit number. • Partition a two-digit number (represented using base 10 apparatus) into two groups in different ways where one group is a multiple of 10.	**Counting, Multiplication and Sorting** • Represent doubling using concrete materials Understand that doubling is adding a number to itself and multiplying by 2. • Write two different number sentences to represent a doubling situation. • Represent adding the same number three or more times using concrete materials arranged in groups and then in more structured form as an array and link this to multiplication.	**Number and Place Value** • Count in steps of 3 using practical equipment and a number line. • Correctly place a number from 1 to 100 on a number line with multiples of 10 labelled. • Order three or more 2-digit amounts when represented using the same practical equipment. • Identify what changes and what stays the same when 10 is added or removed from a two-digit number. • Recognise that if a number is exactly half way between two multiples of 10, then the number rounds to the higher multiple of 10.	**Length and Volume/Capacity** • Choose and correctly use the appropriate equipment to measure lengths and heights e.g. ruler, metre rule, tape measure, trundle wheel. • Choose and use the correct equipment to measure volume / capacity e.g. measuring cylinders / jugs with appropriate scales. • Order the values of three or more: lengths, volumes/capacities.	**Number and Place Value** • Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward. • Read and write numbers to at least 100 in numerals and in words. • Recognise the place value of each digit in a two-digit number. • Correctly place a number from 1 to 100 on a number line with multiples of 10 marked but not labelled (with start and end labelled 0 and 100).	**Time** • Know the number of minutes in an hour and the number of hours in a day. • To enable comparison between different units of time, use appropriate calculation strategies to convert between units. • Compare and sequence intervals of time. • Count in fives anticlockwise starting at 12 (for zero) to 6 (for thirty) progressing to counting in times.

	• Compare three or more 2-digit amounts when represented using the same practical equipment saying which amounts have more/most and fewer/less/ fewest/least. • Identify the number 1 more and 1 less than a given number where the tens digit might change. • Identify the number 10 more and less than a given number. • Identify the multiples of 10 immediately before and after a given number (not ending in 5), count to each of these multiples of 10 and say which multiple of 10 is closest. • Know that our number system is organised using groups of 10 and what each digit represents in a two-digit number. • Describe the rule in a number sequence counting on and back in tens or twos from any number. • Extend number sequences counting on and back in tens or twos from any number.	• Model multiplication number sentences using concrete materials. • Create an array and identify the two multiplication statements that are represented to show that multiplication of two numbers can be done in any order. • Use the fact that multiplication of two numbers can be done in any order to derive one multiplication statement from another. • Recall and use multiplication and division facts for the 2x, 5x and 10x tables. • Use base 10 equipment to explore the relationship between the doubling of a single digit number to the doubling of its related multiple of 10. • Use the previously identified relationship to recall and use doubles of all multiples of 10 up to 50.	• Recognise the correspondence between ones and tens. • Describe the rule in a number sequence counting on and back in fives, tens or twos from any number. **Mass/Weight** • Choose and use the correct equipment to measure mass e.g. balance scales, kitchen scales (with appropriate scale). • Order the values of three or more masses. **2D and 3D Shape** • Describe 2-D shapes according to the number of sides and vertices, and whether any of the sides or vertices are the same size as each other. • Identify a vertical line of symmetry in a shape. • Describe 3-D shapes according to the number and shape of the faces, the number of edges and vertices and whether any of the faces are the same as each other. **Counting and Money** • Recognise that p in the context of money stands for pence and use this symbol correctly.	**Addition and Subtraction** • Recognise calculations that require mental partitioning and use this strategy where appropriate (this should be supported by concrete materials, pictures or jottings). • Recognise calculations that require counting on mentally to find the difference and use this strategy where appropriate (This should be supported by concrete materials, pictures or jottings). • Model subtraction as 'difference' number sentences using concrete materials. • Recognise subtraction as 'difference' in different contexts by understanding and interpreting the language involved. • Use ten frames to explore addition and subtraction facts for	• Partition numbers in different ways. • Compare and order numbers from 0 up to 100; use and = signs. • Find 1 or 10 more or less than a given number. • Round numbers to at least 100 to the nearest 10. • Understand the connection between the 10 multiplication table and place value. • Extend number sequences counting on and back in fives, tens or twos from any number. • Describe and extend simple sequences involving counting on or back in different steps. • Use place value and number facts to solve problems. **Addition and Subtraction** • Choose an appropriate strategy to solve a calculation based upon the numbers	• 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. **Multiplication and Division** • Understand multiplication as repeated addition and arrays. • Make equal sized groups from an amount where there is a remainder. • Understand division as sharing and grouping and that a division calculation can have a remainder. • Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. • Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including

	Length and Mass/weight • Choose the correct standard units to measure length and height (m/cm). • Choose the correct standard units to measure mass (kg/g). • Compare the values of two: lengths, masses. **Addition and Subtraction** • Recognise and solve calculations that involve known facts. • Recognise that the numbers in addition calculations can be reordered to make counting on more efficient and use this strategy where appropriate. • Recognise calculations that require counting on or back mentally and use this strategy where appropriate. • Model addition number sentences using concrete materials and identify which groups in the number sentence are the parts and which is the whole.	• Represent adding the same number three or more times using concrete materials. • Create an array to represent a given multiplication fact. **Statistics** • Use everyday language to compare two objects, numbers or shapes by identifying properties that they both share and properties that make them different. • Construct and interpret simple tables. • Use given data to construct and interpret a block graph on squared paper. • Use given data to construct and interpret a pictogram in which each symbol is worth 1. • Construct and collect data using a tally chart and interpret tally charts. • Answer questions which ask 'How many…?' in a given data category.	• Recognise that £ in the context of money stands for pounds and use this symbol correctly (whole pounds only). • Recognise that amounts of money can be partitioned in different ways (using coins). • For a given value, identify how much more can be spent following the purchase of one item. • Identify combinations which can be bought for a specific amount of money. • Exchange different coins for other coins of the same value. **Multiplication** • Write two different number sentences to represent repeated addition situations. • Identify odd and even numbers by looking at the ones digit and relating even numbers to multiples of 2. • Recall and use doubles of all multiples of 10 up to 100. • Write two different number sentences to represent an array. • Represent and solve a problem using concrete materials and pictorial representations. **Division**	all numbers up to 20. • Derive and use addition and subtraction facts of multiples of 5 or 10 totalling 60. • Add and subtract a two-digit number to/from another two-digit number including crossing a tens boundary (Practically then pictorially). • Recognise that ? + 3 = 11 can be solved by calculating 11 – 3 = ? because 11 is the whole which is made of two parts one of which is 3. • Recognise that ? – 5 = 9 can be solved by calculating 9 + 5 = ? because two parts which are 9 and 5 go together to create the whole. • Represent and solve a problem using structured pictorial representations such as the bar model.	involved (recall a known fact, calculate mentally, use a jotting). • Recognise calculations that require counting on or back mentally, bridging through a multiple of 10 efficiently and use this strategy where appropriate (This should be supported by concrete materials, pictures or jottings). • Recognise calculations that require a mental compensation method and use this strategy where appropriate (This should be supported by concrete materials, pictures or jottings). • Select a mental strategy appropriate for the numbers involved in the calculation. • Show that addition of two numbers can be done in any order (commutative) and subtraction of	recognising odd and even numbers. • Use partitioning to double simple two-digit numbers (numbers in which the ones total less than 10). • Derive and use doubles of simple two-digit numbers (numbers in which the ones total less than 10). • Derive and use halves of simple two-digit even numbers (numbers in which the tens are even). • Select from grouping or sharing strategies depending on the context. • Calculate mathematical statements for multiplication (using repeated addition) and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs.

	• Use the fact that addition of two or more numbers can be done in any order to reorder calculations for efficiency. • Model subtraction number sentences using concrete materials and identify which groups in the number sentence are the parts and which is the whole. • Recognise that (in practical situations) the subtraction of one number from another cannot be done in any order. • Know that 'take away' is removal of an amount (a part) from within another amount (the whole). Identify subtraction as 'take away' in different contexts by understanding and interpreting the language involved. • Know that 'difference' is comparing two amounts and finding how many more or how many less/fewer. • Recall and use addition and subtraction facts of all numbers up to 10 and totalling 20 for addition and subtraction.	• Understand and use the language of most and least common / popular. • Answer questions which ask 'How many more…?' or 'How many fewer…?' when comparing two categories in a data set. • Answer questions which ask 'How many in total…?' in given data categories. **Fractions** • Use concrete materials and pictorial representations to explore and recognise that the denominator is the number of equal parts into which a whole has been split. • Use concrete materials and pictorial representations to explore and recognise that the numerator is the number of parts required in the given fraction. • Recognise that one 'whole' could be one whole group of items.	• Share an amount equally across sets where there is no remainder. • In real life contexts, share an amount equally across sets where there is a remainder. • Make equal sized groups from an amount where there is no remainder. • Model division number sentences using concrete materials. • Recognise that (in practical situations) the division of one number from another cannot be done in any order because they give different answers. • Use base 10 equipment to explore the relationship between the halving of a single digit even number to the halving of its related multiple of 10. • Use the previously identified relationship to recall and use halves of all multiples of 10 up to 100 with an even tens digit. • Use partitioning to halve simple two-digit even numbers (numbers in which the tens are even). • Use concrete materials to represent division as grouping by creating equal groups of a given size from an amount. • Write a number sentence to represent the amount being grouped, the number in each	**Fractions** • Find 2/4 of an object, set of objects / quantity and length. • Recognise and name ¾ as any three of four equal parts of an object or shape and write the fraction ¾. • Find ¾ of a shape, object, set of objects / quantity and length. • Count on or back in steps of ¼. **Position and Direction** • Know that a full turn is the same as a turn through four right angles. • Know that half a turn is the same as a turn through two right angles. • Know that a quarter turn is the same as a turn through one right angle. **Time** • Know that there are 60 minutes in 1 hour.	one number from another cannot. • Understand subtraction as take away and difference (how many more, how many less/fewer). • Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. • Recall and use number bonds for multiples of 5 totalling 60. • Add a two-digit number to another two-digit number including crossing the hundreds boundary (Practically then pictorially). • 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	• Understand what a remainder means in the context of a problem and how this may affect the answer. • Solve problems involving multiplication and division (including those with remainders), using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. **Statistics** • Identify the property / properties by which a set of objects, numbers or shapes has been sorted. • Compare and sort objects, numbers and common 2-D and 3-D shapes and everyday objects. • Construct and interpret data as a pictogram in which each symbol is worth 10, 5 or 2.

	• Derive and use addition and subtraction facts of multiples of 10 totalling 100. • Partition and combine multiples of tens and one. • Add and subtract a one-digit number to/from a two-digit number (not crossing tens boundary). • Add three single digit numbers including bridging through 10 and/or 20. • Add and subtract a multiple of 10 to/from a two-digit number (not crossing hundreds boundary). • Add and subtract a one-digit number to/from a two-digit number including crossing a tens boundary. • Add and subtract a two-digit number to/from another two-digit number (not crossing any boundaries). • Recognise and use the knowledge that 4 + 5 = 9 can be checked by using the inverse operation 9 – 4 = 5 or 9 – 5 = 4. • Recognise and use the knowledge that 12 – 4 = 8 can be checked by	• Split the same shape or set into different numbers of equal parts and compare the sizes of the denominators. • Find ¼ of a shape, object, set of objects / quantity and length and write the fraction ¼. • Recognise and name 2/4 as any two of four equal parts of an object or shape and write the fraction 2/4. • Use equations to represent the fractions of amounts being calculated. • Find ½ and 2/4 of an object, set of objects / quantity and length and recognise that these are the same. • Count forwards and backwards in halves. **Capacity and Volume** • Choose the correct standard units to measure volume / capacity (litres/ml). • Compare the values of two volumes/capacities. **Money**	group and how many groups are created. • Using an array, show how many groups of a given size can be made from the total (using the rows or columns). • Write a number sentence to represent the total and the number of groups of a given size. • Represent and solve a problem using concrete materials or pictorial representations.	• Count in fives clockwise starting at 12 (for zero) to 6 (for thirty) progressing to counting in times. • Tell the time to the nearest five minutes past the hour (up to 25 minutes past).	three one-digit numbers. • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. • Solve problems with addition and subtraction including with missing numbers: - using concrete objects and pictorial representations, including those involving numbers, quantities and measures - applying their increasing knowledge of mental and written methods. **Capacity and Volume and Temperature** • Know common points of reference for volume / capacity such as a teaspoon / medicine spoon has a capacity of 5ml and	• Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. • Order the amounts for each category in a data set. • 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. **Measurement – length and weight/mass** • Know common points of reference for length / height such as a ruler is 30cm and a doorway is 2m tall. • Use the common points of reference they know to estimate the lengths and heights of other objects.

	using the inverse operation 8 + 4 = 12 or 4 + 8 = 12. • Recognise that 4 + ? = 9 can be solved by calculating 9 – 4 = ? because 9 is the whole which is made of two parts one of which is 4. • Recognise that 12 – ? = 8 can be solved by calculating 12 – 8 = ? because 12 is the whole which is made of two parts one of which is 8. • Represent and solve a problem using concrete materials or pictorial representations. **2D and 3D Shape** • Know that a vertex in a 2-D shape is where two sides meet (and the plural is vertices). • Identify the number of sides and vertices of 2-D shapes and recognise that this is the basis for naming them. • Know that a face is a flat surface of a 3-D shape. • Identify the number and shape of the faces or curved surfaces of 3-D shapes and recognise that this is the basis for naming them.	• Add two prices together to find the total cost. • Exchange 2p, 5p and 10p coins for the correct number of 1p coins. • Exchange 20p, 50p and £1 coins for the correct number of 10p coins. **Time** • Know that there are 24 hours in 1 day. • Put units of time (second, minute, hour, day, week, month, year) in order from shortest to longest and vice versa. • Tell the time for quarter past and to the hour and draw hands on a clock to show the time, recognising that the hour hand will not be exactly on the hour.			a large bottle of fizzy drink is 2 litres. • Use the common points of reference they know to estimate the volume in / capacity of other vessels. • Choose and use appropriate standard units to estimate and measure temperature (°C); capacity and volume (litres/ml) to the nearest appropriate unit, using scales, thermometers and measuring vessels. • Know that temperature is measured in degrees Celsius (°C). • Know that temperature is measured using a thermometer and read the temperature on a thermometer. • Know that average room temperature is between 18°C and 20°C. • Use the knowledge of average room	• Know common points of reference for mass such as a small packet of crisps has a mass of between 25g and 30g and a bag of sugar has a mass of 1kg. • Use the common points of reference they know to estimate the mass of other objects. • Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g) to the nearest appropriate unit, using rulers, scales. • Use and = to compare the values of lengths, masses. • Compare and order lengths, mass and record the results using >, < and =.

	• Know that an edge on a 3-D shape is where two faces / curved surfaces meet Know that a vertex on a 3-D shape is where three or more edges meet. • Find the face on a 3-D shape that is a specified 2-D shape.				temperature to say whether the temperature outside is hotter / warmer or colder / cooler. • Estimate and read the temperature on a partially marked thermometer scale where the reading is a multiple of 5. • Estimate and read the temperature on a partially marked thermometer scale, using the labelled marks to read to the nearest degree. • Use and = to compare the values of volumes / capacities. • Compare and order lengths, mass, volume/capacity and record the results using >, < and =. **Fractions** • Understand and use the terms numerator and denominator. • Understand that a fraction can describe part of a set. • Understand that the greater the	

					denominator is, the more pieces it is split into and therefore the smaller each part will be. • Recognise and name $1/3$ as any one of three equal parts of an object or shape and write the fraction $1/3$, • Find $1/3$ of a shape, object, set of objects / quantity length. • Recognise, find, name and write fractions ¼, $2/4$ and $3/4$ of a length, shape, set of objects or quantity. • Write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of $2/4$ and $1/2$,. • Use concrete materials or pictorial representations to change the counting sequence from $1/4$, $2/4$, $3/4$, $4/4$, $5/4$ … to $1/4$, $1/2$, $3/4$, 1, 1 $1/4$ … • Count on and back in steps of $1/4$ and ½.	

					Position and direction • Know that a three-quarter turn is the same as a turn through three right angles. • Understand and use the language clockwise and anti-clockwise. • Order/arrange combinations of mathematical objects in patterns /sequences. • 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 anticlockwise). **2D and 3D Shape** • From a set of shapes, identify those with a vertical	

					line of symmetry and those without. • Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. • Identify similarities and differences between pairs / sets of 3-D shapes. • 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].	

Year 2 Vocabulary

Number and place value

number, count (on, back, to, from), more (than), less (than), fewer, greater, most, least, units, ones, tens, hundreds, exchange, digit, place, place value, represents, partition, equal to, estimate, guess, roughly, about the same as, round, exact(ly), multiple of, sequence, continue, predict, rule

Measurement

size, compare, estimate, guess, roughly, about the same as, exact(ly), measuring scale, length, width, height, depth, long, short, tall, high, low, wide, narrow, deep, shallow, thick, thin (add –er and –est to all of these), ruler, metre stick, tape measure, metre, centimetre, mass, weigh, balance, heavy, light (add –er and –est to these), kilogram, half-kilogram, gram, scales, capacity, volume, measure accurately, order, standard unit(s), litre (l), millilitre (ml), half full, quarter full, three quarters full, empty, full, contains, sequence, steps, pattern, temperature, thermometer, degree(s) °C (Celsius), warmer/hotter, cooler/colder, hot, cold, increase, decrease, less (than), more (than), equal to

Multiplication and Division

number, count (on, back, to, from), units, ones, twos, threes, fives, tens, exchange, digit, place, place value, represents, equal to, repeated addition, array, row, column, lots of, groups of, times, …times as long/wide/tall/heavy/much, multiply, multiplied by, multiple of, sequence, continue, predict, rule, sort, group, set, divide, divided by, divided into, share (equally), how many… in…?, left (over), remainder, halve, odd, even

Addition and Subtraction

+, add, addition, more, plus, make, sum, total, altogether, -, subtract, subtraction, take (away), minus, leave, how many left (over)?, difference, inverse, units, ones, tens, hundreds, place, place value, partition, exchange, represents, equal, equal to, makes, is the same as

Position and Direction

sequence, patterns, order, position, first, second, third…, over, under, underneath, above, below, top, bottom, side, on, in, outside, inside, around, in front, behind, front, back, before, after, beside, next to, opposite, apart, between, middle, edge, centre, direction, journey, left, right, up, down, forwards, backwards, sideways, across, close, far, near, along, through, to, from, towards, away from, half, quarter, position, direction, movement, over, three-quarter(s), turn, clockwise, anti-clockwise

Time

time, days of the week, months of the year, seasons, day, week, fortnight, month, year, weekend, birthday, holiday, morning, afternoon, evening, night, midnight, bedtime, dinnertime, playtime, today, yesterday, tomorrow, before, after, next, last, now, soon, early, late, quick (-er, -est, -ly), fast (-er, -est), slow (-er, est, -ly), old (-er, -est), new (-er, -est), takes longer, takes less time, how long ago/how long will it be to…?, hour, minute, second, o'clock, half past, quarter past, quarter to, past, to, clock, watch, hands, clockwise, anti-clockwise

Money

money, coin, note, penny, pence (p), pound (£), price, cost, buy, bought, sell, sold, spend, spent, pay, change, dear, costs more, expensive, cheap, costs less, cheaper, how much…?, how many…?, total, value, combinations

Statistics

diagram, table, graph, block graph, pictogram, tally (chart), most/least popular/common, compare, total, sum, altogether, add, difference, how many more/less/fewer…

Fractions

fraction, numerator, denominator, part, equal parts, one whole, one half, two halves, one quarter, two…, three…, four quarters, equivalence, the same as, equal to, unit fraction, non-unit fraction

Geometry

shape, flat, curved, straight, solid, side, face, edge, vertex (vertices), end, surface, three dimensional (3-D), prism, cube, cuboid, pyramid, sphere, cone, cylinder, base, square-based, two dimensional (2-D), polygon, quadrilateral, circle, circular, triangle, triangular, square, oblong, rectangle, rectangular, pentagon, hexagon, octagon, symmetry, symmetrical, fold, mirror line, compare, sort

Y 3	**Place Value** • Count in steps of 100 from 0 to 1000. • Count in steps of 50 from 0. • Count in steps of 4 from 0. • Read and write numbers up to 1000 in numerals and in words. • Identify and represent numbers up to 1000	**Multiplication** • Use partitioning to derive doubles of all numbers to 50. Use known facts to derive doubles of all multiples of 100 to 500. • Use an array to represent a teens number multiplied by a single digit number	**Place Value** • Count in steps of 8 from 0. • Correctly place multiples of 10 on a number line with multiples of 100 marked but not labelled (with start and end labelled 0 and 1000). • Recognise the place value of each digit in a three-digit number. • Partition a three-digit number (represented using base 10	**2D and 3D Shape including Sorting** • Recognise angles as a description of a turn and identify objects in the classroom that turn. • Recognise where sides meet at a vertex in a shape that an angle is created.	**Statistics** • Use sorting diagrams to compare and sort objects, numbers and common 2-D and 3-D shapes. • Interpret and present data using bar charts, pictograms and tables.	**Place Value** • Count from 0 in multiples of 4, 8, 50 and 100. • Count up and down in tenths. • Read and write numbers with one decimal place. • Identify, represent and estimate numbers using

	using concrete materials or models. • Correctly place multiples of 100 on a number line with multiples of 100 marked but not labelled (with start and end labelled 0 and 1000). • Make and identify a three-digit number up to 1000 using concrete materials or models. • Make a three-digit number using concrete materials, e.g. base 10 apparatus, bundles of straws, place value counters. • Partition a three-digit number (represented using base 10 apparatus) into hundreds, tens and ones. • Compare two numbers up to 1000 when represented using the same concrete materials saying which number is greater or less and use and = correctly. Pay particular attention to numbers that have the same digits. • Compare three or more numbers up to 1000 when represented using the same concrete materials saying which	and partition the array into ten and ones to support calculating the product. • Use partitioning to calculate a teens number multiplied by a single digit number (mental jotting or grid method). **Multiplication tables (3X, 4X)** • Use arrays to understand the multiplication and division facts for the 3 multiplication table. • Use arrays to understand the multiplication and division facts for the 4 multiplication table. • Recall and use multiplication and division facts for the 3 multiplication table. • Derive the 4 multiplication table from the 2 multiplication table. • Recall and use multiplication and division facts for the 4 multiplication table. **Written and Mental Division**	apparatus) into hundreds, tens and ones in different ways. • Partition a three-digit number using base 10 apparatus into two groups in different ways where one group is a multiple of 10. • Partition a three-digit number without the use of practical equipment into two groups in different ways where one group is a multiple of 10. • Order numbers up to 1000 when represented using the same concrete materials saying which numbers are greater or less. Pay particular attention to numbers that have the same digits. • Order numbers up to 1000 saying which numbers are greater or less. Pay particular attention to numbers that have the same digits. • Find 1, 10 or 100 more or less than a given number. • Identify the multiples of 100 immediately before and after a given number. • Round numbers with up to three-digits to the nearest hundred. • Use concrete materials to model the effect of multiplying a two-digit number by 10.	• Recognise a quarter turn (as one right angle) from different starting points. • Recognise a drawn right angle when presented in any orientation. • Recognise a half-turn (as two right angles) from different starting points and that the start and end points will be facing in opposite directions. • Recognise a three quarter-turn (as three right angles) from different starting points. • Recognise a full turn (as four right angles) from different starting points and that the start and end points will be the same. • Identify pairs of perpendicular lines as lines that are at right angles to each other, or will be if they are continued, irrespective of orientation. • Identify parallel lines as lines that are	• Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables. **Addition and Subtraction** • Add more than two numbers with three digits using formal written methods of columnar addition with exchange from ones into tens, including when the 'carried' amount has more than one ten. • Add more than two numbers with up to three digits using formal written methods of columnar addition with exchange from ones into tens and tens into hundreds, using the place value columns to set the calculation out correctly. • Subtract numbers with different	different representations (including the number line). • Identify, represent and estimate numbers using different representations (including the number line). • Partition numbers in different ways. • Compare and order numbers up to 1000. • Compare and order numbers with one decimal place. • Round numbers to at least 1000 to the nearest 10 or 100. • Find the effect of multiplying a one- or two-digit number by 10 and 100, identify the value of the digits in the answer. • Describe and extend number sequences involving counting on or back in different steps. • Read Roman numerals from I to XII. • Solve number problems and

	numbers are greater or less and use and = correctly. Pay particular attention to numbers that have the same digits. • Identify the number one more and one less than a given number with up to three-digits, where the tens and hundreds digit stays the same. • Identify the number ten more and ten less than a given number with up to three-digits, where the hundreds digit stays the same. • Identify the number one hundred more and one hundred less than a given number with up to three-digits. • Use concrete materials to model the effect of multiplying a one-digit number by 10. • Describe the effect of multiplying a one-digit number by ten. • Identify and describe the rule (addition or subtraction) in a number sequence by calculating the difference between two adjacent numbers. • Extend number sequences by using the identified rule.	• Use concrete materials or pictorial representations to derive the division facts related to the multiplication facts that they know. • Understand division as sharing. • Understand division as grouping, e.g. recognise contexts that relate to finding how many groups of a particular size there are in a given amount. • Use concrete materials to show division as repeated subtraction for numbers beyond the multiplication facts that they know. • Use concrete materials to show division as repeated subtraction for numbers beyond the multiplication facts that they know using greater multiples of the divisor. **Time** • Tell and write the time on an analogue clock to the nearest minute	• Describe the effect of multiplying a two-digit number by ten. **Mental addition and Subtraction** • Recognise calculations that require counting on mentally to find the difference and use this strategy where appropriate (This should be supported by concrete materials, pictures or jottings). • Recognise calculations that require counting on or back mentally, bridging through a multiple of 10 efficiently and use this strategy where appropriate (This should be supported by concrete materials, pictures or jottings). • Recognise calculations that require a mental compensation method and use this strategy where appropriate (This should be supported by concrete materials, pictures or jottings). • Recognise that when numbers are close together, even when the context suggests that it is a 'take away', a counting on strategy is most efficient and use this correctly. • Recognise and use a counting up strategy when the difference between two	always the same distance apart irrespective of length (NB parallel lines can also be curved or concentric circles), irrespective of orientation. **Addition and Subtraction** • Add and subtract a three-digit number and ones mentally, crossing a hundreds boundary. • Add and subtract a three-digit number and tens mentally crossing a hundreds boundary. • Add two numbers with three digits using formal written methods of columnar addition with exchange from ones into tens and tens into hundreds. • Subtract numbers with three digits using formal written methods of columnar subtraction with exchange from tens into ones and hundreds into tens.	numbers of digits up to three digits, using formal written methods of columnar subtraction with exchange from tens into ones and hundreds into tens, using the place value columns to set the calculation out correctly. • Subtract numbers using formal written methods of columnar subtraction where the greater number has 0 as a place holder in the tens column with exchange from hundreds into tens then tens into ones. • 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.	concrete problems involving these ideas. **Mental Calculation** • Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method). • Select a mental strategy appropriate for the numbers involved in the calculation. • Understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context. • Recall/use addition / subtraction facts for 100 (multiples of 5 and 10). • Derive and use addition and subtraction facts for 100.

	2D Shape • Accurately draw 2-D shapes on dotty paper (squared and isometric). • Draw 2-D shapes with specific properties on dotty paper. • Identify horizontal lines as lines that are parallel to the horizon. • Identify vertical lines as lines that are at right angles to the horizon. **Length including Perimeter** • Measure lengths (m/cm/mm). • Compare the lengths of different objects. • Add values of length (m/cm/mm). • Find the difference between the lengths of objects and say by how much an object is longer or shorter (m/cm/mm). • Use concrete materials to create a 2-D shape; deconstruct the straws into a straight line to show that the perimeter is a measure of length around the boundary. • Use counting to measure the perimeter of a polygon, either using a	for times past the hour. • Tell and write the time on an analogue clock to the nearest minute for times to the hour. • Know common points of reference for time such as the length of break time is 15 minutes, the time for teeth brushing is 2 minutes, the school day lasts for six hours. • Compare two time intervals which are in the same unit. • Record time in terms of seconds, minutes, hours. • Know that there are 60 seconds in a minute. • Know the number of days in each month. **3D Shape** • Use construction materials such as Clixi or Polydron to make 3-D shapes. • Make the skeletons of 3-D shapes using straws and Playdoh.	numbers can be calculated using three or fewer jumps, • Recall and use addition and subtraction facts for 100 with multiples of 5. • Use addition and subtraction facts for 100. • Use addition and subtraction facts for multiples of 100 totalling 1000. **Fractions** • Show practically and pictorially that a fraction is one whole number divided by another. • Understand that finding a fraction of an amount relates to division. • Where a fraction of an amount cannot be found by using known division facts, use concrete materials to find unit fractions (with denominators of ten or less) of a set of objects. • Use concrete materials to find non-unit fractions (with denominators of ten or less) of a set of objects. • Where a fraction of an amount cannot be found by using known division facts, use pictorial representations, e.g. bar model, to find unit fractions of a set of objects. • Use pictorial representations, e.g. bar model, to find non-	• Use rounding to estimate the answer to a calculation. • Use inverse to check the answer to a calculation. **Position and Direction** • Know that squares in the same vertical column will all have the same letter reference (but a different number reference). • Know that squares in the same horizontal row will all have the same number reference (but a different letter reference). **Time** • Know that when reading and writing the time on a digital clock, the hours and minutes are separated by a colon. • Tell the time on a digital clock to the nearest minute and know whether this is before or after midday.	• Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. **(Measures)** • Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). • Continue to estimate and measure temperature to the nearest degree (°C) using thermometers. • Measure the perimeter of simple 2-D shapes. **Multiplication and Division (Measures)** • Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method).	• Derive and use addition and subtraction facts for multiples of 100 totalling 1000. • Add and subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds. **Fractions** • Show practically or pictorially that a fraction is one whole number divided by another. • Recognise that tenths arise from dividing objects 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 show, using diagrams, equivalent fractions

	trundle wheel to measure large polygons drawn in chalk on the playground where the lengths of the sides are in whole metres, or shapes drawn on squared centimetre paper. **Statistics** • Use single set Venn diagrams to compare and sort objects, numbers and shapes including items that do not fit the criteria and placing these in the universal set (area outside the circles). • Use one criterion Carroll diagrams to compare and sort objects, numbers 3-D shapes and shapes. • Interpret and present data using bar charts with a scale in ones. • Interpret and present data using bar charts with a scale in twos. • Interpret and present data using tables. • Use and interpret information in scaled bar charts and pictograms and tables to solve one-step questions such as		unit fractions of a set of objects within multiplication table knowledge. • Use concrete materials such as multilink to create equivalent fractions. • Use pictorial representations such as fraction walls to recognise where fractions are equivalent. • Use pictorial representations, such as fraction strips, to add and subtract fractions with the same denominator within one whole. • Add and subtract fractions with the same denominator within one whole by adding or subtracting the numerators. • Use pictorial representations, such as fraction strips, to compare and order fractions with the same denominators. • Compare and order fractions with the same denominator by placing them on a number line. • Use pictorial representations, such as fraction strips, to compare and order unit fractions. • When comparing fractions, understand that when the numerators are the same, the greater the denominator, the smaller the fraction; when the denominators are the same,	• Use the common points of reference they know to estimate the time of various events. • Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon, midnight. • Know that there are 365 days in a year but 366 in a leap year; know that a leap year occurs every 4 years when the year is divisible by 4. • Solve time problems working within the hour boundary. • Solve time problems that involve the start time and duration where the end time is to be calculated, (within the hour). • Solve time problems that involve the end time and duration where the start time is to be calculated, (within the hour). • Solve time problems working across the hour boundary. • Solve time problems that involve the start	• Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. • Derive and use doubles of all numbers to 100 and corresponding halves. • 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. • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. • Solve problems, including missing number problems, involving multiplication and division (and	with small denominators. • Add and subtract fractions with the same denominator within one whole. • Compare and order unit fractions, and fractions with the same denominators (including on a number line). • Count on and back in steps of 1/2, ¼ 1. • Solve problems that involve all of the above. **Measures** • 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/read time with increasing accuracy to the nearest minute. • Record/compare time in terms of seconds, minutes, hours; use vocabulary such as o'clock, a.m./p.m.,

	‘How many more?’ and ‘How many fewer?’ **Mental Calculation** • Recognise and solve calculations that involve known facts. • Recognise that the numbers in addition calculations can be reordered to make calculating more efficient and use this strategy where appropriate (This should be supported by concrete materials, pictures or jottings). • Recognise calculations that require counting on or back mentally and use this strategy where appropriate (This should be supported by concrete materials, pictures or jottings). • Recognise calculations that require mental partitioning and use this strategy where appropriate (This should be supported by concrete materials, pictures or jottings). • Use knowledge of number bonds to 10 to recall the complement of any two-digit number to the next multiple of 10.		the greater the numerator, the greater the fraction. • Count on and back in steps of $1/3$ in the form $1/3, 2/3, 3/3, 4/3$. **Division** • Understand how multiplication and division statements can be represented using arrays. • Use a vertical number line to show division as repeated subtraction for numbers beyond the multiplication facts that they know using greater multiples of the divisor. **Volume and Capacity/Mass** • Measure mass (kg/g). • Compare the mass of different objects. • Add values of mass (kg/g). • Find the difference between the masses of objects and say by how much an object is heavier or lighter (kg/g). • Measure volume/capacity (l/ml). • Compare the volume/capacity of different objects. • Add values of volume/capacity (l/ml). • Find the difference between the volumes/capacities of vessels and say how much more or how much less one vessel contains than another (l/ml).	time and duration where the end time is to be calculated, (beyond the hour). • Solve time problems that involve the end time and duration where the start time is to be calculated, (beyond the hour).	interpreting remainders), including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. **2D and 3D Shape including Sorting** • Recognise and describe 3-D shapes in different orientations. • Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. • Recognise angles as 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	morning, afternoon, noon, 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]. **Statistics** • Use sorting diagrams to compare and sort objects, numbers and common 2-D and 3-D shapes. • Interpret and present data using bar charts, pictograms and tables. • Solve one-step and two-step questions [for example, ‘How many more?’ and ‘How many fewer?’] using information presented in scaled bar charts and pictograms and tables.

	• Derive the complement of any two-digit number to 100. • Recall and use addition and subtraction facts for 100 with multiples of 10. • Derive and use addition and subtraction facts for 100 with multiples of 5 using bead strings, a blank 10 by 10 grid etc. • Recognise that, when calculating addition facts to 100, the two 5s total 10 and the tens total 90. • Derive and use addition and subtraction facts for 100 using bead strings, a blank 10 by 10 grid etc. • Recognise that, when calculating addition facts to 100, the ones total 10 and the tens total 90. • Use related facts to derive addition and subtraction facts for multiples of 100 totalling 1000. **Written Addition and Written Subtraction** • Add and subtract a three-digit number and ones mentally with no boundaries crossed. • Add and subtract a three-digit number and tens		**Multiplication including 8X Table** • Use arrays to understand the multiplication and division facts for the 8 multiplication table. • Understand how multiplication and division statements can be represented using arrays. • Derive the 8 multiplication table from the 4 multiplication table. • Recall and use multiplication and division facts for the 8 times table. • Use partitioning to derive doubles of all numbers to 100. • Use partitioning to derive and use halves of multiples of 10 where the tens digit is odd. • Use partitioning to derive and use halves of all numbers to 100. • Use partitioning or known facts to derive doubles of all multiples of 50 to 500. • Use known facts to multiply a multiple of 10 by a single digit number. • Use partitioning to calculate a two-digit number multiplied by a single digit number using grid method. **Measures, Money** • Recognise that pence is a fraction of a whole pound.		than or less than a right angle. • Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. **Decimals Addition and Subtraction (Money)** • Recognise that when an amount of money is in pounds and pence it can be written with a £ sign and a decimal point separating the whole pounds and the pence. • Continue to recognise and use the symbols for pounds (£) and pence (p) and understand that the decimal point separates pounds/pence. • Recognise that each 10p coin is 1 10 of £1, hence 10p being written as £0.10 which is consistent with the columns in a place value chart. • Recognise that ten 10p coins equal £1	

	mentally with no boundaries crossed. • Add and subtract a three-digit number and hundreds mentally. • Add and subtract a three-digit number and ones mentally, crossing a tens boundary. • Add two numbers with three digits using formal written methods of columnar addition with no exchange from ones into tens. • Add two numbers with three digits using formal written methods of columnar addition with exchange from ones into tens. • Subtract numbers with and subtraction three digits using formal written methods of columnar subtraction with no exchange from tens into ones. • Subtract numbers with three digits using formal written methods of columnar subtraction with exchange from tens into ones. • Represent and solve a problem using concrete materials.		• Recognise that when writing amounts of money, either £ or p are used but never together. • Recognise that ten 10p coins equal £1. • Solve a one-step problem that involves adding two amounts of money. • Solve a one-step problem that involves subtracting an amount of money. **<u>Statistics</u>** • Use Venn diagrams with two non-intersecting sets to compare and sort objects, numbers and shapes including items that do not fit the criteria and placing these in the universal set (area outside the circles). • Use Venn diagrams with two intersecting sets to compare and sort objects, numbers and shapes including items that do not fit the criteria and placing these in the universal set (area outside the circles). • Use two criteria Carroll diagrams to compare and sort objects, numbers and shapes (understanding that Carroll diagrams are labelled 'is' and 'is not'). • Interpret and present data using bar charts with a scale in fives or tens.		and that each coin is $1/10$ of £1. • Solve a two-step problem that involves adding and then subtracting an amount of money. • Add and subtract amounts of money to give change, using both £ and p in practical contexts. • Solve problems involving money and measures and simple problems involving passage of time.	

	• Represent and solve a problem using pictorial representations of the items in the context. • Represent and solve a problem using structured pictorial representations such as the bar model.		• Select the most appropriate scale when representing data in a bar chart or pictogram. • Use and interpret information in scaled bar charts and pictograms and tables to solve two-step questions such as those involving addition of two or more categories to compare with another one, or those to identify a missing category number when given the other category totals and the overall amount.			

Year 3 Key Vocabulary

Place Value

number, base 10, grouping, more (than), less (than), fewer, greater, most, least, compare, order, units, ones, tens, hundreds, thousands, exchange, digit, place, place value, represents, partition, equal to, estimate, guess, roughly, about the same as, round, exact(ly), multiple

Addition and Subtraction

multiple of, sequence, continue, predict, rule, add, plus, sum, total, altogether, subtract, take (away), minus, more/fewer, difference between, efficient, place value, units/ones, tens, hundreds, exchange, estimate, round, inverse

Multiplication and Division

count (on, up, back, down), sequence, step, continue, predict, multiple, multiplication, multiply, lots of, product, repeated addition, array, … times as …, scale up, estimate, efficient, division, inverse, row, column, share equally, group in …, equal groups of, divide, divided by, divided into, left (over), remainder, partition

Shape

draw (accurately), describe, recognise, angle, property, 2-D, flat, curved, straight, corner, side, right angle, circle, semi-circle, triangle, square, rectangle, oblong, pentagon, hexagon, octagon, quadrilateral, horizontal , vertical , parallel, perpendicular, 3-D, 3 dimensional, polyhedron, cube, cuboid, pyramid, sphere, hemisphere, cone, cylinder, prism, face, curved, flat, surface, edge, vertex, vertices, right angle, greater than, less than, symmetrical, non-symmetrical, measure, compare, length, width, height, distance, perimeter, unit, quarter-turn, three-quarter turn, complete turn, measure, turn, sort, Venn Diagram, Carroll Diagram

Statistics

graph, tally, block graph, pictogram, bar chart, frequency table, axis/axes, label, title, popular, common, total, altogether, estimate, how many more/fewer, difference between

Measurement

measure, compare, length, width, height, distance, perimeter, unit, centimetre (cm), metre (m), kilometre (km), ruler, metre stick, tape measure,
weigh, weighs, balances, heavy/light, heavier/lighter, heaviest/lightest, mass, kilogram (kg), half-
kilogram, gram (g), balance, scales, volume, capacity, full, half full, empty, holds, contains, litre (l), half-litre, millilitre (ml), container, measuring scale, division, calibration

Time

analogue, digital, 12-hour, 24-hour, hour, minute, second, o'clock, half, quarter, past, to, a.m., p.m., morning, afternoon, evening, night, midnight, day, days of the week, month, months of the year, year, leap year, how long

Position and Direction
position, direction, movement, angle, turn, rotation, right-angle, half turn, quarter turn, three-quarter turn, clockwise, anticlockwise, straight line, grid, forwards, backwards, right, left

Money
money, coin, note, penny, pence, pound (£), price, cost, buy, bought, sell, sold, spend, spent, pay, change, dear, costs more, more/most expensive, cheap, costs less, cheaper, less/least expensive, total, amount, value, worth, ones, tenths, decimal, fraction, decimal point, decimal place, divide, dividing, value, digit, one or two-digit number, represents, place value, greater than, greatest, larger than, largest, least, fewest, compare, order

Fractions
part, equal parts, fraction, one whole, one half, two halves, one quarter, two quarters, three quarters, four quarters, one third, two thirds, three thirds, one tenth, numerator, denominator, unit fraction, non-unit fraction, equivalent, compare, order

Y 4	**Place Value, Including Decimals** • Count in multiples of 1000 from 0 or any multiple of 1000. • Count in multiples of 25 from 0 or any multiple of 25. • Count up and down in fractional hundredths (1 100) including where ones boundaries are crossed. • Count up and down in decimal hundredths (0.01) including where tenths boundaries are crossed. • Read and write numbers to at least 10 000. • Read and write numbers with up to two decimal places. • Recognise the place value of each digit in a four-digit number. • Identify the value of each digit to two decimal places.	**Multiplication and Division** • Recall and use multiplication and division facts for the 6 multiplication table. • Recall and use multiplication and division facts for the 11 multiplication table. • Use partitioning to double any number with up to four digits where the answer is less than 10 000. • Use related facts to double a number of tenths. • Recognise that multiplying by 0 gives a product of 0. • Recognise that multiplying a number by 1 does not change the number. • Recognise the relationship between a known fact and a related calculation.	**Place Value** • Count in multiples of 9 from 0 or any multiple of 9. • Count in multiples of 6 from 0 or any multiple of 6. • Count backwards through zero to include negative numbers. • Partition a four-digit number without the use of practical equipment into two groups in different ways. • Partition numbers with one decimal place without the use of practical equipment into two groups in different ways. • Correctly place any number on a number line with multiples of 1000 marked but not labelled. • Correctly place multiples of one hundredth (0.01) on a number line with multiples of 0.1 marked	**Multiplication and Division** • Identify factor pairs of a given number within the multiplication tables that they know. • Use appropriate factor pairs and commutativity in mental calculations. • Recall and use multiplication and division facts for the 9 multiplication table. • Recall and use multiplication and division facts for the 7 multiplication table. • Use partitioning to double a number with ones and tenths. • Use partitioning to halve any four digit number where each digit is even.	**Counting and Sequences** • Count in multiples of 6, 7, 9, 25 and 1000. **Written Division** • Use place value, known and derived facts to multiply and divide mentally, including: - multiplying by 0 and 1 - dividing by 1 - multiplying together three numbers. • Divide numbers up to 3 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context. • Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree Estimate division by rounding to the nearest	**Multiplication and Division** • Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method). • Recognise and use factor pairs and commutativity in mental calculations. • Use partitioning to double or halve any number, including decimals to one decimal place. • Use place value, known and derived facts to multiply and divide mentally, including: -

	• Partition a four-digit number (represented using place value counters) into thousands, hundreds, tens and ones in different ways. • Partition numbers with one decimal place (represented using straws or place value counters) into ones and tenths in different ways. • Identify and represent numbers up to 10 000 using models. • Correctly place multiples of 100 on a number line with multiples of 1000 marked but not labelled (with start and end labelled 0 and 10 000). • Identify and represent numbers with up to two decimal places using models such as straws, place value counters and arrow cards. • Correctly place multiples of one tenth (0.1) on a number line with multiples of 0.1 marked but not labelled (with start and end labelled 0 and 1). • Compare three or more numbers up to 10 000 when represented using models such as place	• Recognise that dividing a number by 1 does not change the number. • Use knowledge of place value and multiplication facts to divide related greater numbers. • Use arrays to identify all the factor pairs of a given number. • Use partitioning to calculate a three-digit number multiplied by a single digit number using grid method. • Divide two-digit numbers (beyond the multiplication facts) by a single digit number using the chunking method where there is or is not a remainder. • Multiply and divide amounts of money given in pence only. **Length including Perimeter** • Measure lengths (m/cm/mm) and use known measurements to make reasonable estimates including numbers to two decimal places. • Compare the length of different objects	but not labelled (with start and end labelled 0 and 1). • Order numbers up to 10 000 with different numbers of digits, saying which numbers are greater or less. • Identify the number one tenth (0.1) more and less than a given number with up to one decimal place. • Identify the multiples of 1000 immediately before and after a given four-digit number. • Round numbers with up to four-digits to the nearest thousand. • Extend number sequences by using the identified rule within children's number competence. • Know that L represents 50 and C represents 100. • Represent numbers with only additive properties. • Know that I can only be used before V and X to represent 1 less than 5 (4) and 1 less than 10 (9). • Represent any number up to 50. • Know that X can only be used before L and C to represent 10 less than 50	• Use partitioning to halve any four digit even number where some of the digits are odd. • Use partitioning to halve a number with ones and tenths where both digits are even. • Use partitioning to halve any number with ones and tenths where the tenths digit is even. • Represent multiplication of three numbers using arrays. • Use commutativity to reorder multiplication of three numbers to simplify the calculation. • Use inverse to check the answer to a calculation. **Shape** • Identify properties of 3-D shapes including: faces or surfaces – number of faces and/or surfaces, where any are congruent (identical), parallel	multiple of 10 of the divisor and of accuracy. • Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, division (including interpreting remainders), integer scaling problems and harder correspondence problems such as n objects are connected to m objects. **Multiplication Facts 12X Table** • Recall multiplication and division facts for multiplication tables up to 12 × 12. **Fraction and Decimals (Measures)** • Order and compare numbers with the same number of decimal places up to two decimal places. • Round decimals (one decimal place) to the nearest whole number. • Find 0.1, 1, 10, 100 or 1000 more or less than a given number.	multiplying by 0 and 1 - dividing by 1 - multiplying together three numbers. • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout. • Divide numbers up to 3 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context. • Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree Estimate division by rounding to the nearest multiple of 10 of the divisor and of accuracy. • Solve problems involving multiplying and adding, including

	value counters saying which numbers are greater or less and use and = correctly. • Compare two or more numbers with ones, tenths and hundredths using concrete materials such as straws, saying which has more and less and use and = correctly. • Order numbers with ones, tenths and hundredths using concrete materials such as straws, saying which numbers are greater or less. • Identify the number 1000 more and less than a given number with up to four-digits recognising which digits stay the same and which digits change. • Identify the multiples of 10 and 100 immediately before and after a given four-digit number. • Round numbers with up to four-digits to the nearest hundred and ten. • Describe the effect of dividing a one or two-digit number by 10. • Write amounts of money using decimal notation.	including numbers to two decimal places. • Add and subtract (including finding the difference) values of length including numbers to one decimal place (m/cm/mm). • Multiply and divide values of length (m/cm/mm). • Recognise where sides are the same length in rectangles, including squares and use this when measuring and calculating perimeter. • Calculate the perimeter of any rectilinear figure where all side lengths are given. • Recognise where the sides are the same length in L and T shaped rectilinear figures and use this when measuring and calculating perimeter. • Calculate the length of missing sides using known dimensions. • Know that: 10mm = 1cm 100cm = 1m 1000m = 1km and vice versa. • Use the relationship between different units	(40) and 10 less than 100 (90). • Represent any number up to 100. • Compare and contrast Roman numeral system and modern day number system. **Fractions and Decimals** • Understand that a fraction is one whole number divided by another. • Where a fraction of an amount cannot be found by using known division facts, use pictorial representations to find non-unit fractions of a set of objects. • Count on or back in steps of any unit fraction crossing ones boundaries. • Compare and order unit fractions and fractions with the same denominators (including on a number line). • Use pictorial representations to recognise where fractions are equivalent where one fraction is a unit fraction or where both fractions are non-unit fractions.	and perpendicular edges – number of edges, parallel and perpendicular vertices – number of vertices axis of symmetry. • Name 3-D shapes including all prisms and pyramids according to their properties. • Complete a simple symmetric figure using a vertical or horizontal line of symmetry. • Identify acute and obtuse angles in any orientation. • Compare any two angles less than two right angles where one of the lines is horizontal or vertical, identifying which is greater and less. • Order more than two angles less than two right angles where one of the lines is horizontal or vertical. **Addition and Subtraction (Statistics)**	• Recognise, find and write fractions of a discrete set of objects including those with a range of numerators and denominators. • Count on and back in steps of unit fractions. • Recognise and show, using diagrams, families of common equivalent fractions. • Recognise and write decimal equivalents of any number of tenths or hundredths. • Recognise and write decimal equivalents to , , 3/4. • Add and subtract fractions with the same denominator (using diagrams). • Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. • Solve simple measure and money problems involving fractions and decimals to two decimal places.	using the distributive law to multiply two digit numbers by one digit, division (including interpreting remainders), integer scaling problems and harder correspondence problems such as n objects are connected to m objects. **Place Value** • Count in multiples of 6, 7, 9, 25 and 1000. • Count up and down in hundredths. • Partition numbers in different ways. • Identify, represent and estimate numbers using different representations (including the number line). • Order and compare numbers beyond 1000. • Round any number to the

	• Recognise that one hundred 1p coins equal £1 and that each coin is $1/100$ of £1. • Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. • Understand the hundredths heading in place value columns represents a given number of fractional hundredths. **Addition and Subtraction (Problems and Inverse)** • Recognise and solve calculations that involve known or related facts. • Recognise that the numbers in calculations can be reordered to make calculating more efficient and use this strategy where appropriate. • Recognise calculations that require counting on or back mentally and use this strategy where appropriate. • Recognise calculations that require mental partitioning and use this	of length to identify the calculation necessary for conversion. **Statistics** • Use Venn diagrams with two intersecting sets to compare and sort objects, numbers and shapes including items that do not fit the criteria and placing these in the universal set (area outside the circles). • Interpret and present discrete data using bar charts and a scale appropriate to Year 4 counting and place value. • Choose the appropriate scale when representing data in a bar chart.	• Recognise and write decimal equivalents for any number of hundredths less than 10/100. • Recognise that 10/100 is equivalent to 1/10 or 0.1. • Recognise that 20/100 is equivalent to 2/10 or 0.2 and so on. • Write any number of hundredths in fraction and decimal form. • Use concrete materials (such as money) or pictorial representations to show that 1/2 is the same as 50/100 which is 0.50 or 0.5, that 1/4 is the same as 25/100 which is 0.25 and that 3/4 is the same as 75/100 which is 0.75. • Add and subtract fractions with the same denominator crossing a ones boundary by adding or subtracting the numerators. **Division** • Divide a two-digit number by a one-digit number using a partitioning strategy. • Divide three-digit numbers by a single digit number using the	• Place temperatures including negative numbers on a number line (this could be vertical). • Recognise calculations that require counting on or back mentally, bridging through a multiple of 10 efficiently and use this strategy where appropriate. • Recognise calculations that require a mental compensation method and use this strategy where appropriate. • Recognise that, when calculating addition facts to 10, the ones total 9 and the tenths total 1. • Add and subtract a three-digit number to/from a three-digit number including crossing the hundreds boundary (This could be supported by jottings or a number line). • Add and subtract a number with one	**Measures Volume/Capacity and Mass** • Estimate, measure, compare and calculate different measures, including money in pounds and pence. • Order temperatures including those below 0°C. • Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. • Convert between different units of measure. **Position and Area** • Describe positions on a 2-D grid as coordinates in the first quadrant. • Plot specified points and draw sides to complete a given polygon. • Describe movements between positions as translations of a given unit to the left/right and up/down. • Find the area of rectilinear shapes by counting squares. **Time**	nearest 10, 100 or 1000. • Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer. • Describe and extend number sequences involving counting on or back in different steps, including sequences with multiplication and division steps. • Read Roman numerals to 100 and know that over time, the numeral system changed to include the concept of zero and place value. • Solve number and practical problems that involve all of the above and with increasingly large positive numbers. **Statistics** • Use a variety of sorting diagrams to compare and

	strategy where appropriate. • Recognise calculations that require counting on mentally to find the difference and use this strategy where appropriate. • Derive and use addition and subtraction facts for 1 and 10 using number lines, bar model and related facts. • Add and subtract a two-digit number to/from another two-digit number including crossing the hundreds boundary. • Add and subtract a three-digit number to/from a three-digit number where no boundaries are crossed. • Add and subtract a two-digit number to/from a three-digit number including crossing the hundreds boundary. • Add and subtract a number with one decimal to/from a whole number. • Add more than two numbers with four digits using formal written methods of columnar addition with exchange. • Subtract two numbers with four digits using		chunking method where there is no remainder. • Divide three-digit numbers by a single digit number using the chunking method, making the calculation more efficient by subtracting more than one multiple of 10 of the divisor. • Estimate division by rounding to the nearest multiple of 10 of the divisor and of accuracy using related facts. • Use inverse to check the answer to a calculation. **<u>Position and Direction</u>** • Know that the x axis is horizontal. • Know that the y axis is vertical. • Know that vertical lines on a grid can be identified by the value on the x axis from which they originate. • Know that horizontal lines on a grid can be identified by the value on the y axis from which they originate. • Know that the first number in a coordinate pair refers to the x value and the second number	decimal place to/from another where the ones boundary is not crossed (This could be supported by jottings or a number line). • Add two numbers with one decimal place using formal written methods of columnar addition with exchange. • Subtract two numbers with one decimal place using formal written methods of columnar subtraction with exchange. • Use inverse to check the answer to a calculation. • Use two criteria Carroll diagrams to compare and sort objects, numbers and shapes (understanding that Carroll diagrams are labelled 'is' and 'is not'). • Explain what a time graph is showing. • Present time graphs from given data	• Read, write and convert time between analogue and digital 12- and 24-hour clocks. • Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days and problems involving money and measures.	classify numbers and geometric shapes based on their properties and sizes. • Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts, time graphs. • Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. **<u>Addition and Subtraction</u>** • Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method). • Select a mental strategy

	formal written methods of columnar subtraction with exchange where the greater number has 0 as a place holder. • Use rounding to estimate the answer to a calculation. • Add and subtract amounts of money including money notation where the pence is a multiple of 10p. **2D Shape** • Identify properties of 2-D shapes including: sides – number of sides, where any are equal, parallel and perpendicular vertices – number of vertices angles – right, acute, obtuse and where angles are equal diagonals – number, if and how they intersect line symmetry. • Know and use the terms: scalene, isosceles, equilateral regular and irregular. • Name 2-D shapes including all triangles and quadrilaterals according to their properties.		refers to the y value and read and write them using correct notation e.g. (x , y). • Plot a given set of coordinate pairs. • Describe movement of a specified point as a translation of a given unit using left and right. • Describe movement of a specified point as a translation of a given unit using up and down. **Area** • Know area is a measure of surface within a given boundary. • Find the area of irregular shapes (including those with curved sides) by counting squares. • Find the area of rectangles presented on squared paper where the sides are horizontal and vertical by counting squares. • Use knowledge of arrays to find the area of rectangles by counting squares in groups. • Find the area of other rectilinear shapes presented on squared paper where the sides are horizontal and	using appropriate scales. • Answer questions using time graphs by reading from labelled values. • Answer questions using time graphs by reading from between labelled values.		appropriate for the numbers involved in the calculation. • Recall and use addition and subtraction facts for 100. • Recall and use +/- facts for multiples of 100 totalling 1000. • Derive and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place). • Add and subtract mentally combinations of two and three digit numbers and decimals Add and subtract a number with one decimal to one decimal place. • Add and subtract numbers with up to 4 digits and decimals with one decimal place using the formal written methods of columnar addition and subtraction where appropriate.

	• Identify lines of symmetry in 2-D shapes presented in different orientations. • Continue to identify horizontal and vertical lines and pairs of perpendicular and parallel lines. • Identify acute and obtuse angles where one of the lines is vertical or horizontal. **Time** • Know that: 60 seconds = 1 minute 60 minutes = 1 hour 24 hours = 1 day 7 days = 1 week and vice versa. • Know that 24 hour clock times are written using four digits. • Recognise that times on a digital 24 hour clock with an hour value between 0 and 12 are before midday (morning) and times between 12 and 24 are after midday (afternoon or night).		vertical by counting squares in groups. **Addition (Measures)** • Place temperatures including negative numbers on a number line (this could be vertical). • Recognise calculations that require counting on or back mentally, bridging through a multiple of 10 efficiently and use this strategy where appropriate. • Recognise calculations that require a mental compensation method and use this strategy where appropriate. • Recognise that, when calculating addition facts to 10, the ones total 9 and the tenths total 1. • Add and subtract a three-digit number to/from a three-digit number including crossing the hundreds boundary (This could be supported by jottings or a number line). • Add and subtract a number with one decimal place to/from another where the ones boundary is not crossed (This			• Estimate; use inverse operations to check answers to a calculation. • Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. • Solve addition and subtraction problems involving missing numbers. **Shape** • Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. • Complete a simple symmetric figure with respect to a specific NB – the mirror line will dissect the figure line of symmetry. • Identify acute and obtuse angles and compare and order angles up to two right angles by size.

			could be supported by jottings or a number line). • Add two numbers with one decimal place using formal written methods of columnar addition with exchange. • Subtract two numbers with one decimal place using formal written methods of columnar subtraction with exchange. • Use inverse to check the answer to a calculation.			

Year 4 Key Vocabulary

Place Value

units, ones, tens, hundreds, thousands, ten thousand, one-, two-, three- or four-digit number, numeral, place value, represents, exchange, greater than, greatest, more than, most, larger than, largest, least, fewest, smallest, one…ten…one hundred…one thousand more/less, compare, order, estimate, exact, exactly, approximate, approximately, round to the nearest ten/whole number, hundred, thousand, integer, most/least significant, Roman numerals, zero, stands for, integer, positive, negative, above/below zero, minus, next, consecutive, sequence, continue, predict, pattern, rule, relationship, increase, decrease, pattern, justify, tenths, hundredths, decimal, decimal fraction, decimal point, decimal place, numeral, odd, even

Addition and Subtraction

units, ones, tens, hundreds, thousands, one-, two-, three- or four-digit number, numeral, place value, represents, exchange, add, addition, more, plus, increase, sum, total, altogether, subtract, subtraction, take (away), minus, decrease, leave, how many are left/left over? difference between, equals, sign, is the same as, tens boundary, hundreds boundary, inverse

Geometry

line, curved, straight, side, vertex, sort, regular, irregular, 2-D, two-dimensional, circle, circular, semi-circle, triangle, triangular, equilateral triangle, isosceles triangle, square, rectangle, rectangular, oblong, pentagon, pentagonal, hexagon, hexagonal, heptagon, octagon, octagonal, polygon, quadrilateral, lines of symmetry, fold, mirror line, reflection, reflect, horizontal, vertical, angle, acute angle, degree, perpendicular, parallel, Venn diagram, Carroll diagram, classify, angle, right angle, acute, obtuse, degree

Measurement

measure, measurement, distance, size, compare, unit, standard unit, metric unit, measuring scale, division, guess, estimate, approximately, length, width, height, depth, breadth, edge, perimeter, rectilinear, rectangle, square, kilometre (km), metre (m), centimetre (cm), millimetre (mm), ruler, metre stick, tape measure, measuring scale, thermometer, temperature, degrees °, Celsius, mass, balances, weight, weighs, heavy/light, heavier/lighter, heaviest/lightest, kilogram (kg), half-kilogram, gram, scales, volume/capacity, full, half full, empty, holds, contains, litre (l), half-litre, millilitre (ml), container, measuring cylinder

Time

time, days of week: Monday, Tuesday…, months of the year: January, February…, seasons: spring, summer, autumn, winter, day, week, fortnight, month, year, leap year, decade, century, millennium, weekend, birthday, holiday, calendar, date, date of birth, morning, afternoon, evening, night, hour, minute

Statistics

count, tally, sort, survey, questionnaire, data, graph, block graph, pictogram, represent, group, set, list, chart, bar chart, tally chart, table, frequency table, time graph, line graph, label, title, axis, axes, scale, diagram, most popular, most common, least popular, least common, discrete data, continuous data

Multiplication and Division

lots of, groups of, times, multiply, multiplication, multiplied by, multiple of, product, repeated addition, array, row, column, double, halve, half, equal groups of, divide, division, divided by, divided into, remainder, factor, quotient, divisible by, inverse, partition, ones, tens, hundreds, thousands, place, place value, digit, dividend, divisor, share equally, equal groups of, estimate, pattern, pair, rule, relationship, partition, sequence, continue, predict, pattern, rule, relationship, increase, decrease,

Area

area, covers, surface, boundary, array, rows, column, equal squares, rectilinear

Position and Direction

position, over, under, underneath, above, below, to, bottom, side, on, in, outside, inside, around, in front of, behind, front, back, before, after, beside, next to, opposite, apart, between, middle, edge, centre, corner, direction, journey, route, map, plan, left, right, up, down, higher, lower, forwards, backwards, sideways, across, close, far, near, along, through, to, from, towards, away from, ascend, descend, grid, row, column, origin, coordinates, clockwise, anticlockwise, horizontal, vertical, diagonal, parallel, perpendicular, quadrant, movement, slide, roll, whole turn, half turn, quarter turn, rotate, straight line

Fractions

part, equal parts, fraction, one whole, half, quarter, eighth, third, sixth, fifth, tenth, twentieth, proportion, in every, for every, decimal, decimal fraction, decimal point, decimal place, units, ones, tenths, hundredths, numerator, denominator, equivalent, divided by, unit fractions, non-unit fractions, decimal, decimal fraction, decimal point, decimal place

Money

money, coin, penny, pence, pound (£)

Y 5	**Place Value (Decimals)** • Count forwards and backwards in steps of 10, 100 or 1000 for any given number up to 1 000 000. • Count forwards and backwards in steps of 10 000 without crossing 100 000 boundaries for any given number up to 1 000 000. • Count forwards and backwards in decimal steps where the step size is in multiples of tenths. • Count forwards and backwards in decimal steps where the step size	**Multiplication and Division** • Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. • Establish whether a number up to 100 is prime. • Recall prime numbers up to 19. • Recognise that a square number is the product of two equal integers and can be written using ² notation. • Recognise and use square numbers up to 12^2.	**Place Value-Roman Numerals, Counting including Negative Numbers** • Round decimals with two decimal places to the nearest whole number. • Multiply/divide whole numbers and decimals by 100. • Multiply/divide whole numbers and decimals by 1000. • Explain the meaning of a negative number in a variety of real life contexts. • Count on and back with positive and negative	**Mental and Written Division** • Use knowledge of place value and multiplication facts to divide related decimal numbers where the dividend is/dividend and divisor are scaled down. • Divide a 4 digit number by a 1 digit number and interpret remainders appropriately for the context. **2D and 3D Shape including Sorting**	**Place Value <->** • Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000. • Count forwards and backwards in decimal steps. • Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit. • Read, write, order and compare numbers with up to 3 decimal places. • Identify the value of each digit to three decimal places.	**Written Calculations** **Measures (Mass, Volume and Capacity)** Use, read and write standard units of length and mass. Continue to order temperatures including those below 0°C. Convert between different units of metric measure. Understand and use approximate equivalences between metric units and common imperial units

	is in multiples of hundredths less than a tenth. • Count forwards and backwards in decimal steps where the step size is in multiples of hundredths greater than a tenth. • Read, write, compare and order numbers to 1 000 000. • Read, write, order and compare numbers up to three decimal places where 0 is not used as a place holder. • Use a place value chart to support with identifying the value of each digit to three decimal places. • Identify, represent and estimate numbers on a number line from 0 to 1 000 000 where the number line has ten demarcations. • Find 0.01, 0.1, 1, 10, 100, 1000 more or less than a given number up to 1 000 000 without crossing boundaries. • Find 10 000 more or less than a given number up to 1 000 000 without crossing 100 000 boundaries.	• Use partitioning to double any decimal number to two decimal places. • Use partitioning to halve any decimal number to two decimal places. • Multiply a two-digit number by a one-digit number using a partitioning strategy. • Use knowledge of place value and multiplication facts to multiply multiples of 100 and 1000 by a one-digit number. • Use knowledge of place value and multiplication facts to decimals by a one-digit number. • Multiply a U.t number by a one-digit number using a partitioning strategy. • Use knowledge of place value and multiplication facts to divide related larger numbers. • Divide a three-digit number by a one-digit number using a partitioning strategy.	whole numbers through zero. • Read Roman numerals using the symbols I, V, X, L, C, D, M in any order. **<u>Addition and Subtraction including Problems</u>** • Recognise calculations that require counting on or back mentally, bridging through a multiple of 10 efficiently and use this strategy where appropriate. • Recognise calculations that require a mental compensation method and use this strategy where appropriate. • Add and subtract increasingly large numbers using appropriate mental strategies. • Add a number with up to two decimal places to another where the tenths or ones boundary is crossed. • Add and subtract decimals with two decimal places. **<u>Mental and Written Multiplication</u>**	• Use the properties of rectangles to deduce related facts and find missing angles at a vertex when diagonals have been drawn and one angle is given. • Use the properties of rectangles to deduce related facts and find missing angles where the diagonals bisect when one angle is given. • Identify cubes and cuboids from 2-D pictures of them. • Identify other 3-D shapes from 2-D pictures of them. • Identify a net of a cube from a range of nets. • Identify a net of other cuboids from a range of nets. **<u>Calculating with Fractions</u>** • Recognise a mixed number with a fractional part in halves, thirds or quarters and convert it to an	• Identify, represent and estimate numbers using the number line. • Find 0.01, 0.1, 1, 10, 100, 1000 and other powers of 10 more or less than a given number. • Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000. • Round decimals with two decimal places to the nearest whole number and to one decimal place. • Multiply/divide whole numbers and decimals by 10, 100 and 1000. • Interpret negative numbers in context, count on and back with positive and negative whole numbers, including through zero. • Describe and extend number sequences including those with multiplication/division steps and where the step size is a decimal. • Read Roman numerals to 1000 (M); recognise years written as such. • Solve number and practical problems that involve all of the above.	such as inches, pounds and pints. Measure/calculate the perimeter of composite rectilinear shapes. Use all four operations to solve problems involving measure using decimal notation, including scaling. **<u>Area and Volume of Shapes</u>** Calculate and compare the area of rectangle, use standard units square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes. Estimate (and calculate) volume ((e.g., using 1 cm3 blocks to build cuboids (including cubes)) and capacity (e.g. using water). Understand the difference between liquid volume and solid volume.

	• Find 100 000 more or less than a given number up to 1 000 000. • Round any number up to 100 000 to the nearest 10, 100 or 1000. • Round any number up to 1 000 000 to the nearest 10, 100 or 1000. • Round any number up to 100 000 to the nearest 10 000. • Multiply/divide whole numbers and decimals by 10. • Describe and extend number sequences where the step size is in multiples of tenths. • Describe and extend number sequences where the step size is in multiples of hundredths less than a tenth. • Describe and extend number sequences where the step size is in multiples of hundredths greater than a tenth. **Written Addition and Subtraction including Problems** • Recognise and solve calculations that involve known or related facts. • Recognise that the numbers in addition	• Multiply a 4 digit by a 1 digit number using a formal written method. • Multiply a 2 digit by a 2 digit number using a formal written method. • Divide a 4 digit number by a 1 digit number. **Fractions** • Read and write decimal numbers as fractions. • Count on or back in mixed number steps. • Compare and order two fractions where the denominator of one fraction is a multiple of the denominator of the other fraction. • Identify, name and write equivalent fractions of a given fraction by using multiplication and division facts. • Recognise and use thousandths. • Relate thousandths to tenths and hundredths. **Area** • Estimate the area of irregular shapes using a square centimetre overlay. • Use knowledge of arrays to understand	• Identify multiples of 2, 3, 4, 5, 6, 9, 10, 20, 25, 50 and 100 using rules of divisibility. • Use and derive multiplication and division facts to identify factors within known tables. • Use a list strategy to identify common factors of two numbers within known tables. • Use known facts to derive factors of multiples of 10 and 100. • Multiply a 3 digit by a 2 digit number using a formal written method. **Measures (Capacity)** • Use knowledge of points of reference to estimate the capacity of different containers. **Geometry (Reflection and Translation)** • Identify, describe and represent the position of a shape following a reflection in a horizontal or vertical mirror line when the shape has all, some or no sides parallel or perpendicular to the mirror line and is not touching the mirror line.	improper fraction and vice-versa. • Add fractions with denominators that are multiples of the same number where the answer is less than 1. • Subtract fractions with denominators that are multiples of the same number. • Use concrete materials or pictorial representations to demonstrate conversion from an improper fraction to a mixed number. • Use multiples of the denominator to identify how many whole ones can be made from the improper fraction and how many fractional parts remain. **Measure (Area and Volume)** • Compare rectangles by area. • Use knowledge of points of reference to estimate the volume of liquid in a container.	**Fractions <->** • Recognise mixed numbers and improper fractions and convert from one form to the other. • Count on and back in mixed number steps. • Compare and order fractions whose denominators are all multiples of the same number (including on a number line). • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. • Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. • Add and subtract fractions with denominators that are the same and that are multiples of the same number (using diagrams). • Write statements > 1 as a mixed number. • Multiply proper fractions and mixed numbers by whole numbers,	

	calculations can be reordered to make calculating more efficient. • Recognise calculations that require mental partitioning. • Recognise calculations that require counting on mentally to find the difference. • Recall and use addition and subtraction facts for 1 (with decimal numbers to one decimal place). • Recall and use addition and subtraction facts for 10 (with decimal numbers to one decimal place). • Use practical apparatus and known facts to create addition and subtraction facts for 1 with decimal numbers to two decimal places. • Create generalisations based on addition and subtraction facts for 1. • Derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places). • Add and subtract a four-digit number to/from another four-digit number where no boundaries are crossed.	why the area of rectangles can be calculated using length multiplied by width. • Calculate the area of rectangles. • Use the properties of rectangles to deduce related facts and find missing lengths. **Statistics and Measures (Time)** • Continue to read, write and convert time between analogue and digital 12 and 24-hour clocks. • Convert between different units of time where long multiplication is required.	• Describe the translation for a shape that moves in one to two directions (left/right and up/down). **Geometry (Angles)** • Estimate acute, obtuse and reflex angles using knowledge of a right angle and fractions of a right angle. • Measure reflex angles to the nearest degree by either using a 360° protractor or by calculating the reflex angle by measuring the complementary acute or obtuse angle and subtracting this angle from 360°. • Draw reflex angles to the nearest degree by either using a 360° protractor or by drawing the complementary acute or obtuse angle that gives a sum of 360°. • Use information given to calculate missing angles at a point on a straight line and half a turn (total 180°). • Use information given to calculate missing angles at a point and one whole turn (total 360°).	• Use cm3 blocks to build cuboids of a given volume. • Calculate the volume of different cuboids when dimensions are given. • Understand that the units of liquid volume ml and units of solid volume cm3 have the same value. • Convert km (up to 3 decimal places) to m and vice versa. • Convert kg (up to 3 decimal places) to g and vice versa. • Convert l (up to 3 decimal places) to ml and vice versa. **Statistics and Measures** • Calculate the mode and range of a set of values. • Calculate the median for a number of values.	supported by materials and diagrams. • 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 involving fractions and decimals to three places. • Solve problems which require knowing percentage and decimal equivalents of 1/5, $2/5$, $4/5$ and fractions with a denominator of a multiple of 10 or 25. **Measures (Time)** • Solve problems involving converting between units of time. **Statistics** • Complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes). • Complete, read and interpret information in tables and timetables. • Solve comparison, sum and difference problems	

	• Add and subtract a number with two decimal places to/from a whole number. • Add and subtract a number with two decimal places to/from another where the tenths boundary is not crossed. • Add whole numbers with more than 4 digits including combinations of numbers with different amounts of digits. • Subtract whole numbers with more than 4 digits including pairs of numbers with different amounts of digits. • Round whole numbers to an appropriate power of 10. **Geometry (Angles)** • Identify reflex angles as those greater than 180° where two lines meet. • Compare all types of angles including reflex angles. • Know that angles are measured in degrees. • Measure and draw acute and obtuse angles to the nearest degree. **Geometry and Measures (Perimeter)**		• Identify angles that are other multiples of 90°.		using information presented in all types of graph including a line graph. • Calculate and interpret the mode, median and range. **Geometry** • Describe positions on the first quadrant of a coordinate grid. • Plot specified points and complete shapes. • 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. • Use the properties of rectangles to deduce related facts and find missing lengths and angles. • 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.	

	• Use the properties of rectangles to deduce related facts and find missing lengths. • Identify the perimeter of composite rectilinear shapes through accurate measuring to the nearest mm. • Identify the length of missing sides of composite rectilinear shapes. • Calculate the perimeter of a composite rectilinear shape where the lengths of some sides are not given. **Statistics** • Interpret and complete information in a variety of sorting diagrams. • Identify the properties used to sort a set of numbers or shapes in a completed diagram. • Read and interpret information in a range of tables with different contexts. • Complete tables by identifying missing information. • Read and interpret information in a range of timetables with different contexts.				• Draw given angles, and measure them in degrees (°). • Identify: - angles at a point and one whole turn (total 360°) - angles at a point on a straight line and half a turn (total 180°) - other multiples of 90°. **Addition and Subtraction** • Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method). • Select a mental strategy appropriate for the numbers involved in the calculation. • Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place). • Add and subtract numbers mentally with increasingly large numbers and decimals to two decimal places. • Add and subtract whole numbers with more than 4 digits and decimals with two decimal places,	

	• Answer questions which ask 'How many/much more…?' or 'How many fewer/much less…?' when comparing two categories in a data set. • Answer questions which ask 'How many in total…?' for different data readings.				including using formal written methods (columnar addition and subtraction). • Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. **Multiplication and Division** • 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. • Recognise and use square and cube numbers, and notation. • Use partitioning to double or halve any number, including decimals to two decimal places. • Multiply and divide numbers mentally drawing upon known facts.	

					• Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. • 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. • 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. • Use estimation/inverse to check answers to calculations; determine, in the context of a problem, an appropriate degree of accuracy. • 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.	

Year 5 Key Vocabulary

Place Value

units, ones, tens, hundreds, thousands, ten thousands, hundred thousands, millions, power of 10, tenths, hundredths, decimal, round, exchange, digit, equal to, estimate, guess, roughly, about the same as, ascending, descending, ≈ (is approximately equal to), consecutive, predict, formula, thousandths, scaling up, scaling down, positive, negative, above/below zero, minus, difference, Roman, numeral, every other, how many times?, multiple of, digit, next, consecutive, sequence, continue, predict, decimal, pattern, pair, rule, relationship, divisible (by), divisibility, factor, square number, one squared, two squared… (1^2, 2^2…)

Addition and Subtraction

add, addition, more, plus, increase, sum, total, altogether, score, double, near double, how many more to make…?, subtract, subtraction, take (away), minus, decrease, leave, how many are left/left over?, difference between, half, halve, how many more/fewer is… than…?, how much more/less is…?, equals, sign, is the same as, tens boundary, units boundary, hundredths boundary, hundreds boundary, tenths boundary, inverse, hundreds

Geometry

full turn, half turn, quarter turn, rotate, rotation, angle, greater/smaller angle than, right angle, acute, obtuse, reflex, degree, straight line, angle measurer, compasses, protractor, 2-D, two-dimensional, triangle, triangular, equilateral triangle, isosceles triangle, scalene triangle, square, rectangle, rectangular, oblong, pentagon, pentagonal, hexagon, hexagonal, heptagon, octagon, octagonal, polygon, quadrilateral, flat, line, curved, straight, round, solid, point, pointed, side, angle, right-angled, congruent, regular, irregular, concave, convex, line of symmetry, symmetrical, property, face, vertex, vertices, diagonal, internal angles, parallel, perpendicular, properties, 3-D, faces, edges, cube, cuboid, prism, pyramid

Position and Direction

position, corner, direction, grid, row, column, origin, coordinates, horizontal, vertical, diagonal, parallel, perpendicular, x-axis, y-axis, quadrant, movement,

Multiplication and Division

lots of, groups of, times, multiply, multiplication, multiplied by, multiple of, product, times as (big, long, wide… and so on), repeated addition, array, row, column, double, halve, share between, share into groups of , group in pairs, threes… tens, equal groups of, divide, division, divided by, divided into, remainder, factor, divisible by, inverse, prime, square number, chunking, repeated subtraction, cube number, common factor, rate

Fractions

fraction, proper/improper fraction, mixed number, unit fraction, non-unit fraction, numerator, denominator, equivalent, reduced to, cancel, one whole, half, quarter, eighth, third, sixth, ninth, twelfth, fifth, tenth, twentieth, hundredth, proportion, in every, for every, to every, decimal, decimal fraction, decimal point, decimal place, equal parts, simplify, thousandths, percentage, per cent, %

Area

area, covers, surface, square centimetre (cm2), square metre (m2), square millimetre (mm2)

Time

time, days of the week: Monday, Tuesday…months of the year: January, February…seasons: spring, summer, autumn, week, fortnight, month, year, leap year, century, millennium, weekend, calendar, date, date of birth, am, pm, noon, midnight, before, after, next, last, now, soon, early, late, earliest, latest, quick, quicker, quickest, quickly, fast, faster, fastest, slow, slower, slowest, slowly, old, older, oldest, new, newer, newest, takes longer, takes less time, how long ago? how long will it be to…?, how long will it take to…?, timetable, arrive, depart, hour, minute, second, o'clock, half past, quarter to, quarter past, clock, watch, hands, digital/analogue clock/watch, timer, 24-hour clock, 12-hour clock, how often?, am, pm, noon

Measurement

measure, measurement, size, compare, unit, standard unit, metric unit, imperial unit, measuring scale, division, estimate, length, width, height, depth, breadth, distance apart/between, distance to… from…, edge, perimeter, kilometre (km), metre (m), centimetre (cm), millimetre (mm), mile, ruler, metre stick, tape measure, mass, kilogram (kg), gram

(g), balance, scales, capacity, full, half full, empty, holds, contains, litre (l), millilitre (ml), pint, gallon, container, measuring cylinder, volume, cube, cubic centimetre (cm^3), cubic metre (m^3), yard, feet, foot, inches, inch, pound (lb), ounce (oz)

Statistics

count, data, graph, line graph, represent, group, set, list, table, frequency table, label, title, axis, axes, diagram, most popular, most common, least popular, least common, maximum/minimum value, increase, mode, median, range

Y 6	**Place Value including Decimals** • Count forwards or backwards in steps of powers of 10 from any number up to 10 000 000. • Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit. • Identify the value of each digit to three decimal places. • Order and compare negative numbers including in a variety of contexts. • Find 0.001 more/less than a given number without crossing any boundaries. • Find 1, 10, 100 or 1000 more/less than a given number up to 10 000 000 including crossing any boundaries. • Find 10 000 or 100 000 more/less than a given number up to 10 000 000 including crossing any boundaries.	**Fractions Fractions/Percentages/ Ratio and Proportion** • Compare two fractions or mixed numbers by using common multiples to express the fractions in the same denomination. • Know that: 3/5 is 0.6 or 60% 1/3 is approximately 0.33 or 33.3% 2/3 is approximately 0.66 or 66.6% 1/8 is 0.125 or 12.5%. • Use the fact that 1/8 is 0.125 or 12.5% to derive decimal and percentage equivalents for 3/8 , 5/8 and 7/8. • Calculate decimal fraction equivalents by scaling up from the decimal equivalent of the unit fraction. • Add and subtract two fractions by converting both into fractions with a common denominator. • Find 1% of an amount by dividing by 100 or by	**Place Value/ Sequences** • Count forwards or backwards in steps of integers from any number up to 10 000 000 and through zero. • Calculate the difference between a positive and a negative number or two negative numbers. • Continue a sequence with inconsistent steps given the rule. • Identify the rule of a sequence with inconsistent steps. **2D Shape Coordinates, Translation and Reflection** • Describe positions in the first two quadrants of a coordinate grid (the x-axis only is extended into negative numbers). • Translate simple shapes in two directions on a coordinate grid within the first quadrant identifying the coordinates of the vertices after translation. • Translate simple shapes in two directions on a	**Mental and Written Addition and Subtraction** • Recognise calculations that require counting on mentally to find the difference and use this strategy where appropriate (This should be supported by a number line). • Recognise calculations that require counting on or back mentally, bridging efficiently and use this strategy where appropriate. • Recognise calculations that require a mental compensation method and use this strategy where appropriate. • Add and subtract numbers with three decimal places. • Add and subtract numbers with up to	**Place Value <->** • Count forwards or backwards in steps of integers, decimals, powers of 10. • Order and compare numbers including integers, decimals and negative numbers. • Find 0.001, 0.01, 0.1, 1, 10 and powers of 10 more/less than a given number. • Round any whole number to a required degree of accuracy. • Round decimals with three decimal places to the nearest whole number or one or two decimal places. • Use negative numbers in context, and calculate intervals across zero. • Describe and extend number sequences including those with multiplication and division steps, inconsistent steps, alternating steps and those where the step size is a decimal.	**Measurement- Mass and Volume/Capacity** • Use, read and write standard units of length, mass, volume and time using decimal notation to three decimal places. • Convert between standard units of length, mass, volume and time using decimal notation to three decimal places. • 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. • Calculate differences in temperature, including those

	• Round any number up to 10 000 000 to the nearest 10, 100, 1000, 10 000, 100 000 or 1 000 000. • Round decimals with three decimal places to the nearest whole number or tenth. • Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. • Add a positive number to a negative number, including crossing zero. • Subtract a positive number from a positive number crossing zero. • Subtract a positive number from a negative number. **Mental and Written Addition and Subtraction** • Recognise and solve calculations that involve known or related facts. • Recognise that the numbers in calculations can be reordered to make calculating more efficient and use this strategy where appropriate. • Recognise calculations that require mental	dividing 10% of the amount by 10. • Find 5% of an amount by dividing 10% by 2. • Use concrete materials or pictorial representations to show scaling up or down to find missing values. • Use concrete materials or pictorial representations to share a single digit to a given ratio. • Use concrete materials or pictorial representations to share amounts to a given ratio where the total is a multiple of the sum of the parts (a ratio of 2:3 has 5 parts). • Identify the multiplicative relationship between corresponding sides of similar shapes. • Use the multiplicative relationship for corresponding sides to calculate the lengths of missing sides. • **Geometry (Angles)**	coordinate grid where one axis is crossed identifying the coordinates of the vertices after translation. • Translate simple shapes in two directions on a coordinate grid where both axes are crossed identifying the coordinates of the vertices after translation. **Measurement- Temperature, Mean** • Calculate the difference between a positive and a negative temperature. • Calculate the difference between two negative temperatures. • Calculate the mean as an average and understand that it is the mathematical representation of the typical value of a series of numbers. **Calculating with Fractions** • Order three or more fractions or mixed numbers by using common multiples to express the fractions in the same denomination.	three decimal places. • Know that calculations within brackets are performed first. **Algebra** • Describe simple rules using words. • Write simple rules using symbols. • Understand and use algebraic convention for multiplication. • Understand and use algebraic convention for combining like terms. • Substitute values for variables (letters) in simple formulae. • Find the value of a variable (letter) from a given formula. • Generate a linear number sequence when given the rule for each term. • Complete the sequence using the rule: multiply the term by 3 and subtract 1. • Describe the relationship	• Solve number and practical problems that involve all of the above. **Mental and Written Calculation <->** • Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method). • Select a mental strategy appropriate for the numbers in the calculation. • Recall and use addition and subtraction facts for 1 (with decimals to two decimal places). • Perform mental calculations including with mixed operations and large numbers and decimals. • Add and subtract whole numbers and decimals using formal written methods. • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	that involved a positive and negative temperature. • Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. **Fractions** • Compare and order fractions, including fractions > 1 (including on a number line). • Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. • Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. • Associate a fraction with division and

	partitioning and use this strategy where appropriate. • Add and subtract whole numbers up to 10 000 000. • Round numbers to an appropriate power of 10. **Algebra** • Express a given one-step word problem algebraically. • Express a given two-step word problem algebraically. • Find pairs of missing numbers to complete an equation where a total is given. • Find pairs of missing numbers to complete an equation with addition and/or subtraction. • Describe the relationship between the pairs of numbers used to solve the equation. • Find pairs of missing numbers to complete an equation with multiplication and/or division. • Describe the relationship between the pairs of numbers used to solve the equation.	• Recognise that vertically opposite angles are equal. • Calculate missing angles where two straight lines meet and one angle is given. • Find missing angles in triangles where two angles are given. • Find missing angles in isosceles triangles where one angle is given. **Statistics (Pie Charts)** • Interpret pie charts by directly comparing the size of the segments. • Identify halves, quarters and thirds of a circle including in different orientations. • Relate the proportion (including percentage) of the circle to the proportion of the total where the segments are halves, thirds and quarters. **Measurements- Length including Perimeter and Mass** • Understand and use approximate equivalences between miles and kilometres	• Understand and use the term 'simplify' and use common factors to simplify fractions. • Use common multiples to express fractions in the same denomination. • Calculate decimal fraction equivalents by dividing the numerator by the denominator. • Add and subtract a fraction to a mixed number by converting both fractional parts into fractions with a common denominator. • Use pictorial representations to show multiplication of one unit fraction by another. • Use pictorial representations to show multiplication of a non-unit fraction by a unit fraction. • Use pictorial representations to show multiplication of a non-unit fraction by another. • Use pictorial representations to show division of a non-unit fraction by a whole number where the numerator is the same as the divisor.	between the values in a linear sequence and their position (term) where the relationship is a single step. • Describe the relationship between the values in a linear sequence and their position (term) where the relationship is two steps. • Use the relationship between the values in a linear sequence and their position to identify the value of a given term or the term from a given value. • Describe the rule for a linear sequence algebraically. • Use concrete materials or pictorial representations to systematically find all the combinations of two variables. **Measurement-Ratio and Proportion** • Use a direct proportion diagram to solve problems	• Use knowledge of the order of operations to carry out calculations. • Solve addition and subtraction multistep problems in contexts, deciding which operations and methods to use and why. • Solve problems involving all four operations, including those with missing numbers. • Identify common factors, common multiples and prime numbers. • Use partitioning to double or halve any number. • Perform mental calculations, including with mixed operations and large numbers. • Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. • Multiply one-digit numbers with up to two decimal places by whole numbers. • Divide numbers up to 4 digits by a two-digit whole number using the formal written methods of short or long division,	calculate decimal fraction equivalents. • 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. • Divide proper fractions by whole numbers. • Find simple percentages of amounts. • Solve problems involving fractions. • Solve problems which require answers to be rounded to specified degrees of accuracy. • Solve problems involving the calculation of percentages and the use of percentages for comparison.

	Mental and Written Multiplication • Identify common multiples of three or more numbers. • Use partitioning to double any number, including decimals to three decimal places. • Use partitioning to halve any number, including decimals to three decimal places where all the digits are even. • Use knowledge of place value and multiplication facts to divide related decimal numbers where the divisor is scaled down. • Multiply a number with one or two decimal place by a single digit. • Divide a 3-digit number by a 2-digit number. • Use written division methods where the answer has one decimal place. **Time** • Convert between different units of time where long division is required. **2D and 3D Shape**	when given the conversion graph or conversion fact that 5 miles ≈ 8km. • Find the perimeter of different rectangles that have the same area. **Measurement- Area and Volume** • Derive the area of a parallelogram by relating it to a rectangle with the same width and vertical height. • Calculate the area of parallelograms. • Know the formulae for the area of: rectangles (including squares) is length x width and how this relates to the area of parallelograms as base x height. • Know the formulae for the area of: rectangles (including squares) is length x width and how this relates to the area of triangles as ½ (base x height). • Know the formulae for the volume of cuboids (including cubes) is length x width x depth. • Calculate and compare the volumes of different cuboids (including	• Use pictorial representations to show division of a non-unit fraction by a whole number where the numerator is a multiple of the divisor. • Recognise that when dividing a fraction by a whole number, if the numerator is a multiple of the divisor then the numerator is divided by the divisor and the denominator stays the same. • Find 15%, 35%, 45%, 55%, 65%, 85% of an amount by adding multiples of 10% of the amount to 5% of the amount. • Find percentages of amounts that are multiples of 10% of the amount added to multiples of 1% of the amount. • Find percentages of amounts that require a compensation strategy. **Mental and Written Multiplication and Division** • Use rules of divisibility to identify whether a	when finding missing values. • Use concrete materials or pictorial representations to share amounts to a given ratio where the value of one of the parts is given and the value of the other part is calculated. • Use concrete materials or pictorial representations to share amounts to a given ratio where the value of one of the parts is given and the total is calculated. **2D and 3D Shape** • Draw a given shape by drawing one angle of a given size and sides of a given length. • Know that the perimeter of a circle is called the circumference Know that a straight line from one point on the edge of a circle to another point on the edge that passes through the	and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. • Use written division methods in cases where the answer has up to two decimal places. • Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. • Use knowledge of the order of operations to carry out calculations. • Solve problems involving all four operations, including those with missing numbers. **Calculating fractions, Ratio and Proportion** • Solve problems involving the relative sizes of two quantities where missing values can be found using integer multiplication / division facts. • Solve problems involving unequal sharing and grouping using	**2D and 3D Shape** • Compare/classify geometric shapes based on the properties and sizes. • Draw 2-D shapes using given dimensions and angles. • Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. • Recognise, describe and build simple 3-D shapes, including making nets. • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. • Find unknown angles in any triangles, quadrilaterals, regular polygons.

	• Complete a given shape by drawing one angle of a given size and one side of a given length. • Identify nets that create 3-D shapes and ones that do not. • Draw the net of a cube in different ways. • Draw the net of a variety of cuboids in which the end faces are square. • Draw the net of a variety of cuboids in which no faces are square.	cubes) where the dimensions of the cuboids are in the same unit.	number is prime or composite up to 144. • Use partitioning to halve any number, including decimals to three decimal places where all the digits are not even. • Use knowledge of place value and multiplication facts to divide related decimal numbers where the dividend and the divisor are scaled down by different powers of 10. • Multiply a number with one decimal place by a two-digit number. • Multiply a number with two decimal places by a two-digit number. • Divide a 3-digit number by a 2-digit number and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. • Divide a 4-digit number by a 2-digit number. • Divide a 4-digit number by a 2-digit number and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.	centre is called the diameter. Know that a straight line from the centre of a circle to the edge is called a radius. Identify that the radius is half of the diameter or that the diameter is double the radius. • Draw the net of a variety of triangular prisms in which the end faces are equilateral triangles. • Draw the net of a variety of triangular prisms in which the end faces are isosceles triangles. • Use properties of quadrilaterals to find missing angles when given an appropriate amount of information. • Use properties of regular polygons to find missing angles when given an appropriate amount of information. **Area, Perimeter and Volume of Shapes** • Derive the area of a right angled triangle by relating it to a	knowledge of fractions and multiples. • Solve problems involving similar shapes where the scale factor is known or can be found. **Coordinates, Translation and Reflection** • 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. **Algebra and Sequences** • Use simple formulae. • Generate and describe linear number sequences. • Express missing number problems algebraically. • Find pairs of numbers that satisfy an equation with two unknown. • Enumerate possibilities of combinations of two variables. **Measurement (Length and Time)** **Statistics- Mean** • Continue to complete and interpret information in a variety of sorting	

			• Know that calculations within brackets are performed first.	rectangle with the same width and vertical height. • Derive the area of any triangle by relating it to a rectangle with the same width and vertical height. • Calculate the area of triangles. • Know the formulae for the volume of triangular prisms is ½ (base x height) x depth. • Calculate and compare the volumes of different cuboids (including cubes) where the dimensions of the cuboids are not in the same unit. **<u>Statistics- Line Graphs and Pie Charts</u>** • Identify sixths and eighths of a circle, including different orientations, by comparing them to halves, quarters and thirds. • Relate the proportion (including percentage) of the	diagrams (including sorting properties of numbers and shapes). • Interpret and construct pie charts and line graphs and use these to solve problems. • Solve comparison, sum and difference problems using information presented in all types of graph. • Calculate and interpret the mean as an average. • Use, read and write standard units of length, mass, volume and time using decimal notation to three decimal places. • Convert between standard units of length, mass, volume and time using decimal notation 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. • Recognise when it is possible to use formulae for area and volume of shapes.	

				circle to the proportion of the total where the segments are sixths and eighths.	• Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.	

Year 6 Key Vocabulary

Place Value

million, decimal, digit, significant digit, tenth, hundredth, thousandth, positive, negative, integer, decimal, ascending, descending, sequence, power of 10, generate, describe, linear, non-linear, alternating, power, decimal fraction, decimal point

Addition and Subtraction

add, addition, plus, sum, altogether, how many more to make…? subtract, subtraction, minus, take away, difference between, how many more/less than… ?, inverse, brackets, decrease, fewer, calculation, problem, mental, strategy, jotting, method, operation, sign, multi-step, equation, accuracy, powers, indices

Multiplication and Division

lots of, groups of, times, multiply, multiplication, multiplied by, multiple of, product, once, twice, three times.. ten times as (big, long, wide etc.) inverse, sharing, equally, divide, division, divisor, quotient, factor, divisible, inverse, remainder, rounding, short division, long division, factor, prime number, scale factor,
variables, enumerate, combinations, systematic, organised, pattern, generalise

Fractions

fraction, proper fraction, improper fraction, unit fraction, non-unit fraction, mixed number, numerator, denominator, equivalent, reduced to, cancel, one whole, half, quarter, eighth, hundredth, thousandth, proportion, ratio, decimal, vulgar fraction, decimal fraction, decimal point, percentage, percent, %, common, simplify, denomination

Statistics

interpret, construct, graph, pie chart, radius, section, line graph, axis, axes, label, coordinate, x-axis, y-axis, quadrant, term, algebra, data, intervals, mean, average, median, pictogram, Venn diagram, Carroll diagram, information, continuous, discrete, sum, difference, more than,fewer than, compare, comparison, table, analyse

Time

hour, minute, second, o'clock, half past, quarter to, quarter past, digital, analogue, clock, watch, timer, 24-hour clock, 12-hour clock, Greenwich Mean Time, British Summer Time, International Date Line

Measurement

length, width, height, depth, breadth, perimeter, circumference, kilometre (km), metre (m), centimetre (cm), millimetre (mm), mile, mass, gram (g), kilogram (kg), tonne, convert, conversion, area, volume, surface, square centimetre (cm2), square metre (m2), space, cubes, cubic centimetre (cm3), cubic metre (m3), cubic millimetre (mm3), cubic kilometre (km3), formula, formulae, base, vertical, negative, positive, temperature

Algebra

sequence, step size, integer, decimal, power of 10, generate, describe, extend, linear, nonlinear, constant, inconsistent, alternating, formula, formulae, term, algebra

Ratio and Proportion

similar, scale factor, once, twice, three times…ten times as (big, long, wide etc.), convert, conversion, standard units, mass, volume, decimal notation, percentage, ratio, proportion,

Geometry

3-D, three- dimensional, cube, cuboid, pyramid, sphere, hemi-sphere, spherical, cone, cylinder, cylindrical, prism, tetrahedron, polyhedron, octahedron, dodecahedron 2-D, two-dimensional, circle, circular, semi-circle, triangle, triangular, equilateral triangle, isosceles triangle, scalene triangle, square, rhombus, rectangle, rectangular, oblong, pentagon,

pentagonal, hexagon, hexagonal, heptagon, octagon, octagonal, polygon, quadrilateral, kite, parallelogram, trapezium face, side, edge, vertex, vertices, end, net, angle, angled, congruent, intersecting, intersection, plane, base, square-based, regular, irregular, concave, convex, parallel, perpendicular, angle, turn, whole turn, acute, obtuse, reflex, degree, point, straight line, protractor, parallel, perpendicular, vertical, opposite, mirror line, line of symmetry, radius, diameter, circumference, angle, turn, point, straight line, degree

Position and Direction

plane, reflect, reflection, image, translate, translation, transformation, coordinate, orientation, quadrant, axis, axes