



| | Topics & Substantive Knowledge | Assessment | Misconceptions | Key Vocabulary | Knowledge Tracking |
|--------|---|--|---|--|---|
| Term 3 | <p>Functions</p> <p>This block introduces formal function notation ($f(x) = \dots$) and builds on knowledge of quadratic functions and graphs from the previous block. This is also an opportunity to revisit trigonometric functions first met in Year 10 Term 2.</p> <ul style="list-style-type: none"> Function Machines and Substitution (Recap) Use function notation to evaluate functions and solve equations involving functions. Understand and use composite and inverse functions (Higher only) Turning points and solutions to quadratic functions Solve Quadratic Inequalities (Higher only) Understand and use trigonometric functions (Recap) | <p>Internal Assessments in January covering the entire syllabus up to that point.</p> <p>1.5 hour Non-calculator and 1.5 hour Calculator paper in the hall.</p> <p>A further Calculator paper is completed in class.</p> | <p>Identifying the difference between $f(3)$ and $f(x) = 3$</p> <p>Not returning to the original variable if using $y=$ to find the inverse function</p> | <p>Function Variable</p> <p>Operation</p> <p>Composite</p> <p>Inverse</p> <p>Input</p> <p>Output</p> | <p>Already Seen:</p> <p>Year 10 Terms 1 & 2 - Work on graphs where students will have been plotting various graphs.</p> <p>Year 7 Term 1 - Function Machines and Substitution</p> <p>Year 10 Term 1 - Solving quadratic equations and linear inequalities</p> <p>To Build Towards:</p> <p>A Level Content – Yr12 T1 – Quadratic Functions</p> |
| | <p>Multiplicative Reasoning</p> <p>Student develop their multiplicative reasoning through a range of contexts, from simple scale factors through to complex equations involving direct proportion. They link inverse proportion with the formulae for pressure and density. There is also the opportunity to review ratio problems.</p> <ul style="list-style-type: none"> Use scale factors (Recap) Understand and use direct and inverse proportion – word problems and graphs. Construct and use direct and inverse proportion equations (Higher only) Calculate with Pressure and Density Solve Ratio problems (Recap) | | <p>Using direct proportion for an indirect proportion question</p> <p>Not converting to the correct volume or area units when dealing with volume or pressure</p> | <p>Similar</p> <p>Linear</p> <p>Origin</p> <p>Constant of Proportionality</p> <p>Pressure</p> <p>Density</p> | <p>Already Seen:</p> <p>Year 8 Term 1 – Scale diagrams, Conversion graphs, Direct proportion graphs</p> <p>Year 9 Term 5 – Direct and inverse proportion</p> <p>Year 10 Term 1 – Enlargement, Area and volume</p> <p>Year 10 Term 4 – Ratios and fractions</p> <p>To Build Towards:</p> |
| | <p>Geometric Reasoning</p> <p>Students consolidate their knowledge of angles facts and develop increasingly complex chains of reasoning to solve geometric problems. Higher tier students revise the first four circle theorems studied in Year 10 and learn the remaining theorems. Students also revisit vectors and the key topics of Pythagoras’ theorem and trigonometry.</p> <ul style="list-style-type: none"> reason deductively in geometry, number and algebra, including using geometrical constructions interpret and use bearings apply addition & subtraction of vectors, multiplication by a scalar. Use vectors to construct geometric arguments and proofs. apply and prove the standard circle theorems. | | <p>Stating the opposite angles in a quadrilateral sum to 180 when one vertex is at the centre</p> | <p>Adjacent</p> <p>Vertically Opposite</p> <p>Parallel</p> <p>Perpendicular</p> <p>Bearing</p> <p>Interior</p> <p>Exterior</p> <p>Regular</p> <p>Polygon</p> <p>Radius</p> <p>Tangent</p> <p>Segment</p> | <p>Already Seen:</p> <p>Year 10 Term 1 – Proof with angle rules</p> <p>Year 10 Term 3 – Circle Theorems, Bearings</p> <p>Year 10 Term 4 - Vectors</p> <p>To Build Towards:</p> <p>A Level Content - a golden thread at A-level is mathematical argument.</p> |