

Mathematics

Year 9

Curriculum Overview

Intent: During year 9, students will continue to build on learning from year 7 and year 8 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 9 to embed the links between mathematical concepts.

	Unit 1: Probability	Unit 2: Constructions, Congruence and Pythagoras	Unit 3: Ratio and Proportion	Unit 4: Quadratics, Simultaneous Equations and Powers	Unit 5: Transformations, Similarity and Trigonometry	Unit6: Numbers in Context
	4 Weeks	4 Weeks	5 Weeks	8 Weeks	6 Weeks	4 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"> Theoretical and experimental probability Single and combined events Venn diagrams Sample spaces and two-way tables 	<ul style="list-style-type: none"> Constructions Congruence Loci Pythagoras theorem 	<ul style="list-style-type: none"> Percentage change problems Simple interest Problem solving with ratio and proportion 	<ul style="list-style-type: none"> Expanding quadratic expressions and those with more than two binomials Plotting quadratics Linear simultaneous equations (graphical and algebraic) Index laws 	<ul style="list-style-type: none"> Similar shapes Area and volume of similar shapes Right angled trigonometry 	<ul style="list-style-type: none"> Laws of Indices Standard Form
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"> Calculate probability of single events work with theoretical and experimental probabilities convert probabilities between fractions, decimals and percentages show outcomes for combined events using sample spaces, Venn diagrams and two-way tables. 	All students will learn to <ul style="list-style-type: none"> Prove Pythagoras theorem Use Pythagoras theorem to find missing lengths in a triangle use a ruler and compass to complete constructions of shapes draw loci to represent distances Students will be able to use the rules of congruence (RHS, SAS, ASA, SSS) 	All students will learn to <ul style="list-style-type: none"> Calculate percentage increase and decrease Calculate percentage change Calculate with simple interest Share ration into an amount Find different shares given one amount of a ratio Solve direct and inverse proportion problems Represent proportion problems using algebra 	All students will learn to <ul style="list-style-type: none"> create quadratic's expand and factorise quadratics plot quadratic graphs Solve two simultaneous equations with one unknown the same Solve money problems with simultaneous equations Solve two linear simultaneous equations Simplify expression with powers (indices) 	All students will learn to <ul style="list-style-type: none"> Find missing lengths in similar shapes Find the area and volume of similar shapes Recall the SOH CAH TOA ratios Apply SOH CAH TOA to find missing lengths in right angled triangles Apply SOH CAH TOA to find missing angles in right angled triangles 	All students will learn to <ul style="list-style-type: none"> Write large and small numbers in standard form Multiply and divide with standard form Order number in standard form

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Common Lexicon: These are the key words and terms learnt. These can be found on knowledge organisers.	Likely, Unlikely, Chance, Probability, Theoretical, Experimental, Event, Venn Diagram, Sample Space, Two-Way Table and area Diagram.	Construct, Congruency, Loci and Hypotenuse.	Scale, Map, Similarity, Enlargement, Scale Factor, Centre of Enlargement, Ratio and Proportion.	Expression, Expand, Factorise, Quadratic, Plot, Solve, Square, Turning Pont, Minimum and Maximum Points, Equation, Simultaneous, Graph, Solve, Substitute and Index.	Enlarge, Scale Factor, Centre of Enlargement, Similarity, Ratio, Proportion, Area, Volume, Right- Angle, Trigonometry, Hypotenuse, Opposite, Adjacent, Inverse, Sine, Cosine and Tangent.	Rational Numbers, Irrational Numbers, Surd, Standard Form, Percentage, Increase/Decrease, Compound Interest, Rate, Growth, Decay, Reverse, Fractional, Negative and Indices.
Ambition Curriculum	Link to probability of contextual events happening and how companies use this to predict trends. Lewis Carroll pillow problems book- Effects of events on probability video link	Aspirations: Careers Link to careers in constructions and engineering. History of Pythagoras Link	Aspirations: Careers Construction- building roofs History of Trigonometry using early Astronomy Link Astronomy- using Trigonometry to find if the perfect Eclipse can happen on Earth Link	This is a steppingstone to dealing with algebraic contexts in GCSE. Aspirations: Careers Link to the film- Hidden Figures. The women behind NASA Space race- calculated trajectories Link Links to travel and currencies across the world.	Aspirations: Careers Science, engineering, economics, accounting, Scientists – molecular biology and chemistry Astrophysicists (space). Carbon footprint resource link looking at standard form Exponential growth and epidemics Video 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.