

Fairfield High School Curriculum Overview – Year 10

Subject	Maths	Why do we study these units in Year 10?
Lessons per fortnight	8	These units consolidate previous units and continue to build students' knowledge of Geometry, Number, Algebra, Ratio and Proportion.
Setting	Sets 1,2,3 Study Higher Scheme of Work. Set 4 Study Foundation SoW	

Students are encouraged to be Responsible Global Citizens through activities/content on...

Throughout the year all students will be invited to workshops, trips and activities that will focus on employability, creativity, global learning and sustainability in mathematics.

We ensure all students experience high challenge in the subject by including...

Highly differentiated lessons tailored to the need of every class with problem solving and reasoning elements that will sufficiently challenge high attaining students whilst being accessible to students who need a little more scaffolding

Literacy work this year includes...

All lessons will have mathematical reasoning attained through questioning and oracy. All lessons and assessments will have problem solving components that require students to interrogate mathematical language and find solutions to problems that are presented to them in words thereby translating language into abstract ideas.

Innovation and Creativity opportunities this year include...

Throughout the year all students will be invited to workshops, trips and activities that will focus on employability, creativity, global learning and sustainability in mathematics.

Employability opportunities/skills covered this year are...

Throughout the year all students will be invited to workshops, trips and activities that will focus on employability, creativity, global learning and sustainability in mathematics.

Higher Tier

Term	Unit title	Knowledge and Understanding/content	Skills	Assessment
1	1. Quadratic Equations	<ul style="list-style-type: none"> • Expanding and factorising linear expressions • Substitution • Expanding double brackets • Solving linear equations • Factorising monic quadratic expressions • Factorising non-monic quadratic expressions • Solving quadratic equations by factorisation • Solve quadratic inequalities with one variable 	Fluency in number Problem Solving Reasoning	End of Unit Test incorporating elements of fluency, reasoning and problem solving.

	2. Advanced Algebra	<ul style="list-style-type: none"> • Find the equation of a straight line from a graph • Find equations of parallel lines • Find equations of perpendicular lines • Plot and read from quadratic graphs (significant points) • Plot and read from cubic graphs • Plot and read from reciprocal graphs • Understand and use exponential graphs 		
2	<p>1. Reviewing FDP</p> <p>2. Tree Diagrams</p>	<ul style="list-style-type: none"> • Reverse percentage changes • Solve problems involving growth and decay • Understand iterative processes • Solve problems involving percentages, ratio and fractions • Know how to add, subtract and multiply fractions • Find probabilities using equally likely outcomes 	Fluency in Algebra Problem Solving Reasoning	End of Unit Test incorporating elements of fluency, reasoning and problem solving.

		<ul style="list-style-type: none"> • Use experimental data to estimate probabilities • Find probabilities from tables, Venn diagrams and frequency trees • Construct and interpret sample space diagrams • Use tree diagrams with/without replacement 		
3	<p>1. Simultaneous Equations</p> <p>2. Limits of Accuracy</p>	<ul style="list-style-type: none"> • Solve a pair of linear simultaneous equations by substitution • Solve a pair of linear simultaneous equations using graphs • Solve a pair of linear simultaneous equations by elimination • Solve a pair of simultaneous quadratic equations using graphs and algebraically • <u>Rational and Irrational Numbers</u> • <u>Understand and use surds</u> 		

		<ul style="list-style-type: none"> • Estimating answers to calculations • Understand and use limits of accuracy • <u>Upper and lower bounds</u> 		
4	<p>1. Trigonometry</p> <p>2. Bearings & Volume</p>	<ul style="list-style-type: none"> • Explore ratio in similar right-angled triangles • Find missing lengths • Find missing angles • Use trigonometry in 3D shapes • Measure and read bearings • Make scale drawings using bearings • Calculate bearings using angle rules • Solve bearing problems using Pythagoras and trigonometry • Calculate the length of an arc • Calculate the area of a sector • Understand and use the volume of a cylinder/cone/sphere 		

		<ul style="list-style-type: none"> Understand and use the surface area of a cylinder/cone/sphere 		
5	3. Representing Data	<ul style="list-style-type: none"> Data Collection Grouped/ungrouped frequency tables Construct and interpret frequency polygons Construct and interpret composite bar charts Construct and interpret pie charts Construct and interpret Histograms <u>Construct and interpret cumulative frequency diagrams</u> <u>Construct and interpret box plots</u> Construct and interpret scatter graphs 	Fluency in Number Problem Solving Reasoning	End of Unit Test incorporating elements of fluency, reasoning and problem solving.
6	1. Revision 2. Sequences	<ul style="list-style-type: none"> Revision of T1-5 	Fluency in Number Problem Solving Reasoning	End of Year Test incorporating elements of fluency, reasoning

		<ul style="list-style-type: none"> • Equations of Parallel Lines • Equations of Perpendicular Lines 		
2	1. Fractions, Decimals Percentages	<ul style="list-style-type: none"> • Equivalent FDP • Calculating with Decimals • Fractions of an Amount • Adding & Subtracting Fractions • Multiplying & Dividing Fractions • Percentage of an Amount • Increase/Decrease by a Percentage • Expressing one Amount as Percentage of Another • Repeated Percentage Change • Reverse Percentage 	Fluency in number Problem Solving Reasoning	End of Unit Test incorporating elements of fluency, reasoning and problem solving.
3	1. Probability	<ul style="list-style-type: none"> • Find Probabilities with Equally Likely Outcomes • Mutually Exclusive & Exhaustive Probabilities • Relative Frequency & Expectation • Two Way Tables • Venn Diagrams • Frequency Trees 	Fluency Problem Solving Reasoning	End of Unit Test incorporating elements of fluency, reasoning and problem solving.

		<ul style="list-style-type: none"> • Sample Space Diagrams • AND/OR Rules • Tree Diagrams 		
4	<p>1. Limits of Accuracy</p> <p>2. Angles & Bearings</p> <p>3. Length, Area, Volume</p>	<ul style="list-style-type: none"> • Rounding to Powers of 10 • Rounding to Decimal Places • Rounding to Significant Figures • Approximating Calculations • Upper & Lower Bounds • Angles on a Straight Line and Around a Point • Angles in a Triangle & Quadrilateral • Interior & Exterior Angles of a Polygon • Angles on Parallel Lines • Measure & Read Bearings • Area of a Parallelogram/Triangle/Trapezium • Volume of a Prism • Calculate the Length of an Arc • Calculate the Area of a Sector 	Fluency in Algebra Problem Solving Reasoning	End of Unit Test incorporating elements of fluency, reasoning and problem solving.

		<ul style="list-style-type: none"> Find and Use the Volume of a Cylinder or Cone 		
5	1. Data	<ul style="list-style-type: none"> Mode, Median, Mean, Range Construct & Interpret Bar Charts Construct and Interpret Composite Bar Charts Construct and Interpret Line Graphs Construct and Interpret Pie Charts Averages from Frequency Tables Construct and Interpret Frequency Polygons Construct and Interpret Scatter Diagrams 	Fluency in Number Problem Solving Reasoning	End of Unit Test incorporating elements of fluency, reasoning and problem solving.
6	3. Revision 4. Sequences	<ul style="list-style-type: none"> Revision of T1-5 Describe and continue arithmetic and geometric sequences Explore other sequences Find the rule of the nth term of a linear sequence 	Fluency in Number Problem Solving Reasoning	End of Year Test incorporating elements of fluency, reasoning and problem solving.