

Mathematics

Year 10 Higher Curriculum Overview

Intent: During year 10, students will continue to build on learning from KS3 and then develop this into the next stages further. Students will embed skills by practise and learn new aspects of maths which they will continue to build upon in key stage 4. Building deeper connections between topics is key and students will begin during year 10 to embed the links between mathematical concepts.

	Unit 1: Numerical Representations	Unit 2: Ratio and Proportion	Unit 3: Probability	Unit 4: Expressions, Equations and Inequalities	Unit 5: Numerical Powers	Unit 6: Functions and Graphs	Unit 7: Shapes and Measures
	4 Weeks	4 Weeks	3 Weeks	7 Weeks	3 Weeks	5 Weeks	6 Weeks
Core Course Topic: These topics are taught through the identified terms. They are taught in small bitesize chunks and revisited regularly.	<ul style="list-style-type: none"> Fractions Percentages 	<ul style="list-style-type: none"> Simplifying a ratio Sharing in a ratio Ratio and fractions Converting units Direct and inverse proportion Growth and decay 	<ul style="list-style-type: none"> Single and combines events Two-way tables Tree diagrams Venn diagram Expected outcomes Relative frequency 	<ul style="list-style-type: none"> Expanding and factorising Substitution Linear equations Simultaneous equations Inequalities 	<ul style="list-style-type: none"> Calculate index laws and use of powers Convert number to standard form Convert from standard form to ordinary numbers Calculations with standard form. 	<ul style="list-style-type: none"> Linear graphs Non-linear graphs Kinematic graphs Graphical solutions 	<ul style="list-style-type: none"> Constructions Loci Transformations Congruence Pythagoras Trigonometry Area and Perimeter Volume and Surface area Vector
Additional support links:	Sparx maths is a platform which students use to complete their mathematics homework. There is also independent practise on there for the students to complete. Students will be supported with revision lists for all assessments, through the module introduction sheet or revision guide for larger assessments. The mathematics team also assist with homework club as well as the whole school Homework Club.						
Knowledge: Included here is the specific knowledge your child will learn in detail	All students will learn to <ul style="list-style-type: none"> Use the four operations with fractions and mixed numbers Find fractions of amounts Find percentages of amounts Increase/decrease by a percentage Compound and simple interest Use reverse percentages to find original amounts 	All students will learn to <ul style="list-style-type: none"> Simplify ratio Solve ratio problems Write ratio and fractions Combine ratio Convert units Solve direct and inverse proportion word problems Represent direct and inverse proportion using algebra Solve growth and decay problems 	All students will learn to <ul style="list-style-type: none"> Find the probability of an event Represent two events using two way tables Represent events using tree diagrams Draw and read Venn diagrams Use experimental probability 	All students will learn to <ul style="list-style-type: none"> Expand and factorise two or more binomials Substitute into formula Solve linear equations Solve linear equations with x on both sides Solve simultaneous equations Solve inequalities 	All students will learn to <ul style="list-style-type: none"> Students will explore standard form and be able to convert into and out of it. They will calculate with standard form and see the links to the laws of indices and commutativity. 	All students will learn to <ul style="list-style-type: none"> Plot straight line graphs Plot quadratic graphs Plot real life distance time graphs Plot conversion graphs Solve equations using graphs 	All students will learn to <ul style="list-style-type: none"> 2D and 3D shapes, loci, constructions, trigonometry and Pythagoras Theorem. vectors
Common Lexicon: These are the key words and terms learnt. These can be found on knowledge organisers.	Numerator, denominator, compound, multiplier, simple, terminate, recurring	Ratio, proportion, sharing, unitary method, fraction, equal Proportion, direct, inverse, scale factor, constant of proportionality, unitary method	Probability, chance, independent, exhaustive, mutually exclusive, tree diagram, Venn diagram, two-way table	Equations, inequalities, substitute, simultaneous, equals, term, factor	Base, index, power, commutativity, scale	Function, graph, linear, non-linear, kinematic	Area, perimeter, surface area, volume, face, edge, vertex, Pythagoras, trigonometry, similarity, ratio, transformation, translation, rotation, reflection, enlargement

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Ambition Curriculum			Real World: Life Skills Link to probability of contextual events happening and how companies use this to predict trends. Monty Hall problem Link	Real World: Life Skills The HM Revenue & Customs website uses complex calculations involving brackets to work out how much tax a person owes. Linear programming, finance, comparisons, computer programming. Where does River water go? Geography link- reference to Ocean Clean up Video			<p>This link to wider contexts in construction, engineering and decision math's,</p> <p>History of Trigonometry using early Astronomy Link</p> <p>Astronomy- using Trigonometry to find if the perfect Eclipse can happen on Earth Link</p>
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