



Overview	<p>The purpose of the Maths curriculum is to equip students with uniquely powerful ways to describe, analyse and solve problems and to make them more prepared for the real world.</p> <p>We do this by providing a secure understanding of mathematical concepts, from basic principles of mathematics to complex topics that combine several areas of study into a single question.</p> <p>In Year 9 we continue to concentrate on retention of knowledge and depth of learning. In doing this, all our students have the opportunity to master key skills.</p>
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		Assessment
Autumn Term	Half Term 1 Decimal Manipulation <ul style="list-style-type: none"> ■ Adding, subtracting, multiplying and dividing integers and decimals ■ Manipulation of Decimals e.g. $2.54 \div 4$, using one calculation to perform another, ordering decimals (including use of inequality symbols) ■ Calculations involving money and correct use of units ■ Order of operations (BIDMAS): use conventional notation for priority of operations, including brackets, powers, roots and reciprocals Estimation & Limits of Accuracy Related calculations <ul style="list-style-type: none"> ■ Rounding number to the nearest 10, 100, 1000, and to a given number of decimal places ■ Rounding to significant figures ■ Estimate answers to one or two step calculations ■ Apply sensible rounding depending on the calculation ■ Recognise and use relationships between operations ■ Error intervals using inequalities ■ Apply and interpret limits of accuracy ■ Use inequality notation to specify an error interval due to truncation or rounding. HCF and LCM of large numbers <ul style="list-style-type: none"> ■ Prime numbers, prime factor decomposition, LCM, HCF (of large numbers) Fraction Calculations <ul style="list-style-type: none"> ■ Add and subtract fractions and mixed numbers with different denominators 	Half Term 2 Algebraic Manipulation <ul style="list-style-type: none"> ■ Collect like terms ■ Multiply together two simple algebraic expressions. ■ Simplify expressions by cancelling, e.g. $= 2x$ ■ Add and subtract fractions with an algebraic numerator including with powers ■ Multiply, divide and simplify algebraic fractions including with powers Index Laws <ul style="list-style-type: none"> ■ Simple laws of indices ■ Use index notation when multiplying or dividing algebraic terms ■ Use index notation for integer powers of 10, including negative powers ■ Simplify and calculate the value of numerical expressions involving multiplication and division of integer powers, negative powers and powers of a power ■ Understand the term reciprocal Expanding and Factorising <ul style="list-style-type: none"> ■ Expand single brackets) ■ Factorise - single brackets ■ Expanding double brackets ■ Factorising quadratics of the form $x^2 + bx + c$. ■ Difference of two squares. Expressions and Substitution relationship <ul style="list-style-type: none"> ■ Functions - inputs and outputs ■ Substitute numerical values into formulae and expressions, including scientific formulae ■ Derive a simple formula, including those with squares, cubes and roots
		<p>The assessments in Year 9 mainly test the content covered in that half term but also test cumulative learning.</p> <p>Half Term 1. The week before half term break.</p> <p>Half Term 2. Just before Christmas Break.</p>

Autumn Term	<ul style="list-style-type: none"> ■ Multiply and divide fractions and mixed numbers. Simplify calculations by cancelling first ■ Fraction of an amount ■ Identify and work with fractions in ratio problems ■ Express one quantity as a fraction of another, where the fraction is less than 1 or greater than 1 ■ Find the reciprocal of an integer, decimal or fraction 	<ul style="list-style-type: none"> ■ Use algebra to show expressions are equivalent ■ Know the difference between an equation and an identity; argue mathematically to show algebraic expressions are equivalent, and use algebra to support and construct arguments 	
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Spring Term	Half Term 3	Half Term 4	Assessment
	<p>Percentages with calculators</p> <ul style="list-style-type: none"> ■ Percentage of an amount (including of a measurement) with and without a calculator ■ Percentage increase and decrease ■ Finding the original amount (reverse percentage) with and without a calculator ■ Work with percentages greater than 100% ■ Compare two quantities using percentages ■ Express one quantity as a percentage of another ■ Use percentages in real-life situations. <p>Proportion</p> <ul style="list-style-type: none"> ■ Best buy ■ Recipes ■ Currency ■ Unitary method ■ Use standard units of mass, length, time, money and other measures (including standard compound measures) using decimal quantities where appropriate ■ Solve problems involving direct and inverse proportion, including graphical and algebraic representations ■ Interpret equations and graphs that describe direct and inverse proportion ■ Conversion graphs <p>Probability</p> <ul style="list-style-type: none"> ■ Apply systematic listing strategies ■ Describe probability using the probability scale, tables and frequency trees ■ Calculate expected outcomes ■ Mutually exclusive events sum to one ■ Experimental and theoretical probability ■ Venn diagrams and appropriate notation 	<p>Linear Equations</p> <ul style="list-style-type: none"> ■ Solve linear equations in one unknown algebraically. ■ Solve linear equations which contain brackets, fractional coefficients, negative signs, negative solutions ■ Substitute into a formula, and solve the resulting equation ■ Solve linear equations in one unknown algebraically, with unknowns on both sides ■ Form and solve algebraic equations and interpret the solution ■ Solving linear equations that require algebraic fraction manipulation <p>Linear Inequalities</p> <ul style="list-style-type: none"> ■ Solve linear inequalities in one variable e.g. $5x - 7 > 18$ ■ Represent and interpret solution sets to inequalities on a number line ■ Solve two inequalities in x, find the solution sets and compare them to see which value of x satisfies both <p>Sequences</p> <ul style="list-style-type: none"> ■ Generate terms of a sequence from either a term-to-term or a position-to-term rule ■ Write the term-to-term definition of a sequence in words ■ Find the nth term of a linear sequence e.g. 3, 5, 7, 9... ■ Recognise and use sequences of triangular, square and cube numbers ■ Use the nth term of an arithmetic sequence to find the first term greater/less than a certain number <p>Pythagoras</p> <ul style="list-style-type: none"> ■ Calculate with roots, and with integer indices ■ Pythagoras' theorem ■ Leave answers in surd form 	<p>The assessments in Year 9 mainly test the content covered in that half term but also test cumulative learning.</p> <p>Half Term 3. Last week of Half Term 3</p> <p>Half Term 4 Last week of HT 4.</p>

Spring Term	<ul style="list-style-type: none"> ■ Possibility spaces/sample spaces ■ Find a missing probability from a list or table including algebraic terms ■ Unbiased samples and effects of increasing sample size ■ Sets and combinations of sets using Venn diagrams 	<ul style="list-style-type: none"> ■ Given 3 sides of a triangle, justify if it is right-angled or not ■ Calculate the length of a line segment AB given pairs of points 	
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Summer Term	Half Term 5	Half Term 6	Assessment
	<p>Interior and Exterior Angles</p> <ul style="list-style-type: none"> ■ Interior and exterior angles, angle sums ■ Understand a proof that the exterior angle of a triangle is equal to the sum of the interior angles at the other two vertices ■ Explain why some polygons fit together and others do not <p>Parallel lines</p> <ul style="list-style-type: none"> ■ Alternate and corresponding angles on parallel lines ■ Solve missing angle problems, giving reasons for answers ■ Apply properties of angles in parallel lines to an algebraic context <p>Basic vectors</p> <ul style="list-style-type: none"> ■ Describe translations as 2D vectors ■ Translate a given shape by a vector ■ Addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors ■ Be able to represent information graphically given column vectors ■ Identify two column vectors which are parallel <p>Basic transformations</p> <ul style="list-style-type: none"> ■ Reflection and rotation symmetry ■ Transformations - rotation, reflection, translation, enlargement (with a positive scale factor) ■ Identify the equation of a line of symmetry ■ Identify the scale factor of an enlargement of a shape as the ratio of the lengths of two corresponding sides, simple integer scale factors, or simple fractions 	<p>Plans and Elevations</p> <ul style="list-style-type: none"> ■ Identify properties of the faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres ■ Draw sketches of 3D solids ■ Interpret Plans and elevations of 3D shapes ■ Construct plans and elevations of 3D shapes ■ Given the front and side elevations and the plan of a solid, draw a sketch of the 3D solid <p>Circles</p> <ul style="list-style-type: none"> ■ Circle definitions - centre, radius, chord, diameter, circumference ■ Use Circumference of a circle = $2\pi r = \pi d$ and area of a circle = πr^2 ■ Circle definitions including tangent, arc, sector and segment ■ Arc lengths, angles and areas of sectors of circles ■ Calculate exactly with multiples of π ■ Use rearranging to calculate missing lengths given the area or circumference <p>Surface Area</p> <ul style="list-style-type: none"> ■ Estimate surface areas by rounding measurements to 1 significant figure ■ Sketch nets of cuboids and prisms ■ Surface area of spheres, pyramids, cones and composite solids (hemispheres, frustums) 	<p>The assessments in Year 9 mainly test the content covered in that half term but also test cumulative learning.</p> <p>Half Term 5. Last Week of HT5</p> <p>Summer Exam these exams cover all the topics learnt in year 9 in equal measures.</p>

Useful Resources for Supporting Your Child at Home:	Homework:
<ul style="list-style-type: none"> ■ whgs-academy.sparxmaths.uk ■ curriculum.unitedlearning.org.uk ■ trockstars.com ■ www.bbc.co.uk/bitesize/subjects/zqhs34j ■ mmerevise.co.uk 	<p>Sparx Homework is set automatically weekly, and students have 7 days to achieve 100%</p>