Stage 11

Unit 1 – Quadratic Graphs and Inequalities

Lesson 1 – Recap on solving both methods

Lesson 2 – Sketching quadratics and Identifying Turning points from graphs

Lesson 3 – Completing the Square and Finding Turning points

Lesson 4 – Use Sketches to solve Quadratic Inequalities

Lesson 5 – Finding the gradient of a curve at a point

Lesson 6 – Equation of a circle

Lesson 7 - Finding the equation of a tangent to a circle

Unit 2 – Further Quadratic Equations

Lesson 1 – Simultaneous Quadratic Equations

Lesson 2 – Circles and Lines

Lesson 3 – Algebraic Quadratics involving fractions

Lesson 4 – Simplifying Algebraic Fractions

Unit 3 – Further Trigonometry

Lesson 1 – Pythagoras and Trig recap

Lesson 2 – Finding the diagonal in a cuboid

Lesson 3 – Using Pythagoras in other 3D shapes

Lesson 4 – Using Trig to find angle between line and a plane

Lesson 5 – Problem solving in 3D shapes with Pythagoras and Trig

Lesson 6 – Label Scalene Triangles

Lesson 7 – Use Sine Rule to find sides

Lesson 8 – Use Sine Rule to find angles

Lesson 9 – Use Cosine rule to find sides

Lesson 10 – Use Cosine rule to find angles

Lesson 11 – Bearing problems involving Sine and Cosine rule

Unit 4 – Surds LBL

Lesson 1 – Identifying irrational numbers and surds

Lesson 2 – Simplifying surds using square factors

Lesson 3 – Simplifying surds using collecting like terms

Lesson 4 – Expanding brackets involving surds

Lesson 5 – Expanding Binomials involving surds

Lesson 6 – Rationalising simple denominators

Lesson 7 - Rationalising using conjugates

Lesson 8 – Problems involving exact trig values

Unit 5 – Equations of Lines using $Y-y_1=m(X-X_1)$

Lesson 1 – recap on gradients and y intercepts of a straight line. Use $y-y_1=m(x-x_1)$ to find equation of straight line

Lesson 2 – Finding the equation of parallel and perpendicular lines

Lesson 3 – Exam style questions (possibly A level?)

Unit 6 – Functions MIKE+LMA

Lesson1 – Intro to notation and single functions ($f(2)$ and $f(x)=2$)

Lesson 2 – Composite functions

Lesson 3 - Inverse functions (Needs more fluency + PS)

Lesson 4 – Solving problems involving functions

Unit 7 – graphs and rates of change

Lesson 1 – plotting/recognising graphs of exponential and non-standard functions

Lesson 2 – graphs kinematic problems

Lesson 3 – relating the gradient of a curve to the gradient of the tangent. Calculate by estimating

Lesson 4 – interpret gradients as instantaneous rates of change

Lesson 5 – solving problems involving rates of change in context

Lesson 6 – introduce speed/time graphs

Lesson 7 – relate are under a speed/time graph to distance and estimate areas to give distances

Lesson 8 – solve problems involving area under graph in context

Unit 8 – Proportionality LMA

Lesson 1 – Recap direct and Inverse Proportion using k

Lesson 2 – Proportionality involving squares, cubes and roots

Unit 9 – Further Graphs and Transformations of graphs LMA

Lesson 1 – recap plotting linear, quadratic, cubic and inverse graphs

Lesson 2 – Plotting exponential graphs

Lesson 3 – finding trigonometric values using the ratios on a calculator

Lesson 4 – Plotting trig graphs

Lesson 5 – Transforming the graph $f(x) + a$

Lesson 6 – Transforming the graph $f(x + a)$

Lesson 7 – Transforming the graph $af(x)$

Lesson 8 – Transforming the graph $f(ax)$

Unit 10 – Geometric Proof

Lesson 1 – Rules of congruency

Lesson 2 – Proving Congruency

Lesson 3 – Circle Theorems Proof