KS3 Website Curriculum Overview

	AUT 1	AUT 2	SPR 1	SPR 2	SUM 1	SUM 2
Year 7	Algebraic Thinking In this unit, students will start their secondary journey in Maths by exploring linear and non-linear sequences, learning and using algebraic notation and improving their fluency with algebraic skills such as substitution, inverse operations and solving equations.	Place Value and Proportion In this unit, students will build on their prior knowledge of the number system by working more fluently with decimal numbers, fractions and percentages in a variety of contexts.	Applications of Number In this unit, students will stretch their skills of the four basic operations, using very small and very big numbers, and apply them to a variety of new contexts. Students will also look at proportions of amounts using fractions and percentages.	Directed Number In this unit, students will further develop their arithmetic skills with negative numbers, in general and in context. Fractional Thinking Students will build on their knowledge of fractions through addition and subtraction.	Lines and Angles In this unit, students will use mathematical equipment such as compasses and a protractor to construct intersecting lines and triangles. They will also learn how to use geometric notation to be able to read diagrams correctly, and they will begin using geometric knowledge to solve problems.	Reasoning with Number In this unit, students will develop their sense of number and proportion using mental methods that help to simplify calculations or make sensible estimations. Students will also use knowledge of LCM and HCF to develop knowledge of prime numbers and testing conjectures.
Year 8	Proportional Reasoning In this unit, students will delve deep into proportion, an important aspect of mathematical understanding. They will use ratio notation, discover π, solve proportion problems, convert units of measure and draw scale diagrams. Students will also learn how to multiply and divide using fractions and the importance of the reciprocal value in proportion.	Representations In this unit, students will extend their knowledge of coordinates to linear relationships and direct proportion problems. This will be applied to other forms of data representation, such as scatter graphs, two-way tables, sample space diagrams and Venn diagrams, and calculating associated probabilities.	Algebraic Techniques In this unit, students will spend a significant amount of time developing their skills of algebraic manipulation to help them solve problems. They will explore sequences again with more complex rules and build their algebraic knowledge to include indices (powers).	Developing Number In this unit, students will look at proportional change using fractions, decimals and percentages. They will learn a new type of number used in science to express very large and very small numbers (Standard Index Form) and be able to order and perform arithmetic with these numbers. Students will also develop their skills of mental arithmetic, performing large calculations and making sensible estimations.	Developing Geometry In this unit, students will develop their geometric knowledge to include angles on parallel lines, in special quadrilaterals and in polygons. Students will learn how to calculate the area of new shapes such as a trapezium and circles. Students will also explore symmetry in shapes and the be able to reflect shapes on coordinates axes.	Reasoning with Data In this unit, students will learn all about how mathematicians use data and statistics. They will look at how to collect data reliably, how to represent it clearly and how to analyse it succinctly. This is a very real-world side of mathematics, so students will be exposed to real-life data to gain a more connected understanding of their learning.

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Year 9	<u>Reasoning with Algebra</u> In this unit, students will extend and widen their algebraic understanding which will then support much of their learning throughout the year. Students will explore straight line graphs and link them to work on linear sequences. They will learn to balance equations and formulae and really get to the crux of mathematics by using algebra to make numerical and geometric proofs.	<u>Constructing in 2 and 3 Dimensions</u> In this unit, students will explore 3D shapes and their associated features. They will learn to calculate the volume and surface area of various 3D shapes and solve associated problems. Building on from this, students will make mathematical constructions that support the previous work on proof, and they will use accurate scale drawings to represent 3D shapes in 2 dimensions.	<u>Reasoning with Number</u> In this unit, students will extend their understanding of the number system by introducing the concept of rational and real numbers and bringing together their understanding of multiples, factors and standard form. Students will extend their understanding of percentage change so that they can solve real life problems around banking, interest and value for money.	<u>Reasoning with Geometry</u> In this unit, students will use chains of reasoning, which support their learning of algebraic proof, to prove conjectures about angles and shapes. This is also where students learn about Pythagoras' Theorem for the first time and how to apply it. They will also explore various proofs of this very well-known and important formula. Students will also learn how to perform translation and rotation on coordinate axes.	<u>Reasoning with Proportion</u> In this unit, students will learn how to enlarge shapes and understand the difference between mathematically similar and congruent shapes. Students will extend their understanding of proportion by using graphical representation and through learning about inverse proportion. Students will then learn about compound measures that are a logical progression from direct and inverse proportion – speed, density, pressure etc.	<u>Representations and Revision</u> In this last half term of Key Stage 3, students will extend their understanding of probability and graphical algebra in order to set them up for their entry to GCSE mathematics. There will be time within this term for the teacher to revisit topics which students have found difficult and therefore secure their understanding, ready for Year 10.

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