

Year 10 Foundation Learning map



Autumn	Reasoning with Algebra			Constructing in 2 and 3 Dimensions		
	Straight line graphs	Forming and solving equations	Testing conjectures	Three dimensional shapes	Constructions and congruency	
Spring	Reasoning with Number			Reasoning with Geometry		
	Numbers	Using percentages	Maths and money	Deduction	Rotation and translation	Pythagoras theorem
Summer	Reasoning with Proportion			Representations and Revision		
	Enlargement and similarity	Solving ration and proportion problems	Rates	Probability	Algebraic representation	Revision

*Bold are the prerequisite skills previously covered within curriculum

Year 10 foundation Autumn Learning map

Reasoning with Algebra



Straight Line Graphs	Forming and Solving Equations	Testing Conjectures
<ul style="list-style-type: none"> • Lines parallel to the axis, $y = x$ and $y = -x$ • Using tables of values • Compare gradients and intercepts • Understand and use $y = mx+c$ • Find the equation of a line from a graph • Interpret gradient and intercepts of real-life graphs 	<ul style="list-style-type: none"> • Solve one and two-step equations and inequalities • Solve one and two-step equations and inequalities with brackets • Inequalities with negative numbers • Solve equations and inequalities with unknowns on both sides • Solving equations and inequalities in context • Substituting into formulae and equations • Rearranging one and two step formulae 	<ul style="list-style-type: none"> • Factors, Multiples and Primes • True or false • Always, sometimes, never true? • Show that • Conjectures about number • Expand a pair of binomials • Conjectures with algebra • Explore the 100 grid
<ul style="list-style-type: none"> • Write an equation in the form $y = mx+c$ • Model real-life graphs involving inverse proportion • Explore perpendicular lines 	<ul style="list-style-type: none"> • Rearrange complex formulae including brackets and squares 	

Year 10 foundation Autumn Learning map

Constructing in 2 and 3 Dimensions



Three-Dimensional Shapes	Constructions and Congruency
<ul style="list-style-type: none"> • Know names of 2D and 3D shapes • Recognise prisms • Accurate nets of cuboids and other 3D shapes • Sketch and recognise nets of cuboids and other 3D shapes • Plans and elevations • Find area of 2D shapes • Surface area of cubes and cuboids • Surface area of triangular prisms • Surface area of a cylinder • Volume of cubes and cuboids • Volume of other 3D shapes – prisms and cylinders 	<ul style="list-style-type: none"> • Draw and measure angles • Construct and interpret scale drawings • Locus of distance from a point, from a straight line/shape, equidistant from two points, from two lines • Construct a perpendicular bisector, perpendicular from a point, perpendicular to a point, an angle bisector • Construct triangles from given information • Identify congruent figures • Explore congruent triangles • Identify congruent triangles
<ul style="list-style-type: none"> • Explore volumes of cones, pyramids and spheres 	

Year 10 foundation Spring Learning map

Reasoning with Number



Numbers	Using Percentages	Maths and Money
<ul style="list-style-type: none"> • Integers, real and rational numbers • Work with directed number • Solve problems with integers and decimals • HCF and LCM • Adding and subtracting fractions • Multiplying and dividing fractions • Solving problems with fractions • Numbers in standard form 	<ul style="list-style-type: none"> • Use the equivalence of fractions, decimals and percentages • Calculate percentage increase and decrease • Express a change as a percentage • Solve 'reverse' percentage problems • Recognise and solve percentage problems (calculator and non-calculator) 	<ul style="list-style-type: none"> • Solve problems with bills and bank statements • Calculate simple interest • Calculate compound interest • Solve problems with Value Added Tax (VAT) • Calculate wages and taxes • Solve problems with exchange rates • Solve unit pricing problems
<ul style="list-style-type: none"> • Understand and use surds 	<ul style="list-style-type: none"> • Solve problems with repeated percentage change 	

Year 10 foundation Spring Learning map

Reasoning with Geometry



Deduction	Rotation and Translation	Pythagoras' Theorem
<ul style="list-style-type: none"> • Angles in parallel lines • Solving angles problems (using chains of reasoning) • Angles problems with algebra • Conjectures with angles • Conjectures with shapes 	<ul style="list-style-type: none"> • Identify the order of rotational symmetry of a shape • Compare and contrast rotational symmetry with line symmetry • Rotate a shape about a point on a shape and about a point not on a shape • Translate points and shapes by a given vector • Compare rotation and reflection of shapes 	<ul style="list-style-type: none"> • Squares and square roots • Identify the hypotenuse of a right-angled triangle • Determine whether a triangle is right-angled • Calculate the hypotenuse of a right-angled triangle • Calculate missing sides in right-angled triangles • Use Pythagoras theorem on coordinate axes • Explore proofs of Pythagoras' theorem
<ul style="list-style-type: none"> • Link constructions and geometrical reasoning 	<ul style="list-style-type: none"> • Find the results of a series of transformations 	<ul style="list-style-type: none"> • Use Pythagoras' theorem in 3D shapes

Year 10 foundation Summer Learning map

Reasoning with Proportion



Enlargement and Similarity	Solving Ratio and Proportion Problems	Rates
<ul style="list-style-type: none"> recognise enlargement and similarity Enlarge a shape by a positive integer scale factor Enlarge a shape by a positive integer scale factor from a point Enlarge a shape by a positive fractional scale factor Work out missing sides and angles in a pair of given similar shapes 	<ul style="list-style-type: none"> Solve problems with direct proportion Direct proportion and conversion graphs Solve problems with inverse proportion Solve ratio problems given the whole or a part Solve 'best buy' problems 	<ul style="list-style-type: none"> Solve speed, distance and time problems with and without a calculator Use distance/time graphs Solve problems with density, mass and volume Solve flow problems and their graphs Rates of change and their units
<ul style="list-style-type: none"> Enlarge a shape by a negative scale factor Solve problems with similar triangles Explore ratios in right-angled triangles 	<ul style="list-style-type: none"> Graphs of inverse relationships Solve problems with ratio and algebra 	<ul style="list-style-type: none"> Convert compound units

Year 10 foundation Summer Learning map

Representations and Revision



Probability	Algebraic Representation	Revision (suggestions)
<ul style="list-style-type: none"> • Single event probability • Relative frequency – include convergence • Expected outcomes • Independent events • Use diagrams to work out probabilities 	<ul style="list-style-type: none"> • Draw and interpret quadratic graphs • Interpret graphs, including reciprocal and piece-wise • Represent inequalities 	<ul style="list-style-type: none"> • Standard form, product of primes, error intervals • Scatter graphs, statistical graphs, measures, tables and timetables, data handling project • Find the rule for the n^{th} term of a sequence, investigating algebraic proof • Using graphs, equations, tables etc. to solve complex word problems
<ul style="list-style-type: none"> • Use tree diagrams • Use tree diagrams to solve 'without replacement' problems 	<ul style="list-style-type: none"> • Investigate graphs of simultaneous equations 	