HUNTINGTON SCHOOL
MATHEMATICS DEPARTMENT

Mathematics: Mid Term Plan for Year 11 Higher

Mock Set 1: w/c 16/11. This will be a set of mock papers and could include anything they have done previously.

Mock Set 2: w/c 15/2. This will be a set of mock papers and could include anything they have done previously.

Homework: Weekly homework will be set on a Wednesday, due the following Wednesday via Sparx Maths.

Past Papers: Students will be given 1 past paper a week (excluding mock weeks). These will be used in class and set as homework.

Able and interested: Extension work, and problem-solving task will be provided in lessons where needed.

Support and Extension: Some topics in the table below may not be taught at this current point. This will depend on the attainment of the individuals, and these topics will then be taught at a later date when more appropriate.

Building on: These topics will have been seen before and are needed to progress to the core topics

Core: These topics will be on the assessments

Extension: These topics show where the core topics lead. They may be covered in class if the core topics are secure.

Why this? Why Now? The national curriculum sets out the key maths skills and knowledge that all children in England should learn, and at Huntington School we make sure your child experiences this fully throughout their time with us. Our maths curriculum is planned in a sensible, step-by-step order so that each new topic builds on what pupils already know, helping them grow in confidence and understanding. The table below shows how the learning is sequenced and explains why topics are taught in this order, making it easier for you to see how your child's maths knowledge develops over time.

Half Term	1	2	3	4	5
Knowledge and skills which will be covered during this half term.	**Number:** Calculating with roots and powers, simplifying expressions by collecting like terms, expanding single brackets, expanding double brackets, multiplying and dividing surds, simplifying surds, adding and subtracting surds, expanding brackets with surds, simplifying algebraic fractions by cancelling common factors	**Geometry:** Understanding sin, cos and tan, finding unknown sides in right-angled triangles, finding unknown angles in right-angled triangles, changing the subjects of formulae, solving equations, using Pythagoras' theorem in 2D, finding unknown sides in right-angled triangles, finding unknown angles in right-angled triangles, combining angle facts	**Algebra:** Solving linear inequalities, factorising to solve quadratic equations of the form x^2+bx+c=0, plotting graphs of quadratic functions, plotting straight line graphs, substituting into algebraic formulae, substituting into functions, substituting into composite functions, changing the subjects of formulae, expanding single brackets,	**Algebra:** Substituting into algebraic formulae, changing the subjects of formulae, expanding double brackets, simplifying algebraic fractions by factorising into one bracket. Using recurrence relations, substituting into iterative formulae, finding approximate solutions to equations using iteration, writing algebraic proofs.	**Geometry:** Adding and subtracting column vectors, multiplying column vectors by a scalar, identifying parallel vectors, finding unknown angles, similarity and congruence, circle theorems Solving geometric problems using vectors, geometric proofs with vectors, geometric proofs with angle facts,

	Multiplying and dividing surds, simplifying surds, adding and subtracting surds, expanding brackets with surds, rationalising denominators containing a single term, rationalising denominators containing two terms **Algebra:** Calculations with fractions, simplifying algebraic fractions by cancelling common factors, factorising into one bracket, factorising quadratic expressions of the form x^2+bx+c, factorising quadratic expressions of the form ax^2+bx+c, factorising quadratic expressions of the form ax^2+bx+c, factorising to solve quadratic equations of the form x^2+bx+c=0, completing the square, substituting into algebraic formulae, solving simultaneous equations using elimination, substitution and graphically. Simplifying algebraic fractions by factorising into one bracket, simplifying algebraic fractions by factorising into two brackets, adding and subtracting algebraic fractions, multiplying and	Using the exact values of trigonometric ratios, graphs of trigonometric functions, the sine rule, the cosine rule, the area rule, using Pythagoras' theorem in 3D, trigonometry in 3D shapes, angles in segments and cyclic quadrilaterals, circle theorems for chords and tangents, alternate segment theorem, angles subtended at the centre or circumference of a circle **Statistics:** Interpreting frequency tables with grouped data, finding averages from grouped data Drawing histograms with equal and unequal class widths, interpreting histograms, calculating averages from histograms **Probability:** Probabilities of mutually exclusive events, Venn diagrams, tree diagrams for independent events, tree diagrams for dependent events Conditional probabilities from tables and Venn diagrams, using the conditional probability formula, conditional	expanding double brackets, substituting into functions, translation, reflection. Graphs of linear inequalities, solving quadratic inequalities, substituting into functions, substituting into composite functions, finding composite and inverse functions, translating, reflecting and transforming graphs.	**Geometry:** Finding unknown sides in similar shapes, converting units of area and volume. Finding the perimeter and area of similar shapes, finding the surface area and volume of similar shapes	geometric proofs with congruence and similarity, proving the circle theorems. **Algebra:** Equations of parallel and perpendicular lines, interpreting graphs of quadratic functions, graphs of cubic, reciprocal and exponential functions, finding the area of trapeziums Estimating gradients of non-linear graphs using tangents, calculating distances from velocity-time graphs, estimating areas under non-linear graphs, equations of circles and tangents

	dividing algebraic fractions, factorising to solve quadratic equations of the form ax^2+bx+c=0, solving quadratic equations by completing the square, solving quadratic equations using the quadratic formula, constructing and solving quadratic equations, solving quadratic equations graphically, solving simultaneous equations involving quadratics, solving simultaneous equations involving quadratics graphically	probabilities from tree diagrams, using the product rule for counting			
Key vocabulary	**Number -** Square root, surd, simplify, expand, rationalise, denominator, common factors, cancelling, integer **Algebra –** Common factors, denominators, numerators, cancelling, simplifying, expression, factorise, brackets, variable, index laws, coefficient, quadratic, difference of two squares, quadratic formula, completing the square, fully factorise, construct, solve, graph, roots, intersect, estimated, related equation, simultaneous equation, eliminate variables, subject, coefficient, linear, non-linear	**Geometry –** Trigonometric, sine, cosine, tangent, degrees, exact values, surds, rationalise, graphs, co-ordinates, asymptotes, curve, maximum, minimum, turning points, solve, inequalities, undefined, angle, side length, hypotenuse, sine rule, cosine rule, area rule, slant height, diagonal, Pythagoras, cone, cuboid, square based pyramid, cylinder, dimensions, perpendicular, face, vertex, vertices, edge, circumference, subtended, semi-circle, theorem, cyclic quadrilateral, segment,	**Algebra –** linear inequalities, region, satisfy, quadratic inequality, substitute, function, composite function, integer, translate, reflection, inverse, intercepts, co-ordinates, axes, mapped, manipulate,	**Algebra –** changing the subject, iteration, recurrence relations, substitute, iterative formula, successive terms, value, constant, future terms, integer, predict, approximate, rearrange, initial value, proof, prove, expression, equivalent, multiple, odd, even, consecutive, sum, difference **Geometry –** Perimeter, area, similar, irregular polygon, enlarge, scale factor, ratio, surface area, volume, dimensions, cross-section, convert, units	**Geometry –** Vector, mid-point, scalar, simplify, column vector, parallel, diagonal, proof, ratio geometric **Algebra –** Gradient, quadrant, tangent, estimate, distance, speed, time, rate, growth, velocity, trapezium, approximate, triangles, curves, strips, equal width, circle, radius, equation

		chord, tangent, alternate segment theorem **Statistics –** Inequalities, frequency, equal width, class width, interval, area, histogram, frequency density, axes, consistent, estimate, mean, median, proportion, fraction, **Probability –** Mutually exclusive, independent, conditional, dependent, events, given, two-way table, notation, Venn diagram, complement, union, intersection, frequency tree, outcomes, combination, permutations, order, list, systematic			