Year 11 Higher Scheme of Work

16H: Circle Theorems

Learning objectives	Sparx Topic Code
Identify all parts of a circle	M595, U767
Solve problems involving isosceles triangles in circles	U459, U251
Learn about the relationship between the angle at the centre of a circle and the angle at the circumference	U459
Learn about the angle formed in a semi-circle	U459
Learn the relationship between angles formed from the same arc in a circle	U251
Learn the relationship between opposite angles in a cyclic quadrilateral	U251
Learn about the alternate segment theorem	U130
Learn about the angle formed between a tangent and a radius	U489
Learn about the relationship between the lengths of a tangent to a circle from an external point	U489
Learn about the perpendicular bisector of a chord	U489
Learn how to use algebra to solve circle theorem problems	U808
Learn how to solve basic multi-step problems using circle theorems	U808
Learn how to create a proof for circle theorems	U807

17H: More Algebra

Learning objectives	Sparx Topic Code
Function notation	U637
Composite functions 1	U895, U448
Inverse functions	U996
Complex problems with functions	U448, U996
Proof & counterexamples	U582
Direct algebraic proof	U582
Expressions with algebraic fractions	M336, U685, U457
Solve equations with algebraic fractions	U228, U960
Quadratic equations from algebraic fractions	M754, U294, U457, U824
Simplify Algebraic Fractions (including Quadratics	M754, U294, U457, U824
Rationalising Surds (1)	U707, U281

18H: Vectors & Geometric Proof

Learning objectives	Sparx Topic Code
Learn how to use vector notation	U632
Learn how a vector and its negative are related	U632
Learn how to add and subtract vectors and find the resultant	U903
Learn how to multiply a vector and a scalar and what it means	U564
Learn how to calculate the magnitude of a vector	-
Learn how to answer geometrical questions involving vectors	U781
Learn how to answer geometrical questions involving vectors including proofs	U660, U560, U781

19H Proportion & Graphs

Learning objectives	Sparx Topic Code
Learn how to use algebraic direct proportion to solve problems	M472, U640, U407
Learn how to use algebraic inverse proportion to solve problems	M665, U364, U138
Learn how to use direct and inverse proportion graphically	U448, U238
Learn how to translate a graph in both the x & y direction	U455
Learn how to stretch a graph in the x & y direction	U455
Learn how to reflect a graph in the x & y axes	U455
Apply combined transformations to graphs	U455
Learn how to solve exponential equations	U455
Learn how to identify exponential growth and decay graphs and find the y-intercept of these graphs	U229
Learn how to identify points on an exponential graph and to write/use formulas involving exponential growth and decay.	U229
Be able to calculate the average rate of change of a graph by using the gradient of a chord	U800
Be able to calculate the gradient at a specific point on a curve by drawing a tangent	U800
Learn to estimate the area under a curve using simple 2D polygons	U882