Year 8 Term 1

Chapter	Emerging	Developing	Secure	Excelling
Whole numbers and decimals (Number)	● Add, subtract, multiply and divide integers. ● Identify factors and multiples and test numbers for divisibility. Identify prime numbers.	● Order, add and subtract negative numbers and decimals. ● Multiply and divide by 10, 100, 0.1 and 0.01. ● Use BIDMAS rules to do a calculation in the correct order. ● Find lowest common mulitples (LCM) and highest common factors (HCF). ● Round whole numbers and decimals.	● Recognise and use cube and square numbers, cube roots and square roots. ● Write a number as the product of its prime factors. ● Round numbers to a given number of significant figures.	● Use trial-and-improvement to find square and cube roots. ● Multiply and divide numbers written in index form. ● Use prime factors to find HCF and LCM of pairs of numbers. ●Find upper and lower bounds of a calculation or measurement.
Measures, perimeter and area (Geometry and measures)	● Use, read and write standard metric units. ● Calculate the perimeter and area of a rectangle and shapes made from rectangles.	● Convert one metric unit to another. ● Calculate the area of a triangle, parallelogram and trapezium. ● Know the names of parts of a circle. ● Read and interpret scales on a range of measuring instruments.	● Convert between metric and imperial units. ● Calculate the perimeter and area of 2D shapes. ● Recognise and use common compound measures. ● Use appropriate metric units to measure length, mass, capacity and area.	● Understand whether a formula represents a length, area or volume. ● Use pi to calculate the circumference of a circle. ● Calculate the area of a circle. ● Understand and use compound measures for speed, density and pressure.
Expressions and formulae (Algebra)	● Use symbols to make simple expressions.	● Simplify expressions by collecting like terms. ● Recognise and write formulae. ● Expand single brackets.	● Multiply and divide algebraic terms. ● Substitute values into formulae or simple algebraic expressions. ● Factorise an expression by taking out a common factor.	● Add and subtract simple algebraic fractions. ● Change the subject of a formula. ● Use index notation (including negative indices) and basic index laws.
Fractions, decimals and percentages (Number)	●Simplify equivalent fractions. ●Add and subtract fractions with same denominator. ●Find a fraction of a quantity. ●Multiply and dividide integers by a fraction.	●Understand, compare and order decimals. ●Order fractions ●Express one number as a fraction of another.	●Express one number as a percentage of another. ●Convert between percentages, decimals and fractions and order them. ●Add and subtract fractions with different denominators. ●Calculate percentages of an amount and percentage changes.	●Add and subtract mixed numbers. ●Multiply and divide fractions. ●Calculate an original amount from the result of a percentage change. ●Calculate a percentage increase or a percentage decrease. ●Calculate a repeated percentage increase and decrease.

Year 8 Term 2

Chapter	Emerging	Developing	Secure	Excelling
Fractions, decimals and percentages (Number)	●Simplify equivalent fractions. ●Add and subtract fractions with same denominator. ●Find a fraction of a quantity. ●Multiply and dividide integers by a fraction.	●Understand, compare and order decimals. ●Order fractions ●Express one number as a fraction of another.	●Express one number as a percentage of another. ●Convert between percentages, decimals and fractions and order them. ●Add and subtract fractions with different denominators. ●Calculate percentages of an amount and percentage changes.	●Add and subtract mixed numbers. ●Multiply and divide fractions. ●Calculate an original amount from the result of a percentage change. ●Calculate a percentage increase or a percentage decrease. ●Calculate a repeated percentage increase and decrease.
Angles and 2D shapes (Geometry and measures)	●Use the sum of angles at a point and on a straight line to solve problems. ●Recognise vertically opposite angles. ●Classify triangles and quadrilaterals. ●Use the facts about angles in triangles to solve problems.	●Work with angles at a point and on a line. ●Work with angles in a triangle. ●Work with angles on parallel and intersecting lines. ●Recognise parallel and perpendicular lines.	●Reason geometrically using the properties of angles at a point, on a line and intersecting and parallel lines. ●Recognise quadrilaterals and know their properties. ●Know and use some properties of polygons. ●Recognise congruent shapes. ●Identify and use congruent shapes.	●Recognise the different types of triangles and quadrilaterals and use their properties. ●Recognise the different types of polygons and calculate interior and exterior angles for regular polygons. ●Use the properties of a circle to calculate angles. ●Calculate an arc length and sector area of a circle.
Ratio and proportion (Ratio and proportion)	●Simplify ratios. ●Express one amount as a proportion of a whole. ●Compare proportions of amounts using fractions and percentages.	●Solve problems involving direct proportion. ●Calculate a percentage of an amount. ●Understand and use the relationship between ratio and proportion.	●Calculate a percentage increase or decrease. ●Use fractions, decimals and percentages to comare simple proportions and solve problems. ●Divide a quantity into a given ratio.	●Use the unitary method to solve direct proportion problems. ●Solve ratio and proportion problems. ●Describe quantities in direct proportion using an equation or a graph.
Graphs (Algebra)	●Read and plot coordinates in all four quadrants. ●Use a table of vaues to draw a straight-line graph. ●Identify the equations of, and draw horizontal and vertical graphs. ●Use real-life graphs and conversion graphs.	●Draw a straight-line graph of a function. ●Interpret and draw real-life graphs. ●Create and use formulae. ●Plot and interpret time series graphs. ●Recognise the equations of sloping lines and lines parallel to the axes.	●Plot the graph of a linear function. ●Find the midpoint of a pair of coordinates. ●Relate gradient and y intercept to the genreal equation y = mx + c. ●Plot graphs of linear functions and find gradients. ●Find the equation of straight-line graphs. ●Plot and interpret distance-time graphs.	●Use the equation of a straight line. ●Plot the graph of an implicit function. ●Read and interpret exponential and reciprocal graphs. ●Recognise and plot graphs of simple quadratic functions. ●Recognise and plot graphs of cubic functions.

Year 8 Term 3

Chapter	Emerging	Developing	Secure	Excelling
Graphs (Algebra)	●Read and plot coordinates in all four quadrants. ●Use a table of vaues to draw a straight-line graph. ●Identify the equations of, and draw horizontal and vertical graphs. ●Use real-life graphs and conversion graphs.	●Draw a straight-line graph of a function. ●Interpret and draw real-life graphs. ●Create and use formulae. ●Plot and interpret time series graphs. ●Recognise the equations of sloping lines and lines parallel to the axes.	●Plot the graph of a linear function. ●Find the midpoint of a pair of coordinates. ●Relate gradient and y intercept to the genreal equation y = mx + c. ●Plot graphs of linear functions and find gradients. ●Find the equation of straight-line graphs. ●Plot and interpret distance-time graphs.	●Use the equation of a straight line. ●Plot the graph of an implicit function. ●Read and interpret exponential and reciprocal graphs. ●Recognise and plot graphs of simple quadratic functions. ●Recognise and plot graphs of cubic functions.
Mental Calculations (Number)	●Use the order of operations, including brackets. ●Use mental methods to add, subtract, multiply and divide. ●Solve problems using addition, subtraction, multiplication and division. ●Use long multiplication. ●Multiply decimals by a single digit number.	●Round to the nearest whole number, 10, 100 and 1000. ●Round to a given decimal place. ●Use rounding to estimate and approximate. ●Use a calculator to interpret the remainder in a division calculation. ●Use short and long division.	●Use the rules of arithmetic with negative numbers. ●Multiply and divide a number by 10, 100 and 1000, and 0.1 and 0.01. ●Solve problems using mental strategies by breaking the problems down into smaller steps. ●Use the function keys on a calculator and interpret the display.	●Calculate with positive and negative powers of ten. ●Use standard written methods for addition and subtraction with whole numbers and decimals. ●Use a range of mental and written strategies for decimal calculations.
Statistics (Statistics and probability)	●Plan a survey and collect data. ●Use frequency tables. ●Construct bar charts.	●Construct pie charts. ●Construct frequency diagrams (including grouped data). ●Find the mean, mode, median and range of a list of numbers.	●Calculate averages, including from a frequency tables. ●Construct scatter diagrams and understand correlation. ●Draw and interpret stem and leaf diagrams. ●Estimate averages from grouped tables ●Make comparisons between sets of data. ●Plot and analyse time-series graphs.	●Create and interpret a grouped frequency table. ●Compare distributions ●Draw a frequency polygon. ●Find the trends using moving averages. ●Draw and use a cumulative frequency graph. ●Use box plots to make comparisons between data sets.