





The curriculum for this stage of students' education has been designed to build upon their prior knowledge of number work to include percentage increase and decrease, the use of standard index form and confidence with rounding and converting between metric units. Learners will also develop their knowledge of proportional reasoning. Learners will develop their knowledge of algebraic techniques, building on previous work on sequences, solving increasingly complex equations and plotting graphs of linear functions. Learners will build on their prior knowledge of perimeter and area to include circles, trapezia and compound shapes, they will also be able to solve increasingly complex angles problems including those involving parallel lines or polygons. Learners will study the data handling cycle in depth, drawing and interpreting a range of charts and graphs and also calculating measures of central tendency.

Each half term, students will focus on one particular area of Mathematics, allowing for a greater depth of that topic and allowing regular repetition of skills, as well as allowing students to make links between topics. Underpinning the curriculum areas, will be the opportunity to explore how the skills they are developing can be used in real life situations and applied to problem solving questions.

HALF TERM 1: Proportional Reasoning	HALF TERM 2: Representations	HALF TERM 3: Algebraic Techniques
<p>STUDENTS MUST KNOW: Ratio and Scale – how to use scale factors, scale diagrams and maps. Express a multiplicative relationship as a ratio or a fraction. Solve problems involving ratio and direct and inverse proportion.</p> <p>Multiplicative Change – how to formulate proportional relationships algebraically. Move freely between different numerical, algebraic, graphical and diagrammatic representations.</p> <p>Multiplying and Dividing Fractions – how to multiply and divide fractions, with an emphasis on improving understanding of the underlying algorithms.</p> <p>HOW THIS WILL BE ASSESSED: 3 x end of unit tests</p>	<p>STUDENTS MUST KNOW: Working in the Cartesian Plane – how to recognise, sketch and produce graphs of linear functions, using equations in x and y and the Cartesian plane.</p> <p>Representing Data – how to describe simple mathematical relationships between two variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs.</p> <p>Tables and Probability – how to generate theoretical sample spaces for single and combined events with equally likely, mutually exclusive outcomes and use these to calculate theoretical probabilities.</p> <p>HOW THIS WILL BE ASSESSED: 3 x end of unit tests A termly progress test will also be completed.</p>	<p>STUDENTS MUST KNOW: Brackets, equations and Inequalities – how to simplify and manipulate algebraic to maintain equivalence by expanding over a single bracket and factorising. Solve equations and inequalities, including those with brackets, with a particular emphasis on forming equations to solve problems.</p> <p>Sequences – how to recognise arithmetic, geometric and other sequences that arise. Find the nth term of an arithmetic sequence.</p> <p>Indices – how to use and interpret algebraic notation. Use language and properties precisely to analyse algebraic expressions. Begin to model situations mathematically and express the results using a range of formal mathematical representations.</p> <p>HOW THIS WILL BE ASSESSED: 3 x end of unit test</p>



<p>HALF TERM 4: Developing Number</p> <p>STUDENTS MUST KNOW: Fractions and percentages – how to calculate percentage increase and decrease. Express one number as a fraction or percentage of another. Interpret and solve problems, including in financial maths.</p> <p>Standard Index Form – how to use integer powers and real roots, recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations. Interpret and compare numbers in standard form.</p> <p>Number Sense – how to convert between metric units. Round numbers and measures to an appropriate degree of accuracy. Solve problems with time.</p> <p>HOW THIS WILL BE ASSESSED: 3 x end of unit tests A termly progress test will also be completed.</p>	<p>HALF TERM 5: Developing Geometry</p> <p>STUDENTS MUST KNOW: Angles in parallel lines and polygons – how to solve increasingly complex missing angles problems. Derive and illustrate properties of plane shapes using appropriate language and technologies.</p> <p>Area of trapezia and circles – how to apply formulae and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, circles and composite shapes.</p> <p>Line symmetry and reflection – how to describe, sketch and draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric.</p> <p>HOW THIS WILL BE ASSESSED: 3 x end of unit tests</p>	<p>HALF TERM 6: Reasoning with Data</p> <p>STUDENTS MUST KNOW: The data handling cycle and measures of location – how to describe interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outlier). Construct and interpret appropriate tables, charts and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) for ungrouped and grouped numerical data.</p> <p>HOW THIS WILL BE ASSESSED: 2 x end of unit tests A termly progress test will also be completed.</p>
<p>Embedding this knowledge can be supported at home by completion of homework booklets and by using websites including Dr Frost Maths and Corbett Maths to consolidate learning that has taken place in class.</p>		