

MATHEMATICS CURRICULUM

The GAA mathematics curriculum is designed to deepen students’ knowledge of core mathematical principles and to develop understanding through the three strands of mathematical thinking – fluency, reasoning and problem solving. We aim to develop procedural knowledge of the fundamental elements of mathematics which provides a foundation for students to problem solve and reason mathematically, whilst also fostering a love of maths.

At GAA, we want to secure a high level of retention of knowledge and a depth of learning from which our students will be confident in taking their studies to the next level, whether that be in further qualifications, higher education, or the workplace. We are committed to providing an inclusive curriculum, which celebrates and champions diversity and individuality in mathematics.

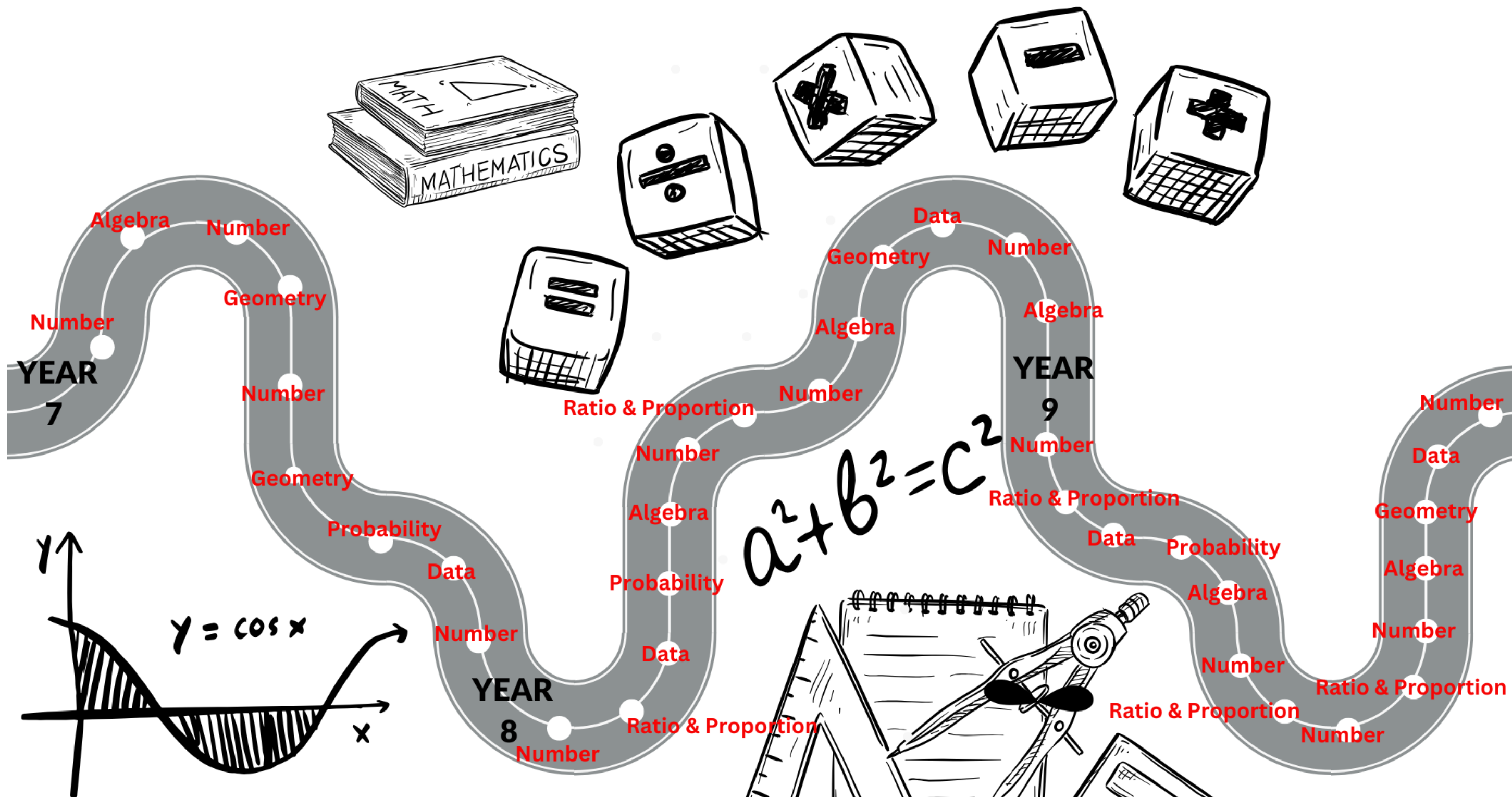
Our curriculum is split according to the following areas:

1. Number.
2. Algebra.
3. Shape.
4. Multiplicative reasoning.
5. Probability and statistics.

Lessons are planned and sequenced so that new knowledge and skills build on what has been taught before. Opportunities for retrieval are frequent and interleaved knowledge is identified in order to link topics. Common methodologies for key topics are utilised across the department and these ensure that students confidently progress through the curriculum with consistency.

Within each lesson, we use Do Now/Retrieve Now starters as a tool for retrieval practice to improve recall and to activate the prior knowledge required for the lesson ahead. In addition, formative assessment is embedded within each lesson and this directs our teachers on how to progress the learning while also giving students “in the moment” feedback to improve their understanding. We also regularly assess our students summatively so that progress is celebrated and gaps in knowledge are addressed.

At GAA, we are dedicated to inspiring a lifelong love of mathematics, nurturing independent resilient learners, and cultivating responsible, numerate individuals who are well-prepared for the challenges and opportunities that await them in the future.



KS3 MATHS CURRICULUM



Great
Academy
Ashton
Inspiring Greatness

Maths Long Term Map

Year 7											
Autumn				Spring				Summer			
Unit Title:	Unit Length:	Unit Title:	Unit Length:	Unit Title:	Unit Length:	Unit Title:	Unit Length:	Unit Title:	Unit Length:	Unit Title:	Unit Length:
Numerical skills	2.5 weeks	Fractions and percentages of amounts	1 week	Equality and equivalence	2.5 weeks	Multiplication and Division	3 weeks	Adding and subtracting fractions.	2 weeks	Angle Rules	1 week
Multiples and factors	1 week	Sequences	1.5 weeks	Addition and subtraction	2 weeks	Consolidation	1 week			Consolidation	1 week
Fraction manipulation	1 week	Consolidation	1 week	Perimeter	2 weeks	Area	2 weeks	Polygons	2 weeks	Two way tables and Venn diagrams	2weeks
F.D.P.	2 weeks	Introduction to algebra	2 weeks					Angle Rules	1 week	Probability	1.5 weeks
		Substitution	1.5 weeks							Prime factorisation	1.5 weeks
Domains of knowledge: Number		Domains of knowledge: Algebra		Domains of knowledge: Number Geometry		Domains of knowledge: Geometry Number		Domains of knowledge: Number Geometry		Domains of knowledge: Geometry Probability Data Number	
Key concepts: Numerical skills: place value, rounding, estimation and directed numbers. Multiples and factors: multiples, factors, LCM and HCF. Fraction manipulation: simplify and find equivalent fractions, express a quantity as a fraction of another and convert between mixed numbers and improper fractions. FDP: convert and order FDP.		Key concepts: Fractions and percentages of amounts. Sequences: linear, geometric and Fibonacci sequences. Introduction to algebra: algebraic notation, expressions, inverse, functions and substituting into expressions. Substitution: substitute values into algebraic expressions.		Key concepts: Equality and equivalence: simplify expressions and solve one and two step equations. Addition and Subtraction: adding and subtracting integers and decimals, formal methods, and mental methods. Perimeter: perimeter of polygons and compound shapes.		Key concepts: Multiplication and division: multiplication of integers and decimals, short division and dividing decimals. Area: area of rectangles, parallelograms, triangles and compound shapes.		Key concepts: Adding and subtracting fractions: add and subtract fractions and mixed numbers. Polygons: label geometric figures, draw and measure line segments and angles and name and know key properties of polygons. Angle rules: angles on a straight line, at a point, vertically opposite, in a triangle and quadrilateral.		Key concepts: Two-way tables and Venn diagrams: complete and interpret two-way tables and Venn diagrams. Probability: probability scales and probability of single events. Prime factorisation: Prime factor decomposition and writing a number as a product of its prime factors.	
Relevant end points covered: End point 1 Knowledge of rational and irrational numbers and their representations, including fluency in arithmetic with all types of rational and irrational numbers.		Relevant end points covered: End point 1 Knowledge of rational and irrational numbers and their representations, including fluency in arithmetic with all types of rational and irrational numbers.		Relevant end points covered: End point 1 Knowledge of rational and irrational numbers and their representations, including fluency in arithmetic with all types of rational and irrational numbers.		Relevant end points covered: End Point 1 Knowledge of rational and irrational numbers and their representations, including fluency in arithmetic with all types of rational and irrational numbers.		Relevant end points covered: End Point 1 Knowledge of rational and irrational numbers and their representations, including fluency in arithmetic with all types of rational and irrational numbers.		Relevant end points covered: End Point 5 Knowledge of how data is collected, analysed and presented, and how chance is evaluated, to help understand an unpredictable world.	

	End Point 3 Knowledge of how to use algebra to represent generalisations of numerical principles, both linear and non-linear, and how to find unknown quantities using algebraic techniques.	End Point 3 Knowledge of how to use algebra to represent generalisations of numerical principles, both linear and non-linear, and how to find unknown quantities using algebraic techniques. End Point 4 Knowledge of how the geometry of two- and three- dimensions is used to understand and interpret the space around us.	End Point 4 Knowledge of how the geometry of two- and three- dimensions is used to understand and interpret the space around us.	End Point 4 Knowledge of how the geometry of two- and three- dimensions is used to understand and interpret the space around us.	End Point 1 Knowledge of rational and irrational numbers and their representations, including fluency in arithmetic with all types of rational and irrational numbers.
Assessments: End of unit test 1 End of unit test 2 End of unit test 3	Assessments: End of unit test 4 End of unit test 5 End of unit test 6	Assessments: End of unit test 7 End of unit test 8 Mid-year test	Assessments: End of unit test 9 End of unit test 10 End of unit test 11	Assessments: End of unit test 12 End of unit test 13 End of unit test 14	Assessments: End of unit test 15 End of unit test 16 End of year test

Year 8											
Autumn				Spring				Summer			
Unit Title:	Unit Length:	Unit Title:	Unit Length:	Unit Title:	Unit Length:	Unit Title:	Unit Length:	Unit Title:	Unit Length:	Unit Title:	Unit Length:
Multiplying and dividing fractions	2 weeks	Working in the Cartesian Plane	2.5 weeks	Brackets, equations and inequalities	4 weeks	Fractions and percentages	3 weeks	Angles in parallel lines & polygons	4 weeks	Data handling cycle	4 weeks
Ratio and scale	3 weeks	Representing data	2.5 weeks	Sequences	1 week	Standard index form	1 week	Area of trapezia and circles	1 week	Averages	2 weeks
Multiplicative change	2 weeks	Tables and probability	2 weeks	Indices	1 week	Rounding and estimation	1 week	Reflection	1 week		
Domains of knowledge: Number Ratio and proportion		Domains of knowledge: Data Probability		Domains of knowledge: Algebra Number		Domains of knowledge: Number Ratio & proportion		Domains of knowledge: Number Algebra Geometry		Domains of knowledge: Data Number Algebra	
Key concepts: Multiplying and dividing fractions: calculations with fractions and use of the reciprocal. Ratio and scale: simplify ratio, unitary ratio, comparing ratios and related fractions and sharing in given ratio. Multiplicative change: applying ratio and proportion in different context (such as conversion graphs, scale diagrams, currency conversion)		Key concepts: Working in the Cartesian Plane: use of coordinate plane, introducing equations of straight lines and tables of values. Representing data: scatter graphs, line of best fit, correlation and outliers. Grouped and ungrouped frequency tables. Drawing and interpret two-way tables. Tables and probabilities: calculate probabilities from sample spaces, Venn diagrams, and two-way tables.		Key concepts: Brackets, equations, and inequalities: expanding and factorising single-bracket expressions. Form and solve equations and inequalities with brackets. Sequences: finding the nth term of a sequence and generating a sequence using the nth term. Indices: multiplication, division, and brackets laws of indices.		Key concepts: Fractions and percentages: percentage increase and decrease, use of multipliers, percentage change and expressing numbers in terms of proportion. Standard form: standard form conversions and multiplication/division with standard form. Rounding and estimation: rounding to decimal places and significant figures and estimation.		Key concepts: Angles in parallel lines and polygons: rules of angles in parallel lines and exterior/interior angles of polygons. Area of trapezia and circles: can calculate the area of trapezia and circles. Reflection: reflect a shape in horizontal, vertical, and diagonal lines.		Key concepts: Data handling cycle: data handling cycle from design, critique, collection, analysis, and conclusion using questionnaires, tally charts, frequency tables and charts. Averages: understand, calculate, and apply range, mean, mode and median. Comparing distributions.	
Relevant end points covered: Multiplying and dividing fractions. End Point 2 Knowledge of multiplicative relationships, how to interpret and apply them in various contexts, and how to represent multiplicative relationships in terms of ratio, proportion, and rates of change. Ratio and Scale End Point 2 Multiplicative Change		Relevant end points covered: Working in the Cartesian Plane. End Point 3 Knowledge of how to use algebra to represent generalisations of numerical principles, both linear and non-linear, and how to find unknown quantities using algebraic techniques. Representing data End Point 5 Knowledge of how data is collected, analysed and presented, and how		Relevant end points covered: Brackets, Equations and inequalities. End point 3 Sequences End point 3 Indices End Point 1 Knowledge of rational and irrational numbers and their representations, including fluency in arithmetic with all types of rational and irrational numbers.		Relevant end points covered: Fractions and percentages. End point 2 Standard form End point 1 Rounding and estimation End point 1		Relevant end points covered: Angles in parallel lines and polygons. End point 4 Area of trapezia and circles End point 4 Reflection End point 4		Relevant end points covered: Data handling cycle End point 5 Averages End point 5	

End Point 2 End Point 4 Knowledge of how the geometry of two- and three- dimensions is used to understand and interpret the space around us.	chance is evaluated, to help understand an unpredictable world. Tables and probabilities End point 5				
Assessments: End of unit test 1 End of unit test 2 End of unit test 3	Assessments: End of unit test 4 End of unit test 5 End of unit test 6	Assessments: End of unit test 7 End of unit test 8 Mid-year test	Assessments: End of unit test 9 End of unit test 10 End of unit test 11	Assessments: End of unit test 12 End of unit test 13 End of unit test 14	Assessments: End of unit test 15 End of unit test 16 End of year test

Year 9											
Autumn				Spring				Summer			
Unit Title:	Unit Length:	Unit Title:	Unit Length:	Unit Title:	Unit Length:	Unit Title:	Unit Length:	Unit Title:	Unit Length:	Unit Title:	Unit Length:
Expanding and Factorising	Unit Length:	3D shapes	3 weeks	Fractions & decimals	2 weeks	Deduction	3 weeks	Ratio and proportion	3 weeks	Primes, factors and multiples	2 weeks
Equations, inequalities and formulae	2 weeks	Pythagoras	2 weeks	Percentages with calculator	2 weeks	Transformations and similarity	3 weeks	Rates	2 weeks	Probability	2 weeks
Straight line graphs	3 weeks			Maths and Money	2 weeks					Constructions	1 week
	3 weeks										
Domains of knowledge:		Domains of knowledge:		Domains of knowledge:		Domains of knowledge:		Domains of knowledge:		Domains of knowledge:	
Algebra		Geometry Algebra Number		Number		Geometry and measure Algebra		Ratio and proportion		Probability Number Geometry and measure	
Key concepts:		Key concepts:		Key concepts:		Key concepts:		Key concepts:		Key concepts:	
Expanding and factorising: expanding and factorising single and double brackets.		3D shapes: find surface area and volume of 3D prisms and cylinders.		Fractions: performing calculations with fractions and mixed numbers. Converting between fractions, decimals and percentages.		Deductions: Applying angle rules to geometric conjectures using logically chains of reasoning.		Ratio and proportion: understanding and applying ratio.		Probability: understanding and applying relative frequency and expected outcomes.	
Equations: inequalities and formulae Forming and solving equation and inequalities with unknowns on both sides and brackets. Using and rearranging two step formulae.		Pythagoras: know and apply Pythagoras theorem.		Percentages with calculators: percentage increase, decrease and reverse percentages using multipliers. Percentage change.		Transformations and similarity: describe and perform all four transformations. Working with similar shapes and scale factors.		Understanding and applying concepts of direct and inverse proportion to problems (not algebraically).		Using tree diagrams to solve probability problems with and without replacement.	
Straight line graphs: understand and apply the general equation for a straight line – $y=mx+c$.				Money: calculating simple and compound interest. Applying concepts of percentage increase/decrease, percentage change, unitary methods to money problems.				Rates: calculations and problems using rates (speed, density and rates of change on graphs).		Construction: constructing bisectors and perpendiculars and linking Number: find the HCF and LCM of large numbers (through prime factors and Venn diagrams) Rounding and error intervals and calculations in standard form.	
Relevant end points covered:		Relevant end points covered:		Relevant end points covered:		Relevant end points covered:		Relevant end points covered:		Relevant end points covered:	
Expanding and factorising End Point 3 Knowledge of how to use algebra to represent generalisations of numerical principles, both linear and non-linear, and how to find unknown		3D shapes End Point 4 Knowledge of how the geometry of two- and three- dimensions is used to understand and interpret the space around us.		Fractions End Point 2 Knowledge of multiplicative relationships, how to interpret and apply them in various contexts, and how to represent multiplicative		Deductions End point 4 Transformations and similarity End point 4 End point 2		Ratio and proportion End point 2 Rates End point 2		Probability End Point 5 Knowledge of how data is collected, analysed and presented, and how chance is evaluated, to help understand an unpredictable world.	

quantities using algebraic techniques. Equations, inequalities and formulae End point 3 Straight line graphs End point 3	Pythagoras End point 4 End point 2	relationships in terms of ratio, proportion, and rates of change. Percentages with calculators Money End Point 1 Knowledge of rational and irrational numbers and their representations, including fluency in arithmetic with all types of rational and irrational numbers. End Point 2 Knowledge of multiplicative relationships, how to interpret and apply them in various contexts, and how to represent multiplicative relationships in terms of ratio, proportion, and rates of change.			Constructions End point 4 Number End point 1
Assessments: End of unit test 1 End of unit test 2 End of unit test 3	Assessments: End of unit test 4 End of unit test 5 End of unit test 6	Assessments: End of unit test 7 End of unit test 8 Mid-year test	Assessments: End of unit test 9 End of unit test 10 End of unit test 11	Assessments: End of unit test 12 End of unit test 13 End of unit test 14	Assessments: End of unit test 15 End of unit test 16 End of year test

KS4 MATHS CURRICULUM



COURSE ASSESSMENT

Maths assessment.

Paper 1

- No calculator is allowed
- 1 hour and 30 minutes (both Foundation and Higher tier papers)
- 80 marks available

Paper 2

- Calculator allowed
- 1 hour and 30 minutes (both Foundation and Higher tier papers)
- 80 marks available

Paper 3

- Calculator allowed
- 1 hour and 30 minutes (both Foundation and Higher tier papers)
- 80 marks available

COURSE DETAILS

Course: Edexcel maths

COURSE DESCRIPTION

Students study numeracy; algebra; proportional reasoning; shape and space; statistics and probability; and will build on the knowledge gained during Key Stage 3. There is also an increased emphasis on the application of these skills. Most lessons will be of a structured whole class interactive style, using interactive white boards to give powerful visual images to aid students learning and understanding of many difficult concepts. Regular unit and diagnostic tests are used to monitor students' progress through the course.

At the end of the course students will be assessed at the most appropriate level; Higher or Foundation. Each level is assessed via three examinations, one of which will be non-calculator.

PROGRESSION ROUTES

Having a good qualification in Mathematics will allow you to study an A-Level at any college or provider. Good Mathematics is essential for studying at the Russell Group universities and will provide the foundation for many future careers. The mathematical skills of logic, problem solving and resilience will be vital to all students in the future.

