

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

	<ul style="list-style-type: none"> -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 	<ul style="list-style-type: none"> fractional form, solve simple and more complex equations -Review and extend Pythagoras' theorem and trigonometry -Form and solve simultaneous equations algebraically and graphically 	<ul style="list-style-type: none"> -Plot and interpret a range of non-linear graphs 	<ul style="list-style-type: none"> -Construct, interpret use real-life graphs and travel graphs -Consolidation of the GCSE Maths course -Examination preparation using past and practice papers 		
Why this learning now?	<p>The units link to:</p> <p>Multiplicative: Year 10 – Ratios and Fractions Year 11 – Types of number and sequences, Using graphs</p>	<p>The units link to:</p> <p>Gradients and Lines: Year 10 – Representing solutions of equations and inequalities Year 11 – Simultaneous equations, Non-linear graphs, Functions</p>	<p>The units links to:</p> <p>Vectors: Exam preparation</p> <p>Non-Linear Graphs: Year 11 – Functions</p>	<p>The units link to:</p> <p>Functions: Year 11 – Using Graphs</p> <p>Using Graphs: Exam preparation</p>	<ul style="list-style-type: none"> -Consolidation of the GCSE Maths course -Examination preparation using past and practice papers 	<ul style="list-style-type: none"> -Consolidation of the GCSE Maths course -Examination preparation using past and practice papers

	<p>Collecting, Representing and Interpreting Data 2: Exam preparation</p> <p>Loci: Year 11 – Trigonometry 2</p> <p>Types of Numbers and Sequences: Year 11 – Using graphs</p> <p>Gradients and Lines: Year 11 – Simultaneous equations, Non-linear graphs, Functions</p>	<p>Manipulating Expressions: Year 11 - Simultaneous equations, Functions, Using Graphs</p> <p>Trigonometry 2: Exam preparation</p> <p>Simultaneous equations: Year 11 – Non-linear graphs, Functions</p>				
Assessment Opportunities:	<p>Regular formative assessment in lessons including questioning, recall activities and self /peer assessment.</p> <p>Topic WINs for: -Multiplicative -Collecting, Representing and Interpreting Data 2 -Loci -Types of Numbers and Sequences</p> <p>These are completed in every unit and marked</p>	<p>Regular formative assessment in lessons including questioning, recall activities and self / peer assessment.</p> <p>Topic WINs for: -Gradients and lines -Manipulating Expressions -Trigonometry 2 -Simultaneous Equations</p> <p>These are completed in every unit and marked with personalised feedback.</p>	<p>Regular formative assessment in lessons including questioning, recall activities and self / peer assessment.</p> <p>Topic WINs for: -Vectors - Non-linear Graphs</p> <p>These are completed in every unit and marked with personalised feedback.</p> <p>Year 11 Mock exams. Three 90-minute past GCSE papers (one non-</p>	<p>Regular formative assessment in lessons including questioning, recall activities and self / peer assessment.</p> <p>Topic WINs for: -Functions -Using Graphs</p> <p>These are completed in every unit and marked with personalised feedback.</p>	GCSE Maths examinations.	GCSE Maths examinations.

	with personalised feedback.	Year 11 Mock exams. Three 90-minute past GCSE papers (one non-calculator and two calculator papers).	calculator and two calculator papers).			
Learning at Home	Homework is set every week, consisting of a one hour, Sparx online homework. This will include consolidation of current work and recall of previous knowledge.	Homework is set every week, consisting of a one hour, Sparx online homework. This will include consolidation of current work and recall of previous knowledge. Paper based exam questions will be used to supplement Sparx homework. Pupils are also set revision to complete online before assessments.	Homework is set every week, consisting of a one hour, Sparx online homework. This will include consolidation of current work and recall of previous knowledge. Paper based exam questions will be used to supplement Sparx homework. Pupils are also set revision to complete online before assessments.	Homework is set every week, consisting of a one hour, Sparx online homework. This will include consolidation of current work and recall of previous knowledge. Paper based exam questions will be used to supplement Sparx homework.	Revision and past exam papers.	Revision and past exam papers..
Key Vocabulary	GCSE Exam Command Words	Simultaneous equations GCSE Exam Command Words	Vector 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					

	<ul style="list-style-type: none"> -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 <p>Moral development examples include:</p> <ul style="list-style-type: none"> -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 <p>Social development examples include:</p> <ul style="list-style-type: none"> -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 <p>Cultural development examples include:</p> <ul style="list-style-type: none"> -Appreciating the wealth of mathematics in all cultures throughout history. -How the Mathematical language is a universal language used worldwide
<p>Links to careers and the world of work</p>	<p>Maths is used in daily life and is therefore a vital skill for everyone. Mathematical skills used on a regular basis including:</p> <ul style="list-style-type: none"> -percentages -fractions -time -best value -financial awareness -ratios -interpreting information -measurements -currency conversions <p>Transferable life skills include:</p> <ul style="list-style-type: none"> -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