

## Mathematics Department Long-term Sequencing Year 10 Stage 3

The curriculum has been designed to ensure that students develop the skills required to be successful in reaching their goals. We want students to be numerate and understand the Mathematics of the world around them, whilst also having an appreciation and love of Mathematical concepts.

Problem solving is embedded from year 7 all the way through to year 13, with a 5-year SOW in year 7 to 11, based upon students' current level of knowledge and understanding. Teaching is based around an interleaved curriculum, with links made between multiple topics. Students will build on knowledge from Key Stage 3 to further develop their mathematical skills and apply these not only in their Maths lessons but also wherever relevant in other subjects and in day to day contexts. Each stage of students 5-year plan builds upon students' prior knowledge and seeks to develop this further. Our curriculum is designed to be fluid, data-led and student-centric, with it being adapted as and when necessary.

### **HALF TERM 1:**

#### **STUDENTS MUST KNOW:**

##### **Number Properties 1**

Place value, compare pairs of numbers using correct symbols, Order simple fractions using equivalence, Order integers, decimals and directed numbers, Mental and written methods for squares, cubes and roots, BIDMAS

##### **Geometry & Measures**

Use units of measurements for estimations and calculations, Converting metric units, Reading and interpreting scales of measurement, Properties of isosceles and equilateral triangles, other regular polygons

##### **Number Properties 2**

Factors and multiples, prime numbers, HCF & LCM, expressing a number as a product of its prime factors

##### **Algebra 1**

Collecting like terms, using indices, substituting positive integers into formulae and expressions (extension with negative numbers, fractions and decimals)

#### **HOW THIS WILL BE ASSESSED:**

**Low stakes knowledge tests as starters**

**End of unit assessments at the end of each half term**

**Edited GCSE past papers**

### **HALF TERM 2:**

#### **STUDENTS MUST KNOW:**

##### **FDP**

Comparing and converting fractions, decimals and percentages, Fractions less than and greater than 1, Percentage of amount, increase and decrease by a percentage (non calc), Find the percentage change

##### **Approximations**

Rounding to significant figures, using a calculator for complex calculations

##### **Algebra 2**

Collecting like terms, simplifying expressions involving powers, expanding single brackets, solving linear equations with unknown on one side including brackets

##### **Collecting & Interpreting Data**

Pie charts, vertical line diagrams, Mean, median, mode and range

##### **Sequences & Graphs**

Sequences, triangular, square and cube numbers, Using and finding the Nth term rule, Plotting graphs of linear functions (inc. real life)

#### **HOW THIS WILL BE ASSESSED:**

**Low stakes knowledge tests as starters**

**End of unit assessments at the end of each half term**

**Edited GCSE past papers**

### **HALF TERM 3:**

#### **STUDENTS MUST KNOW:**

##### **Proportion 1**

Write and simplify ratios, equivalent ratios, Divide into a given ratio (calc and non calc), Compare proportions and ratios, Converting simple fractions and decimals

##### **Ratio and Scale**

Reading scales of measurements, Interpret scales for length, capacity and mass, Measure and draw with a rule and protractor, Construct and interpret scale drawings, Interpret map/model scales as a ratio, Scale factors of enlargement

##### **Shape Properties**

Missing angles on a straight line, triangle, quadrilateral and around a point, Missing angles in parallel lines, Properties of polygons

##### **Algebra 3**

Substitution into formulae, Changing the subject of the formulae (not including powers, brackets, fractions or the subject appearing twice), Difference between an identity and an equation

#### **HOW THIS WILL BE ASSESSED:**

**Low stakes knowledge tests as starters**

**End of unit assessments at the end of each half term**

**Edited GCSE past papers**



<p><b>HALF TERM 4:</b> <b>STUDENTS MUST KNOW:</b></p> <p><b>Transformations</b> All symmetries (rotations and reflection) of 2D shapes, Simple facts on congruence of 2D shapes, Rotations, reflections (given a reflection line and equations of lines), translations</p> <p><b>Probability</b> Writing probabilities, calculating probabilities from a list, simple sample spaces, probability experiments</p> <p><b>Triangles and Congruency</b> Using a ruler and compass in constructions (perpendicular bisectors, perpendicular to a line/given point, bisecting an angle)</p> <p><b>HOW THIS WILL BE ASSESSED:</b> Low stakes knowledge tests as starters End of unit assessments at the end of each half term Edited GCSE past papers</p>	<p><b>HALF TERM 5:</b> <b>STUDENTS MUST KNOW:</b></p> <p><b>Interpreting Data</b> Plotting co-ordinates, drawing and interpreting scatter graphs, describing correlation and relationships between two variables, drawing and using lines of best fit</p> <p><b>Circles</b> Area of 2D shapes, area and circumference of a circle, area and perimeter of compound shapes.</p> <p><b>Proportion</b> Direct and inverse proportion, compound interest</p> <p><b>HOW THIS WILL BE ASSESSED:</b> Low stakes knowledge tests as starters End of unit assessments at the end of each half term Edited GCSE past papers</p>	<p><b>HALF TERM 6:</b> <b>STUDENTS MUST KNOW:</b></p> <p><b>Equations &amp; Inequalities</b> Solving one step and two step equations, solving equations involving brackets, roots of equations, forming and solving equations from worded problems.</p> <p><b>Plotting and Sketching Graphs</b> Understanding and plotting linear graphs of the equation <math>y = mx + c</math>, Interpreting gradients, Plotting quadratic graphs, Conversion graphs</p> <p><b>HOW THIS WILL BE ASSESSED:</b> Low stakes knowledge tests as starters End of unit assessments at the end of each half term Edited GCSE past papers</p>
<p><b>Home learning set will consist of a combination of: Weekly Sparx tasks (due each Wednesday) and additional worksheets where appropriate</b></p>		