**HIGHER: Key Stage 4 Maths Curriculum**

**Long term plan Year 11 2024-2025**

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| **Autumn 1** |  |
| **Chapter 19: Pythagoras, Trigonometry and Vectors** | **Chapter 20 Combined Events** |
| **Assessment:** Chapter A Test | **Assessment**: Chapter A Test |
| **Builds Upon:*** Apply Pythagoras' theorem to find long sides
* Apply Pythagoras' theorem to find short sides
 | **Builds Upon:*** Arrange sets into Venn diagrams
* Describe sets using Venn diagrams (intersection, union and complement)
* Construct possibility (sample) space diagrams Calculate probabilities from sample space diagrams
* Use tree diagrams to show the frequency or probabilities of two events
* Use tree diagrams to calculate the probabilities of independent and dependent events
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| **Introduces:*** Apply Pythagoras’ theorem to find distance between two points
* Apply trigonometric ratios (sin/cos/tan) to find missing sides in right angle triangles
* Apply trigonometric ratios (sin/cos/tan) to find missing angles in right angle triangles
* Know the exact values of sinØ and cosØ for Ø= 0, 30,45,60,90 degrees
* Know the exact value of tan Ø for Ø= 0,30,45,60 degrees
* Apply the sine rule to find missing lengths and angles
* Apply the cosine rule to find missing lengths and sides
* Apply sine formula for the area of non right angle triangles
* Solve 3D Pythagoras’ theorem and trigonometry problems
* Write column vectors and draw vector diagrams
* Add and subtract vectors
* Calculate multiples of vectors using a scalar
* Use vectors in geometric proofs
 | **Introduces:*** Use Venn diagrams to record outcomes and calculate probabilities of events
* Calculate estimated outcomes using probabilities
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| **Autumn 2** |  |
| **PPES** | **Chapter 21: Sequences** |
| **Assessment** 2x 90 minute PPES | **Assessment** Chapter A Test |
|  | **Builds Upon:*** Write sequence using term to term rule
* Write sequences using position to term rule (nth rule)
* Write the position to term rule (nth rule) for a linear sequence
* Recognise special types of sequence (square, cube, triangular, arithmetic, geometric, Fibonacci and quadratic)
* Find terms of quadratic sequence using term to term or position to term rule
* Write the position to term rule (nth rule) for a quadratic sequence
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|  | **Introduces:*** Applications to problem solving
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| **Spring 1** |  |
| **Chapter 22: Units and Proportionality** | **Chapter 18: Graphs 2 (started)** |
| **Assessment:** Chapter A Test | **Assessment:**  |
| **Builds Upon:*** Calculations using standard and compound units (speed, density and pressure)
* Compare lengths, areas, and volumes of similar shapes
* Solve direct proportion problems
* Interpret the gradient of a straight line graph as a rate of change
* Solve inverse proportion problems
 | **Builds Upon:*** Graphing linear and quadratics equations
* Sketching translations (including reflections, transformations etc.)
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| **Introduces:*** Interpret graphs that illustrate direct and inverse proportion
* Set up, solve and interpret growth and decay problems
 | **Introduces:*** Recognise and plot graphs of cubic functions
* Recognise and plot graphs of reciprocal functions
* Recognise and sketch graphs of exponential functions
* Recognise and sketch trigonometric functions
* To recognise and sketch translation and reflections of graphs
* Draw and interpret non-standard graphs of real-life situations
* Gradients and areas under graphs
* Equation of a circle
* Find the tangent to a circle at a point
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| **Spring 2** |
| **PPES** | **Chapter 18: Graphs 2 (continued)** | **23: Algebraic Proofs** |
| **Assessment** 2x 90minute PPES | **Assessment:** Chapter Test A | **Assessment** Chapter Test A |
| **Builds Upon:**Content in0formed by QLAs and teacher planned | **Builds Upon:*** Graphing linear and quadratics equations
* Sketching translations (including reflections, transformations etc.)
 | **Builds Upon*** Algebraic identities
* Constructing mathematical arguments
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|  | **Introduces:*** Recognise and plot graphs of cubic functions
* Recognise and plot graphs of reciprocal functions
* Recognise and sketch graphs of exponential functions
* Recognise and sketch trigonometric functions
* To recognise and sketch translation and reflections of graphs
* Draw and interpret non-standard graphs of real-life situations
* Gradients and areas under graphs
* Equation of a circle
* Find the tangent to a circle at a point
 | **Introduces*** Counter examples
* LHS/RHS proofs
* Odd/Even proofs
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| **Summer 1** |
| **GCSE EXAM REVISION** |
| **Assessment:****3 x 90 minute formal public exams** |
| **Builds Upon:**Content informed by QLAs and teacher led |
| **Introduces:** |

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| **Summer 2** |
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