

YEAR 10 MATHS CURRICULUM PROGRESSION OVERVIEW

Subject Curriculum Intent

The learning at key stage 4 is sequenced to allow students to develop fluency, to apply techniques to solve problems, to apply knowledge to solve problems and to interpret and communicate mathematical information in context. All units interleave crucial knowledge and skills from prior learning. This ensures that students build upon prior learning and have secure retention of knowledge over time, ensuring they know more, remember more, and can do more.

Non-calculator methods including accuracy and rounding are considered and then moving onto looking at more complex indices. Work on circles is extended to look at cylinders and surface area and volume of more complex 3D shapes. Solving equations and inequalities is revisited including visual representations for inequalities and finding solutions graphically. Further graphical techniques are used to display data. Expanding and factorising simple and quadratic expressions are considered moving on to solving of quadratic equations using different methods. Angles and their applications including parallel lines, bearings and circle theorems are considered. Transformations are revised and extended. Percentages are applied to real life contexts and similarity is considered too. Ratios are extended to problem situations and probability questions are solved using visual representations before manipulation of algebraic expressions is extended. Pythagoras' Theorem is extended to include trigonometry and proportion and compound measures are considered.

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic	-Non-Calculator Methods -Indices and Roots -Working with Circles	-Representing Solutions of Equations and Inequalities -Collecting, Representing and Interpreting Data -Expanding and Factorising	-Angles and Bearings -Transformations - Percentages and Interest (start)	-Percentages and Interest (finish) -Congruency and Similarity -Ratio and Fractions	-Probability	- Changing the Subject - Trigonometry 1
Core Knowledge/ Threshold Concept	Understand, reason, and solve problems involving: -Mental and written methods, exact answers, surds, rounding using dp and sf, estimating,	Understand, reason, and solve problems involving: -Forming and solving equations and inequalities, representing inequalities, solving equations using	Understand, reason, and solve problems involving: -Angles in shapes, angles in parallel lines, scale diagrams, bearings, circle theorems	Understand, reason, and solve problems involving: -Percentages of an amount, percentage increase/decrease, interest, reverse percentages, percentage change	Understand, reason, and solve problems involving: -Experimental probability, probability form diagrams, sample spaces, simple and more complex tree diagrams	Understand, reason, and solve problems involving: -Solving equations and inequalities, changing the subject, iteration -Using trigonometry to find sides and angles in

	accuracy, financial maths problems -Powers and roots, index rules, standard form -Arcs and sectors, volume and surface area of prisms, cylinders, cones and spheres	graphs, graphical inequalities -Types of data, frequency table, frequency polygons, calculating averages, time series graphs, histograms, stem and leaf diagrams -Expanding brackets, factoring expressions, solving equations involving factorising, solving quadratic equations	-Perform and describe reflections, rotations, translations and enlargements -Percentages of an amount, percentage increase/decrease, interest, reverse percentages, percentage change	-Similar shapes, more complex similarity, congruence -Links between ratios and fractions, comparison, currency, using ratios, best buys, ratio problems, ratio with area and volume		right angles triangles, problems involving right angled triangles
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.	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) for foundation tier and three 45-minute assessments (one non	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.	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 90-minute assessments (one non calculator and one calculator) on all topics covered so far.

			calculator) for higher tier on all topics covered so far.			
Learning at Home	Homework is set every week on Sparx, consisting of questions recently covered in lessons, revision of previously studied content and times tables practice.	Homework is set every week on Sparx, consisting of questions recently covered in lessons, revision of previously studied content and times tables practice.	Homework is set every week on Sparx, consisting of questions recently covered in lessons, revision of previously studied content and times tables practice.	Homework is set every week on Sparx, consisting of questions recently covered in lessons, revision of previously studied content and times tables practice.	Homework is set every week on Sparx, consisting of questions recently covered in lessons, revision of previously studied content and times tables practice.	Homework is set every week on Sparx, consisting of questions recently covered in lessons, revision of previously studied content and times tables practice.
Key Vocabulary	Circumference Tangent GCSE Exam Command Words	Inequality GCSE Exam Command Words	Bearing GCSE Exam Command Words	Congruent Similar GCSE Exam Command Words	Independent GCSE Exam Command Words	 GCSE Exam Command Words
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

YEAR 11 MATHS CURRICULUM PROGRESSION OVERVIEW

Subject Curriculum Intent

The learning at key stage 4 is sequenced to allow students to develop fluency, to apply techniques to solve problems, to apply knowledge to solve problems and to interpret and communicate mathematical information in context. All units interleave crucial knowledge and skills from prior learning. This ensures that students build upon prior learning and have secure retention of knowledge over time, ensuring they know more, remember more, and can do more. Initially proportion and compound measures are considered. Then displaying data is consolidated and extended before considering accurate constructions. Number properties and sequences are revisited, including nth term and more complex sequences. Knowledge of linear graphs is extended, including perpendicular lines and algebraic skills are recapped and extended further including considering proof. Pythagoras' Theorem and trigonometry are recapped and extended as well as considering solving simultaneous equations. Diagrams involving vectors are considered and then non-linear graphs are investigated. Number and algebra skills are combined to look at functions and transforming graphs. Then to conclude application of graphs are looked at including travel graphs and solving equations graphically.

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic	-Multiplicative -Collecting, Representing and Interpreting Data 2 -Loci -Types of Numbers and Sequences -Gradients and lines (start)	-Gradients and lines (finish) -Manipulating Expressions -Trigonometry 2 -Simultaneous Equations	-Vectors - Non-linear Graphs	-Functions -Using Graphs -Exam preparation	-Exam preparation	-Exam preparation
Core Knowledge/ Threshold Concept	Understand, reason, and solve problems involving: -Direct and inverse proportion, calculations with speed, density and pressure	Understand, reason, and solve problems involving: -Plotting straight line graphs, equations of linear graphs -Simplifying algebraic expressions including those expressed in	Understand, reason, and solve problems involving: - Understand and use vector notation, calculate with vectors, solve vector problems	Understand, reason, and solve problems involving: -Understand and use function notation, work with functions eg inverse functions	-Consolidation of the GCSE Maths course -Examination preparation using past and practice papers	-Consolidation of the GCSE Maths course -Examination preparation using past and practice papers

	-Construct and interpret different graphs, compare data using graphs, draw and interpret scatter graphs -Plans and elevations, standard constructions, loci problems -Different types of numbers, types of sequences including linear, arithmetic, geometric, and quadratic, general rule for sequences -Plotting straight line graphs, equations of linear graphs	- fractional form, solve simple and more complex equations -Review and extend Pythagoras' theorem and trigonometry -Form and solve simultaneous equations algebraically and graphically	-Plot and interpret a range of non-linear graphs	-Construct, interpret use real-life graphs and travel graphs -Consolidation of the GCSE Maths course -Examination preparation using past and practice papers		
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.	- 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.	GCSE Maths examinations.	GCSE Maths examinations.

		Two 90 minute GCSE past papers (one non-calculator and one calculator paper) or four 45-minute split past GCSE papers (two non-calculator and two calculator).	Year 11 Mock exams. Three 90-minute past GCSE papers (one non-calculator and two calculator papers).			
Learning at Home	Homework is set every week by the class teacher to consolidate work covered in class and recall previous skills.	Homework is set every week by the class teacher to consolidate work covered in class and recall previous skills.	Homework is set every week by the class teacher to consolidate work covered in class and recall previous skills.	Homework is set every week by the class teacher to consolidate work covered in class and recall previous skills.	Revision and past exam papers.	Revision and past exam papers.
Key Vocabulary	GCSE Exam Command Words	GCSE Exam Command Words	GCSE Exam Command Words	GCSE Exam Command Words	GCSE Exam Command Words	GCSE Exam Command Words
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					

Formatted: Not Highlight

Formatted: Not Highlight

Formatted: Line spacing: Multiple 1.08 li

Formatted: Not Highlight

Formatted: Not Highlight

Formatted: Not Highlight

Formatted: Not Highlight

	-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