**Knowledge Organiser**

**Further Maths GCSE Year 11 Set 1**

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| **Unit** | **Topic** |
| **Algebra I**  **1.1**  **1.2**  **1.3**  **1.4**  **1.5**  **1.6**  **1.7**  **1.8** | Number and the number system  Simplifying expressions  Solving linear equations  Algebra and number  Expanding brackets  The binomial expansion  Manipulating surds  The product rule for counting |
| **Algebra II**  **2.1**  **2.2**  **2.3**  **2.4**  **2.5** | Factorising  Rearranging formulae  Simplifying algebraic fractions  Solving linear equations involving fractions  Completing the Square |
| **Algebra III**  **3.1**  **3.2**  **3.3**  **3.4**  **3.5**  **3.6**  **3.7**  **3.8**  **3.9**  **3.10** | Function notation  Domain and range of a function  Composite functions  Graphs of functions  Graphs of linear functions  Finding the equation of a line  Graphs of quadratic functions  Inverse functions  Graphs of exponential functions  Graphs of functions with up to three parts to their domain |
| **Algebra IV**  **4.1**  **4.2**  **4.3**  **4.4**  **4.5**  **4.6**  **4.7**  **4.8**  **4.9**  **4.10** | Quadratic equations  Simultaneous equations in two unknowns  The factor theorem  Linear inequalities  Quadratic inequalities  Indices  Algebraic proof  Sequences  Limiting value of a sequence  Simultaneous equations in three unknowns |

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| **Unit** | **Topic** |
| **Co-ordinate Geometry**  **5.1**  **5.2**  **5.3**  **5.4**  **5.5**  **5.6**  **5.7** | Parallel and perpendicular lines  The distance between two points  The midpoint of a line joining two points  Equation of a straight line  The intersection of two lines  Dividing a line in a given ratio  Equation of a circle |
| **Geometry I**  **6.1**  **6.2**  **6.3**  **6.4**  **6.5**  **6.6**  **6.7**  **6.8**  **6.9**  **6.10**  **6.11** | Mensuration  Pythagoras’ Theorem  Angle facts  Circle theorems  Geometric proof  Trigonometry in two dimensions  Trigonometric functions for angles of any size  The sine and cosine graphs  The tangent graph  Solutions of trigonometric equations  Trigonometric identities |
| **Geometry II**  **7.1**  **7.2**  **7.3**  **7.4**  **7.5**  **7.6**  **7.7** | The area of a triangle  The sine rule  The cosine rule  Using the sine and cosine rules together  Problems in three dimensions  Lines and planes in three dimensions |
| **Calculus**  **8.1**  **8.2**  **8.3**  **8.4**  **8.5**  **8.6**  **8.7** | The gradient of a curve  Differentiation  Differentiation using standard results  Tangents and normals  Increasing and decreasing functions  The second derivative  Stationary points |
| **Matrices**  **9.1**  **9.2**  **9.3**  **9.4**  **9.5** | Multiplying matrices  Transformations  The identity matrix  Transformations of the unit square  Combining transformations |

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