Sunnybrow Primary School: Maths Small Steps of Progression

Reception:

Number & Place Value

	Step 1	Step 2	Step 3
Rote counting	• Join in with number rhymes • Count verbally beyond 5, forwards & backwards	• Count verbally beyond 10, forwards & backwards • Rote count from 1 to a given number, knowing when to stop at the correct place	• Count verbally to 20 (and beyond), both forwards & backwards • Rote count from 1 to a given number to 20, knowing when to stop at the correct place • Rote count forwards and backwards from a given number between 0-10
Counting objects, pictures & sounds/actions	• Use one to one correspondence when counting and understand the last number said is the number in the set • Count up to 5 objects (including different sized objects), moving each as they are counted • Know that in the counting sequence each consecutive number represents an additional object within the set • Count up to 5 pictures, marking each as they are counted	• Understand that objects can be counted in any order and the amount will be the same • Count up to 10 objects (including different sized objects), moving each as they are counted • Count out a given amount up to 10 (identified either verbally or written) from a larger amount • Count up to 10 pictures, marking each as they are counted • Count up to 10 sounds or actions, keeping track of each as they are counted	• Count up to 20 objects (including different sized objects), moving each as they are counted • Count out a given amount (identified either verbally or written) from a larger amount • Count up to 20 pictures without marking using a strategy such as starting at one side, ensuring that all pictures are included and that none have been counted more than once • Count up to 20 sounds or actions, keeping track of each as they are counted
Subitising & representing numbers	• Show fingers for up to 5 numbers • Subitise up to 3	• Subitise up to 5 • When shown a group within 10 (quick reveal), identify whether it is closer to 5 or 10 • Link numeral to amounts up to 5 • Place a given number of counters on a ten frame in different ways	• When shown two groups within 10 (quick reveal), identify which is the best match for a given number • Link numeral to amounts up to 10 • Know that when a group of objects is moved to a different location (seen or unseen) the total remains the same
Comparison	• Can use 'more than' and 'fewer than' to compare quantities that are obviously different	• Can compare quantities up to 10 and say whether one is greater than, fewer than or equal to the other, including amounts that look similar • Can count accurately with 1:1 correspondence to check	• Compare three groups by counting the objects • Understand that ordering can go from most to fewest or from fewest to most

		• Know that bigger objects do not indicate greater amounts	
Number composition	• Understand the 'oneness' of one and other numbers e.g. two is one and another one. • Use 'whole' to describe a set of objects • Partition the 'whole' set of objects between two groups using part-whole model and other equipment (e.g. bowls) • Recognise that when a five frame is full, this represents 5	• Use 'part' to describe each partitioned set of objects • Partition numbers to 10 and beyond using a part-whole model and being to recall some number facts • Recognise that when a ten frame is full this represents 10	• Arrange a group of 11 to 19 objects into 1 group of 10 plus another group • Use structured equipment number such as bundles of art straws, Unifix (tower of 10), ten frame with counters to create a group of 10 plus another group • Arrange a group of 20 objects into 2 groups of 10 • Recognise that when two ten frames are full this represents 20 • Understand the numbers 11 to 19 as 10 and 1, 10 and 2, 10 and 3 etc. • Recognise the pattern of the ones digits when counting beyond 20
Fractions	• Understand that halving is sharing into two equal parts or groups	• Share a number of whole objects into two equal groups • Recognise, by counting, whether an amount has been shared equally or not • Understand that when a number of objects has been shared equally between two, both groups/parts have the same amount • Use concrete materials to model doubles as adding the same number to itself	• Use practical equipment to share an amount into equal parts • Recognise that not all amounts of objects can be shared into two equal groups • Understand that a number that can be shared into two equal whole number parts is called 'even' • Understand that a number that cannot be shared into two equal whole number parts is called 'odd' • Automatically recall double facts to double 5
Number recognition	• Recognise numerals 0 to 5 • Select the numeral to match amounts from 0 to 5 when in order and then when randomly arranged • Identify a given number from a selection within the range 0 to 5	• Recognise numerals 6 to 9 • Identify a given number from a selection within the range 0 to 9 • Select the numeral to match amounts from 0 to 9 when in order and then when randomly arranged	• Recognise numerals 10 to 15 • Identify a given number from a selection within the range 0 to 15 and the 0-20 • Select the numeral to match amounts from 0 to 15 and then 0-20 when in order and when randomly arranged
Ordering numbers	• Put the numerals 0 to 5 in order when all are given	• Put the numerals 0 to 9 in order when all are given	• Find the numeral that comes before or after a given numeral up to 15 and then 20 • Put the numerals 0 to 20 in order when all are given • Find the numeral between two given numerals, e.g. 13 and 11 • Order a random set of numerals within the range 0 to 20
Number graphics	• Understand that amounts can be represented by symbols • Represent a given amount using own marks and symbols • Draw a picture/jotting to represent their mathematics • Represent a given amount up to 10 using objects and then their own marks and symbols • Explain what their marks and symbols represent	• Represent a given amount up to 20 using objects and then their own marls and symbols	• Understand that 'teen' numbers are a group of 10 plus another number • Represent a given amount up to 20 using own marks and symbols • Write numerals 0-9 • Explain the mathematical processes used in their picture/jotting

Calculating	• Combine two groups of objects (total within 5) counting how many are there & understand that this addition • Recognise that when the groups are combined the number of objects is more than either of the individual groups • Remove a given amount from a larger set, counting to identify how many are left & nderstand that this is subtraction • Recognise that when an amount of objects are removed the number in the set is fewer than they started with • Know that one more is found by adding one object to an existing group of objects • Recognise that one more is the next number in the counting sequence (when counting in ones)	• In practical situations, understand that when two parts are combined they make the whole • In practical situations, understand that when one part is removed from the whole it leaves another part • Combine two groups of objects (total within 10) counting how many are there • Know that fewer and less mean the same thing but fewer is used when counting objects • Recognise that one less is the next number in the counting sequence (when counting back (in ones)	• In practical situations, recognise that when two parts are combined to make a whole, removing one of those parts leaves the other part • Place each of two amounts on separate ten frames and explore how they can be combined to find the total • Remove a given amount from a greater set (with a whole of up to 20) counting to identify how many are left
Number facts	• Use concrete equipment to represent numbers up to 5 • Practically partition a number up to 5 into two parts, identifying the amount in each part • Understand the concepts of addition and subtraction by practically combining or removing sets of objects to find how many and use the terminology part – part – whole	• Use the part-whole model to identify addition facts for a number up to 5	• Use the part-whole model to identify subtraction facts for a number up to 5 • Use a ten frame to identify some addition and subtraction facts for 10 • Automatically recall addition and subtraction facts up to 5 and some addition and subtraction facts to 10

Shape, space & measures

	Step 1	Step 2	Step 3
Shape	• Find shapes that are identical, shapes that are the same despite having a difference (such as size) or being in different orientations • Recognise common 2-D shapes (circle, rectangle, square & triangle) • Recognise common 3D shapes (sphere, cube, cuboid, pyramid) • Say what is the same or different about a given group of shapes and objects	• Identify 2-D and 3-D shapes from a larger selection • Understand and use 'straight', 'flat', 'curved', 'solid' and 'round • Understand that 'side' refers to 2-D shapes and 'face' refers to 3-D shapes	• Name common 2-D and 3-D shapes • Understand that 'vertex' is the mathematical word for 'corner • When given one criterion, identify the objects & shapes that match • Sort shapes using their own criteria
Space	• Use spatial words in play, including 'in', 'on', 'under', 'up', 'down', 'between' • In everyday situations, understand and use 'on top', 'under(neath)', forwards and backwards • Understand and use 'first' and 'last' to describe position in a line	• In everyday situations, understand and use 'in front of', 'behind', 'next to', 'beside', above and below • In everyday situations, understand and use 'up', 'down', 'turn' • Understand and use 'second', 'third', 'fourth' and 'fifth' to describe position in a line	• Understand and use ordinal numbers when describing position
Pattern	• Recognise where a set of objects is arranged in a repeating pattern and where it is not • Copy a simple repeating pattern (ABAB) • Continue a simple repeating pattern (ABAB)	• Continue a repeating pattern including ABCABC, ABBABB and ABBCABBC	• Identify and describe the part of a pattern being repeated • Create a repeating pattern from a given description
Measures	• Understand that to compare the length or height or objects, they need to be pointing in the same direction & line up at one end/on the same level	• Recognise that the length or height of an object doesn't change if it is in different orientation • Order 3 objects from shortest-tallest/longest	• Understand and use the language of comparison when ordering three objects of different lengths/widths/heights/mass/capacity

	• Compare the length or height of objects using direct comparison and order up to 3 objects • Use a balance scale to compare the weight of two objects, understanding that the lower side contains the heavier item • Understand that capacity refers to how much a container can hold when it is full • Understand that comparing the volume of two of the same container holding different amounts is easier if their bases are on the same level and near each other	• Understand that the mass/weight of an objects doesn't change if the item is in a different place or orientation • When comparing three identical containers, use a systematic approach to compare each container against the others • Order a set of three identical containers with different amounts from least full to most full	• Understand the concept of the conservation of length/width/height/mass/capacity • Understand and use the language of comparison when ordering three of the same container holding different amounts
Money	• Understand that we need to pay for goods and that different objects can have different prices • Sort coins into sets and identify the properties of coins	• Recognise 1p coin and select from a larger set	• Match the number of 1p coins to price tag up to 20p
Time	• Compare the order of events using before and after • Talk about days using today, yesterday & tomorrow • Join in with rhymes for days of the week	• Understand that we can compare time durations using longer & shorter • Understand and use 'before', 'after' and 'between' when describing the order of three events	• Join in with rote recital of says of the week in order • Name the days of the week

Year 1:

Number & Place Value

	Step 1	Step 2	Step 3
Counting reliably	• Count from 0-20 forwards and backwards from any number, understanding that 0 represents the value of an empty set and the number that is before 1 in the counting sequence • Count to at least 50 from 1 or 0 forwards or backwards	• Count to 100 from 1 or 0 forwards or backwards • Count to 100 forwards and backwards from any number (increased emphasis on the ability to count backwards)	• Count across 100 forwards or backwards to develop familiarity with the patterning of number system • Count to and across 100, forwards and backwards, from any given number
Counting in steps	• Count in steps of 10 from 0 • Recite and know the sequence of counting in fives from zero	• Recite and know the sequence of counting in twos from zero • Count objects in twos • Count objects in fives	• Count objects in tens • Count in multiples of twos, fives and tens
Recognise & read numbers	• Read numbers to 20 • Write numbers to 20	• Read and write tens numbers to 100 and understand the difference between 'teens' numbers and multiples of ten • Read & write number in words from 1-20	• Read & write numbers to 100 • Read and write numbers to 100 in numerals • Read and write numbers in words from 1-20
Place Value	• Identify the value of ones in a two-digit number • Represent two-digit numbers using apparatus • Use jottings to represent two-digit numbers	• Identify the values on twos in a two-digit number • Correctly place a number from 1-20 on a number line with all the numbers correctly demarcated • Correctly place a number from 1-20 on a number line with partial demarcation (0, 2, 4, 6, 8..)	• Begin to recognise the place value of numbers beyond 20 • Correctly place a number from 1-20 on a number line with partial demarcation (0, 5, 10, 15, 20…) • Correctly place a number from 1-20 on a number line with only beginning and end demarcation only • Identify and represent numbers using objects and pictorial representations including the number line
Order & compare numbers	• Compare two groups of objects (to 10 and beyond) and identify which has more, fewer or if they are equal • Using concrete resources, add one more object to a group to identify one more	• Compare three or more groups of objects, identifying which group has most, least or if they are the same • Using concrete materials, remove one from the group to identify one less	• Use the language of equal to, more than, less than (fewer), most, least • Identify a number on the number track and identify that one after is one more and one before is one less • Given a number, identify one more or one less
Patterns	• Recognise & create a repeating pattern using two numbers • Using concrete materials, arrange and even amount into two groups	• Recognise and create a repeating pattern using three numbers • Using concrete materials, arrange any amount into groups of two, sorting them into those that can be grouped exactly and those that have one left over	• Identify that the numbers that are even are those used when counting in twos and the rest are odd • Use counting in twos to recognise odd and even numbers

The four operations

	Step 1	Step 2	Step 3
Addition and Subtraction	• Use pictures and symbols to write mathematical statements involving addition & subtraction and equals signs when representing a simple problem • Read mathematical statements involving +, -, =, including where = sign is at the start of the calculation • Add two single digit numbers using concrete materials or pictures and a counting **all** method • Subtract a one digit number from another using pictures, concrete materials or a taking away method	• Interpret mathematical statements involving addition and subtraction and model them using pictures or practical equipment, including t=where the = sign is at the start of the calculation • Add two single digit numbers using concrete materials or pictures and a counting **on** method • Subtract a one digit number from a two digit number using an appropriate strategy	• Write mathematical statements involving +, -, = when representing a simple problem, including where = is at the start of the calculation • Read, write and interpret mathematical statements involving +, -, = • Add a one and two digit number using an appropriate strategy • Add and subtract one and two digit numbers using an appropriate strategy
Number bonds	• Use concrete apparatus, including tens frames to represent addition facts for ten • Use concrete apparatus to explore the link between addition and subtraction number sentences • Use concrete apparatus to represent subtraction facts from 10	• Use concrete apparatus to represent addition facts for twenty • Use concrete materials to explore the relationship between addition and subtraction number sentences for 20	• Use concrete apparatus to represent subtraction facts from twenty • Represent and use number bonds and related subtraction facts within 20
Solving problems	• Solve one step problems • Identify where one digit problems are addition or subtraction	• Use concrete materials to create linked calculations • Use concrete materials to solve missing number problems where a digit is given first	• Use concrete materials to solve missing number problems where a digit might not be given first •
Doubling & halving	• Use concrete materials to model doubling as adding the same number to itself • Recall doubles for one to 5 • Recall doubles for 6 to 10	• Use concrete materials to model halves as splitting a group into two equal parts • Recall halves for even numbers to ten, using fingers if necessary for support	• Recall halves for even numbers 12 to 20 • Recall doubles of all numbers to 10 and the corresponding halves
Solving problems	• 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		
Fractions	• Use concrete materials to split a whole into parts and recognise that each part is a unit fraction of the whole. • Recognise and name a half as one of two equal parts of a shape or group of objects (even numbers) • Find half of a shape and object • Recognise and name a quarter as one of four equal parts of a shape or group of objects • Find a quarter of a shape and object	• Split 2-D shapes into parts and recognise that each part is a unit fraction of the whole • Recognise and name a half as one of two equal parts of an even quantity • Find a half of an even quantity • Recognise and name a quarter as one of four equal parts of an even quantity • Find a quarter of a quantity (which is a multiple of 4)	• Recognise and name a half as two equal parts of an odd quantity • Find a half of an odd quantity using apparatus

Shape, space & measures

	Step 1	Step 2	Step 3
2D & 3D Shapes	• Name common 2D & 3D shapes including when they are in different orientations	• Identify common 2D and 3D shapes from within a wider selection that includes a full range of shapes	• Recognise and name common 2D and 3D shapes including rectangles, circles and triangles, cuboids, pyramids and spheres
Position & 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, above, below, between, around, inside and outside • Describe direction using forwards, backwards, up and down •	• Describe turning movements for quarter turns, including using left and right • Describe position using the terms near, close and far	• Describe turning movements for three-quarter turns including using left and right • Describe positions using the terms before, after and the ordinal numbers • Describe direction using sideways (left and right)
Pattern	• Recognise and create a repeating pattern using two objects or shapes	• Recognise and create a repeating pattern using three objects or shapes	• Recognise and create a repeating pattern using more than three objects or shapes
Statistics	• Identify and describe common criteria that objects, shapes and numbers have in common • Present data in block diagrams using concrete materials • Answer and ask questions which ask…How many…in a given data category • Use language of comparison to compare data in categories	• Sort objects, shapes and numbers to a given criteria • Interpret data in block diagrams using concrete materials • Ask and answer questions which ask …how many…in two given data categories • Answer questions which ask how many more or how many fewer? When comparing two categories in a block diagram using concrete materials	• Sort objects, shapes or numbers using their own criteria • Present an 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
Measures	• Measure and record lengths and height, weights and capacity using uniform non-standard units within children's range of counting competence • Describe a length using long/short and a height using tall/short • Describe a mass using heavy/light • Describe capacity using full, half-full, empty, nearly full, nearly empty	• Measure and record length and height using rulers and metre rulers with manageable standard units (cm/m) within children's range of counting competence • Measure and record mass/weight using balance scales with manageable standard units (kg/g) within children's range of counting competence • Measure and record capacity and volume using measuring vessels with manageable standard units (l/ml) within children's counting range • Measure and record two lengths or heights using shorter, longer, taller • Compare two masses/weights using heavier/lighter • Compare two capacities or volumes using the language of more and less including when different containers are used • Describe a capacity or volume using the language of more than half full, less than half full, a quarter full	• 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 • Measure and begin to record: - lengths and heights, using non-standard and then manageable standard units (m/cm) - mass/weight, using non-standard and then manageable standard units (kg/g) - capacity and volume using non-standard and then manageable standard units (litres/ml) - time (hours/ minutes/seconds) within children's range of counting competence • Solve practical problems for length, height, mass and capacity
Time	• Measure and record time using seconds • Know and use the days of the week and how many days are in one week • Use language before, after, next, first • Tell the time to the hour	• Measure and record time using minutes • Know and use the months of the year and how many months are in one year • Use language of morning, afternoon and evening	• Measure and record time using hours • Solve practical problems for time e.g. describe a task that would take you about 1 minute to complete • Know that two weeks is called a fortnight • Use language of today, yesterday and tomorrow

		• Tell the time to the half hour recognising that the hour hand will not be exactly on the hour (NB – it will be exactly half way between the hour numbers) • Draw the hands on a clock face to show the time to the nearest hour	• Draw the hands on a clock to show times to half past the hour recognising that the hour hand is between the hour numbers
Money	• Recognise 1p, 2p, 5p, 10p, 20p coins by colour, shape, size and numerals/words	• Exchange a 2p, 5p, 10p and 20p coin for the correct number of 1p coins • 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

Year 2

Number & Place Value

	Step 1	Step 2	Step 3
Counting in steps	• Count forwards & backwards in steps of 10 using apparatus and the 100 square • Identify and discuss patterns on a 100 square when counting in steps of 2 or 5 from 0 and tens from any number • Count in steps of 2, 5 & 10 from 0 using practical equipment such as counters / cubes arranged in an array	• Count in steps of 3 from 0 using practical equipment and a number line	• Count in steps of 2, 3, 5 & 10, forwards & backwards from any number
Read & write numbers	• Read & write numbers up to 100 in words using a word list	• Read & write numbers up to 100 in words	• Read and write numbers to at least 100 in numerals and in words
Place Value	• Make and identify a TU number up to 50 using concrete apparatus • Say what each digit in a two-digit number represents • Partition TU number into tens and ones • Identify the multiples of 10 before and after a number, working out which is closest	• Make and identify a TU number up to 100 using concrete apparatus and say what each digit represents • Partition a TU number into 2 groups in different ways, where one group is a multiple of ten, using apparatus • Correctly place a number from 1 to 100 on a number line with multiples of 10 labelled • Understand that if a number is halfway (ends in 5) it rounds up	• Partition TU number in different ways, using apparatus • Correctly place a number from 1 to 100 on a number line with multiples of 10 marked but not labelled • Round numbers to 100 and beyond to the nearest 10
Order & compare	• Compare two 2-digit numbers when represented using the same apparatus • Compare numbers using <, > = • Identify the number 1 more and 1 less than a given number, where the tens digit stays the same or when it changes	• Compare three or more 2-digit amounts when represented using the same apparatus • Compare numbers using <, >, = including numbers which have similar digits e.g.65, 56 • Identify the number 10 more or less	• Order 2 or 3 TU numbers • Identify what changes and what stays the same when 10 is added or removed from a two-digit number
Number patterns	• Describe the rule in a number sequence (counting one or back in twos) • Extend number sequences counting on back in twos from any number	• Describe the rule in a number sequence (counting on or back in twos and tens) • Extend number sequences counting on or back in tens and twos from any number	• Describe the rule in a number sequence (counting on or back in fives, twos and tens) • Extend number sequences counting on or back in fives, tens and twos from any number

The four operations

	Step 1	Step 2	Step 3
Addition and Subtraction	• Recognise and solve calculations that involve known facts • Solve addition number sentences using concrete apparatus • Partition and combine multiples of ten and add ones • Add/subtract a one digit number to/from a multiple of 10 without crossing tens boundary	• Identify calculations that require mental partitioning • Understand that the subtraction of one number from another cannot be done in any order • Recognise subtraction as 'difference' in different contexts by understanding and interpreting the language involved	• Identify calculations that require counting forwards and backwards mentally, bridging 10 • Understand calculations that require mental compensation method 85-9 =85-10+1 • Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: - a two-digit number and ones - a two-digit number and

		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 including crossing a tens boundary	tens - two two-digit numbers - adding three onedigit numbers
Number bonds	• Recall and use addition and subtraction facts of all numbers up to 10 for addition and subtraction	• Recall and use addition and subtraction facts totalling 20 for addition and subtraction • Derive and use addition and subtraction facts of multiples of 10 totalling 100 • Derive and use addition and subtraction facts of multiples of 10 totalling 60	• Use ten frames to explore addition and subtraction facts for all numbers up to 20 • Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • Derive and use addition and subtraction facts of multiples of 5 totalling 60
Problem Solving	• Use inverse operation to check answers to questions • Represent and solve a one-step problem using concrete apparatus	• Use inverse and part-part-whole to solve missing number problems, where first number is given • Represent and solve a one-step problem using concrete apparatus and picture representations/models	• Use inverse and part-part-whole to solve missing number problems were the first number might not be given • Solve a one or two step problem using developing written strategies and models
Multiplication & division	• Understand doubling is adding a number to itself of x by 2 • Write + and x sentence to represent doubling e.g. 3x2=6/3+3=6 • Share an amount equally into sets where there is no remainder • Recall 10 x table and corresponding division facts	• Explore adding the same number over and over using concrete apparatus, building up to using arrays • Write the corresponding +/x sentences for the arrays • Share an amount equally into sets where there is a remainder • Understand that division means share by and model division number sentences using concrete materials • Recall 2 x table and corresponding division facts • Use fact multiplication can be done in any order to solve unknown calculation	• Understand that x is repeated + • Make equal sized groups from a set amount with or without a remainder • Record the corresponding division number sentences • Understand that division can not be done in any order • Recall 10, 2 and 5 x table and corresponding division facts • Identify odd and even numbers
Doubling & Halving	• Use apparatus to explore doubling and halving of a TU digit number by doubling ones and then the multiple of 10 • Solve one-step problems using concrete apparatus	• Recall doubles and halves of all multiples of 10 up to 50 and then 100 • Solve one-step problems using concrete apparatus and pictorial representations, such as arrays	• Use partitioning to double TU numbers where the ones numbers don't total more than 10 and to halve even TU numbers • Understand what a remainder means in the context of a problem and how this may affect the answer
Fractions	• Use concrete materials and pictorial representations to explore that the denominator is the number of equal parts that the whole has been split into and the numerator is the number of parts required in the fraction • Recognise that 'one whole' could be one whole group of items • Find **1/2** and **2/4** of an object, set of objects / quantity and length and recognise that these are the same • Find **1/4** of a shape, object, set of objects / quantity and length and write the fraction • Recognise and name **2/4** as any two of four equal parts of an object or shape and write the fraction	• Recognise and name **3/4** as any three of four equal parts of an object or shape and write the fraction • Find **3/4** of a shape, object, set of objects / quantity and length • Use equations to represent the fractions of amounts being calculated • Count on or back in steps of **1/2** in the form **1/2** , **2/2** , **3/2** , **4/2** ...etc	• Recognise and name **1/3** as any one of three equal parts of an object or shape and write the fraction • Find **1/3** of a shape, object, set of objects / quantity length • Count on or back in steps of 1/4

	• Find **2/4** of an object, set of objects / quantity and length		

Shape, Space & Measures

	Step 1	Step 2	Step 3
Shape	• Identify a shape by the number of sides/vertices and recognise that this is a way of identifying a shape (including irregular examples) • Identify a vertical line of symmetry in a regular shape • 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 • Identify the number and shape of faces or curved surfaces on 3D shapes and understand that this is a way of identifying them	• From a set of shapes, identify those with a vertical line of symmetry • Identify similarities and differences between 2D and 3D shapes	• Identify and describe the properties of 2D and 3D shapes • Identify more than one line of symmetry in regular 2D shapes
Position	• Know that a full turn is the same as a turn through four right angles and a half turn is through 2 right angles	• Know that a quarter turn is the same through 1 right angle and a ¾ turn is the same through 3 right angles	• Understand and use the language clockwise and anti-clockwise
Statistics	• Use everyday language to compare two objects, shapes or numbers 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 or a pictogram (1 symbol=1) • Understand and use most/least common	• Sort a set of objects, numbers or shapes using the range of mathematical properties that they know • Construct data on a tally chart and interpret it • Construct and interpret data on pictogram where 1 symbol=10 • Order the amounts for each category in a data set • Ask an answer how many more/less/fewer questions	• Identify the property / properties by which a set of objects, numbers or shapes has been sorted • Construct and interpret data on a pictogram where 1 symbol=2, 5 or 10 • Answer 'how many in total'...questions in given data categories
Measures	• Choose the correct standard units and equipment to measure length/height/mass/capacity • Know that temperature is measured in Celsius and measured using a thermometer • Read the temperature on a thermometer • Order the values of 3 or more lengths/heights/masses/volumes	• Know common points of reference for length/height/mass & capacity such as a ruler is 30cm • Know the common temp of a room is 28c • Estimate and read temperature on thermometer when scale is in multiples of 2 and 5 • Use < > = to compare the value of lengths/heights/masses/volumes	• Use common points of reference to estimate length/height/mass/capacity of items • Estimate and read temperature on a thermometer when the scale is partially labelled, to the nearest degree
Money	• Recognise and use £ and p correctly • Exchange 2p, 5p and 10p coins for the correct number of 1p coins and understand that, for example, ten 1p coins have the same value as one 10p coin • Add two prices together to find the total cost (in-line with addition expectations)	• Exchange 20p, 50p and £1 coins for the correct number of 10p coins and understand that, for example, five 10p coins have the same value as one 50p coin • Find different ways to partition money e.g. 50p=20p+20p+10p	• Exchange different coins for other coins of the same value • 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
Time	• Tell the time for quarter past and quarter to the hour, drawing the hands on a clock face • Know there are 60 minutes in an hour and 24 hours in a day	• Count in 5's starting from 12 and then working up to counting in times e.g. 5 past, 10 past, quarter past. • Put units of time in order	• Tell the time to the nearest 5 minutes and draw hands on a clock face to show the time • To enable comparison between different units of time, use appropriate calculation strategies to convert between units

Year 3 Number and Place Value

	Step 1	Step 2	Step 3
Counting in steps	• Count in steps of 100 and 50 from 0 • Count up and back in fractional tenths where boundaries are crossed • Identify and describe the rule in a number sequence by working out the different between the number steps & extend number sequences using the rule	• Count in steps of 4 from 0 • Count up and down in decimal tenths where boundaries are crossed • Identify and describe the rule in a number sequence where not all of the numbers are given/adjacent & extend number sequences using the rule	• Count in steps of 8 from 0
Number & place value	• Read and write multiples of 100 up to 1000 in numerals and words • Identify and represent number up to 1000 using concrete apparatus and models • Make HTU numbers using concrete apparatus and models • Know a dp separates whole numbers and decimal fractions • Identify the multiples of ten before and after a HTU number • Round HTU numbers to the nearest ten • Understand the effect of multiplying a one digit number by 10, use concrete materials to support	• Read and write numbers up to 1000 where 0 is not used as a place holder in the tens column • Correctly place multiples of 100 on a number line, where lines are demarcated • Identify the value of each digit in a number to 1dp • Partition HTU into two groups in different ways where one group is a multiple of 10 • Identify the multiples of 100 before and after a HTU number • Round a HTU number to the nearest 100 • Understand the effect of multiplying a TU number by 10, use concrete materials to support	• Read and write numbers up to 1000 where 0 is used as a placeholder in the tens column • Read and write numbers with one dp • Place multiples of 100 on a blank number line • Identify the value of each digit in a number to 1dp in a variety of ways • Partition HTU into two groups in different ways • Understand the effect of multiplying a one-digit and TU number by 100, use concrete materials to support
Roman Numerals	• Know that I represents 1, V represents 5 and X represents 10 • Know that in Roman numerals, when a symbol of lesser value is placed after one of greater value the amounts are added • Know that in Roman numerals a single symbol is not used more than 3 times consecutively	• Know how to use the symbols I, V and X to calculate and represent 2, 3, 6, 7, 8, 11 and 12 • Know that in Roman numerals, when a symbol of lesser value is placed before one of greater value the lesser amount is subtracted	• Know how to calculate and represent 4 and 9
Compare	• Compare 3 or more numbers, including when number are represented pictorially, using < > = • Identify one more or one less than a given HTU number, where the tens and hundreds digit stays the same • Identify ten or 100 more or less than a given HTU number	• Compare & order numbers including tens, ones and tenths using < > = • Identify one more or less than a given HTU number where the tens digit could change	• Compare and order numbers including hundreds, tens ones and tenths using < > = • Identify the number one more and one less than a given number with up to three-digits, where the ones, tens and hundreds digits might change

The four operations

	Step 1	Step 2	Step 3
Addition & subtraction	• Recognise and solve calculations using known number facts • Understand that addition can be done in any order and reorder to help solve calculations • Recognise calculations that require counting on or back mentally • Recognise calculations that require mental partitioning • Use knowledge of number bonds to 10 to solve similar bond such as 23 + 7 = 30 • Use knowledge of number bonds to 10 to solve missing number calculations such as 46 +___= 60 • Add and subtract a three-digit number and ones and tens mentally with no boundaries crossed • Add two numbers with three digits using formal written methods of columnar addition or subtraction with no exchange from ones into tens and then with exchange • Use rounding to estimate the answer to a calculation	• Recognise calculations where you need to count on mentally to find the difference • Recognise calculations that require counting on or back mentally, bridging through 10 • Recognise calculations that require a mental compensation method • 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 • Add and subtract a three-digit number and ones mentally, crossing a tens boundary • Add and subtract a three-digit number and ones 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 • Use inverse to check the answer to a calculation	• Select an appropriate mental strategy to solve a calculation • Understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context • Add and subtract a three-digit number and tens mentally crossing a hundreds boundary • 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 • Subtract numbers with different numbers of digits up to three digits, using formal written methods of columnar subtraction with exchange from tens into ones and hundreds into tens • 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 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
	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction		
Number bonds	• Recognise that, when calculating addition facts to 100, the ones total 10 and the tens total 90 • Derive and use addition and subtraction facts for 100 • Use related facts to derive addition and subtraction facts for multiples of 100 totalling 1000	• Use addition and subtraction facts for 100 • Use addition and subtraction facts for multiples of 100 totally 1000	•

Multiplication & Division	• Understand the division is the inverse of multiplication and vice versa • Understand division as grouping and sharing • Use concrete apparatus and arrays to understand the multiplication and division facts for the 3 times table • Recall multiplication and division facts for 3 x table • 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 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 • Use concrete materials to show division as repeated subtraction for numbers beyond the multiplication facts that they know	• Use concrete apparatus and arrays to understand the multiplication and division facts for the 4 times table • Recall multiplication and division facts for 4 x 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 or known facts to derive doubles of all multiples of 50 to 500 • Use concrete materials to show division as repeated subtraction for numbers beyond the multiplication facts that they know using greater multiples of the divisor	• Use concrete apparatus and arrays to understand the multiplication and division facts for the 8 times table • Recall multiplication and division facts for 8 x table • Use partitioning to derive and use halves of all numbers to 100 • 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 interpreting remainders), including positive integer scaling problems and correspondence problems in which n objects are connected to m objects		
Fractions	• Show in different ways that a fraction is one whole number divided by another • Use concrete materials to show that 1/10 of an amount can be found by dividing (sharing) the amount equally between ten • Use concrete materials to model the effect of dividing a one-digit number by 10 • Where a fraction of an amount cannot be found by using known division facts, use concrete materials or pictorial representations to find unit fractions (with denominators of ten or less) of a set of objects • Use concrete materials to explore equivalent fractions • Compare and order fractions with the same denominator • Count on and back in thirds, without identify whole numbers e.g. 2/3, 3/3, 4/3	• Use concrete materials to show that you find 1/2 of an amount by dividing (sharing) the amount equally between two; 1/3 is found by dividing the amount equally between three • Understand that finding a fraction of an amount can be found by dividing by the denominator • Understand the tenths heading in place value columns represents a given number of fractional tenths • Use pictorial representations to find non-unit fractions of a set of objects within multiplication table knowledge • Add and subtract fractions with the same denominator within one whole by adding or subtracting the numerators • Compare and order unit fractions • Count on and back in thirds, recognising whole numbers	• Describe the effect of dividing a one-digit number by ten • Use pictorial representations, to find non-unit fractions of a set of objects beyond multiplication table knowledge • Recognise and show, using diagrams, equivalent fractions with small denominators • Compare and order unit fractions on a number line

Shape, Space & Measures

	Step 1	Step 2	Step 3
Shape	• Draw 2D shapes with accuracy • Make 3D shapes & their skeletons using construction materials • Know angles are a measure of turn • Identify right angles in any orientation • Recognise 2 right angles as a half turn • Identify horizontal and vertical lines	• Draw 2D shapes to specific criteria • Recognise 2D and 3D shapes in different orientation • Understand how angles are created in shapes • Recognise a three-quarter turn in any orientation • Understand that the start and end point in a full turn are the same and that four right angles make a full turn • Identify pairs of perpendicular lines as lines that are at right angles to each other	• Recognise angles as a property of or a description of turn or property of a shape • Recognise if an angle is greater or less than a right angle • Identify parallel lines
Position & Direction	• Describe positions on a square grid labelled with letters and numbers		
Statistics	• Use Venn diagrams to sort items according to a given criteria • Use Caroll diagram with one criterion to sort shapes, objects and numbers • Present and interpret data in bar charts where the scale goes up in ones and twos • Interpret data to answer one-step problems	• Use Venn diagrams to sort objects, shapes and numbers to their own criteria. • Use Caroll diagram with 2 criteria to sort objects, numbers and shapes • Present and interpret data in bar charts where the scales goes up in fives and tens • Interpret data to answer two step problems, including questions where you need to add together two or more categories of data	• Use sorting diagrams to compare and sort objects, numbers and common 2D and 3D shapes • Select the most appropriate scale when presenting data in a bar chart or pictogram • Interpret data to answer two step problems, including questions where category data is missing
Measures	• Measure and compare length, height, mass and volume using standard units • Use concrete materials to measure the length of perimeter	• Add values of length, height, mass and volume • Measure the length of perimeter of polygons using ruler, trundle wheel etc and calculating the total	• Find the difference between lengths, heights, mass and volume of objects to make comparisons • Measure the perimeter for simple 2D shapes
Time	• Tell and write the time on an analogue clock to the nearest minute • Use common points of reference to estimate the time of various events • Compare two time intervals of the same unit • Solve time problems within an hour, including where the start or end time needs to be calculated using duration	• Know that hours and minute are separated by a colon on a digital clock • Estimate/read time with increasing accuracy to the nearest minute • Record time in seconds, minutes hours • Solve time problems across the hour, including where the start or ned time needs to be calculated using duration	• Tell the time on a digital clock to the nearest minute and know if it is am or pm • Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • Know that there are 365 days in a year, except a leap year • Compare duration of events
Money	• Understand that pence is a fraction of a pound • Use £ and dp to write amounts of money • Recognise that 10 10p coins make £1 • Solve one-step problems involving addition and subtraction	• Recognise 1 10p coins is 1/10 of £1 • Solve two step problems involving addition and subtraction	• Add and subtract amounts of money and give change

Year 4

Number and Place Value

	Step 1	Step 2	Step 3
Counting in steps	• Count in multiples -1000 from 0 or any multiple of 1000 -25 from 0 or any multiple of 25 -9 from 0 or any multiple of 9 -6 from 0 or any multiple of 6 -7 from 0 or any multiple of 7 • Label positive and negative numbers on a demarcated number line in steps of one & count forwards and backwards through zero		
	• Count up and down in fractional hundredths, crossing the tenths boundaries and then ones boundaries	• Count up and down in decimal hundredths, crossing the tenths boundaries and then ones boundaries	• Count up and down in hundredths
Number & Place value	• Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones), including where 0 is used as a placeholder • Read and write number with up to 2 decimal places, starting with 0 not used as a placeholder and then including where 0 is used as a placeholder • Recognise the place value of each digit in a ThHTU number, including using concrete materials, models, place value cards etc • Identify the value of each digit to two decimal places in a variety of ways • Represent numbers to two decimal places using £1, 10p and 1p coins • Partition ThHTU numbers in different ways, starting with concrete apparatus then without, into two groups		
	• Identify and represent numbers up to 10,000 • Correctly place multiples of 100 on a number line to 1000 • Find 1000 more or less than a ThHTU number • Identify the multiples of 10 before and after ThHTU number. Round a ThHTU number to the nearest 10 • Identify the whole numbers before and after a number to 1.dp where the number is less than 10. Round the number to the nearest whole number. • Understand and describe the effect of dividing a one digit number by 10	• Place any number on a number line with multiples of 1000-marked but not labelled • Place multiples of one tenth on a number line • Identify the number one tenth (0.1) more and less than a given number with up to one decimal place, including where the one digit stays the same and where it changes • Identify the multiples of 100 before and after ThHTU number. Round a ThHTU number to the nearest 100. • Identify the nearest whole numbers before and after a number to 1dp where the number is less than 100. Round the number to the nearest whole number. • Understand and describe the effect of dividing a two digit number by 10	• Place any number on a number line with multiples of 1000 marked but not labelled, with different starting and ending points • Place multiples of one hundredth on a number line • Find 0.1, 1, 10, 100 or 1000 more or less than a given number • Identify the multiples of 1000 before and after a ThHTU number. Round a ThHTU number to the nearest 1000. • Round decimals (to 1dp) to the nearest whole number. (up to 10,000) • Understand and describe the effect or dividing a one and two digit number by 100
Compare & order	• Compare & order 2 numbers up to 10,000. Use < > =. Include pictorial representations. • Compare & order two or more numbers with tenths and hundredths, using < > =	• Compare and order 3 or more numbers up to 10,000. Use < > =. Include pictorial representations. • Compare and order two or more numbers with ones, tenths and hundredths using < > =	• Compare and order numbers with the same number of decimal places, up to two dps using < > =
Number sequences	• Identify whether a number sequence is addition/subtraction or multiplication/division for complete number sequences with constant step size	• Identify & describe the rule for multiplication/division number sequences (working out the difference between two adjacent numbers)	• Extend number sequences within the children's mathematical range

Roman Numerals	• 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 (40) and 10 less than 100 (90)	• Represent any number up to 100 • Compare and contrast Roman numeral system and modern day number system

The four operations

	Step 1	Step 2	Step 3
Addition & Subtraction	• Recognise and solve calculations using known number facts • Understand that numbers in calculations can be reordered to make calculations more efficient • Recognise calculations that require counting on or back mentally • Recognise calculations that require mental partitioning • Add and subtract TU and TU crossing hundreds boundary • Add/subtract a number with 1dp and a whole number • Add or subtract two ThHTU numbers using formal written methods first without and then with exchange • Use rounding to estimate the answer to a calculation	• Recognise calculations where you need to count on mentally to find the difference • Recognise calculations that require counting on or back mentally, bridging through 10 • Recognise calculations that require a mental compensation method • Add and subtract a HTU and HTU where no boundaries are crossed • Add or subtract two numbers with 1dp without crossing ones boundary • Add or subtract more than two ThHTU numbers using formal written methods first without and then with exchange • Use inverse to check the answer to a calculation	• Select an appropriate mental strategy to solve a calculation • Add and subtract a TU number to/from a HTU number including crossing the hundreds boundary • Add and subtract a HTU and HTU, crossing the hundreds boundary • Add or subtract two numbers with 1dp, crossing the ones boundary • Add or subtract two or more numbers with 1dp, first without and then with exchange
	• Solve addition and subtraction two-step problems		
Number bonds	• Recall and use addition and subtraction facts for 100 • Recall and use addition and subtraction facts for multiples of 100 totalling 1000		
	• Derive and use addition and subtraction facts for 1 (with 1dp)	• Derive and use addition and subtraction facts for 10 (with 1dp)	• Recognise that, when calculating addition facts to 10, the ones total 9 and the tenths total 1
Multiplication & division	• Use arrays to identify the factors of a given number • Use partitioning to double any number with up to 4 digits (below 10,000) • Use related facts to double a number of tenths • Understand that x or division by 0 or 1 does not change a number • Divide TU by a U where there is no remainder then with a remainder, using the chunking method • Estimate multiplication or division by rounding to the nearest 10 or 100 and using related facts	• Identify factor pairs of given numbers within known multiplication tables • Use partitioning to double a number with ones and tenths • Use partitioning to halve any four digit even number • Use partitioning to halve any ThHTU even number, where some of the digits are odd • Represent multiplication of 3 numbers using arrays • Divide HTU by U where this is no remainder, then with a remainder, using the chunking method • Use inverse to check the answer to a calculation	• Use appropriate factor pairs and commutativity in mental calculations • 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 • Reorder multiplications to make simpler to solve • Divide a TU by U using partitioning • 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
	• 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		

Fractions	• Use bar model and other picture representations to work out fraction of amount when it cant be found using known facts • Represent 1/100 using pictorial representations • Count on or back in steps of any unit fraction crossing ones boundaries • Understand the hundredths column in a PV chart represents a given number of fractional hundredths • Recognise and write decimal equivalents for any number of hundredths less than 10/100	• Find non-unit fractions of an amount by using division to find the unit fraction then multiplying to scale up by the numerator • Recognise that 1/100 of an object can be found by dividing 1/10 of the object into ten equal parts • Use knowledge of equivalence to begin to simplify fractions in the counting sequence • Recognise that 10/100=1/10=0.1 • Use above knowledge to make links such as 20/100=2/10=0.2	• Recognise, find and write fractions of a discrete set of objects including those with a range of numerators and denominators • Write any number of hundredths in fractional and decimal form
	• Compare and order unit fractions and fractions with the same denominator • Recognise and show families of common equivalent fractions, including using pictures and diagrams • Recognise and write decimal equivalents to ¼, ½, ¾ • 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		

Shape, Space and Measures

	Step 1	Step 2	Step 3
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 • Identify properties of 3-D shapes including: faces or surfaces – number of faces and/or surfaces, where any are congruent (identical), parallel and perpendicular edges – number of edges, parallel and perpendicular vertices – number of vertices axis of symmetry • Know that an angle less than a right angle is called 'acute' Know that an angle between a right angle and a straight angle is called 'obtuse'	• Know and use the terms: scalene, isosceles, equilateral regular and irregular • Identify acute and obtuse angles where one of the lines is horizontal/vertical • Compare and order two or more angles less than two right-angles where one line is horizontal/vertical	• Name 2-D shapes including all triangles and quadrilaterals according to their properties • Name 3-D shapes including all prisms and pyramids according to their properties • Identify acute and obtuse angles in any orientation • Compare and order two or more angles less than two right-angles in any orientation •
	• Identify lines of symmetry in 2D shapes in any orientation • Complete a simple symmetric figure with respect to a specific line of symmetry • Continue to identify horizontal and vertical lines and pairs of perpendicular and parallel lines		
Position & direction	• Know that the x axis is horizontal and the y axis is vertical • Plot a single point on a grid from a co-ordinate pair • Describe movements between positions as translations of a given unit to the left/right and up/down	• 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 • Plot a given set of co-ordinate pairs	• In a co-ordinate pair, know that the first number refers to the x value and the second number the y value • Plot specified points and draw sides to complete a given polygon

Statistics	• Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. - using a greater range of scales • Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. • Use a variety of sorting diagrams to compare and classify numbers and geometric shapes based on their properties and sizes		
Measures	• Measure and compare length, mass, volume using standard units or two or more objects and use known measurements to make reasonable estimates, including numbers to 2dps • Add and subtract amounts of money, including where the pence is a multiple of 10	• Add and subtract, including finding difference, values of length, mass and capacity	• Multiply and divide values of length, mass and capacity • Multiply and divide amounts of money in pence only
	• Convert between different units of measure		
Temperature	• Order temperatures including those below 0c		
Perimeter & Area	• Recognise where sides are the same length in a rectangles, including squares and use this when measuring and calculating perimeter • Calculate the perimeter of any rectilinear figure where all side lengths are given • Find the area of irregular shapes and rectangles by counting squares	• Recognise where the sides are the same length in L and T shaped rectilinear figures and use this when measuring and calculating perimeter • 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 vertical by counting squares	• Calculate the length of missing sides using known dimensions • Find the area of rectangles presented on squared paper where the sides are not horizontal and vertical by counting half squares
Time	• Read, write and convert time between analogue and digital 12- and 24-hour clocks		
Money	• Write amounts of money using decimal notation • Recognise that 100 1p coins = £1 • Recognise that each 1p coins is 1/100 of £1		
Solving problems	• Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days and problems involving money and measures		

Year 5

Number & Place Value

	Step 1	Step 2	Step 3
Counting in steps	• Count in steps of 10, 100 or 1000, forwards or backwards from any given number to 100,000 and then 1 000 000 • Count forwards or backwards in decimals where the step size is multiples of tenths	• Count forwards or backwards in steps of 10,000 from any given number to 1 000 00, without crossing then crossing the 100 000 boundaries • Count forwards or backwards in decimals where the steps size is in multiples of hundredths less than a tenths then greater than a tenth	• Count forwards and backwards in steps of 100, 000 to 1000 000 • Count forwards or backwards in decimals where the step size is in thousandths
Number & Place Value	• 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 • 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		
Number sequences	• 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 and the greater than a tenth	• Describe and extend number sequences where the step size is in multiples of thousandths • Describe and extend number sequences with multiplication and division steps
Roman Numerals	• Read Roman numerals to 1000 (M); recognise years written as such		

The four operations

	Step 1	Step 2	Step 3
Addition & Subtraction	• Recognise and solve calculations using known number facts • Understand that numbers in calculations can be reordered to make calculations more efficient • Recognise calculations that require counting on or back mentally • Recognise calculations that require mental partitioning • Add and subtract two ThHTU where no boundaries are crossed • Add and subtract a number with two decimal places to/from a whole number	• Recognise calculations where you need to count on mentally to find the difference • Recognise calculations that require counting on or back mentally, bridging through 10 • Recognise calculations that require a mental compensation method • Add and subtract two ThHTU, using appropriate mental strategies • Add and subtract a number with two decimal places to/from another where the tenths boundary is not crossed	• Select an appropriate mental strategy to solve a calculation • Add a number with up to two decimal places to another where the tenths or ones boundary is crossed • 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, 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		

	• Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • Solve addition and subtraction problems involving missing numbers		
Number bonds	• Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place) • Derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)		
Multiplication & 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) • 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 that a square number is the product of two equal integers and can be written using ^{2} notation and a cube number is the product of three equal integers and can be written using ^{3} notation • Recognise and use cube numbers for 1^3, 2^3, 3^3, 4^3, 5^3 and 10^3 • Use partitioning to double or halve any number, including decimals to two decimal places • Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes • 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		
	• Multiply a TU by U using partitioning strategy • Use knowledge of place value and multiplication facts to divide related larger number • Use knowledge of place value and multiplication facts to multiply multiples of 100 and 1000 by a one-digit number • Divide a three-digit number by a one-digit number using a partitioning strategy • Multiply a ThHTU x U using formal written method • Multiply TU X TU using a formal written method • Divide ThHTU by U	• Use knowledge of place value and multiplication facts to multiply decimals by a one-digit number and divide related decimal numbers where the dividend is scaled down • Multiply HTU X TU using a formal written method • Divide a 4 digit number by a 1 digit number and interpret remainders appropriately for the context	• Use knowledge of place value and multiplication facts to divide related decimal numbers where the dividend and divisor are scaled down • Multiply ThHTU x TU using a formal written method
Fractions	• Count on or back in mixed number steps where the fractional part is a unit fraction in halves, thirds or quarters • Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred'	• Count on or back in mixed umber steps where the fractional part is a non-unit fraction in thirds or quarters • Write percentages as a fraction with denominator 100, and as a decimal	• Count on or back in mixed number steps • Given a fraction with denominator of 100 or a decimal to two decimal places give the equivalent percentage
	• Recognise mixed numbers and improper fractions and convert from one form to the other • Read and write decimal numbers as fractions • 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, supported by materials and diagrams • Given the following fractions 1/2 , 1/4 , 1/5 , 2/5 , 4/5 and fractions with a denominator of a multiple of 10 or 25, give the equivalent percentage and vice versa • Find percentages of amounts where they are equivalent to the fractions 1/2, 1/4 , 1/5 , 2/5 , 4/5 and fractions with a denominator of a multiple of 10 or 25		

Shape, Space & Measures

	Step 1	Step 2	Step 3
Shape	• Identify 3-D shapes, including cubes and other cuboids, from 2-D representations (greater range of examples • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angle • Draw given angles, and measure them in degrees (o) • Identify angles at a point and one whole turn (total 360o) • Identify angles at a point on a straight line and a turn (total 180o) • Identify other multiples of 90o • Use the properties of rectangles to deduce related facts and find missing lengths and angles – use angle sum facts • Distinguish between regular and irregular polygons based on reasoning about equal sides and angles		
Position	• 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		
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 using information presented in all types of graph including a line graph • Calculate and interpret the mode, median and range		
Measures	• Use, read and write standard units of length and mass • 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 • Convert between different units of metric measure, up to 3 dps and where 0 is used as a placeholder • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • Use all four operations to solve problems involving measure using decimal notation, including scaling		
Area & Perimeter	• Identify the perimeter of composite rectilinear shapes through accurate measuring to the nearest mm • Estimate the area of irregular shapes using a square centimetre overlay • Use knowledge of arrays to understand why the area of rectangles can be calculated using length multiplied by width	• Identify the length of missing sides of composite rectilinear shapes • Calculate and compare the area of rectangles	• Calculate the perimeter of a composite rectilinear shape where the lengths of some sides are not given
Temperature	• Continue to order temperatures including those below 0°C		
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		

Year 6-Number & Place Value

	Step 1	Step 2	Step 3
Counting in steps	• Count forwards or backwards in steps of integers, decimals, powers of 10		
Number & Place Value	• 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 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 • 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, including crossing zero	• Subtract a positive number from a negative number	• Calculate the difference between two negative numbers • Calculate the difference between a positive and a negative number
Number sequences	• Continue a sequence with inconsistent steps, given the rule • Identify the rule of a sequence with inconsistent steps	• Continue a sequence backwards and forwards with alternating steps, given the rule • Identify the rule of a sequence with alternating steps	• 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

The four operations

	Step 1	Step 2	Step 3
Addition & Subtraction	• Recognise and solve calculations using known number facts • Understand that numbers in calculations can be reordered to make calculations more efficient • Recognise calculations that require counting on or back mentally • Recognise calculations that require mental partitioning • Add and subtract whole numbers up to 10 000 000	• Recognise calculations where you need to count on mentally to find the difference • Recognise calculations that require counting on or back mentally, bridging through 10 • Recognise calculations that require a mental compensation method • Ad and subtract numbers with 3 dps	• Select an appropriate mental strategy to solve a calculation • Add and subtract numbers with up to 3 dps • Add and subtract whole numbers and decimals using formal written methods (columnar addition and subtraction)
	• 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 • Use estimation 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 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		

Multiplication & 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) • Use rules of divisibility to identify whether a number is prime or composite up to 144 • Identify common factors, common multiples and prime numbers • Use partitioning to double or halve any number • Use knowledge of place value and multiplication facts to divide related decimal numbers where the divisor is scaled down • Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • 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 calculation		
	• Multiply a number with 1dp with a single digit • Divide a HTU by TU	• Multiply a number with 2dps with a single digit • Divide a HTU by a TU and interpret remainder as whole number remainders, fractions or by rounding	• Multiply a number with 1dp by TU • Multiply a number with 2dps by TU • Divide a ThHTU by TU and interpret remainder as whole number remainders, fractions or by rounding
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 calculate decimal fraction equivalents • Multiply simple pairs of proper fractions, writing the answer in its simplest form • Divide proper fractions by whole numbers • 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		
	• 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 dividing 10% of the amount by 10 • Find 5% of an amount by dividing 10% by 2	• Add and subtract a fraction to a mixed number by converting both fractional parts into fractions with a common denominator • 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	• Add and subtract two mixed numbers by converting both fractional parts into fractions with a common denominator • Find percentages of amounts that require a compensation strategy
Ratio & Proportion	• 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 and then to share amounts to a given ratio where the total is a multiple of the sum of the parts • Identify the multiplicative relationship between corresponding sides of similar shapes	• Use a direct proportion diagram to solve problems 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/or the total is calculated • Use the multiplicative relationship for corresponding sides to calculate the lengths of missing sides	• Use a direct proportion diagram to solve problems when finding missing values by finding how much is needed for one first • Use knowledge of multiplication and division facts to solve problems involving unequal sharing • Solve problems involving similar shapes where the scale factor is known or can be found

| Algebra | • Describe simple rules using word
• Write simple rules using symbols
• Generate a linear number sequence when given the rule for each term and Complete the sequence using the rule: multiply the term by 3 and subtract 1
• Describe the relationship between the values in a linear sequence and their position (term) where the relationship is a single step
• 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
• Use concrete materials or pictorial representations to systematically find all the combinations of two variables | • Understand and use algebraic convention for multiplication
• Understand and use algebraic convention for combining like terms
• 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
• 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
• Identify and use the relationship between the number of options for each variable and the number of possible combinations of the two variables | • Substitute values for variables (letters) in simple formulae
• Find the value of a variable (letter) from a given formula
• Use the relationship between the values in a linear sequence and their position to identify the term from a given value
• Describe the rule for a linear sequence algebraically
• Describe the relationship between the pairs of numbers used to solve the equation |
| | • Express missing number problems algebraically | | |

Shape, Space & Measures

	Step 1	Step 2	Step 3
Shape	• Compare/classify geometric shapes based on the properties and sizes • Draw 2-D shapes using given dimensions and angles • 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 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 • Recognise, describe and build simple 3-D shapes, including making nets • Recognise that vertically opposite angles are equal • Calculate missing angles where two straight lines meet and one angle is given • Find unknown angles in any triangles, quadrilaterals, regular polygons		
Position & Direction	• 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		
Statistics	• Continue to complete and interpret information in a variety of sorting diagrams • Solve comparison, sum and difference problems using information presented in all types of graph • Calculate and interpret the mean as an average		
	• 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	• 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 circle to the proportion of the total where the segments are sixths and eighths	• Construct a pie chart using a circle split into equal sections where the values of the data set are multiples of the number of sections of the circle • Construct a pie chart using a protractor where the total of the data set is a factor of 360 (degrees)

Measures	• Use, read and write standard units of length, mass, volume and time using decimal notation to three decimal places • Convert between different units of time where long division is required • Calculate the number of cm³ in different cuboids where dimensions are given in metres • Convert between miles and kilometres • Recognise that shapes with the same areas can have different perimeters and vice versa		
Area & Perimeter	• 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 triangles is ½ (base x height) parallelogram is base x vertical height	• Derive the area of a right angled triangle by relating it to a 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 • Know the formulae for the volume of: cuboids (including cubes) is length x width x depth triangular prisms is ½ (base x height) x depth	• Calculate the area of triangles
Volume	• 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 (e.g. mm3 and km3)		
Temperature	• Calculate differences in temperature, including those that involved a positive and negative temperature		
Solving problems	• Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate		