



Year 9 Curriculum Mathematics



Concepts in bold are extension objectives and may not be covered by all classes.

	Term 1 (Autumn)		Term 2 (Spring)		Term 3 (Summer)	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Key Concepts – All Sets	<ul style="list-style-type: none"> • Straight Line Graphs <ul style="list-style-type: none"> - Draw and read lines parallel to the axes, $y = x$ and $y = -x$ - Use a table of values - Compare gradients - Compare intercepts - Understand and use $y = mx + c$ - Write an equation in the form $y = mx + c$ - Find the equation of a line from a graph - Interpret gradients and intercepts of real-life graphs - Model real-life graphs involving inverse proportion - Explore perpendicular lines • Forming & Solving Equations <ul style="list-style-type: none"> - Solve one and two step equations and inequalities - Solve one-and two-step equations and inequalities with brackets - Use inequalities with negative numbers 	<ul style="list-style-type: none"> • 3D Shapes <ul style="list-style-type: none"> - Name 2D and 3D shapes - Recognise prisms, including language of edges/vertices - Draw accurate nets of cuboids and other 3D shapes - Sketch and recognise nets of cuboids and other 3D shapes - Draw and use plans and elevations - Find the area of 2D shapes - Find the surface area of cubes and cuboids - Find the surface area of triangular prisms - Find the surface area of a cylinder - Find the volume of cubes and cuboids - Find the volume of prisms and cylinders - Explore the volume of cones, pyramids and spheres 	<ul style="list-style-type: none"> • Numbers <ul style="list-style-type: none"> - Integers, real and rational numbers - Understand and use surds - Work with directed number - Solve problems with integers - Solve problems with decimals - HCF and LCM - Adding and subtracting fractions - Multiplying and dividing fractions - Solve problems with fractions - Numbers in standard form • Using Percentages <ul style="list-style-type: none"> - Use the equivalence of fractions, decimals & percentages - Calculate percentage increase & decrease - Express a change as a percentage - Solve 'reverse' percentage problems 	<ul style="list-style-type: none"> • Maths & Money <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 and taxes - Solve problems with exchange rates - Solve unit pricing problems • Deductions <ul style="list-style-type: none"> - Angles in parallel lines - Solving angle problems (using chains of reasoning) - Angles problems with algebra - Conjectures with angles - Conjectures with shapes - Link constructions and geometrical reasoning • Rotation & Translation 	<ul style="list-style-type: none"> • Pythagoras's Theorem <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 a right-angled triangle - Use Pythagoras' theorem on coordinate axes - Explore proofs of Pythagoras' theorem - Use Pythagoras' theorem in 3D • Enlargement & Similarity <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 	<ul style="list-style-type: none"> • Rates <ul style="list-style-type: none"> - Solve speed, distance and time problems without a calculator - Solve speed, distance and time problems with 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 - Convert compound units • Probability <ul style="list-style-type: none"> - Single event probability - Relative frequency - Expected outcomes - Independent events - Use tree diagrams to solve 'without replacement' problems

	<ul style="list-style-type: none"> - Solve equations with unknowns on both sides - Solve inequalities with unknowns on both sides - Solve equations and inequalities in context - Substitute into formulae and equations - Rearrange formulae (one step) - Rearrange formulae (two step) - Rearrange complex formulae including brackets and squares • Testing Conjectures <ul style="list-style-type: none"> - Recognise Factors, Multiples & Primes - Show that a statement is True or False? - Show that a statement is either Always, Sometimes or Never true - Use clear working to "Show that" - Make conjectures about number - Expand a pair of binomials - Make conjectures with algebra - Explore the 100 grid - Expand three binomials 	<ul style="list-style-type: none"> • Constructions & Congruency <ul style="list-style-type: none"> - Draw & measure angles - Construct & interpret scale drawings - Find the locus of distance from a point - Find the locus of distance from a straight line/shape - Find the locus equidistant from two points - Construct a perpendicular bisector - Construct a perpendicular from a point - Construct a perpendicular to a point - Find the locus of distance from two lines - Construct an angle bisector - Construct a triangle from given information - Identify congruent figures - Identify & explore congruent triangles 	<ul style="list-style-type: none"> - Recognise & solve percentage problems (non-calc) - Recognise & solve percentage problems (calc) - Solve problems with repeated percentage change 	<ul style="list-style-type: none"> - Identify the order of rotational symmetry of a shape - Compare and contrast rotational symmetry with lines of symmetry - Rotate a shape about a point on a shape - Rotate a shape about a point not on a shape - Translate a point and shapes by a given vector - Compare rotation and reflection of shapes - Find the result of a series of transformations 	<ul style="list-style-type: none"> scale factor from a point - Enlarge a shape by a positive fractional scale factor - Enlarge a shape by a negative scale factor - Work out missing sides and angles in a pair of given similar shapes - Solve problems with similar triangles - Explore ratios in right-angled triangles • Ratio & Proportion Problems <ul style="list-style-type: none"> - Solve problems with direct proportion - Direct proportion and conversion graphs - Solve problems with inverse proportion - Graphs of inverse relationships - Solve ratio problems given the whole or a part - Solve 'best buy' problems - Solve problems involving ratio and algebra 	<ul style="list-style-type: none"> - Use diagrams to work out probabilities • Algebraic Representations <ul style="list-style-type: none"> - Draw and interpret quadratic graphs - Interpret other graphs, including reciprocals and piecewise - Investigate graphs of simultaneous equations - Represent inequalities
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Year 9 Assessment Mathematics



All pupils will sit an assessment and several knowledge tests in Year 9. As a core subject there is a further assessment in the summer term.

	Assessment		Knowledge Tests	Assessment		Revision Resources
	Autumn Term		Autumn/Spring Terms	Summer Term		
Style of Assessment	Paper 1: Core paper	Paper 2: Sets 1 – 3 Higher paper Sets 4 – 6 Foundation paper	Each knowledge test consists of 10 multiple-choice questions	Paper 1: Core paper	Paper 2: Sets 1 – 3 Higher paper Sets 4 – 6 Foundation paper	<i>Kennet Resources</i> <ul style="list-style-type: none"> Year 9 Knowledge Organisers Learning Habits <i>External Resources</i> <ul style="list-style-type: none"> www.mymaths.co.uk www.bbc.com/bitesize
Topics Assessed	Content covered in the first term of Year 9, with some links to other Key Stage 3 content. The broad topic areas are: <ul style="list-style-type: none"> Straight line graphs Forming and solving equations Testing conjectures 3D shapes 	<ul style="list-style-type: none"> This covers the same content as paper one but offers extension in the higher paper and more explicit questions in the foundation 	<ul style="list-style-type: none"> Core knowledge taught until that point in the academic year 	Assesses any content taught up to this point in the year or any previously taught content. The units covered are: <ul style="list-style-type: none"> Straight Line Graphs Forming & Solving Equations Testing Conjectures 3D Shapes Constructions & Congruency Numbers Using Percentages Maths & Money Deduction Rotations & Translations Pythagoras' Theorem Enlargement and similarity <p>A revision list and revision materials will be provided prior to the assessment</p>	You can also find revision material on Frog 	