Year 9

In addition to the list of topics below you will also need to apply your numeracy skills and problem solving techniques.	
1 Basic number	Solve problems set in a real-life context.
	Multiply a decimal number by another decimal number.
	Divide by a decimal number.
	Round to a given number of significant figures.
	Estimate before calculating.
	Round a calculation to give a reasonable answer.
	Find multiples and factors.
	Identify prime numbers
	Identify square and triangular numbers.
	Find square roots.
	Identify cubes and cube roots.
	Identify prime factors.
	Identify the least common multiple of two numbers.
	Identify the highest common factor of two multiples.
	Multiply and divide positive and negative numbers.
2 Fractions, ratio and proportion	Find one quantity as a fraction of another
	Add and subtract fractions with different denominators.
	Multiply proper fractions and mixed numbers.
	Divide by fractions.
	Use a calculator to accurately solve problems involving fractions.
	Increase and decrease quantities by a percentage.
	Work out percentage change.
	Express one quantity as a percentage of another.

3 Statistical diagrams and averages	Draw and interpret bar charts and pie charts.
	Draw and interpret line graphs.
	Use averages to solve more complex problems.
	Identify the advantages and disadvantages of each type of average and learn which one to use in different situations.
	Work out and use the range of a set of data.
	Calculate the mode, the median and the mean from a frequency table.
	Identify the modal group.
	Estimate the mean from a grouped frequency table.
	Draw, interpret and use scatter diagrams.
	Draw and use a line of best fit.
4 Number and sequences	Recognise patterns in number sequences
	Generate sequences, given the *n*th term.
	Find the *n*th term of a linear sequence.
	Recognise and continue some special number sequences such as square numbers.
	Find the *n*th term of a sequence from a diagram or practical problem.
	Generate the terms of a quadratic sequence from the *n*th term.
	Work out the *n*th term of a quadratic sequence
5 Ratio and proportion	Simplify a ratio.
	Express a ratio as a fraction.
	Divide amounts in given ratios.
	Complete calculations from a given ratio.
	Recognise and solve problems using direct proportion.
	Find either the cost per unit weight or the weight per unit cost and use to identify the cheapest product.
	Recognise and solve problems involving the compound measures of rates of pay, speed, density and pressure
	Calculate compound interest.
	Solve problems involving repeated percentage change.

	Calculate the original amount after a known percentage change.
6 Angles	To know the sum of the angles on a straight line, around a point, in a triangle and in a quadrilateral.
	To solve missing angle problems in triangles.
	To work out the sum of the interior angles in a polygon.
	To be able to calculate the size of the interior and exterior angles of any regular polygon.
	To solve problems involving alternate, corresponding, allied and opposite angles
	To be able to calculate the size of angles in special quadrilaterals using their geometric properties.
	To be able to make a scale drawing to a given scale.
	To be able to convert measurements to calculate actual distances.
	To be able to read, interpret and draw bearings diagrams.
	To use the geometrical properties of a diagram to calculate a bearing.
7 Transformations, constructions and loci	Demonstrate that two triangles are congruent
	Find the order of rotational symmetry for a 2D shape
	Recognise shapes with rotational symmetry.
	Translate, reflect, rotate and enlarge a 2D shape.
	Combine transformations
	Construct the bisectors of lines and angles
	Construct angles of 60° and 90°.
	Draw a locus for a given rule
	Solve practical problems using loci
	Construct and interpret plans and elevations of 3D shapes.
8 Algebraic manipulation	Recognise expressions, equations, formulae and identities.
	Substitute into, manipulate and simplify algebraic expressions.
	Factorise an algebraic expression.
	Expand two binomials to obtain a quadratic expression.
	Expand the square of a binomial.
	Expand more than two binomials.
	Factorise a quadratic expression of the form $x^2 + ax + b$ into two linear brackets.

	Factorise a quadratic expression of the form $ax^2 + bx + c$ into two linear brackets.
	Change the subject of a formula.