

YEAR 9 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.

Previous algebraic skills are extended to consider expanding and factorising using two brackets. Then both 2D and 3D shapes are developed to look at circles, surface area and volume of prisms and nets of 3D shapes. Equation skills are linked to representing inequalities and rearranging formulae and then to drawing and interpreting linear graphs. Previous fractions work is then reviewed including those with mixed numbers extended to look at when fraction terminate or recur. Rounding is reviewed and linked to bounds and error intervals. Percentages are used in context such as interest and reverse percentages. Students will then look at angles in polygons before there is a review of ratio linked to best buy and then transformations are reviewed and extended further. Probability is linked to tree and Venn diagrams and sequences are recapped and linked to quadratic sequences before Pythagoras' Theorem is consolidated and trigonometry is introduced. More consideration and extension of displaying data and averages is considered before linking constructions to loci problems. Finally there is a review of any areas which require consolidation.

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic	- Expanding and Factorising -2D and 3D Shapes -Equations	-Graphs -Fractions	-Rounding and Bounds -Using Percentages -Angles	-Ratio and Proportion - Transformations, Similarity and Congruence	-Probability -Sequences -Pythagoras' Theorem and Trigonometry -Handling Data	-Constructions and Loci -GCSE Preparation
Core Knowledge/ Threshold Concept	Understand, reason, and solve problems involving: -Expanding one or more brackets and factorising expressions -Area and perimeter of 2D shapes including circles, volume and	Understand, reason, and solve problems involving: -Plotting linear graphs, interpreting gradients and y-intercepts -Review of calculations with fractions, mixed numbers and decimals	Understand, reason, and solve problems involving: - Rounding using decimal places and significant figures, upper and lower bounds and estimation	Understand, reason, and solve problems involving: -Review of ratio, best value and proportion problems -Identify congruent shapes, perform and describe different	Understand, reason, and solve problems involving: -Linking probability to relative frequency and expected outcomes, using tree diagrams and Venn diagrams to find probabilities	Understand, reason, and solve problems involving: --Constructing triangles, bisectors of lines and angles and a perpendicular to and from a line -Review of years 7-9

	surface area of prisms including cylinders, nets, plans and elevations -Solve equations and inequalities, representing inequalities, substitution, rearranging formulae		-Review of percentage multipliers, interest, financial problems, exchange rates and reverse percentages -Angles in parallel lines and polygons -Understanding and using Pythagoras' theorem	transformations, link enlargements to similar shapes	-Continue sequences, find the nth term and picture sequences -Use Pythagoras to find missing sides, solve problems involving Pythagoras' theorem, introduction to trigonometry -using averages and range to compare sets of data and more displaying data	
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. Four 45-minute (two non calculator and two calculator) or two 90 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. Pupils are also set revision to complete via classcharts before assessments.	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.	Homework is set every week, consisting of topic reviews and recall activities via Sparx Maths.
Key Vocabulary	Formula		Interest Polygon			Perpendicular
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