



YEAR 7

YEAR 8

YEAR 9

	Autumn Term	Spring Term	Summer Term	Rationale
Composites	Basics of number, algebra and data	Basics of fractions, ratio and proportion and probability	Basics of lines and angles, sequences, graphs and transformations	<p>Students are introduced to the key skills of Maths they require in order to access the secondary Maths curriculum. This is setup in 3 different objectives with varying difficulties that allow students to start from where they left their primary curriculum, while also giving them the challenge or support they need in order to be successful. Number, algebra and data are chosen in the autumn terms as the knowledge learnt in these topics are used throughout the rest of the year.</p> <p>GL assessments are used at the start and end of the year to validate students progress compared a national cohort. Cumulative assessment takes place at the end of each term in order to evaluate the knowledge learnt and help students interrupt the forgetting of previous terms knowledge. The weaknesses identified in cumulative tests are used to form the basis of retrieval practice, this supports students in the retention of knowledge.</p>
Key Components	Number skills, Decimals and Measures, Expressions, functions and formulae, Analysing and displaying data	Working with fractions and percentages, probability, working with ratios and proportion	Measuring and drawing angles, triangles, sequences, coordinates and midpoints, straight –line graphs, transformations	
Tier 3 language	BIDMAS, rounding, factors, multiples, primes, substitution, simplifying, mass, capacity, perimeter, area, estimate, mean, mode, median, pictogram, dual, compound, discrete	Fraction, numerator, denominator, improper, equivalent, percentages, ratio, proportion, probability scale	Protractor, acute, obtuse, reflex, right-angle, quadrilateral, sequence, coordinate, midpoint, arithmetic and geometric sequence, nth term, congruency, symmetry, reflection, rotation, translations	
Assessment	GL start of year test, end of term cumulative assessment, Low-stakes testing, retrieval practice	End of term cumulative assessment, Low-stakes testing, retrieval practice	GL end of year assessment, end of term cumulative assessment, Low-stakes testing, retrieval practice	
The best that has been thought and said	Ancient Egyptians, Brahmagupta, Rhind papyrus, Muhammed Al-Khwarizmi, Diophantus	Clay tablets of Babylon, Pascal	Ancient Sumerians, Fibonacci, Bernoulli	
Composites	Number, area and volume, statistics and graphs, equations	Real-life graphs, decimals with ratios, angles	Fractions, straight line graphs and equations, linking percentages, decimals and fractions	<p>Students continue with the development of their knowledge, building on the topics learnt in Year 7. The spiral nature of the curriculum allows students to retrieve knowledge from the previous year and link it to the new knowledge being taught. The curriculum is differentiated so that students can be supported and challenged as appropriate for their development. Again the autumn term starts with the development of key topics such as number which will then be used throughout the rest of the year.</p> <p>Cumulative assessments take place throughout the year, again ensuring students interrupt their forgetting and staff to identify weaknesses that will form the focus of retrieval practice.</p> <p>GL assessments are used at the end of the year to validate students progress compared to a national cohort.</p>
Key Components	More number skills, area and volume, statistics, graphs and charts, expressions and equations	Distance-time graphs, non-linear graphs, ratio and proportion with decimals, alternate angles and proof, exterior and interior angles, geometric problems	Using four operations with fractions, mixed numbers, proportion and gradients, equations of straight lines, fractions and decimals, equivalent proportions, percentages of amounts	
Tier 3 language	Roots, index notation, prime factor decomposition, volume, HCF, LCM, nets, elevations, imperial, metric, frequency, stem and leaf, scatter, powers, factorise, inverse	Conversion graphs, inverse, unit ratios, geometry, intersecting, parallel, geometric equations	Reciprocal, improper fraction, mixed number, direct proportion, gradient, $y=mx+c$, equivalent, increase, decrease, unitary method	
Assessment	Cumulative assessment at the end of first half term, Low-stakes testing, retrieval practice	End of term cumulative assessment, Low-stakes testing, retrieval practice	GL end of year assessment, end of term cumulative assessment, Low-stakes testing, retrieval practice	
The best that has been thought and said	Napier, de Fermat, Eratosthenes	Ancient Chinese and Sumerians, Plato, Nicole Oresme	Descartes, Diophantus, Liu Hui	
Composites	Using number skills, algebra, data, fractions, ratio and percentages	H- Using angles and graphs F- Using equations, sequences and angles	H– Area and volume, Constructions, Inequalities F– Averages, range, area and volume, using graphs	<p>In Year 9 students begin the process of being streamed into foundation and higher sets, this is done in order to ensure that students who have shown an excellent grasp of maths knowledge can be challenged and students who have struggled to grasp the maths knowledge so far can be supported.</p> <p>In the autumn term students follow the same key components to either higher or foundation level. However, by following these components at the same time students can access both higher and foundation level work.</p> <p>In the spring and summer term components are then taught to higher or foundation level. The sequence of components provides students with a broad range of mathematical topics and again the spiral nature of the curriculum allows students to revisit previous concepts while building new knowledge.</p> <p>Assessments follow the same pattern as with Year 8.</p>
Key Components	Using factors, multiples, indices and standard form, Expanding and factorising, Linear and non-linear sequences, using statistics, linking fractions, ratios, decimals and percentages	H– Angle properties of shapes, Pythagoras, Trigonometry, Rates of change, Line segments, Quadratic, cubic reciprocal graphs F– Solving equations, inequalities, generating sequences, Properties of shapes, Angles in triangles, Geometrical patterns	H– Prisms, circles and complex shapes, Bearings, constructions and Loci, Solving quadratic and simultaneous equations F– Using different averages, sampling, Compound and 3D shapes, More volume and surface area, Linear and real-life graphs	
Tier 3 language	Standard form, approximation, product notation, indices, factorisation theorem, inequalities, surds, perpendicular bisector, loci, bivariate, interpolate, extrapolate	H– Hypotenuse, sine, cosine, tan, trigonometric ratio, kinematic, reciprocal, F– Term to term, position to term, Fibonacci, angle sum, isosceles	H– Circumference, radius, chord, diameter, tangent, arc, sector, segment, simultaneous, quadratic inequalities F– Sampling, univariate empirical distributions, populations, composite, kinematic, trapezia, composite shape	
Assessment	End of term cumulative test, Low-stakes testing, retrieval practice	End of term cumulative test, Low-stakes testing, retrieval practice	GL end of year assessment, end of term cumulative test, Low-stakes testing, retrieval practice	
The best that has been thought and said	Ancient Indians, Hippasus, Gauss	Thales, Hipparchus, Pythagoras, Bhaskara II, Fibonacci, Ptolemy	Democritus, Hippocrates, Qin Jiushao	



King Harold Academy

Maths Curriculum Overview



YEAR 10

	Autumn Term	Spring Term	Summer Term	Rationale
Composites	H– Using probability, multiplicative reasoning F– Transformations, Ratio and proportion	H– Similarity & congruence, further trigonometry, stats F– Triangles, using probability, multiplicative reasoning	H– Further equations and graphs, Circle theorems F– Constructions, quadratic equations and graphs	<p>In Year 10 students continue to be taught in higher and foundation streams. Composites and components are ordered logically so that knowledge builds on components from previous years and previous terms. Again the spiral nature of the curriculum allows students to revisit topics while also building new knowledge.</p> <p>Cumulative assessments are used in the autumn and spring terms in order to ensure students can retrieve key knowledge and to support them in interrupting the forgetting. Due to the differing nature of the knowledge in higher and foundation the cumulative tests are also streamed.</p> <p>At the end of the year students sit a full set of GCSE mock exams. This is to provide students with opportunities to experience GCSE exam conditions, while also allowing students to demonstrate the knowledge they have learnt. Again any weaknesses identified form the basis of retrieval practice going into Year 11.</p>
Key Components	H- Probability events, Experimental and conditional probability, Set notation, Growth and decay, compound measures F– Using transformations, Describing and combining transformations, Using ratios, Using proportion and solving proportion problems	H– Congruence, Similarity and scale factors, Bounds, Graphs and problem solving using trigonometric functions, Further graphical representations F– Trigonometric ratios, Problem solving with trigonometry, Calculating probability, Probability diagrams, Growth and decay, Compound measures, Further proportion	H– Graphs of simultaneous equations, Graphs of inequalities, Quadratic and cubic graphs, Angles in circles, Applying circle theorems F– Plans and elevations, Scale and accurate drawing, Constructions, loci and bearings, Quadratic graphs, Factorising and solving quadratics	
Tier 3 language	H– Mutually exclusive, independent, conditional, compound interest, density, pressure, inverse proportion F– Fractional scale factor, congruent, concentrations, inverse proportion	H– Congruent, similarity, upper and lower bounds, sine, cosine, tangent, cumulative frequency, box plot, histogram F– Pythagoras, trigonometry, sine, cosine, tangent, experimental probability, tree diagram, density, pressure	H– simultaneous equation, cubic function, radii F– Elevations, constructions, loci, region, bearing, quadratic equation	
Assessment	Cumulative test after first half term, Low-stakes testing, retrieval practice	Cumulative test after first half term, Low-stakes testing, retrieval practice	Full set of GCSE mocks during mock weeks, Low-stakes testing, retrieval practice	
The best that has been thought and said	Euler, Pascal, Plato, Aristotle	Thales, Hipparchus, Pythagoras, Euler, Plato, Aristotle	Archimedes, Ibrahim ibn Sinan, Descartes	

YEAR 11

Composites	H– Further algebra, Vectors and geometric proof, linking proportion and graphs F– Further shape, indices, vectors and algebra	Consolidation and review of learning	Final revision and deliberate exam practice	<p>In Year 11 students use the autumn term to complete the remaining key components of the Maths curriculum.</p> <p>At the end of the autumn term students complete another set of mock GCSEs. The process is similar to that described in Year 10. However, this time staff use the weaknesses identified to plan the revisiting of these key components in the spring term. The spring term also gives opportunity for any students who show potential to move between foundation and higher to revisit key crossover components.</p> <p>At the end of the spring term, students sit another set of GCSE mocks, this gives students further experience of GCSE exam conditions. It also provides students with the opportunity to prove they have improved on weaknesses identified in the autumn mocks. It also provides an opportunity for students who have changed tier to experience exam papers in that tier before final decisions are made about their tier.</p> <p>The summer term is used to revise using personalised learning checklists created from the spring term. These checklists provide students with components that should be the focus of their revision. Staff use retrieval and low-stakes tests to help students with interrupting the forgetting.</p>
Key Components	H– Algebraic fractions, Surds and proof, Vectors, Parallel vectors and collinear points, Exponential functions, Translating and reflecting graphs F– Circumference, Semi-circles and sectors, Composite 2D and 3D shapes, Laws of indices, standard form, similarity, congruence and vectors, Reciprocal and cubic graphs, simultaneous equations and proof	Identifying strengths and weaknesses from mock papers, review of weaker topics, revision and exam technique	Reassessment of weaknesses and review of weak topics, revision and exam technique	
Tier 3 language	H– Algebraic fraction, surd, vector, parallel vector, collinear point, exponential function F– Circumference, radius, chord, diameter, tangent, arc, sector, segment, similarity, column vector, reciprocal, cubic, simultaneous equation	H– Congruent, similarity, upper and lower bounds, sine, cosine, tangent, cumulative frequency, box plot, histogram, simultaneous equation, cubic function, radii F– Pythagoras, trigonometry, sine, cosine, tangent, experimental probability, tree diagram, density, pressure	H– Mutually exclusive, independent, conditional, compound interest, density, pressure, inverse proportion F– Fractional scale factor, congruent, concentrations, inverse proportion, elevations, constructions, loci, region, bearing, quadratic equation	
Assessment	Full set of GCSE mocks during mock weeks, Low-stakes testing, retrieval practice	Full set of GCSE mocks during mock weeks, Low-stakes testing, retrieval practice	GCSE Past Papers	
The best that has been thought and said	Omar Khayyam, Ibrahim ibn Sinan, Plato, Aristotle	Archimedes	Plato, Aristotle	