

Subject: Maths**Year: 9**

<u>Y9 Autumn HT 1</u>	<u>Y9 Autumn HT 2</u>	<u>Y9 Spring HT 1</u>	<u>Y9 Spring HT 2</u>	<u>Y9 Summer HT 1</u>	<u>Y9 Summer HT 2</u>
<u>Unit 1: Straight Line Graphs</u> - Lines parallel to the axes, $y = x$ and $y = -x$ - Using tables 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 gradient and intercepts of real-life graphs - Model real-life graphs involving inverse proportion - Explore perpendicular lines	<u>Unit 4: Three Dimensional Shapes</u> - Know names of 2-D and 3-D shapes - Recognise prisms - Accurate nets of cuboids and other 3-D shapes - Sketch and recognise nets of cuboids and other 3-D shapes - Plans and elevations - Find area of 2-D 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 3-D shapes –	<u>Unit 6 : Numbers</u> - 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 - Solving problems with fractions - Numbers in standard form <u>Unit 7 : Using Percentages</u> - Use the equivalence of	<u>Unit 9 : Deduction</u> - Angles in parallel lines Solving angles problems (using chains of reasoning) - Angles problems with algebra - Conjectures with angles - Conjectures with shapes - Link constructions and geometrical reasoning <u>Unit 10 : Rotation and translation</u> - Identify the order of rotational symmetry of a shape - Compare and contrast rotational	<u>Unit 12 :</u> <u>Enlargement and similarity</u> - 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 - 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	<u>Unit 15 :</u> <u>Probability</u> - Single event probability - Relative frequency – include convergence - Expected outcomes - Independent events - Use tree diagrams - Use tree diagrams to solve 'without replacement' problems - Use diagrams to work out probabilities <u>Unit 16 : Algebraic Representation</u> - Draw and interpret quadratic graphs

<p><u>Unit 2 : Forming and Solving Equations</u></p> <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 with unknowns on both sides - Solve inequalities with unknowns on both sides - Solving equations and inequalities in context - Substituting into formulae and equations - Rearrange formulae (one-step) - Rearrange formulae (two-step) - Rearrange complex formulae 	<p>prisms and cylinders</p> <ul style="list-style-type: none"> - Explore volumes of cones, pyramids and spheres <p><u>Unit 5: Constructions and Congruency</u></p> <ul style="list-style-type: none"> - Draw and measure angles - Construct and interpret scale drawings - Locus of distance from a point Locus of distance from a straight line/shape - Locus equidistant from two points - Construct a perpendicular bisector - Construct a perpendicular from a point - Construct a perpendicular to a point - Locus of distance from two lines - Construct an angle bisector 	<p>fractions, decimals and percentages</p> <ul style="list-style-type: none"> - Calculate percentage increase and decrease - Express a change as a percentage - Solve 'reverse' percentage problems - Recognise and solve percentage problems (non-calculator) - Recognise and solve percentage problems (calculator) - Solve problems with repeated percentage change <p><u>Unit 8 : Maths and Money</u></p> <ul style="list-style-type: none"> - Solve problems with bills and bank statements - Calculate simple interest - Calculate compound interest 	<p>symmetry with line symmetry</p> <ul style="list-style-type: none"> - Rotate a shape about a point on a shape - Rotate a shape about a point not on a shape - Translate points and shapes by a given vector - Compare rotation and reflection of shapes - Find the result of a series of transformations <p><u>Unit 11 : Pythagoras' theorem</u></p> <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 	<ul style="list-style-type: none"> - Explore ratios in right-angled triangles <p><u>Unit 13 : Solving ratio and proportion problems</u></p> <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 ratio and algebra <p><u>Unit 14 : Rates</u></p> <ul style="list-style-type: none"> - Solve speed, distance and time 	<ul style="list-style-type: none"> - Interpret graphs, including reciprocal and piece-wise - Investigate graphs of simultaneous equations - Represent inequalities
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<p>including brackets and squares</p> <p><u>Unit 3: Testing Conjectures</u></p> <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 - Expand three binomials 	<ul style="list-style-type: none"> - Construct triangles from given information - Identify congruent figures - Explore congruent triangles Identify congruent triangles 	<ul style="list-style-type: none"> - Solve problems with Value Added Tax - Calculate wages and taxes - Solve problems with exchange rates - Solve unit pricing problems 	<p>right-angled triangle</p> <ul style="list-style-type: none"> - Calculate missing sides in right-angled triangles - Use Pythagoras theorem on coordinate axes - Explore proofs of Pythagoras' theorem - Use Pythagoras' theorem in 3-D shapes 	<p>problems without a calculator</p> <ul style="list-style-type: none"> - Solve speed, distance and time problems with a calculator - Use distance/time graphs <p>Solve problems with density, mass and volume</p> <ul style="list-style-type: none"> - Solve flow problems and their graphs - Rates of change and their units - Convert compound units 	
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