KS4 Curriculum Overview: Maths						
Rationale: Year 11 is for students to practise their retrieval of the past 2 years of content. Students look at the 4 main areas of maths and use these skills to help solve problems solving questions and develop their mathematical reasoning.						
Term / Length of Unit	**Outline**	**Assessment**	**Home Learning**	**Resources**	**Knowledge/Skills End Points**	**Reading**
Yr11 Higher Sets Autumn 1	Number Algebra	Number unit test Algebra unit test	Set every week by individual teachers	Full SOW in shared area	• Prime factorisation, LCM, HCF • Fractions and mixed numbers • Negative and fractional indices • Multiplying decimals without a calculator and Estimation • Converting numbers into standard form and calculations in standard form • Recurring decimals to fractions • Error intervals • Simplifying surds and rationalizing the denominator • Simplifying ratios and solving ratio problems • Percentage change, reverse percentages, compound interest and depreciation • Direct and inverse proportion • Simplifying expressions and laws of indices • Expanding single, double and triple brackets • Factorising by taking out a common factor / factorising quadratics • Rearranging formulae • Setting up and solving linear equations • Using the quadratic formula • Simplifying algebraic fractions • Solving equations involving algebraic fractions • Solving linear simultaneous equations algebraically • Solving simultaneous equations where one is linear and one is quadratic • Algebraic proof	**Reading strategy:** Go through key words and annotate worded problems. **Key words:** Factorise, multiple, factor, fractional. reciprocal, estimate, rationalise, quadratic, gradient, simultaneous, indices, significant Words with the same meaning: Increase & appreciates Decrease & depreciates Equal & same Multiply & Product Divide & Quotient Add & sum Subtract & difference Etymology: factorise, multiple, estimate, simultaneous, significant, interval, expand, simultaneous, compound, depreciation **Books:** The Music of the Primes: Why an Unsolved Problem in Mathematics Matters by Marcus Du Sautoy The Simpsons and Their Mathematical Secrets by Simon Singh

Yr11 Higher Sets Autumn 2	Probability and Statistics	Probability and Statistics test	Set every week by individual teachers	Full SOW in shared area	• Averages and range from frequency tables • Scatter graphs including commenting on outliers and frequency polygons • Capture-recapture • Cumulative frequency and box plots • Comparing distributions • Histograms • Two-way tables • Venn diagrams and set-notation • Tree diagrams • Conditional probability	**Reading strategy:** Go through key words and annotate worded problems. **Key words:** Median, estimate, quartile, stratified, outliers, frequency, venn, intersection, conditional Words with the same meaning: Probability & likelihood Bias & unfair Unbiased & fair Etymology: union, intersection, density, quartile **Books:** How to Make the World Add Up: Ten Rules for Thinking Differently About Numbers by Tim Harford
Yr11 Higher Sets Spring 1	Geometry	Geometry test	Set every week by individual teachers	Full SOW in shared area	• Angle facts • Angles in polygons • Pythagoras' theorem including non-calculator problems • SOHCAHTOA including exact values • Pythagoras and trigonometry in 3D • Sine rule, Cosine Rule and area of a triangle Segments of circles • Perimeter, area and volume of prisms • Circles and cylinders Sectors of circles	**Reading strategy:** Go through key words and annotate worded problems. **Key words:** congruent, alternate, corresponding, interior, exterior, transformation, translation, reflection, rotation, enlargement, frustrum, trigonometry, sine, cosine, tangent, hypotenuse, opposite, adjacent, elevation, clockwise, anticlockwise, bisector, perpendicular, tangent, sector,

					• Volume and surface area of pyramids, cones and spheres Frustums • Similar areas and volumes • Translations, reflections and rotations • Enlargements including fractional and negative scale factors • Plans and elevations / Scale drawings • Bearings including problems that involve angle facts or trigonometry • Constructions and loci • Proofs of congruent triangles and similar triangles • Circle theorems • Proofs of circle theorems • Vector notation and vector proofs	segment, theorem, radius, diameter. Words with the same meaning: Congruent & identical Right angle & perpendicular Etymology of enlargement. Etymology: enlargement, bisect
Yr11 Higher Sets Spring 2	Algebra 2	Algebra 2 test	Set every week by individual teachers	Full SOW in shared area	• Plotting linear graphs and solving linear simultaneous equations graphically • y=mx+c Equations of parallel and perpendicular lines • Plotting quadratic, cubic, reciprocal and exponential graphs • Equation of a circle and equations of tangents to circles • Solving inequalities • Inequalities on graphs and Quadratic inequalities • Trig graphs and solving trigonometric equations • Transformations of graphs • Completing the square and finding the turning point of a parabola • nth term of a linear sequence and the Fibonacci sequence and Quadratic sequences • Function notation and finding inverse functions • Velocity time graphs • Estimating the gradient of a curve and the area under a curve	**Reading strategy:** Go through key words and annotate worded problems. **Key words:** Intersection, inequalities, graphically, quadratic, substitution, perpendicular, parallel, sequence, function, iteration, tangent, velocity, reciprocal, exponential. Etymology: intersection, substitution **Books:** The Cartoon Guide to Algebra (Cartoon Guide Series) Paperback – Illustrated by Larry Gonick Seventeen Equations that Changed the

					• Iterations	World by Professor Ian Stewart
Yr11 Higher Sets Summer 1	Revision bases on PPE data and Exams		Set every week by individual teachers	Class teacher to update SOW and put in shared area	Each class teacher will individualise SOW based on the needs of the class to tailor to their needs.	
Yr11 Higher Sets Summer 2	Students not present after exams					