Mathematics Year 8 Curriculum Overview

What is the Year 8 Mathematics curriculum aiming to achieve?

What do we want our Year 8 mathematicians to be like?	How are we building on prior learning?	How can parents/carers support their child's learning?
• Have a wide mathematical vocabulary and recall key facts and formulae • Resilient when solving problems • Able to communicate methods in a structured way • Can explain the mathematics they are using • Proficient in using more complex scientific calculator functions	• Using lessons and homework to check on retention of prior learning • Checking students are fluent in key skills by using lessons to review and reinforce where required • Introducing linked concepts that build on prior learning • Helping students master key skills	• Help by testing them on arithmetic skills and key vocabulary • Encourage them to complete homework to the best of their ability • Encourage them to revise for tests, making use of online resources • Ensure they are properly equipped, including a scientific calculator

How are we organising the Year 8 Mathematics curriculum?

	Autumn Units	Spring Units	Summer Units
Topics, Skills & Threshold Concepts	**Numbers & the number system 2**: Factors, multiples & primes; HCF & LCM; prime factorisation; powers and roots; square & cube numbers **Angles 2**: basic angle rules; angles in parallel lines; angles in polygons; proof of the angle sum of a triangle **Calculating 2**: add, subtract, multiply & divide with integers & decimals; negative numbers; using a calculator; BIDMAS **Manipulating 2**: simplify; rules of indices; expand; factorise; substitute; write expressions; rearrange formulas; expand two brackets **Measuring 2**: construct with ruler & compasses; construct triangles; congruent triangles; scales; enlargements **Place Value 2**: order integers & decimals; round to decimal places & significant figures; estimation; concept of bounds **Representing 2**: interpret & construct charts to represent & compare data; scatter graphs	**Fractions 3**: convert between fractions & decimals; fraction skills; reciprocal; recurring decimals **Equations 2**: solve multi-step equations with integer or fraction solutions, including unknowns on both sides; create expressions and equations **Probability 2**: probability; mutually exclusive; sample space diagrams; relative frequency **Area, perimeter & volume 2**: perimeter & area of plane shapes & composite shapes; surface area of cuboids; circumference & area of circles; volume of prisms; Pythagoras' Theorem **Ratio 2**: solve ratio & direct proportion problems	**Graphs 1**: Plot linear graphs; estimate values; $y = x^2$ graph; concept of gradient and intercept **Percentages 2**: convert between fractions, decimals & percentages; calculate a percentage increase or decrease; percentage change; compare quantities **Sequences 2**: use rules to generate sequences; find rules; nth term; arithmetic/geometric progressions **Fractions 4**: Add, subtract, multiply & divide with fractions or mixed numbers **Symmetry & transformations 2**: reflections, rotations & translations; combinations of transformations; invariance **Analysing 2**: mean, median, mode & range; compare data; averaged from a table; estimated mean from grouped data **2D & 3D shapes 2**: shape vocabulary & properties; nets; faces, edges & vertices
Enrichment within the curriculum	During mathematics lessons students will continue to have opportunities to develop and practise problem solving skills in more complex situations, including unfamiliar contexts. They will develop their mathematical communication skills using structured methods and algebraic techniques. Real-world applications of mathematics will be discussed whenever possible, including links to careers.		
Cross curricular links	• Science: using & rearranging formulas, solving equations, analysing data, drawing & interpreting graphs, percentages • Geography: use of ratio, map scales and bearings, interpret charts & graphs • Technology: scale factors, ratio, area • Business Studies: interpreting charts, percentages		
Extra-curricular opportunities	Every year, groups of students take part in the Junior Mathematical Challenge. Students are able to seek help and support from their teachers outside lessons at any time, and homework support is always available. The Maths Department runs a lunchtime drop-in support session and also offers IT access to complete homework.		

What are the intended outcomes of the Year 8 Mathematics curriculum?

Opportunities to show progress (Assessments)	**Homework** – weekly online tasks set on MathsWatch, with tasks set up by their teacher to consolidate learning. Students can also use MathsWatch to undertake independent learning, complete practice questions and revise. Students have access to personalised learning checklists for each unit, and these include references to MathsWatch.
	Learning Checkpoints – at the end of each unit, students complete a Learning Checkpoint in class to test their understanding of the skills from the unit. These will take around 20 minutes to complete. The teacher may take them in and mark, allowing improvement and correction time in a later lesson, or teachers may model the answers in class to support students in self-assessing their work. Results are recorded and students can identify skills needing further practice before the formal summative assessments.
	Summative Assessments – students will complete two larger formal assessments during the year, which will test a wider variety of skills as well as students' recall of prior learning. Both assessments will consist of a non-calculator test and a calculator test, and the tests will take place during normal lesson time in formal exam conditions. Tests are marked by the teacher, and students will have time to review the tests and make corrections in a later lesson.
Impact on personal development (SMSC)	Mathematics provides essential skills needed for everyday life. Many jobs require the use of problem-solving skills, and these often involve mathematics as well. Through mathematics, students learn how to analyse, communicate, explain and evaluate. Students will also become better equipped to deal with difficult problems and continue to develop independence, perseverance and resilience.
Preparation for the next stage of education	The topics taught are part of our spiral curriculum and introduce, or build upon, fundamental skills that underpin the whole mathematics curriculum. These concepts and skills all feature, to varying extents, in the GCSE course. Developing competence and confidence in these key areas will set students up for success at GCSE level. Regular homework and assessments will also provide students with opportunities to test their understanding and demonstrate their skills.