Fairfield High School for Girls

Mathematics – Year 11

Long-Term Plan 2024-2025

Calendar	Topic	Assessment	Sequencing and Coherence *concepts - themes - skills*	Literacy *reading - vocabulary - oracy - writing*
Autumn Term **Half Term 1**	**Graphs** [1] Linear Graphs [2] Non-Linear Graphs [3] Real-life graphs	**Formative Assessments** *10-15 Minutes in-class* [1] Linear Graphs [2] Non-linear graphs [3] Congruency	This block continues to build on understanding of linear and quadratic graphs covered at KS3. Methods to apply basic skills to multistep problem solving will be a focus with Higher pupils. <u>Real-life graphs</u> Use of correct language to describe rates of change will be a focus and cross curricular links with science discussed as they cover this topic at the same time.	Explicit teaching of key words embedded throughout using strategies such as; entomology, synonyms and by giving examples in context. Discuss misconceptions, opportunities to write and explain formal mathematical proof. Opportunities to discuss and map journeys. Opportunities to discuss how changing the situation can adjust answers and why. Oracy Opportunities -What's the same what's different? - Spot the mistake - Do you agree or disagree? - True or False - Always, sometimes, never - Proof
	Congruency [1] Similarity [2] Transformations P3[Congruency		<u>Congruency</u> This unit of work again mainly revises KS3 content, but with a focus on GCSE style problems. Transformations of graphs will be taught to higher pupils, this is the first teaching of this topic.	

Autumn Term **Half Term 2**	**Triangles** [1] Pythagoras [2] Trigonometry	**Formative Assessments** *10-15 Minutes in-class* [1] Pythagoras [2] Trigonometry [3] Equations and Inequalities	<u>Triangles</u> This block builds on previous knowledge to then pushes pupils to answer geometrical and worded problems using these skills.	Explicit teaching of key words embedded throughout using strategies such as; entomology, synonyms and by giving examples in context. Opportunities to decipher and infer keywords to form and solve equations/inequalities Oracy Opportunities - Discuss misconceptions - Spot the mistake - What's the same what's difference? - Algebraic Proof - Do you agree?
	Algebraic Manipulation [1] Expression [2] Equations and Inequalities [3] Functions (H)	**Summative Assessment** FULL GCSE MOCK	<u>Algebraic Manipulation</u> This unit of work revisits the year 10 topic of simultaneous equations and the topic of solving inequalities which has been introduced in Key Stage 3 and revisited in Year 10. Middle and higher ability pupils will already have met graphing inequalities in Year 9 and will build on this knowledge. Foundation pupils will be meeting this for the first time, building on their knowledge of drawing graphs. Higher pupils will go on to draw graphs of quadratic inequalities.	

Spring Term **Half Term 3**	**Percentages and Proportion** [1] Percentage Change [2] Iteration (H) [3] Ratios, Fractions, % [4] Direct and indirect proportion [5] Direct and inverse (H)	**Formative Assessments** *25-30 Minutes in-class* Weekly mini-Tests for exam preparation	<u>Percentages and Proportion</u> This block continues to build on understanding of percentages, ratio and proportion covered at KS3. Calculator methods will be encouraged, particularly with higher pupils. Use of financial contexts is a focus in this block, helping pupils maintain familiarity with the vocabulary they are likely to use outside of school.	- Explicit teaching of key words embedded throughout using strategies such as; entomology, synonyms and by giving examples in context. - Discuss misconceptions, opportunities to write and explain formal mathematic proof. Oracy Opportunities -What's the same what's different? - Spot the mistake - Do you agree or disagree? - True or False - Always, sometimes, never
	Probability [1] Theoretical Probability [2] Venn Diagrams [3] Tree Diagrams [4] Conditional (H)	**Formative Assessments** *25-30 Minutes in-class* Weekly mini-Tests for exam preparation	<u>Probability</u> This block revisits key skills from KS3 and Year 10. It provides pupils with an opportunity to push towards Grade 5 in Foundation and Grades 7+ at Higher. Some pupils will be introduced to further conditional probability with links to algebraic techniques.	
	Indices [1] Laws of Indices [2] Negative indices [3] Fractional Indices (H)	**Formative Assessments** *25-30 Minutes in-class* Weekly mini-Tests for exam preparation	<u>Indices</u> This block continues to build on understanding of Index laws and standard form covered at KS3. With a focus on worded question in real life context. Pupils will be required to communicate reasoning behind the methods they use.	

Spring Term **Half Term 4**	**Data** [1] Averages [2] Charts and Graphs [3] Cumulative Frequency and Box Plots (H) [4] Histograms (H)	**Summative Assessments** FULL GCSE MOCK **Formative Assessments** *25-30 Minutes in-class* Weekly mini-Tests for exam preparation	Data This block is a revision and extend opportunity it builds of KS3 and year 10 by revising with a focus to extend and deepen understanding, particularly in terms of interpretation of results and evaluating/criticising statistical diagrams. As such, written skills and oracy is a focus throughout this unit of work. The focus in Higher is to work backwards with challenging questions with boxplots, Cumulative frequency and histograms all using proportion elements within questions.	- Explicit teaching of key words embedded throughout using strategies such as; entomology, synonyms and by giving examples in context. - Pupils will be encouraged to use Tier 2 and 3 vocabulary when proving vectors. - Emphasis on written skills when explaining and interpreting box plots and averages. Possible use of writing frames to support some pupils with tier 2 and 3 vocabulary. Discuss misconceptions and draw and discuss conclusions through mathematical thinking. Oracy Opportunities -What's the same what's different? - Spot the mistake - Do you agree or disagree? - True or False - Always, sometimes, never
	Vectors [1] Column Vectors [2] Mathematical Proof (H)	**Formative Assessments** *25-30 Minutes in-class* Weekly mini-Tests for exam preparation	Vectors Pupils will have met vectors to describe translations at KS3 and then compared this to column vectors and formal notation in Year 10. Higher pupils will then use this understanding to develop geometric proof (which involves links to properties of shapes and parallel lines).	
	Angles [1] Parallel Lines [2] Polygons [3] Circle Theorems (H)	**Formative Assessments** *25-30 Minutes in-class* Weekly mini-Tests for exam preparation	Angles This unit of work mainly revises ks3 and year 10 skills learn but will focus on GCSE style problems. With multi step problem solving questions a focus throughout.	

Summer Term **Half Term 5**	**Rates** [1] Converting metric units [2] Speed [3] Density [4] Force		<u>Rates</u> This block will enable pupils to further practice their skills with ratio tables and apply them to rates. Pupils have explicitly seen rates in both Maths and Science and as such teachers will need to be aware of various methods pupils may have met through different teachers. Ratio tables are the agreed method in Maths, so this should be encouraged. This final unit will allow pupils to revisit other key skills e.g. volume, area, changing units in addition to rates.	Explicit teaching of key words embedded throughout using strategies such as; entomology, synonyms and by giving examples in context.