

YEAR 7 - KEY SKILLS IN MATHS

Key Objective		Developing	Secure	Greater Depth
1	To recognise the place value of any integer in a value up to one billion, including decimals.	I can explain the value of any digit in a value up to hundreds of millions.	I can explain the place value of any digit in a value up to one billion. I can explain the place value of any digit in a value up to one billion including decimals with up to 4 decimal places. I can write integers up to one billion in words and figures.	I can explain the place value of any digit in a value up to one billion in positive and negative numbers. I can explain the place value of any digit in a value up to one billion including decimals with up to 6 decimal places. I can write integers up to one billion in words and figures including decimals.
2	To order positive and negative integers, decimals and fractions.	I can order integers up to one billion. I can order fractions with the same denominator. I can order decimals with up to 3dp.	I can order integers up to one billion including decimals. I can find the LCM of 2 or more denominators to order fractions effectively.	I can solve problems involving ordering integers, decimals and fractions with different denominators.
3	To round numbers to an appropriate degree of accuracy and check calculations using approximation, estimation or inverse operations.	I can round numbers to the nearest 10, 100 and 1000. I can round a number to any number of decimal places.	I understand estimating as the process of finding the rough value of a calculation. I can estimate by rounding numbers to one significant figure.	I can use inverse operations to check solutions to calculations.
4	To order fractions where the denominators are not multiples of each other.	I understand the terms highest common factor and lowest common multiple. I can compare fractions with the same denominators.	I can convert fractions to a common denominator when the denominators are not multiples of each other. I can order the set of fractions.	I use prime factorisation to find the HCF and LCM during problem solving activities I can order a mixed set of fractions, decimals and percentages.
5	To convert between terminating decimals, percentages and fractions.	I can identify when a fraction can be scaled to tenths or hundredths. I can convert a fraction to a decimal by scaling and vice versa.	I can write a decimal as a fraction. I know key decimal and fraction equivalents. I can write a fraction in its lowest terms by cancelling common factors.	I can use division to identify if a fraction is terminating or recurring. I can calculate with decimals and fractions expressing my results in their simplest form.
6	To write a quantity as a fraction or percentage of another.	I understand that percent means out of 100. I can write a fraction in its simplest form.	I can convert percentages into fractions. I can write one quantity as a fraction of another.	I can calculate a percentage increase or decrease.
7	To use multiplicative reasoning to interpret percentage change.	I can find a percentage of an amount. I understand the relationship between percentages and their decimal equivalents.	I can use a multiplier to find a percentage of an amount. I can use a multiplier to increase or decrease by a percentage.	I can find a multiplier when the original and new amount are known. I can state the percentage change when the multiplier is known.
8	To interpret pie charts	I know that a whole pie chart is represented by a 360degree angle.	I can derive information accurately from a pie chart. I can draw a pie chart using my understanding of angles.	I can solve problems involving pie charts with unknown sectors.
9	To generate terms of a sequence from a term-to-term rule	I can find the next number in a linear number sequence. I can write linear number sequences of my own.	I can find the term-to-term rule for a linear number sequence. I can generate a number sequence using a term-to-term rule.	I can create a formula from given information in a variety of sequences. I can give the next term in a non-linear number sequence.
10	To simplify and manipulate expressions by collecting like terms.	I know the meaning of the words 'variable', 'term' and 'expression'. I can identify like terms.	I can identify like terms in more complex cases. I can simplify expressions by adding and subtracting like terms.	I can create expressions in a variety of contexts such as area and perimeter.
11	To simplify and manipulate expressions by multiplying a single term over a bracket.	I understand that ab means a x b	I can multiply a single term over a bracket. I can use powers to write the result of squaring a variable.	I can construct simple expressions involving brackets in a variety of contexts such as area and perimeter.
12	To substitute numbers into formulae.	I can substitute numbers into a simple formula.	I can substitute numbers into simple formula involving division. I can substitute numbers into simple formula involving squaring.	I can create formula from given information in a variety of contexts such as area and perimeter.
13	To understand and use lines parallel to the axes, $y = x$ and $y = -x$.	I understand that straight line graphs have equations. I can plot the graphs of lines parallel to the axes.	I can recognise and plot the graph of $y = x$ I can recognise and plot the graph of $y = -x$	I can work out the equation of a graph from plotted points.
14	To find and use the nth term for a linear sequence.	I can find the term to term rule for a linear sequence. I can find the position to term rule for a linear sequence.	I can find the nth term of an ascending or descending linear sequence. I can use the nth term of a sequence to work out the value of any term.	I can use the nth term rule to deduce whether a number is in the sequence. I can use nth term to identify a value that sequences have in common.
15	To solve linear equations with one unknown.	I understand that an equation has to balance on both sides. I can solve one-step equations.	I can solve two-step and three-step equations. I know how to solve an equation by balancing both sides.	I know how to deal with fractions as solutions. I can construct an equation from given information in a variety of contexts such as area and perimeter.
16	To identify and recognise characteristics of 2D and 3D shapes.	I can list the properties of some basic regular 2D and 3D shapes	I understand how geometric notation can be used for labelling angles, lengths, equal lengths and parallel lines.	I can identify and use geometric notation to help me solve problems involving shapes.
17	To construct and measure lines and angles.	I can draw acute, obtuse, right and reflex angles. I can use a 180degree protractor to measure angles less than a straight line.	I can construct angles to any given measurement in degrees. I can construct parallel and perpendicular lines. I can construct triangles and polygons accurately using a ruler and a protractor. I can accurately construct a pie chart.	I can check the accuracy of my own triangle constructions using my understanding of their properties. I can conduct my own surveys to collect data and represent the information accurately using a pie chart.
18	To identify and calculate angles.	I can identify acute, obtuse, right and reflex angles.	I can identify and calculate angles at a point. I can calculate angles on a straight line. I can identify vertically opposite angles; alternate and corresponding angles.	I can establish the size of interior and exterior angles in any given regular polygon. I can solve missing angle problems that use a combination of angle rules.
19	To reliably use column methods to apply the four operations with decimal and negative values.	I can add and subtract decimals.	I can multiply decimals. I can divide a whole number by a decimal. I can use addition effectively to find the perimeter of 2D shapes. I can use multiplication effectively to find the area of 2D shapes.	I can divide a decimal by a decimal.
20	To add and subtract fractions and mixed numbers both positive and negative.	I can find a common denominator for two fractions with different denominators.	I can add and subtract fractions with different denominators.	I can solve problems involving adding and subtracting fractions and mixed numbers with negative and positive values.
21	To understand and find the mode, median, mean and range of a data set.	I understand mode, median and mean are measures of average. I understand that the range is the spread of values.	I can identify a set of raw data and order it to find the mode, median and range. I can find the mean of a data set.	I can conduct my own surveys to collect data and calculate the mode, median, mean and range of my results.
22	To construct accurate graphs and tables.	I understand the difference between continuous and discrete data.	I construct appropriate graphs and tables for the type of data given.	I can draw and interpret pie charts.
23	To understand geometric transformations.	I can explain translations in simple terms eg: 2up, 3down. I can reflect a shape using a mirror across a mirror line.	I can understand and use translations. I can use rotations to identify rotational symmetry. I can use reflections including reflectional symmetry. I can use the centre and scale factor to carry out an enlargement with positive integer scale factors.	I can use the centre and scale factor to carry out an enlargement with positive and fractional scale factors.

