

# Maths

## 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.

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1		SUMMER 2
	Assessment 1			Assessment 2			
<b>Core Course Topic:</b> These topics are taught through the identified terms. They are taught in small bitesize chunks and revisited regularly.	<b>Quadratics</b> <ul style="list-style-type: none"> <li>Expanding quadratic expressions and those with more than two binomials</li> <li>Plotting quadratics</li> </ul>	<b>Probability</b> <ul style="list-style-type: none"> <li>Theoretical and experimental probability</li> <li>Single and combined events</li> <li>Venn diagrams</li> <li>Sample spaces and two-way tables</li> </ul>	<b>Constructions, Congruence and Pythagoras</b> <ul style="list-style-type: none"> <li>Constructions</li> <li>Congruence</li> <li>Loci</li> <li>Pythagoras theorem</li> </ul>	<b>Simultaneous Equations and Powers</b> <ul style="list-style-type: none"> <li>Linear simultaneous equations (graphical and algebraic)</li> <li>Index laws</li> </ul>	<b>Numbers in context</b> <ul style="list-style-type: none"> <li>Standard Form</li> </ul>	<b>Ratio and Proportion</b> <ul style="list-style-type: none"> <li>Percentage change problems</li> <li>Simple interest</li> <li>Problem solving with ratio and proportion</li> </ul>	<b>Similarity and Trigonometry</b> <ul style="list-style-type: none"> <li>Similar shapes</li> <li>Area and volume of similar shapes</li> <li>Right angled trigonometry</li> </ul>
<b>Additional support links:</b> Here are links to additional resources which will help your child	Sparxmaths is a platform which students use to complete their maths homework. There is also independent practise on there for the students to complete.  Here is the year 8 revision list for the assessments with the sparx codes (students need to be logged in to access this)  <a href="#">Maths - Y9 Revision list DC1.docx</a>						
<b>Knowledge:</b> Included here is the specific knowledge your child will learn in detail	All students will learn to <ul style="list-style-type: none"> <li>create quadratic expressions</li> <li>expand and factorise quadratics</li> <li>plot quadratic graphs</li> </ul>	All students will learn to <ul style="list-style-type: none"> <li>Calculate probability of single events</li> <li>work with theoretical and experimental probabilities</li> <li>convert probabilities between fractions, decimals and percentages</li> <li>show outcomes for combined events using sample spaces, Venn diagrams and two-way tables.</li> </ul>	All students will learn to <ul style="list-style-type: none"> <li>Prove Pythagoras theorem</li> <li>Use Pythagoras theorem to find missing lengths in a triangle</li> <li>use a ruler and compass to complete constructions of shapes</li> <li>draw loci to represent distances</li> <li>Students will be able to use the rules of congruence (RHS, SAS, ASA, SSS)</li> </ul>	All students will learn to <ul style="list-style-type: none"> <li>Solve two simultaneous equations with one unknown the same</li> <li>Solve money problems with simultaneous equations</li> <li>Solve two linear simultaneous equations</li> <li>Simplify expression with powers (indices)</li> </ul>	All students will learn to <ul style="list-style-type: none"> <li>Write large and small numbers in standard form</li> <li>Multiply and divide with standard form</li> <li>Order number in standard form</li> </ul>	All students will learn to <ul style="list-style-type: none"> <li>Calculate percentage increase and decrease</li> <li>Calculate percentage change</li> <li>Calculate with simple interest</li> <li>Share ration into an amount</li> <li>Find different shares given one amount of a ratio</li> <li>Solve direct and inverse proportion problems</li> <li>Represent proportion problems using algebra</li> </ul>	All students will learn to <ul style="list-style-type: none"> <li>Find missing lengths in similar shapes</li> <li>Find the area and volume of similar shapes</li> <li>Recall the SOH CAH TOA ratios</li> <li>Apply SOH CAH TOA to find missing lengths in right angled triangles</li> <li>Apply SOH CAH TOA to find missing angles in right angled triangles</li> </ul>
<b>Common Lexicon:</b> These are the key words and terms learnt. These can be found on knowledge organisers.	Expression, Expand, Factorise, Quadratic, Plot, Solve, Square, Turning Point, Minimum and Maximum Points,	Likely, Unlikely, Chance, Probability, Theoretical, Experimental, Event, Venn Diagram, Sample Space, Two-Way Table and area Diagram.	Construct, Congruency, Loci and Hypotenuse.	Equation, Simultaneous, Graph, Solve, Substitute and Index.	Rational Numbers, Irrational Numbers, Surd, Standard Form, Percentage, Increase/Decrease, Compound Interest, Rate, Growth, Decay, Reverse, Fractional, Negative and Indices.	Scale, Map, Similarity, Enlargement, Scale Factor, Centre of Enlargement, Ratio and Proportion.	Enlarge, Scale Factor, Centre of Enlargement, Similarity, Ratio, Proportion, Area, Volume, Right-Angle, Trigonometry, Hypotenuse, Opposite, Adjacent, Inverse, Sine, Cosine and Tangent.
<b>Ambition Curriculum:</b>	This is a steppingstone to dealing with algebraic contexts in GCSE. <b>Aspirations: Careers</b>	Link to probability of contextual events happening and how companies use this to predict trends.	<b>Aspirations: Careers</b> Link to careers in constructions and engineering.  History of Pythagoras <a href="#">Link</a>	<b>Aspirations: Careers</b> <b>Real world: Life Skills</b> Links to travel and currencies across the world.	<b>Real world: Life Skills</b> The HM Revenue & Customs website uses complex calculations involving brackets to work out how much tax a	<b>Aspirations: Careers</b> Construction- building roofs  History of Trigonometry using early Astronomy <a href="#">Link</a>	<b>Aspirations: Careers</b> Science, engineering, economics, accounting, Scientists – molecular biology and chemistry Astrophysicists (space).



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	Link to the film- Hidden Figures. The women behind NASA Space race- calculated trajectories <a href="#">Link</a>	Lewis Carroll pillow problems book- Effects of events on probability <a href="#">video link</a>		Proportion in the workplace- link to equality in the work place through looking at proportions and wages	person owes. Linear programming, finance, comparisons, computer programming.	Astronomy- using Trigonometry to find if the perfect Eclipse can happen on Earth <a href="#">Link</a>	Carbon footprint resource <a href="#">link</a> looking at standard form Exponential growth and epidemics <a href="#">Video link</a>
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