Fairfield High School for Girls

Mathematics – Year 9 Long-Term Plan 2024-2025

Calendar	Topic	Assessment	Sequencing and Coherence *concepts - themes - skills*	Literacy *reading - vocabulary - oracy - writing*
Autumn Term **Half Term 1**	**Reasoning with Algebra** [1] Straight Line Graphs [2] Forming and solving Equations [3] Testing Conjectures	**Formative Assessments** *10-15 Minutes in-class* [1] Straight Line Graphs [2] Forming and Solving Equations	<u>Straight Line Graphs</u> This block builds on Year 8 content. In this unit, the general form of y = mx + c is now covered in more depth with an emphasis on 'm' and 'c'. Previous Knowledge - Lines parallel to the axis - Using tables of values <u>Forming and Solving Equations</u> In this unit, pupils extend their knowledge of forming and solving equations and inequalities. This is built upon by exploring rearranging formulae and seeing how this method links to equations and reinforces pupils' understanding of the differences between equations, formulae and expressions. Previous Knowledge - Solve one and two step equations - Solve one and two step inequalities <u>Testing Conjectures</u> Whilst reasoning has been encouraged in both Years 7 and 8, this block allows for direct teaching of the importance of this. Previous Knowledge - Factors, Multiples and Primes	Explicit teaching of key words embedded throughout using strategies such as; entomology, synonyms and by giving examples in context. 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

Autumn Term **Half Term 2**	**Reasoning with Algebra** [1] Testing Conjectures ctd **Constructing in 2D and 3D** [2] 3D shapes [3] Constructions and Congruency	**Formative Assessments** *10-15 Minutes in-class* [1] Testing Conjectures **Summative Assessments** One non-calculator and one calculator paper, based on topics covered so far (including some topics from Year 7 and Year 8) and topics covered in the KS2 National Curriculum.	<u>3D Shapes</u> As this is the first-time pupils will cover in-depth 3D shapes, introducing vocabulary will be of importance. Previous Knowledge - Find area of 2D shapes <u>Constructions and congruency</u> This topic builds on the constructions covered in both Year 7 and 8 and will look more formally at loci and standard constructions using a ruler and a compass. There are opportunities to discuss congruency here before covering this in more detail later in the year. Previous Knowledge - Construct triangles from given information	Explicit teaching of key words embedded throughout using strategies such as; entomology, synonyms and by giving examples in context. Revision for Assessment 1 will focus on dissecting AO3 challenging texts to ensure both context and calculations are accessible to all. Oracy Opportunities - Discuss misconceptions - Spot the mistake
Spring Term **Half Term 3**	**Constructing in 2D and 3D** [1] Constructions and Congruency ctd **Reasoning with Number** [2] Numbers [3] Using Percentages	**Formative Assessments** *10-15 Minutes in-class* [1] Constructions and Congruency [2] Numbers	<u>Numbers</u> This unit of work provides plenty of opportunity for pupils to revisit and practise their number skills before developing new skills around percentages, rates and proportion later in the year. Previous Knowledge - Work with directed number - HCF and LCM - Four operations with fractions - Numbers in standard form <u>Using percentages</u> Building on the revision of fractions in the last unit of work and using the work covered on decimals in Year 8, pupils will extend their knowledge of percentages and some will be introduced to the use of multipliers for reverse percentages and repeated percentage change. Previous Knowledge - FDP conversions - Percentage increase and decrease	- Explicit teaching of key words embedded throughout using strategies such as; entomology, synonyms and by giving examples in context. Oracy Opportunities - Discuss misconceptions - Spot the mistake - What's the same/different?

Spring Term **Half Term 4**	**Reasoning with Geometry** [1] Deduction [2] Transformations and similarity **Reasoning with Data** [3] Averages and representing data	**Formative Assessments** *10-15 Minutes in-class* [1] Using Percentages [2] Deduction (geometry) [3] Transformations and similarity	**Deduction** Throughout this unit of work, pupils will revise and extend their knowledge of angle rules (Year 7 and 8) and properties of shapes (earlier in the year) and apply them to increasingly complex problems. Pupils' oracy and written skills will continue to be developed through the use of correct terminology and explanations. Previous Knowledge - Angle rules from both Year 7 and 8 (also KS2) - Angles in parallel lines from Y7 (set 1) and year 8 (all) **Transformations and similarity** Building on the studying of line symmetry and reflection in Year 8, pupils now look into rotation, reflection and translation and focus on the important difference between the transformations by linking back to congruency from earlier in the year. This is then extended to enlargement which links in with the Y8 ratio topic and is subsequently linked to similarity. This concept of ratio will then be revisited in the context of number and measures in the topics of solving ratio and proportion problems and rates. There are opportunities for pupils to extend to looking at similar right-angled triangles and trigonometry in preparation for Year 10. Previous Knowledge - Calculations with ratio, scale and proportion (Y8) - Symmetry (Y8)	- Explicit teaching of key words embedded throughout using strategies such as; entomology, synonyms and by giving examples in context. - Revision for Assessment 2 will focus on dissecting AO3 challenging texts to ensure both context and calculations are accessible to all. - Writing frames may be used with some classes to support pupils in communicating chains of reasoning when covering angles in parallel lines and polygons. Oracy Opportunities - Discuss misconceptions - Spot the mistake - Explain chains of reasoning - Compare/contrast

Summer Term **Half Term 5**	**Reasoning with Data** [1] Averages and representing data ctd **Reasoning with Proportion** [2] Pythagoras' Theorem [3] Solving ratio and proportion problems [4] Rates	**Formative Assessments** *10-15 Minutes in-class* [1] Averages and representing data [2] Pythagoras' Theorem [3] Solving ratio and proportion problems	Reasoning with data Building on the studying of averages, range and representations of data in Years 7 and 8, this unit extends the knowledge and understanding of these topics whilst covering some new content that will prepare pupils for GCSE. There are ample opportunities for reasoning, oracy and written explanations of their findings. Previous Knowledge - Averages from a list and a table - Charts and Graphs Pythagoras' Theorem Pupils will revisit squares and square roots here before applying to a new topic of Pythagoras' Theorem. This topic interleaves previous topics when using the coordinate axis and extends to using Pythagoras' theorem on 3D shapes. Previous Knowledge - Squares and square roots Ratio and Proportion This unit of work revisits and extend previous work on ratio and makes the links with direct proportion and linear graphs. Previous Knowledge - Direct proportion - Solve ratio problems given the whole or a part Rates By continuing the idea of inverse proportion, pupils extend this knowledge and investigate compound measures. There will also be opportunities throughout this unit for pupils to revisit units in Y8. Previous Knowledge - Inverse proportion Y8	- Explicit teaching of key words embedded throughout using strategies such as; entomology, synonyms and by giving examples in context. Oracy Opportunities - Discuss misconceptions - Spot the mistake - Comparisons of data - Comparing results to analyse best value - Compare and contrast graphs

Summer Term **Half Term 6**	**Reasoning with probability** [1] Probability **Graphs** [2] Algebraic representation	**Formative Assessments** *10-15 Minutes in-class* [1] Probability **Summative Assessments** One non-calculator and one calculator paper, based on topics covered so far (including some topics from Year 7 and Year 8) and topics covered in the KS2 National Curriculum.	Probability This topic extends the learning in Year 7 and 8 to calculate the probabilities of single and combined events. Interleaved into this topic is FDP and diagrams e.g. Two way tables. Previous Knowledge - Single event probability - use of two way tables and Venn diagrams Algebraic Representation Building upon many algebraic skills, pupils will be introduced to other graphs (beyond linear). Symmetry will also be explored when investigating quadratic graphs. Previous Knowledge - Linear graphs - Linear inequalities	- Explicit teaching of key words embedded throughout using strategies such as; entomology, synonyms and by giving examples in context. Oracy Opportunities - Discuss misconceptions - Spot the mistake - Use of topic specific language, used accurately and in context - Revision for Assessment 2 will focus on dissecting AO3 challenging texts to ensure both context and calculations are accessible to all.