



Academic Learning Plan 2023-2024

Mathematics – Year 11

Intent : The Mathematics Department aims to encourage and develop the joy of problem solving. Students will leave Wadham School with essential mathematical skills for everyday life, to enable them to live their life in all its fullness. Students are actively encourage to try and sometimes fail. Mathematics is not somethings done to you but a subject that students actively engage in. Everyone is capable of being successful in Mathematics.



	Term 1					Term 2			
Year 11 Units	11.1 Algebra 1	11.2 Fractions, decimals and percentages	11.3 Shapes 1	11.4 Number 1	11.5 Graphs 1	11.6 Ratio and proportion	11.7 Shape 2	11.8 Data	11.9 Algebra 2
Content	<p>Aiming for a grade 4 Simplifying expressions Expanding & factorising single brackets & binomils Substitution Solving linear equations Aiming for a grade 5/6 Linear inequalities and number lines Factorising quadratics Solve quadratics by factorisation Aiming for a 7/8/9 Factorising complex quadratic equations Solve complex quadratic expressions by factorisation Completing the square Solve quadratics equations using the quadratic formula</p>	<p>Aiming for a grade 4 Fractions & decimals Adding & subtracting fractions FDP equivalence Percentage increase & decrease Aiming for a grade 5/6 Reverse percentages Aiming for a 7/8/9 Recurring decimals</p>	<p>Aiming for a grade 4 Basic angle facts Properties of shapes Aiming for a grade 5/6 Interior and exterior angles Angles on parallel lines Bearing Aiming for a 7/8/9 Circle theorems</p>	<p>Aiming for a grade 4 Four rules with integers and fractions Rounding and estimation Directed number arithmetic Aiming for a grade 5/6 Roots and indices Limits of accuracy Aiming for a 7/8/9 Fractional indices Upper and lower bounds</p>	<p>Aiming for a grade 4 Plot $y=mx+c$ Interpret real-life graphs Plot quadratics Aiming for a grade 5/6 Parallel lines Find the equations of a line Cubic and reciprocal graphs Aiming for a 7/8/9 Perpendicular lines</p>	<p>Aiming for a grade 4 Simplify ratios Share in a ratio Direct proportion Aiming for a grade 5/6 Use fractions in ratios Density and pressure Inverse proportion Aiming for a 7/8/9 Direct & inverse proportion Gradients of curves</p>	<p>Aiming for a grade 4 Perimeter and area of 2D shapes Volume and surface area of prisms Aiming for a grade 5/6 Arc length and the area of a sector Volume of cones etc Plans and elevations Aiming for a 7/8/9</p>	<p>Aiming for a grade 4 Finding averages Charts and graphs Recognising correlation Aiming for a grade 5/6 Cumulative frequency graphs Box plots Lines of best fit Aiming for a 7/8/9 Histograms</p>	<p>Aiming for a grade 4 Laws of indices Linear sequences Aiming for a grade 5/6 Changing the subject of a formula Geometric sequences Aiming for a 7/8/9 Complex changing the subject of a formula Proof functions</p>
Literacy	Within knowledge organisers & displayed in classrooms								
Knowledge organiser	Within exercise books								
Assessment	Fortnightly in class 'mocks' (1 hr – combination of calculator & non calculator). Combination of teacher, peer & self reviewed. School wide mocks w/b 20 th November								
GCSE AO Link	Assessing all AO								
Homework	Alternating between Sparx and a homework book								
CEIAG	Opening a bank account	Online banking	Direct debits	Bank charges	Pay cheques	TAX on earnings	National insurance	Financing university	Utility bills
Enrichment	Weekly Maths Challenges								



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	Term 3				Term 4			
Year 11 Units	11.10 Pythagoras and trigonometry	11.11 Probability	11.12 Number 2	11.13 Transformations	11.14 Constructions	11.15 Algebra 3	11.16 Vectors	11.17 Similarity
Content	<p>Aiming for a grade 4 Find sides using Pythagoras Find sides and angles using tri ratios Aiming for a grade 5/6 Use tri in 3-D Aiming for a 7/8/9 Use sine and cosine rules Find the area of triangles using $a=1/2 ab \sin C$</p>	<p>Aiming for a grade 4 Single event probability List outcomes Aiming for a grade 5/6 Tree diagrams – independent events Aiming for a 7/8/9 Dependent events Conditional probability</p>	<p>Aiming for a grade 4 Calculate with percentages Convert to/ from standard form Product of prime factors Aiming for a grade 5/6 Compound interest Growth and decay Calculate with standard form Aiming for a 7/8/9 Surds</p>	<p>Aiming for a grade 4 Perform reflections, rotations, translations and positive enlargements Aiming for a grade 5/6 Negative and fractional enlargements Identify and describe transformations Aiming for a 7/8/9 Transform graphs (include trig graphs here)</p>	<p>Aiming for a grade 4 Construct triangles Aiming for a grade 5/6 Construct bisectors Aiming for a 7/8/9 Loci</p>	<p>Aiming for a grade 4 Simultaneous linear equations Read solutions from graphs Aiming for a grade 5/6 Simultaneous equations, one linear, one quadratic Aiming for a 7/8/9 Quadratic inequalities Iteration</p>	<p>Aiming for a grade 4 Add and subtract vectors Aiming for a grade 5/6 Multiply vectors by scalars Aiming for a 7/8/9 Proof with vectors</p>	<p>Aiming for a grade 4 Find missing sides in similar shapes Understand congruency Aiming for a grade 5/6 Solve complex similar triangles problems Recognise congruency triangles Aiming for a 7/8/9 Solve problems with similar areas and volumes Prove triangles are congruent</p>
Literacy	Within knowledge organisers & displayed in classrooms							
Knowledge organiser	Within exercise books							
Assessment	Fortnightly in class ‘mocks’ (1 hr – combination of calculator & non calculator). Combination of teacher, peer & self reviewed. School wide mocks w/b 4 th March							
GCSE AO Link	Assessing all AO							
Homework	Alternating between Sparx and a homework book							
CEIAG	ISA’s	Interest on svings	Renting a house	Buying a house	Pensions	Budgeting	Credit cards	Store cards
Enrichment	Weekly Maths Challenges							