

	Working towards Y8 Expected standards	Working towards Y8 Expected standards Plus	Meeting Y8 Expected standards	Working above Y8 Standard	Working well above Y8 Standard
Number	<ul style="list-style-type: none"> *Understand negative numbers and perform simple calculations involving negative numbers. *Use standard column procedures to add, subtract whole numbers and decimals with up to two places *Multiply and divide three-digit by two-digit whole numbers. Multiply and divide decimals by single-digit whole numbers. *Recognise and use multiples and factors. *Know the square numbers up to 10×10. *Use fraction notation to describe parts of shapes and to express a smaller whole number as a fraction of a larger one. Use a diagram to compare two or more simple fractions. *Reduce a fraction to its simplest form by cancelling common factors. 	<ul style="list-style-type: none"> *Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 and 1000 and explain the effect. *Can add & subtract simple fractions, only those with common denominators. Calculate simple fractions of quantities and measurements. *Use known facts, place value, knowledge of operations and brackets to calculate including using all four operations with decimals to two places. *Apply inverse operations and approximate to check answers to problems are of the correct magnitude. *Understand and use an appropriate non-calculator method for solving problems that involve multiplying and dividing any three-digit number by any two-digit number. 	<ul style="list-style-type: none"> *Use squares, positive & negative square roots, cubes & cube roots, and index notation for small positive integer powers. Use index notation for integer powers and simple instances of the index laws. *Recognise and use number patterns and relationships e.g. multiples, factors, primes. Including set theory, using Venn diagrams: appreciate the infinite nature of the sets of integers, real and rational numbers. *Reduce a fraction to its simplest form by cancelling common factors. *Add and subtract fractions that have a common denominator, including mixed numbers. *Use a calculator where appropriate to calculate fractions/percentages of quantities/measurements. *Round decimals to the nearest decimal place; order, subtract and add negative numbers in context. *Simple fraction decimal conversions. 	<ul style="list-style-type: none"> Rounding to decimal places & significant figures. *Order integers, decimals and fractions *Add, subtract, multiply and divide negative numbers. *Hierarchy of operations (BIDMAS). *Using functions, interpret the reverse process as the 'inverse function'. *Laws of indices. *Able to change ordinary numbers to standard form & vice versa. *Able to find Multiples, Factors & Primes. *Add/Subtract/Multiply/Divide fractions w/out a calculator. *Percentage increase & decrease *Compound Interest & depreciation *Calculate reverse percentages *Can calculate one quantity as a percentage of another. *Work interchangeably with terminating decimals and their corresponding fractions. 	<ul style="list-style-type: none"> *Find limits of accuracy. *Solve problems involving limits of accuracy. *Perform standard form calculations with & without a calculator. *Rational numbers and reciprocals. *Able to manipulate surds. *Find the LCM and HCF using Prime Factors, including use of Venn diagrams. *Add/Subtract/Multiply/Divide fractions with a calculator. *Change recurring decimals into their corresponding fractions and vice versa. *Change freely between related standard units e.g. time, length, area, volume/capacity, mass and compound units e.g. speed, rates of pay, prices, density, pressure in numerical and algebraic contexts.

<p>Ratio and Proportion and Rates of Change</p>	<ul style="list-style-type: none"> *Use ratio notation, reduce a ratio to its simplest form. *Recognise and use simple number patterns and relationships. 	<ul style="list-style-type: none"> *Understand simple ratio, consolidate understanding of the relationship between ratio and proportion. *Reduce a ratio to its simplest form, including a ratio expressed in different units, recognising links with fraction notation 	<ul style="list-style-type: none"> *Divide a quantity into two or more parts in a given ratio; use the unitary method to solve simple word problems involving ratio and direct proportion. *Solve simple problems involving ratio and direct proportion. *Use equivalence between fractions and order fractions and decimals. 	<p>Solving problems involving Distance, Speed and Time.</p> <ul style="list-style-type: none"> *Solving problems involving Direct Proportion & Best Buys. 	<ul style="list-style-type: none"> *Plot and interpret graphs of non-standard functions in real contexts, to find approximate solutions to problems such as simple kinematic problems involving distance & speed. *Solving problems involving Density, Mass and Volume.
<p>Algebra</p>	<ul style="list-style-type: none"> *Describe simple integer sequences, generate terms of a simple sequence given a rule and practical contexts. *Know the meanings of <i>term</i>, <i>expression</i> and <i>equation</i>. *Simplify linear algebraic expressions by collecting positive like terms. *Express and solve simple functions in words, then using symbols; represent them in mappings. *Use and interpret conventions/ notation for 2-D coordinates in the first quadrant. 	<ul style="list-style-type: none"> *Generate terms of a sequence using term-to-term and position-to-term definitions of the sequence. *Construct, express in symbolic form, and use simple formulae involving one or two operations. *Substitute integers into formulae. *Simplify and transform linear expressions by collecting like terms. *Multiply a single bracket. 	<ul style="list-style-type: none"> *Begin to use graphs and set up equations to solve simple problems involving direct proportion. *Use and interpret Coordinates in all four quadrants *Substitute into formulae & expressions, incl. scientific formulae. *Change of subject for simple formulae *Expand double brackets. *Factorise simple algebraic expressions. 	<ul style="list-style-type: none"> *Construct & solve linear equations. *Understand and use the concepts and vocabulary of identities & inequalities. *Able to draw Linear Graphs by plotting. *Know the difference between an equation and an identity. *Using functions, interpret the succession of two functions as a 'composite function' (the use of formal function notation is expected). *Manipulate algebraic expressions. 	<ul style="list-style-type: none"> *Change of subject for harder formulae *Simplify algebraic fractions. *Simplifying expressions involving sums, products and powers, including the laws of indices. *Solve simultaneous equations. *Solving problems using simultaneous equations. *Solve Inequalities. *Able to use $y=mx+c$ to draw a graph. *Factorising quadratic expressions of the form $x^2 + bx + c$, including the difference of two squares. *Use trial & improvement. *Argue mathematically to show algebraic expressions are equivalent.

<p>Geometry and Measures</p>	<ul style="list-style-type: none"> *Identify all the symmetries of 2-D shapes. *Reflect simple shapes in a mirror line. *Know and use the formula for the perimeter and area of a rectangle. *Read and interpret simple scales on a range of measuring instruments. Use vocabulary, notation & labelling conventions for lines, the sides & angles of triangles & other shapes. *Identify parallel lines; know the sum of angles at a point, on a straight line and in a triangle. *Use a protractor to measure acute angles. 	<ul style="list-style-type: none"> *Use a wider range of properties of 2-D and 3-D shapes and identify all the symmetries of 2-D shapes. *Reason about position and movement and transform shapes. *Understand and use the formula for the area of a rectangle and distinguish area from perimeter. *Read and interpret scales on a range of measuring instruments, including protractor, explaining what each labelled division represents. 	<ul style="list-style-type: none"> *Solve problems involving the conversion of units and make sensible estimates of a range of measures in relation to everyday situations. *Use language associated with angle and know and use the angle sum of a triangle and that of angles at a point. Begin to recognise alternate and corresponding angles. *Measure and draw angles to the nearest degree, when constructing models and drawing or using shapes. 	<ul style="list-style-type: none"> *Able to perform translations, reflections, rotations & simple enlargements. *Calculate area of Triangles and parallelograms. *Circumference and Area of a Circle. *Measure line segments and angles in geometric figures, including interpreting maps, scale drawings & use of bearings *Calculate interior & exterior angles in polygons 	<ul style="list-style-type: none"> *Able to perform enlargements using a positive scale factor. *Able to perform combined transformations. *Length, area and volume of similar shapes. *Using properties of congruent triangles. *Calculate area of trapezia. *Calculate area of a sector. *Construction of triangles, bisectors & defining a locus. *Construct nets of 3D shapes *Use Pythagoras' theorem to calculate a missing side. *Use the Circle theorems, Cyclic quadrilaterals, tangents and chords.
<p>Statistics and Probability</p>	<ul style="list-style-type: none"> * Collect & organise the data required, using a simple data collection sheet. Construct tally charts for discrete data. *Find the mode, mean, median and range for discrete data and the modal class for grouped data. *Construct graphs and diagrams to represent data, including: bar-line graphs; for discrete data. Interpret graphs and diagrams, excluding pie charts. *Use vocabulary and ideas of probability, drawing on experience. *Understand and use the probability scale from 0 to 1. 	<ul style="list-style-type: none"> *Collect, record and estimate probability from a simple experiment and record in a frequency table. *Understand and use the mean of discrete data and compare two simple distributions, using the range and one of mode, median or mean. *Interpret graphs and diagrams, including pie charts, and draw conclusions. *Create and interpret line graphs where the intermediate values have meaning. 	<ul style="list-style-type: none"> *In probability, select methods based on equally likely outcomes and experimental evidence, as appropriate and use Venn diagrams. *Understand and use the probability scale from 0 to 1. *Understand that different outcomes may result from repeating an experiment. *Interpret and construct vertical line charts for ungrouped discrete numerical data. *Use appropriate measures of central tendency & spread (range). 	<ul style="list-style-type: none"> *Interpret and construct line graphs for time series data and know their appropriate use. *Interpret, analyse and compare the distributions of data sets through appropriate graphical representation involving discrete, continuous and grouped data, including box plots *Understand the meaning of mutually exclusive and exhaustive events. *Use two way tables. 	<ul style="list-style-type: none"> *Interpret & construct Stem & Leaf Diagrams. *Interpret & construct scatter diagrams. *Use appropriate measures of central tendency & spread (including consideration of outliers, quartiles and inter-quartile range). *Construct suitable surveys & questionnaires. *Use of Venn Diagrams to calculate probability *Able to use the addition rule for events. *Able to calculate probability of compound events.