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	• Straight Line Graphs – 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 – Solve one and two step equations and inequalities – Solve one-and two-step equations and inequalities with brackets – Use inequalities with negative numbers – Solve equations with unknowns on both sides	• 3D Shapes – 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** • Constructions & Congruency	• Numbers – 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 – Use the equivalence of fractions, decimals & percentages – Calculate percentage increase & decrease – Express a change as a percentage – Solve 'reverse' percentage problems – Recognise & solve percentage problems (non-calc)	• Maths & Money – Solve problems with bills and bank statements – Calculate simple interest – Calculate compound interest – Solve problems with Value Added Tax – Calculate wages and taxes – Solve problems with exchange rates – Solve unit pricing problems • Deductions – 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 – Identify the order of rotational symmetry of a shape	• Pythagoras's Theorem – 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 – 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	• Rates – 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 – Single event probability – Relative frequency – Expected outcomes – Independent events – **Use tree diagrams** – **Use tree diagrams to solve 'without replacement' problems**

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	– 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 – 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**	– 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	– Recognise & solve percentage problems (calc) – **Solve problems with repeated percentage change**	– 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**	– 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 – 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**	– Use diagrams to work out probabilities • Algebraic Representations – Draw and interpret quadratic graphs – Interpret other graphs, including reciprocals and piecewise – **Investigate graphs of simultaneous equations** – Represent inequalities

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	*Kennet Resources* • Year 9 Knowledge Organisers • Learning Habits *External Resources* • 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: • Straight line graphs • Forming and solving equations • Testing conjectures • 3D shapes	This covers the same content as paper one but offers extension in the higher paper and more explicit questions in the foundation	• 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: • Straight Line Graphs • Forming & Solving Equations • Testing Conjectures • 3D Shapes • Constructions & Congruency • Numbers • Using Percentages • Maths & Money • Deduction • Rotations & Translations • Pythagoras' Theorem • Enlargement & similarity A revision list and revision materials will be provided prior to the assessment		

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