



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 that might be required in their future development.</p>
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	Half Term 1	Half Term 2	Assessment
Autumn Term	<p>Decimal Manipulation</p> <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 <p>Estimation & Limits of Accuracy</p> <p>Related calculations</p> <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. <p>HCF and LCM of large numbers</p> <ul style="list-style-type: none"> ■ Prime numbers, prime factor decomposition, LCM, HCF (of large numbers) <p>Fraction Calculations</p> <ul style="list-style-type: none"> ■ Add and subtract fractions and mixed numbers with different denominators 	<p>Algebraic Manipulation</p> <ul style="list-style-type: none"> ■ Collect like terms ■ Multiply together two simple algebraic expressions. ■ Simplify expressions by cancelling ■ Add and subtract fractions with an algebraic numerator including with powers ■ Multiply, divide and simplify algebraic fractions including with powers ■ Simplify and manipulate algebraic expressions (including those involving surds) <p>Index Laws</p> <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 <p>Standard Form</p> <ul style="list-style-type: none"> ■ Calculate and interpret standard form <p>Expanding and Factorising</p> <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 	<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 	
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	Half Term 3	Half Term 4	Assessment
Spring Term	<p>Forming Expressions & Substitution</p> <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 ■ 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 <p>Direct and Inverse 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 1</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>Solving Equations 2</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 1</p> <ul style="list-style-type: none"> ■ Solve linear inequalities in one variable ■ 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 ■ 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>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 	
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	Half Term 5	Half Term 6	Assessment
Summer Term	<p>Pythagoras</p> <ul style="list-style-type: none"> ■ Calculate with roots, and with integer indices ■ Pythagoras' theorem ■ Leave answers in surd form ■ 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 <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>Basic vectors 1</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 1</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>Arcs and Sectors</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>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:
https://whgs-academy.sparxmaths.uk/ https://padlet.com/andrewharrison6/ks3-student-resources-lsap5lkebv2ktn28	Sparx Homework is set automatically weekly, and students have 7 days to achieve 100%