KINGSMEAD
Achieving through Caring

KS4 Sequence of Learning (Year 10) - Mathematics

Key Stage 4		Higher	Foundation
Learning Cycle 1	Term 1 (September - December)	**Angles, Pythagoras Theorem and Trigonometry** Angle properties of triangles and quadrilaterals Interior angles of a polygon Exterior angles of a polygon Pythagoras' theorem 1 (length of hypotenuse) Pythagoras' theorem 2 (length of shorter side) Trigonometry 1 (trigonometric ratios to find sides) Trigonometry 2 (trigonometric ratios to find angles) **Building on:** Angles on a straight line, around a point and other angle properties. Pythagoras' theorem **Assessment:** Progress Check 1	**Angles** Angle properties of triangles and quadrilaterals Interior angles of a polygon Exterior angles of a polygon **Building on:** Angles on a straight line, around a point and other angle properties. **Assessment:** Progress Check 1
	Term 2 (November - December)	**6a Graphs: The Basics and Real-life Graphs, Linear Graphs and Coordinate Geometry, Quadratic, Cubic and Other graphs** Linear graphs (finding gradient, y-intercept, rearranging an equation) More linear graphs (sketch graphs, find equation of line) Graphing rates of change Real-life graphs Line segments Quadratic graphs Cubic and reciprocal graphs More graphs **Building on:** Co-ordinates in all four quadrants, line graphs, algebraic equations, substitution **Assessment:** Assessment 1	**Equations, Inequalities and Sequences** Solve one and two step linear equations Solve equations with brackets Recognise and solve inequalities Use formulae Generate sequences Find the nth term of a sequence **Building on:** Reading and solving simple equations, rearranging equations, understanding inequality symbols, using formula and finding the next term of a sequence **Assessment:** Assessment 1

Key Stage 4		Higher	Foundation
Learning Cycle 2	Term 3 (January - February)	**Perimeter, Area and 3D forms, Circles, Cylinders, Cones and Spheres (Area and Volume)** Perimeter and area Prisms Circles Sectors of circles Cylinders and spheres pyramids and cones Pyramids and cones Units and accuracy **Building on:** Perimeter, area, addition, multiplication, algebraic expressions, solving and substitution. **Assessment:** Progress Check 2	**Perimeter and Area, 3D forms and Volume and Real-life Graphs** Perimeter and area (including compound shapes) Surface area of 3D shapes Volume of prisms Real-life graphs Distance-time graphs **Building on:** Perimeter, area, addition, multiplication, unit conversions, algebraic expressions, solving and substitution. **Assessment:** Progress Check 2
	Term 4 (March - April)	**Transformations, Constructions, Loci and Bearings** **3D Solids, Solving Quadratic and Simultaneous Equations** Reflection and rotation Enlargement Transformations and combinations of transformations 3D Solids Bearings and scale drawings Constructions 1 (triangles, bisectors, perpendicular line from and to a point) Constructions 2 (angle bisector, constructing angles, construct shapes from triangles) Loci **Building on:** Symmetry, equipment use (ruler, compass, protractor), angle construction. **Assessment:** Assessment 2	**Straight-line Graphs and Transformations** Linear graphs (finding gradient, y-intercept, rearranging an equation) Equation of a straight-line graph (y = mx + c) Translation Rotation **Building on:** Symmetry, coordinates, drawing graphs/axis **Assessment:** Assessment 2

Key Stage 4	Higher	Foundation

Learning Cycle 3	**Term 5 (April - May)**	**Solving Simultaneous Equations, Inequalities and Probability** Solving quadratic equations Solving quadratic equations Completing the square Solving simple simultaneous equations More simultaneous equations Solving linear and quadratic simultaneous equations Solving linear inequalities Combined events Mutually exclusive events Experimental probability Independent events and tree diagrams Conditional probability Venn diagrams and set notation Problem-solving **Building on:** Reading and solving equations, rearranging equations, simple probability **Assessment:** Progress Check 3	**Transformations, Ratio and Proportion** Reflection Enlargements Describing transformations Combinations of transformations Writing ratios Solving simple ratio problems Ratio and measure Solving 2/3 part ratio problems Comparing using ratios Proportion graphs Proportion problems **Building on:** Coordinates, drawing axis, ratio, proportion **Assessment:** Progress Check 3

	Term 6 (June - July)	**Multiplicative reasoning, Similarity and Congruence in 2D and 3D and Graphs of Trigonometric Functions** Growth and decay Compound measures More compound measures Ratio and proportion Congruence Geometric proof and congruence Similarity More similarity Similarity in 3D solids Accuracy Graph of the sine function Graph of the cosine function The tangent function Calculating areas and the sine rule The cosine rule and 2D trigonometric problems Transforming trigonometric graphs 1 Transforming trigonometric graphs 2 (recognise how changes in function affect trigonometric graphs) **Building on:** Percentages, ratio, proportion, trigonometry, solving equations **Assessment:** End of Year Exam (Mock Exam)	**Right-angles Triangles and Probability** Pythagoras' theorem 1 (length of hypotenuse) Pythagoras' theorem 2 (length of shorter side) Trigonometry 1 (trigonometric ratios to find sides) Trigonometry 2 (trigonometric ratios to find angles) Calculating probability of one event Calculating probability of two events Experimental probability Venn diagrams Tree diagrams More tree diagrams **Building on:** Substitution, powers and roots, using a calculator, probability **Assessment:** End of Year Exam (Mock Exam)