**Y11 Maths Units – Higher**

1. Calculations 1: +, -, ×, ÷ integers and decimals; units for length, time, money and other measures.
2. Expressions: Indices; collecting like terms and simplifying; expanding brackets; factorising into brackets.
3. Angles and polygons: Angles around a point, straight line, opposite angles, triangles; angles in parallel lines; angles in polygons; definitions of quadrilaterals; congruence and similarity.
4. Handling data 1: Sampling; interpret and construct tables, charts and diagrams including pie charts; averages range and quartiles.
5. Fractions, decimals and percentages: converting between FDP; calculations with fractions including mixed fractions; percentages of amounts including increase and decrease; percentage change; ordering FDP; change recurring decimals into fractions.
6. Formulae and functions: Substitution; changing the subject (rearranging formulae); inverse and composite functions; simplifying and manipulating; algebraic proofs; algebraic fractions.
7. Working in 2D: Unit conversions; area and perimeter of shapes including triangles, trapezia, parallelograms; the four transformations; similarity and congruence; constructing shapes.
8. Probability: Two-way tables; relative frequency and theoretical probability; AND and OR probabilities; mutually exclusive and independent probabilities.
9. Measures and accuracy: Standard form; estimation; BIDMAS; error intervals; bounds of values and calculations; speed and density.
10. Equations and inequalities: Solve linear equations; deriving formulae, expressions and equations; solving quadratic equations including factorising, completing the square, using the formula and using a graph; iteration; solving inequalities and inequalities on a number line.
11. Circles and constructions: Area and circumference of circles; sectors; naming parts of circles; circle theorems; constructions and loci.
12. Ratio and proportion: Solving problems with ratio; use scale factors on maps and diagrams; simple interest; reverse percentage problems; proportional understanding.
13. Factors, powers and roots: Prime factor decomposition; HCF and LCM; Venn diagrams; estimate powers and roots; surds.
14. Graphs 1: Co-ordinates; linear graphs (y = mx + c); gradients; rates of change; quadratic graphs; turning points and intercepts; distance, speed and acceleration.
15. Working in 3D: Plans and elevations; volume and surface area of prisms including cylinders, spheres, cones and pyramids.
16. Handling data 2: Construct and interpret histograms; cumulative frequency graphs; box plots; scatter graphs.
17. Calculations 2: Fractional and negative indices; surds including rationalising the denominator; further standard form calculations.
18. Graphs 2: Sketch and interpret graphs such as cubic, reciprocal, exponential, trigonometric graphs; graph transformations; estimating gradients of curves and finding area under curves; equation of a circle.
19. Pythagoras and trigonometry: Pythagoras’ theorem; know exact values for trig; SOHCAHTOA; Sine rule; Cosine rule; vectors.
20. Combined events (probability): Venn diagrams; frequency trees; tree diagrams; product rule for counting; listing outcomes and using sample space diagrams; conditional probability.
21. Sequences: Linear sequences; quadratic sequences; recognise other sequences such as square, cube, Fibonacci; simple geometric sequences.
22. Units and proportionality: Speed and density; length, area and volume scale factors for similar shapes; direct and inverse proportion; gradients of curves and area under graphs; iteration.