Key Learning in Mathematics – Year 1

Number – number and place value

- Start on any number less than 100. Count forwards and backwards in 1s.
- Count in twos, fives and tens.
- Read and write numbers to 100 in numerals
- Read and write numbers from 1 to 20 in numerals and words
- Begin to understand tens and ones (units)
- Make numbers using objects and pictures. E.g. when asked draw 4 ice cream cones or count 4 beads.
- Use the following words to compare numbers: equal; more; less (fewer); most; least.
- Say one more and one less than a given number.
- Make repeating patterns with numbers, objects or shapes
- Identify odd and even numbers

Number – addition and

- Read, write and understand calculations using the following symbols: addition (+); subtraction (-) and equals (=).
- Add and subtract to make any number to 20.
- Add and subtract using objects and pictures.
- Solve missing number problems such as 7 = ☐ - 9

Number – multiplication and division

- *Double up to 10, e.g. double 7 is 14. Know the related halves, e.g. half of 14 is 7.*
- Begin to investigate multiplication and division using objects and real life equipment. E.g. Looking at the layout of egg boxes. "There are 3 rows of 2. Or sharing out objects so that everyone has the same amount.

Measurement

- Measure and begin to record:
  - lengths and heights, *using non-standard (cubes etc.) and then standard units (m/cm)*
  - mass/weight, *using non-standard (cubes etc.) and then standard units (kg/g)*
  - capacity and volume *using non-standard (milk bottles, cups, etc.) and then standard units (litres/ml)*
  - time (hours/minutes/seconds)
- Use the following vocabulary:
  - lengths and heights (for example, long/short, longer/shorter, tall/short, double/half)
  - mass/weight (for example, heavy/light, heavier than, lighter than)
  - capacity and volume (for example, full/empty, more than, less than, half, half full, quarter)
  - time (for example, quicker, slower, earlier, later)
- Recognise and use language relating to dates, including days of the week, weeks, months and years
- 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 hands on a clock face to show these times
- Recognise and know the value of different coins and notes. E.g. a 5p coin is the same as 5 1p coins.

Number – fractions

- *Understand that a fraction can describe part of a whole, e.g. "you have half of the cake"*
- Halve objects (e.g. pizzas, cakes) and groups of objects (e.g. sweets, stickers) equally.
- Split objects (e.g. pizzas, cakes) and groups of objects (e.g. sweets, stickers) into 4 equal parts and know these are quarters.

Geometry – properties of shapes

- Recognise and name the following 2-D shapes: rectangles (including squares); circles and triangles
- Recognise and name the following 3-D shapes: cuboids (including cubes); pyramids and spheres

Geometry – position and direction

- Make and discuss whole, half, quarter and three-quarter turns. E.g. using the hands on a clock.
- Describe position and direction using the following words: on top; underneath; in front; behind; next to; etc.

Statistics

- *Sort objects, numbers and shapes, e.g. all the blue objects together, all the even numbers together, all the triangles together.*
- *Make block graphs and talk about them.*
- *Ask and answer simple questions by counting the number of objects in each category*
- *Comparing categories, e.g. which category is the most popular, least frequent.*

Key Learning in Mathematics – Year 2

Number – number and place value

- Count in 2s, 3s, and 5s from 0, and in tens from any number. Children count forwards and backwards.
- Read and write numbers to at least 100 in numerals and in words
- Recognise tens and ones in a 2 digit number. E.g. 23 is 2 tens and 3 ones.
- Partition numbers in different ways (for example, 23 = 20 + 3 and 23 = 10 + 13)
- Show numbers in different ways, including place on a number line
- Compare and order numbers from 0 up to 100; use < (smaller), > (greater) and = (equal) 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 times table and place value (e.g. 10 x 6 = 60 the 6 has moved into the tens column)
- Recognise and continue simple sequences involving counting on or back in different steps. E.g. 20 22 24 we are counting in 2s.

Number – 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)
- Show that addition of two numbers can be done in any order and subtraction of one number from another cannot
- Understand subtraction as take away and difference. E.g. the difference between 5 and 15 is 10.
- Recall and use addition and subtraction facts to 20, and work out related facts up to 100.
- Know what two multiples of 5 (numbers in the 5 times table) total, up to 60 (to support telling time to nearest 5 minutes)
- Add and subtract numbers using objects, pictures and mentally, including: a two-digit number and ones; a two-digit number and tens; two, two-digit numbers; adding three one-digit numbers.
- Recognise and use the inverse relationship between addition and subtraction (they are opposites) and use this to check calculations and solve missing number problems. E.g. 20 + __ = 34 34 – 20 = 14 20 + 14 = 34
- Solve problems with addition and subtraction including those with missing numbers and those involving numbers, quantities and measures
- applying their knowledge of mental and written methods

Number – multiplication and division

- *Understand multiplication as repeated addition (e.g. 3 x 5 = 5 + 5 + 5)*
- Understand division as sharing and grouping
- Understand that a division calculation can have a remainder.
- Show that multiplication of two numbers can be done in any order and division of one number by another cannot
- Know the 2, 5 and 10 times tables (know the linked division facts.
- Find and use doubles of simple two-digit numbers (numbers in which the ones total less than 10)
- Find and use halves of simple two-digit even numbers (numbers in which the tens are even)
- Calculate mathematical statements for multiplication and division within the 2, 5, and 10 times tables and write them using the multiplication (×), division (÷) and equals (=) signs
- Solve problems involving multiplication and division (including those with remainders) including problems in contexts

Number – fractions

- Understand and use the terms numerator (top number telling us how many parts we have) and denominator (the bottom number telling us how many pieces there are altogether.
- Understand that a fraction can describe part of a group.
- Understand that the larger the denominator is, the more pieces it is split into and therefore the smaller each part will be
- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity.
- *Count on and back in steps of $\frac{1}{2}$ and $\frac{1}{4}$*
- Write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

Geometry – properties of shapes

- Name and describe the properties of 2-D shapes, including the number of sides and line symmetry
- Name 2-D shapes on the surface of 3-D shapes, (for example, a circle on a cylinder and a triangle on a pyramid)
- Name and describe the properties of 3-D shapes, including the number of edges, vertices and faces
- Describe how a shape has been moved using words such as rotation,
- Know a quarter turn is a right angle and recognise half and three- quarter turns (clockwise and anti-clockwise)

Geometry – position and direction

- Recognise and continue patterns and sequences

Statistics

- Compare and sort objects, numbers and common 2-D and 3-D shapes and everyday objects
- Make and simple pictograms, tally charts, block diagrams and simple tables
- Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
- Ask and answer questions about finding totals and comparing each piece of information.

Measurement

- Estimate and measure length/height to the nearest metre (m) or centimetre (cm) using rulers.
- Compare and order lengths and record the results using > (greater than), < (smaller than) and = (equal to).
- Estimate and measure mass to the nearest kilogram (kg) or gram (g) using scales.
- Compare and order mass and record the results using > (greater than), < (smaller than) and = (equal to).
- Estimate and measure capacity and volume to the nearest litre (l) or millilitre (ml) using measuring vessels.
- Compare and order volume/capacity and record the results using > (greater than), < (smaller than) and = (equal to).
- Read thermometers to the nearest degree (°C).
- Know there are 60 minutes in an hour and 24 hours in a day.
- 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.
- Recognise and use symbols for pounds (£) and pence (p).
- Combine amounts to make a particular value.
- Find different combinations of coins that equal the same amounts of money.
- Add and subtract money and give change.

Informal written methods and solve problems in all areas of the mathematics curriculum.

Key Learning in Mathematics – Year 3

Number – number and place value

- Count from 0 in 4s, 8s, 50s and 100s
- Count up and down in tenths
- Read and write numbers up to 1000 in numbers and in words
- Read and write numbers with one decimal place, e.g. 0.4 – four tenths – nought point four.
- Recognise the place value of each digit in a three-digit number, e.g. 356 – 3 hundreds, 5 tens and 6 ones.
- Partition (split) numbers in different ways (for example, 146 = 100 + 40 + 6 & 146 = 130 + 16
- Show numbers in different ways, including place on a number line
- Compare and order numbers up to 1000
- Compare and order numbers with one decimal place
- Find 1, 10 or 100 more or less than a given number
- Round numbers to at least 1000 to the nearest 10 or 100
- Multiply by 10 and 100.
- Recognise and continue number sequences involving counting on or back in different steps, e.g. 20 22 24 we are counting in 2s.
- Read Roman numerals from I to XII

Number – 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)
- Understand takeaway as taking a number away or finding the difference between 2 numbers (when they are close together). E.g. 47 – 43 = 43 44 45 46 47 47 – 43 = 4
- Know what two multiples of 5 (numbers in the 5 times table) total, up to 100
- Find and use addition and subtraction facts for 100
- Find and use addition and subtraction facts for multiples of 100 totalling 1000, e.g. 100 + 900 or 300 + 700
- Add and subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds
- Add and subtract numbers with up to three digits, using column addition and subtraction (see calculation policies)
- Use inverse operations to check answers, e.g. 30 + 40 = 70 70 – 30 = 40

Number – multiplication and division

- Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known or related fact, calculate mentally, use a jotting, written method)
- Understand that division is the inverse (opposite) of multiplication
- Understand how multiplication and division statements can be represented using arrays (see calculation policy)
- Understand division as sharing and grouping
- Know the 3, 4 and 8 times tables and the related division facts.
- Find and use doubles of all numbers to 100 and know the corresponding halves
- Find and use doubles of all multiples of 50 (50 times tables number) to 500
- Write and calculate mathematical statements for multiplication and division using the times tables that they know, including for two-digit numbers times one-digit numbers (e.g. 23 x 4), using mental methods
- Write and calculate mathematical statements for multiplication using the times tables that they know, including for two-digit numbers times one-digit numbers(e.g. 23 x 4), progressing to formal written methods (see calculation policy)
- Write and calculate mathematical statements for division using the times tables that they know, including for two-digit numbers divided by one-digit numbers (e.g. 84 divided by 4), progressing to formal written methods (see calculation policy)
- Solve problems, including missing number problems, involving multiplication and division

Number – fractions

- Understand that finding a fraction of an amount relates to division
- Find fractions of a group of objects.
- Read fractions and understand them. (e.g. ½ is half)
- Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10
- Count on and back in steps of $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{3}$
- Compare and order unit fractions and fractions with the same denominators (including on a number line)
- Recognise and show, using diagrams, equivalent fractions with small denominators. (Fractions that are the same e.g. ½ is the same as 5/10)
- Add and subtract fractions with the same denominator within one whole (using diagrams) (for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$)

Geometry – properties of shapes

- Draw 2-D shapes and describe them
- 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 than or less than a right angle

Geometry – position and direction

- Describe positions on a square grid labelled with letters and numbers (map type references)

Statistics

- Sort objects, numbers and common 2-D and 3-D shapes and everyday objects into sorting diagrams.
- 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

Measurement

- Measure, add and subtract lengths (m/cm/mm)
- Compare lengths (m/cm/mm)
- Understand that perimeter is a measure of distance around the edge of a shape
- Measure the perimeter of simple 2-D shapes
- Measure, add and subtract mass (kg/g)
- Compare mass (kg/g)
- Measure, add and subtract volume/capacity (l/ml)
- Compare volume/capacity (l/ml)
- Continue to estimate and measure temperature to the nearest degree (°C) using thermometers
- Record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight
- Know the number of seconds in a minute, and the number of days in each month, year and leap year
- Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24- hour clocks
- Estimate and read time with increasing accuracy to the nearest minute
- Compare durations of events (for example different durations of bus journeys)
- Continue to recognise and use symbols for pounds (£) and pence (p) and understand that the decimal point separates pounds and pence
- Recognise that ten 10p coins are equivalent to £1 and that each coin is $\frac{1}{10}$ of £1
- Add and subtract amounts of money to give change, using both £ and p in practical contexts

For each area of the mathematics curriculum children choose appropriate ways to solve problems.

Key Learning in Mathematics – Year 4

Number – number and place value

- Count in 6, 7, 9, 25 and 1000
- Count backwards through zero to include negative numbers 3, 2, 1, 0, -1, -2, -3
- Count up and down in hundredths, e.g. 0.01, 0.02, 0.03
- Read and write numbers to at least 10 000
- Read and write numbers with up to two decimal places, e.g. 3. 27, three point two, seven or 3 ones, 2 tenths and 7 hundredths.
- Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)
- Partition numbers in different ways (for example, 2.3 = 2 + 0.3 and 2.3 = 1 + 1.3)
- Order and compare numbers beyond 1000
- Order and compare numbers with the same number of decimal places, up to two decimal places.
- Find 0.1, 1, 10, 100 or 1000 more or less than a given number
- Round any number to the nearest 10, 100 or 1000
- Round decimals with one decimal place to the nearest whole number
- Divide a one- or two-digit number by 10 and 100.
- Describe and extend number sequences involving counting on or back in different steps.
- Read Roman numerals to 100 (I to C)

Number – addition and subtraction

- Recall and use addition and subtraction facts for 100
- Recall and use addition and subtraction facts for multiples of 100 totalling 1000, e.g. 400 + 300 = 700
- Find and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place, e.g. 0.3 + 0.7 =1 or 4.2 +5.8 =10)
- Add and subtract mentally combinations of two and three digit numbers and decimals to one decimal place
- Use column addition and subtraction when using numbers with up to 4 digits and decimals with one decimal place
- Use inverse operations to check answers, e.g. 56 + 43 = 99 99 – 56 = 43
- Solve addition and subtraction real life problems
- Solve addition and subtraction problems involving missing numbers, e.g. 67 - ___ = 34

Number – 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)
- Recall multiplication and division facts for times tables up to 12 × 12
- Use partitioning to double or halve any number, including decimals to one decimal place (see calculation policy)
- Use place value, known and derived facts to multiply and divide mentally.
- Multiply two-digit and three-digit numbers by a one-digit number using formal written layout (see calculation policy)
- Divide numbers up to 3 digits by a one-digit number using short division and interpret remainders appropriately for the context (see calculation policy)
- Use estimation and inverse to check answers to calculations.

Number – fractions

- Understand that a fraction is one whole number divided by another.
- Recognise, find and write fractions of a set of objects.
- Recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten.
- Count on and back in steps of unit fractions
- Compare and order fractions.
- Recognise and show, using diagrams, families of equivalent fractions
- Recognise and write decimal equivalents of any number of tenths or hundredths
- Recognise and write decimal equivalents to $\frac{1}{4}, \frac{1}{2}, \frac{3}{4}$
- Add and subtract fractions with the same denominator (using diagrams)

Geometry – properties of shapes

- Compare and classify shapes
- Identify lines of symmetry in 2-D shapes
- Compare and classify shapes based on their properties and sizes
- Identify acute (smaller than 90 degrees) and obtuse (bigger than 180 degrees) angles
- compare and order angles by size

Measurement

- Estimate and calculate lengths
- Compare lengths
- Measure and calculate the perimeter of any rectangle (including squares) in centimetres and metres
- Find the area of any rectangle by counting squares
- Estimate and calculate mass
- Compare mass
- Estimate and calculate volume/capacity
- Compare volume/capacity
- Order temperatures including those below 0°C
- Convert between different units of measure (e.g. kilometre to metre 2.3km = 2300m; hour to minute)
- Convert between different units of time, (e.g. hour to minute 1 ½ hours = 90 minutes)
- Read, write and convert time between analogue and digital 12 and 24-hour clocks
- Write amounts of money using decimal notation
- Recognise that one hundred 1p coins is the same as £1 and that each coin is $\frac{1}{100}$ of £1
- Estimate, compare and calculate money in pounds and pence
- Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days and problems involving money and measures

Statistics

- Use a variety of sorting diagrams to compare and classify numbers and geometric shapes
- Interpret and present data using appropriate graphical methods, including bar charts and time graphs
- Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

Geometry – position and direction

- Describe positions on a 2-D grid as coordinates
- 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

Solve problems in all areas of the mathematics curriculum.

Key Learning in Mathematics – Year 5

Number – number and place value

- Count forwards or backwards in steps of powers of 10 from any number up to 1 000 000
- Count forwards and backwards in decimal steps (e.g. 0, 0.25, 0.5, 0.75, 1, 1.25)
- Read and write numbers to at least 1 000 000
- Read and write numbers with up to three decimal places (e.g. 0.354)
- Know the value of each digit in numbers to at least 1 000 000 (e.g. 32,456 = 3 tens of thousands, 2 thousands, 4 hundreds, 5 tens and 6 ones/units)
- Know the value of each digit to three decimal places (e.g. 5.327 = 5 ones, 3 tenths, 2 hundredths, 7 thousandths)
- Order and compare numbers to at least 1 000 000
- Order and compare numbers with up to three decimal places
- Find 0.01, 0.1, 1, 10, 100, and 1000 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 and divide whole numbers and those involving decimals by 10, 100 and 1000
- Count forwards and backwards with positive and negative whole numbers through zero. Use negative numbers in context.
- Describe and extend number sequences including those with multiplication and division steps and those where the step size is a decimal
- Read Roman numerals to 1000 (M) and recognise years written in Roman numerals

Number – 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)
- Know and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)
- Find and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)
- Select a mental strategy appropriate for the numbers involved in the calculation
- Add and subtract numbers mentally with increasingly large numbers and decimals to two decimal places
- Use the column method to add and subtract whole numbers with more than 4 digits and decimals with two decimal places (see calculation policy)

Number – multiplication and division

- Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known or related fact, calculate mentally, use a jotting, written method)
- Identify multiples and factors
- Know and use the vocabulary of prime numbers
- Establish whether a number up to 100 is prime and recall prime numbers up to 19
- Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})
- Use partitioning to double or halve any number
- 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
- Divide numbers up to 4 digits by a one-digit number

Number – fractions

- Read and write decimal numbers as fractions (e.g. $0.71 = \frac{71}{100}$)
- Count on and back in mixed number steps such as $1\frac{1}{2}$
- Compare and order fractions
- Identify, name and write equivalent fractions
- Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- Add and subtract fractions with the same denominator and denominators that are multiples of the same number (using diagrams)
- Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
- Recognise the percent symbol (%) and understand that percent relates to 'number of parts per hundred', and write percentages as a fractions and decimals.

Geometry – properties of shapes

- Distinguish between regular and irregular polygons talking about equal sides and angles
- Use the properties of rectangles to find related facts and find missing lengths and angles
- Identify 3-D shapes, including cubes and other cuboids, from 2-D diagrams
- Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
- 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 1/2 a turn (total 180°)
  - other multiples of 90°

Measurement

- Use, read and write standard units of length to a suitable degree of accuracy (km, m, cm, mm)
- Measure and calculate the perimeter of any rectangle (including squares) in centimetres and metres
- Calculate and compare the area of rectangles (including squares), using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes
- Use, read and write standard units of mass to a suitable degree of accuracy (kg, g)
- Estimate, measure and calculate volume (for example, using 1 cm^3 blocks to build cuboids (including cubes) and capacity (for example, using water)
- Understand and use approximate equivalences between metric and common imperial units such as miles, inches, pounds, pints.
- Continue to order temperatures including those below 0°C
- Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
- Convert between units of time in a problem solving context
- Continue to read, write and convert time between analogue and digital 12 and 24-hour clocks
- Solve problems involving measure involving adding, subtracting, multiplying and dividing (for example, length, mass, volume, money) using decimal notation including scaling.
- Solve problems involving converting between units of time

Statistics

- Complete and interpret information in a variety of sorting diagrams
- Complete, read and interpret information in tables, including timetables
- Calculate and interpret the mode, median and range

Geometry – position and direction

- 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

Solve problems in all areas of the mathematics curriculum.

Key Learning in Mathematics – Year 6

Number – number and place value

- Count forwards or backwards in different steps. (Whole numbers, fractions, decimals, etc.)
- Read and write numbers to at least 10 000 000
- Determine the value of each digit in numbers to at least 1 000 000 (E.g. 356,070 3 = 300,000)
- Identify the value of each digit to three decimal places (E.g. 0.345 3=0.3 /3 tenths)
- Order and compare numbers up to 10 000 000
- Order and compare numbers including whole numbers, decimals and negative numbers
- Find 0.001, 0.01, 0.1, 1, and 10 more or 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
- Use negative numbers in context
- Describe and extend number sequences including those with multiplication and division steps, inconsistent steps, alternating steps and decimal steps

Number – addition and subtraction

- Choose an appropriate written or mental strategy to solve a calculation based upon the numbers involved.
- Know addition and subtraction facts for 1 with decimal numbers to two decimal places (e.g. 0.32 + 0.68 = 1)
- Work out calculations in your head, including with mixed operations and large numbers and decimals.
- Use column addition and subtraction when using whole numbers and decimals.
- Use estimation to check answers to calculations
- Use their knowledge of the order of operations to carry out calculations involving the four operations
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- Solve problems involving addition, subtraction, multiplication and division, including those with missing numbers

Number – multiplication and division

- Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known or related fact, calculate mentally, use a jotting, written method)
- 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
- Multiply one-digit numbers with up to two decimal places by whole numbers
- Divide numbers up to 4 digits by a two-digit number
- Use written division methods in cases where the answer has up to two decimal places
- Use estimation and inverse to check answers to calculations
- Solve problems involving addition, subtraction, multiplication and division, including those with missing numbers
- Use their knowledge of the order of operations to carry out calculations involving the four operations

Number – fractions

- Compare and order fractions, including fractions greater than1 (including on a number line)
- Simplify fractions
- Know links between simple fractions, decimals and percentages (e.g. 0.5 = 50% = ½)
- Associate a fraction with division and calculate decimal fraction equivalents
- Add and subtract fractions, using the concept of equivalent fractions
- Multiply simple pairs of fractions
- Divide proper fractions by whole numbers (using diagrams) (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$)
- Find simple percentages of amounts (e.g. 50% of 30 = 15)

Geometry – properties of shapes

- Compare and classify shapes based on their 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, and regular polygons

Geometry – position and 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

Measurement

- Use, read and write standard units of length using decimal notation to three decimal places
- Recognise that shapes with the same areas can have different perimeters and vice versa
- Calculate the area of parallelograms and triangles
- Use, read and write standard units of mass using decimal notation to three decimal places
- Use, read and write standard units of volume using decimal notation to three decimal places
- Calculate and estimate volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3) and extending to other units (for example, mm^3 and km^3)
- Compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3) and extending to other units (for example, mm^3 and km^3)
- Calculate differences in temperature, including those that involve a positive and negative temperature
- Convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to three decimal places
- Convert between miles and kilometres
- Use, read and write standard units of time

Ratio and Proportion

- Solve problems involving the relative sizes of two quantities where missing values can be found using integer multiplication and division facts
- Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples
- Solve problems involving similar shapes where the scale factor is known or can be found

Algebra

- Use symbols or letters in missing number problems. (E.g. A + 1,7 = 9.7 or 3B = 15)
- Use simple formulae
- Find pairs of numbers that satisfy an equation with two unknowns e.g. A + B = 7.53

Statistics

- Continue to complete and interpret information in a variety of sorting diagrams
- 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

Solve problems in all areas of the mathematics curriculum.