ARNOLD LODGE
4 - 18 yrs Co-educational Independent Day School

Year 10: Cycle of Topics Per Year

1. Number, Algebra, Interpreting & Representing Data

2. Fractions, Ratios & Percentages, Angles & Trigonometry

3. Graphs, Area & Volume, Transformations and Constructions

4. Equations & Inequalities, Probability

5. Multiplicative Reasoning, Similarity and Congruence, More Trigonometry

6. Further Statistics and Equations & Graphs

Year 10 Mathematics (Higher Tier)	

Pupils will be working towards the Edexcel GCSE Foundation qualification. Pupils will continue to build on the fundamental mathematical skills developed in KS3, focusing on their depth of mathematical knowledge and their ability to prove and accurately demonstrate their mathematical skills. The Edexcel GCSE specification focuses on six core sub-topics of mathematics: Number, Algebra, Ratio, Geometry, Probability and Statistics, in varying proportions. The amount of time dedicated to each sub-topic in class is proportional to the percentage incorporated into the examination. Pupils will have continual exposure to exam-style questions with consistent modelling and reference to the mark schemes to ensure that pupils are aware of the requirements of each question.

	Topic of Learning	Half-Termly Overview: Knowledge and Skills
HT1	**Unit 1: Number**	**By the end of the unit, pupils will have developed knowledge and understanding in:** • Calculations, Checking and Rounding • Indices, Roots, Reciprocals and Hierarchy of Operations • Factors, Multiples, Primes, Standard Form and Surds
	Unit 2: Algebra	**By the end of the unit, pupils will have developed knowledge and understanding in:** • The Basics: Setting Up, Rearranging and Solving Equations • Sequences

	Unit 3: Interpreting and Representing Data	**By the end of the unit, pupils will have developed knowledge and understanding in:** •Averages and Range •Representing and Interpreting Data •Scatter Graphs
HT2	**Unit 4: Fractions, Ratios and Percentages**	**By the end of the unit, pupils will have developed knowledge and understanding in:** •Fractions •Percentages •Ratio •Proportion
	Unit 5: Angles and Trigonometry	**By the end of the unit, pupils will have developed knowledge and understanding in:** •Polygons, Angles and Parallel Lines. •Pythagoras' Theorem •Trigonometry
HT3	**Unit 6: Graphs**	**By the end of the unit, pupils will have developed knowledge and understanding in:** •Graphs: The Basics and Real-Life Graphs •Linear Graphs and Coordinate Geometry •Quadratics, Cubic and Other Graphs

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	Unit 7: Area and Volume	By the end of the unit, pupils will have developed knowledge and understanding in: •Perimeter, Area and Circles •3D Forms and Volume: Cylinders, Cones and Spheres •Accuracy and Bounds
	Unit 8: Transformations and Constructions	By the end of the unit, pupils will have developed knowledge and understanding in: •Transformations •Constructions, Loci and Bearings
HT4	**Unit 9: Equations and Inequalities**	By the end of the unit, pupils will have developed knowledge and understanding in: •Solving Quadratic Equations •Solving Simultaneous Equations •Representing and Solving Inequalities
	Unit 10: Probability	By the end of the unit, pupils will have developed knowledge and understanding in: •Probability Scale •Theoretical Probability •Experimental Probability •Venn Diagrams

		•Tree Diagrams
HT5	**Unit 11: Multiplicative Reasoning**	**By the end of the unit, pupils will have developed knowledge and understanding in:** •Ratio •Proportion
	Unit 12: Similarity and Congruence	**By the end of the unit, pupils will have developed knowledge and understanding in:** •Similarity V Congruence •Conditions for Similarity •Calculating Using Similarity
	Unit 13: More Trigonometry	**By the end of the unit, pupils will have developed knowledge and understanding in:** • Graphs of Trigonometric Functions • Using the Sine and Cosine Rule • Finding the Area of Non Right-Angled Triangles
HT6	**Unit 14: Further Statistics**	**By the end of the unit, pupils will have developed knowledge and understanding in:** •. Collecting Data • Cumulative Frequency • Box Plots

		• Histograms
Unit 15: Equations and Graphs		**By the end of the unit, pupils will have developed knowledge and understanding in:** • Quadratics • Expanding More than 2 Brackets • Sketching Graphs • Graphs of Circles, Cubes and Quadratics

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Year 11: Cycle of Topics Per Year

1. Circles, More Complex Algebra, Further Proof

2. Direct and Inverse Proportion

3. Application to Exam Questions

4. Application to Exam Questions and Revision

5. Application to Exam Questions and Revision

Year 11 Mathematics (Higher Tier)
Pupils will be working towards the Edexcel GCSE Foundation qualification. Pupils will continue to build on the fundamental mathematical skills developed in KS3, focusing on their depth of mathematical knowledge and the ability to prove and accurately demonstrate their mathematical skills. The Edexcel GCSE specification focuses on six core sub-topics of mathematics: Number, Algebra, Ratio, Geometry, Probability and Statistics; in varying proportions. The amount of time dedicated to each sub-topic in class is proportional to the percentage incorporated into the examination. Pupils will have continual exposure to exam-style questions with consistent modelling and reference to the mark schemes to ensure that pupils are aware of the requirements needed for each question.

	Topic of Learning	Half-Termly Overview: Knowledge and Skills
HT1	**Unit 16: Circles**	**By the end of the unit, pupils will have developed knowledge and understanding in:** •Circle Theorems •Circle Geometry

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	Unit 17: More Complex Algebra	**By the end of the unit, pupils will have developed knowledge and understanding in:** •Changing the Subject of Formulae (More Complex) •Algebraic Fractions •Solving Equations Arising from Algebraic Fractions •Rationalising Surds •Proof
	Unit 18: Further Proof	**By the end of the unit, pupils will have developed knowledge and understanding in:** •Vectors •Geometric Proof
HT2	**Unit 19: Direct and Indirect Proportion**	**By the end of the unit, pupils will have developed knowledge and understanding in:** •Reciprocal and Exponential Graphs •Gradient and Area Under Graphs •Direct and Inverse Proportion

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HT3	**Application to Exam Questions**
HT4	**Application to Exam Questions and Revision**

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HT5	**Application to Exam Questions and Revision**