



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 10F

Number

Algebra

Geometry

Ratio & Proportion

Statistics & Probability

Knowledge
(facts, information, concepts and key terminology)

Fractions calculations, operations with percentages

Substitution, simplifying expressions, expanding and factorising, solving equations and simultaneous equations, graphs

Congruence and similarity, angles, transformations, 2D/3D shapes, constructions and loci, Pythagoras and trigonometry, scale drawings and bearings, area, perimeter, volume and surface area.

Direct and inverse proportion, graphical representations of proportion

Theoretical and experimental probability, mutually exclusive and independent events, two-way tables, frequency trees, Venn diagrams, tree diagrams, data types and collection, representations of data.

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

The equality of representations between fractions and decimals. The calculations applied to fractions can be transferred to decimals.

That numerical methods can be generalised into abstract concepts. Algebra follows the same principles as numerical calculations.

The unique properties of 2D and 3D shapes. Core relationships that interlink right-angled triangles, namely lengths and/or angles.

Proportionality can be defined algebraically and can be more useful when solving challenging problems.

Probabilities have an inherent theoretical logic despite randomness. Learners will understand the different contexts to probabilities and data.

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

Apply procedures to solve problems in multiple concepts. Transition between types of number based upon efficiency and confidence.

Translate concrete problems into abstract questions and follow procedures to solve generalised problems.

Identify the appropriate technique to find missing information related to shapes. Use combination of topic areas to solve more challenging problems.

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

Apply the appropriate method to answer different types of questions. Evaluate representations depending on context and data type. Use mathematics 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

Overview	Hegarty Reference
Basic Fractions	59, 60, 61, 63, 64
	65-70
	77, 78, 79
	80
Basic Probability	350
	351, 352, 353, 355
	401, 402
	368, 369
Probability	356, 357
	374, 375
	358, 359, 360
	361, 364
Scatter Graphs	453, 454
Collecting and Representing Data	401, 426
	425, 427, 428, 429
	392, 393
	422, 423, 424
	450
Simultaneous Equations	191, 192
	193
	190, 195
	218

Term 2

Overview	Hegarty Reference
Congruence and Similarity	683, 682
	824, 825, 826
	611, 612, 613
Properties of Polygons	455, 477, 478, 812, 813, 815,
	479, 480, 481, 482, 483
	485, 486, 560
	561, 563
	562, 564
Transformations	823, 824, 825, 826
	639, 640, 641, 652
	648, 649, 653, 654, 658
	637, 638, 650
	642, 643, 644, 645, 651
Direct and Inverse Proportion	655, 656, 657
	339, 340, 341
	342
2D Representations of 3D Shapes	348
	832
	837-844
Constructions and Loci	833, 834, 835, 836
	660, 661, 662, 663
	664, 665
Algebra Recap and Extension	674- 678
	154
	780-787
	162, 163, 164
	223, 224
	178, 179, 180, 183, 184, 185, 186
198	

Term 3

Overview	Hegarty Reference
Algebra, Quadratics, Rearranging Formulae and Identities	156, 157, 158, 160, 161, 168, 169
	162, 163, 164
	223, 224
	103 – 108, 780-787
Trigonometry	280, 281, 154
	498, 499
	508, 509, 510, 511, 512
Further Perimeter and Area	501, 502, 503, 504, 513, 514
	554, 557, 548, 549, 550, 556, 559
	551, 555, 558
	830, 584, 585
Volume	584, 585
	568, 569, 570, 571
	572, 573, 574
	579, 582
Measures	576, 577, 578
	580, 581
	705, 706
	692, 693, 694, 700, 701, 702, 703
Graphs Recap and Extension	716 - 737
	738
Real-Life Graphs	207, 208, 209
	211, 213
Sketching Graphs	874, 875, 876
	894, 895, 896
Sketching Graphs	298, 299, 300
	898