

YEAR 8 MATHS CURRICULUM PROGRESSION OVERVIEW

Subject Curriculum Intent

The learning at Key Stage 3 is sequenced to allow students to become fluent in the fundamentals of mathematics, to develop reasoning skills and to apply knowledge to solve problems. All units interleave crucial knowledge and skills from prior learning at Key Stage 3 as from the Key Stage 2 National Curriculum topic areas of Number, Ratio and proportion, Algebra, Geometry, Measurement and Statistics. This ensures that students build upon prior learning and have secure retention of knowledge over time.

The curriculum consolidates algebra skills and extends to double brackets and links them to linear graphs. Ratio and proportion are considered as well as representing data visually and numerically using averages and range. Percentages including linked to financial maths are explored and then the concept of algebraic equations and inequalities are explored before the concept of probability is then extended and linked to visible representations. Previous work with area is extended to circles and volume and surface area and indices are linked to numbers in standard form. Angles are reviewed and the construction of triangles and bisectors area explored. Compound measures are considered before Pythagoras' Theorem and similarity are introduced.

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic	-Manipulating algebra -Linear Graphs -Ratio and Proportion	-Representing Data and Averages -Percentages -	-- Equations and Inequalities -Probability	-Area and Volume -Indices and Standard Form	-Angles -Scale Drawing and Constructions	-Compound Measures -Pythagoras' Theorem -Congruence and Similarity
Core Knowledge/ Threshold Concept	Understand, reason, and solve problems involving: -Form and simplify algebraic expressions, expand and simplify expressions. Expand single and double brackets	Understand, reason, and solve problems involving: -Represent data visually including scatter graphs and pie charts and with data in frequency tables, averages and range from a list of data and a table	Understand, reason, and solve problems involving: -Form and solve equations and inequalities, represent solutions on a number line -Review simple probability, link probability to sample	Understand, reason, and solve problems involving: -Review 2D shapes, area of simple shapes and trapezia, circumference and area of circles, area of compound shapes, volume and surface area of prisms	Understand, reason, and solve problems involving: -Reviews angles in triangles and quadrilaterals, work with angles in parallel lines -Link ratios to scale diagrams and construct triangle and bisectors	Understand, reason, and solve problems involving: -Convert metric units, work with speed including graphically, consider other compound measures -Introduce Pythagoras' Theorem and use it to find missing sides

	-Co-ordinates, straight line graphs, $y = mx + c$, find gradients -Understand and use ratio notation, share into a ratio, direct proportion, link ratio to currencies	-Convert between fractions, decimals and percentages, calculate percentage change including using multipliers, write a quantity as a fraction or percentages of another, financial problems	spaces, two-way tables and Venn diagrams	-Explore and use simple laws of indices, convert between ordinary and standard form numbers, calculate with numbers in standard form		-Identify congruent shapes and find sides in similar shapes
Assessment Opportunities:	Regular formative assessment in lessons including questioning, recall activities and self / peer assessment. Topic reviews completed after every unit and marked with personalised feedback.	Regular formative assessment in lessons including questioning, recall activities and self / peer assessment. Topic reviews completed after every unit and marked with personalised feedback. One 45-minute calculator assessment on all topics covered so far.	Regular formative assessment in lessons including questioning, recall activities and self / peer assessment. Topic reviews completed after every unit and marked with personalised feedback.	Regular formative assessment in lessons including questioning, recall activities and self / peer assessment. Topic reviews completed after every unit and marked with personalised feedback. Two 45-minute assessments (one non calculator and one calculator) on all topics covered so far.	Regular formative assessment in lessons including questioning, recall activities and self / peer assessment. Topic reviews completed after every unit and marked with personalised feedback.	Regular formative assessment in lessons including questioning, recall activities and self / peer assessment. Topic reviews completed after every unit and marked with personalised feedback.
Learning at Home	Homework is set every week, consisting of topic reviews and recall activities via Sparx Maths.	Homework is set every week, consisting of topic reviews and recall activities via Sparx Maths.	Homework is set every week, consisting of topic reviews and recall activities via Sparx Maths.	Homework is set every week, consisting of topic reviews and recall activities via Sparx Maths.	Homework is set every week, consisting of topic reviews and recall activities via Sparx Maths.	Homework is set every week, consisting of topic reviews and recall activities via Sparx Maths.

		Pupils are also set revision to complete via classcharts before assessments.			Pupils are also set revision to complete via classcharts before assessments.	
Key Vocabulary	Factorise Gradient Y-intercept Proportion	Correlation Modal Multiplier		Indices	Parallel	Density Hypotenuse Scale Factor
Spiritual, Moral, Social and Cultural concepts covered	To study maths is to train oneself in the art of reason, assembling the facts before making logical deductions – maths removes any prejudice. By its very nature, maths knows no borders, knows no race, religion or gender and knows no social background Spiritual development examples include: -Sense of enjoyment and fascination in learning -Use of imagination and creativity in their learning -Willingness to reflect on their experiences -The awe and wonder of mathematics such as symmetry in nature and number sequences such as the Fibonacci sequence Moral development examples include: -The use of statistics and how people manipulate them to promote their own (biased) opinions and to discuss the use and misuse of data in all issues including those supporting moral argument. -How to word questionnaires so as not to embarrass people Social development examples include: -Use of a range of social skills in different contexts such as a willingness to participate and to work collaboratively -How the census is used by governments to plan ahead for health, education and social requirements Cultural development examples include: -Appreciating the wealth of mathematics in all cultures throughout history. -How the Mathematical language is a universal language used worldwide					
Links to careers and the world of work	Maths is used in daily life and is therefore a vital skill for everyone. Mathematical skills used on a regular basis including: -percentages -fractions -time -best value					

-financial awareness

-ratios

-interpreting information

-measurements

-currency conversions

Transferable life skills include:

-resilience

-mathematical writing

-number sense working systematically

-independent thinking to solve problems

-logical reasoning

Possible career links include:

-Accountancy

-Banking

-Self Employed Business

-Architecture

-Engineering

-Graphic Design