Curriculum Implementation Mapping – Skills and Knowledge

Subject: Maths **Year group: 9 Foundation**

Topic	Term 1	Term 2	Term 3
Knowledge	Number: Place value and ordering numbers The four rules of number Order of operations and BIDMAS Measurement and conversion factors: Systems of measurement Conversion factors Conversion factors Nets Using an isometric grid Revision of basic number work Algebra: Expressions and formulae Basic algebra Substitution Expanding brackets Statistics: Charts, tables and averages: Frequency tables Statistical diagrams including line graphs Statistical averages Factorisation	Geometry and measures: Angles Angle facts Triangles Angles in a polygon and regular polygons Angles in parallel lines Special quadrilaterals Bearings Number: Number properties: Multiples, Factors, Prime Numbers LCM and HCF Number: Powers and Roots Square Numbers, Square Roots Cubes and Roots Using a calculator	Algebra Algebra Notation Review Indices Expanding Brackets Review Factorisation Number: Decimals and fractions Calculating with decimals Algebra: Linear graphs Graphs and equations Drawing linear graphs by finding points Gradient of a line y = mx + c Number: Decimals and fractions Fractions and reciprocals Writing one quantity as a fraction of another
Skills	Number: Use a number line to represent negative numbers. Use inequalities with negative numbers Compare and order positive and negative numbers. Use the four rules of arithmetic with integers and decimals (including negatives). Work out the answers to problems with more than one mathematical operation. Measurement and conversion factors: Convert from one metric unit to another Convert from one imperial unit to another. Use approximate conversion factors to change between imperial units and metric units. Read and draw scale drawings Use a scale drawing to make estimates. Draw nets of some 3D shapes Identify a 3D shape from its net. Read from and draw on isometric grids. Interpret diagrams to draw plans and elevations. Algebra: Expressions and formulae write an algebraic expression recognise expressions, equations, formulae and identities. substitute into, simplify and use algebraic expressions. Expand and simplify brackets.	Geometry and measures: Angles calculate angles on a straight line, around a point and vertically opposite angles recognise and calculate the angles in different sorts of triangle calculate the sum of the interior angles in a polygon. calculate the exterior angles and the interior angles of a regular polygon. calculate angles in parallel lines. use angle properties in quadrilaterals. use a bearing to specify a direction. Number: Number properties: Find and recognise multiples and factors of a number Identify prime numbers Identify prime factors, highest common factor and lowest common multiple of two numbers Number: Powers and Roots Identify square numbers and use a calculator to find the square of a number. recognise the square roots of square numbers up to 225, and use a calculator to find the square root of any number use some of the important keys when working on a calculator.	Algebra multiply, divide, add and subtract with decimals. Problem solving with decimals Number: Decimals and fractions multiply, divide, add and subtract with decimals. Problem solving with decimals Algebra: Linear graphs use flow diagrams to draw graphs work out the equations of horizontal and vertical lines. draw linear graphs without using flow diagrams. work out the gradient of a straight line draw a line with a certain gradient. draw graphs using the gradient-intercept method draw graphs using the cover-up method. Number: Decimals and fractions recognise different types of fraction, reciprocal, terminating decimal and recurring decimal convert terminating decimals to fractions convert fractions to decimals find reciprocals of numbers or fractions. work out a fraction of a quantity find one quantity as a fraction of another.

	Factorise an algebraic expression. Statistics: Charts, tables and averages: use tally charts and frequency tables to collect and represent data, use grouped frequency tables to collect and represent data. draw pictograms to represent statistical data, use and interpret bar charts, vertical line charts, pie charts and other charts, draw a line graph to show trends in data. work out the mode, median, mean and range of small sets of data, decide which is the best average to use to represent a data set.		
Assessment Pattern	Teacher Assessment	1 hour Summary Assessment to be sat in class	Teacher Assessment

Topic	**Term 4**	**Term 5**	**Term 6**
Knowledge	Number: Decimals and fractions Adding, subtracting, multiplying and dividing fractions Fractions on a calculator Number: Approximations Rounding whole numbers and decimals Approximating calculations Algebra: Linear graphs Finding the equation of a line from its graph The equation of a parallel line Real-life uses of graphs	Ratio and proportion and rates of change: Ratio, speed and proportion Ratio Speed, distance and time Direct proportion problems Best buys Algebra: Expressions and formulae Quadratic expansion and factorisation Geometry: Symmetry, Transformations, Congruence and Constructions Symmetry Transformations	Geometry: Symmetry, Transformations, Congruence and Constructions Constructions Congruency Properties of 3D shapes Ratio Problem solving Problem Solving Problem solving
Skills	Number: Decimals and fractions add and subtract fractions with different denominators. multiply proper fractions and mixed numbers divide by fractions use a calculator to add, subtract, multiply and divide fractions Number: Approximations round a whole number and decimals to a given accuracy identify and round numbers to a given number of significant figures use approximation to estimate answers and check calculations round a calculation at the end of a problem, to give what is considered to be a sensible answer. Algebra: Linear graphs work out the equation of a line, using its gradient and y-intercept work out the equation of a linear graph that is parallel to another line and passes through a specific point.	Ratio and proportion and rates of change: Ratio, speed and proportion simplify a ratio express a ratio as a fraction divide amounts into given ratios complete calculations from a given ratio and partial information. recognise the relationship between speed, distance and time calculate average speed from distance and time calculate distance travelled from the speed and the time taken calculate the time taken on a journey from the speed and the distance. recognise/solve problems that involve direct proportion. find the cost per unit mass and mass per unit cost use the above to find which product is better value. Algebra: Expressions and formulae expand two linear brackets to obtain a quadratic expression.	Geometry: Symmetry, Transformations, Congruence and Constructions Construct triangles given SSS, SAS and AAS Recognise congruent shapes Show two or more triangles are congruent Identify faces, edges and vertices of prisms, cylinders, pyramids, cones and spheres Ratio Simplifying ratios to 1:n and link to scales.Combining more than one ratio. Problem solving with ratios.

	convert from one unit to another unit by using a conversion graph use straight-line graphs to work out formulae.	factorise a quadratic expression of the form x2 + ax + b into two linear brackets. Geometry: Symmetry, Transformations, Congruence and Constructions Identify lines of symmetry and order of rotational symmetry Reflect an object in a mirror line and rotate an object around a centre	
Assessment Pattern	1 hour Summary Assessment to be sat in class	Teacher Assessment	End of year test: Full set of GCSE past papers to be sat in class