



**Intent: To consolidate and further develop core concepts of number, algebra, geometry, ratio and proportion, statistics and probability developed in KS3. Through interleaving and spaced practice students will increase their fluency and confidence in key mathematical processes. Students will begin to make connections between more advanced mathematical concepts in order to solve a variety of problems.**

**Mathematics**

**Year 10H**

**Number**

**Algebra**

**Geometry**

**Ratio & Proportion**

**Statistics & Probability**

**Knowledge**  
(facts, information, concepts and key terminology)

Simplifying surds, operations with surds, geometric sequences, recurring decimals, bounds.

Iteration, algebraic fractions, expanding and factorising, rearranging formulae, algebraic proof, functions, types of graphs, straight line graphs.

Congruence and similarity, Pythagoras' theorem, trigonometry, scale diagrams and bearings, angle properties, interior and exterior angles, transformations, 3D shapes and nets, constructions, volume and surface area, compound measures, circle theorems.

Direct and inverse proportion, speed-time and velocity-time graphs, gradients of curves, areas under curves.

Types of data and sampling, frequency diagrams, histograms, cumulative frequency, scatter graphs and lines of best fit.

**Understanding**  
(ability to connect and synthesise knowledge within a context)

Irrationality of some numbers and how rounding can affect the accuracy of problems. Inaccuracy can be avoided using exact values.

The variety of methods to solving equations. Proof is a uniquely mathematical concept and algebraic deduction can be used to prove some results. Algebraic representations of types of numbers.

The differences between the aspects of geometry, primarily shapes, space and turns.

Proportionality can be defined algebraically and can be more useful when solving challenging problems. Key aspects of real-life graphs, notably the application of gradient and area.

The different contexts related to types of data. Which diagrams are appropriate to the types of data and why they have those features.

**Skills**  
(successful application of knowledge and understanding to a specific task)

Manipulate exact values to maintain accuracy. Perform all stages of calculations with exact values, saving only the final step for rounding if needed.

Generalise mathematical hypotheses and use algebraic techniques to prove results. Follow numerical methods using algebraic notation.

Use geometric knowledge and understanding to solve real-life problems.

Translate given information into equations and use models to solve problems. Transition seamlessly between two types of proportion.

Apply the appropriate method to represent data. Use mathematical techniques to make sensible predictions.

**Formal Assessments**  
(those done by all/vast majority of the cohort)

Termly cumulative assessments covering content from start of GCSE course. Topic Assessments after each topic has been delivered.

By the end of the year students on course for at least a grade 5 will... have consolidated core concepts in number, algebra, geometry, ratio and proportion, and statistics and geometry and foundational knowledge or more challenging topics.



\*The timings and order of delivery shown are approximate, these may change on a class-by-class basis\*

Term 1

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Scatter Graphs	453, 454
Congruence and Similarity	683, 666
	682, 684-690
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Trigonometry Recap and Extension	498, 499, 501, 502, 503, 504
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	854-863
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Scale Diagrams and Bearings	864-871
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Number Recap and Review	53, 54
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Numerical Methods	322

Term 2

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	481, 482, 483, 490, 491
	485, 486, 487, 560
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	823, 824, 825, 826
	639, 640, 641, 652
Transformations	648, 649, 653, 654, 658
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Algebraic Fractions	170, 229
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Algebra: Further Quadratics, Rearranging Formulae and Identities	162, 163, 164, 165, 166
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	325, 326, 288-297
2D Representations of 3D Shapes	832, 837-843
	833-836
Direct and Inverse Proportion	339, 340, 341
	342-345, 347, 348
Constructions and Loci	660, 661, 662, 663
	664, 665, 674-679
Volume	584, 585, 586, 587, 588
	568-575, 579, 582
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Term 3

Overview	Hegarty Reference
Measures	705, 706
	692, 693, 694, 700, 701, 702, 703, 704
	716-737
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Circle Theorems	592-606, 816-820
Real-Life Graphs	894, 895, 896, 898
	888, 890, 896
Sketching Graphs	874-886
	298, 299
	300, 301
	257, 802, 803, 298, 299, 300, 301
Gradients and Rate of Change	206-213
	874-879
	880-886
	889
Pre-calculus and Area Under a Curve	891, 892, 893
Growth and Decay	796, 797, 798
	91, 92, 93, 94, 95
	804-811
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