| Year 8 Sets 1 and 2 | | |
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| **Term** | **Unit Title** | **2014 Programme of study** |
| | 1 Number | use the concepts and vocabulary of common factors<br>use the concepts and vocabulary of common multiples<br>use the concepts and vocabulary of highest common factor<br>use the concepts and vocabulary of lowest common multiple<br>use the concepts and vocabulary of prime factorisation<br>use the four operations, including formal written methods, with positive and negative integers<br>use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals<br>use integer powers and associated real roots (square, cube and higher)<br>recognise powers of 2, 3, 4, 5 |
| | 2 Area and volume | derive and apply formulae to calculate and solve problems involving area of triangles, parallelograms, trapezia<br>derive and apply formulae to calculate and solve problems involving volume of cuboids (including cubes)<br>calculate and solve problems involving composite shapes<br>change freely between related standard units [for example time, length, area, volume/capacity, mass] |
| | Half-term test | |
| | 3 Statistics, graphs and charts | describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete data<br>describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving continuous and grouped data<br>describe, interpret and compare observed distributions of a single variable through: appropriate measures of spread (range, consideration of outliers)<br>describe, interpret and compare observed distributions of a single variable through: appropriate measures of central tendency (mean, mode, median)<br>construct and interpret frequency tables<br>construct and interpret bar charts<br>construct and interpret pie charts<br>Illustrate simple mathematical relationships between two variables (bivariate data) using scatter graphs |
| | 4 Expressions and equations | use and interpret algebraic notation: $ab$ in place of $a \times b$<br>use and interpret algebraic notation: $a^2$ in place of $a \times a$<br>use and interpret algebraic notation: $a^3$ in place of $a \times a \times a$<br>use and interpret algebraic notation: coefficients written as fractions rather than as decimals<br>use and interpret algebraic notation: brackets<br>understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors<br>simplify and manipulate algebraic expressions to maintain equivalence: collecting like terms<br>simplify and manipulate algebraic expressions to maintain equivalence: taking out common factors<br>use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement) |
| | End of term test | |
| Spring term | 5 Real-life graphs | model situations or procedures by using graphs<br>interpret mathematical relationships both algebraically and graphically<br>find approximate solutions to contextual problems from given graphs of a variety of functions: including piece-wise linear graphs |
| | 6 Decimals and ratio | use the four operations, including formal written methods, with positive and negative decimals<br>round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures]<br>use ratio notation<br>reduce a ratio to simplest form<br>divide a given quantity into two parts in a given part:part ratio<br>divide a given quantity into two parts in a given part:whole ratio<br>express the division of a quantity into two parts as a ratio<br>understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction |
| | Half-term test | |
| | 7 Lines and angles | derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies<br>understand and use the relationship between parallel lines and alternate and corresponding angles<br>use the sum of angles in a triangle to deduce the angle sum in any polygon<br>apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides |
| | End of term test | |
| Summer term | 8 Calculating with fractions | use the four operations, including formal written methods, with positive and negative fractions<br>use the four operations, including formal written methods, with positive and negative improper fractions and mixed numbers<br>work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8)<br>use standard units of mass, length, time, money and other measures, including with decimal quantities |
| | 9 Straight-line graphs | recognise, sketch and produce graphs of linear functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane<br>reduce a given linear equation in two variables to the standard form y = mx + c<br>calculate and interpret gradients and intercepts of graphs of such linear equations numerically<br>calculate and interpret gradients and intercepts of graphs of such linear equations graphically<br>calculate and interpret gradients and intercepts of graphs of such linear equations algebraically<br>solve problems involving direct proportion<br>solve proportion problems including graphical and algebraic representations |
| | Half-term test | |
| | 10 Percentages, decimals and fractions | express one quantity as a percentage of another<br>compare two quantities using percentages<br>work with percentages greater than 100%<br>interpret percentages multiplicatively |
| | End of year test | |