CAISTOR YARBOROUGH ACADEMY

Curriculum Overview – Mathematics

Year 7	
Autumn	**Number:** Place value, ordering decimals, powers of 10, arithmetic with decimals, time and money calculations, rounding, understanding and calculating with negatives, factors, multiples, HCF, LCM, primes, prime factors, using a calculator **Equations, functions, formulae** Order of operations, algebraic notation, collecting like terms, multiplying and dividing algebraic terms, expanding single brackets, simple factorising, substituting into expressions, one and two step equations, equations with brackets, introducing inequalities **Measures** Accuracy in measures, converting between units, reading scales **Perimeter, Area, and Volume** Perimeter and area of rectangles, area of triangles, area of parallelogram, area and perimeter of compound shapes, surface area of cubes and cuboids, volume of cubes and cuboids
Spring	**Fractions, Decimals and Percentages:** Using fractions, equivalence and simplification of fractions, converting improper and mixed fractions, comparing and ordering fractions, adding and subtracting fractions, fractions of a quantity, multiplying fractions, writing values as a fraction of another **Ratio and Proportion:** Converting fractions, decimals and percentages, percentages of a quantity, simple direct proportion, simplifying ratio, equivalent ratios, sharing in a ratio, ratio and proportion relationship **Lines and angles:** Shape notation, using a protractor, constructing triangles, calculating missing angles on a line, around a point and in a triangle
Summer	**Analysing Data:** Averages, frequency tables, pictograms, dual and composite bar charts, two-way tables **Probability** Probability language, calculating probabilities of single events, understanding experimental and theoretical probability, sample space diagrams **Transformations** Coordinates, rotational and line symmetry, reflection, rotation, translation, enlargement **Sequences** Sequences, nth term, sequences from diagrams, graphing sequences

Year 8	
Autumn	**Area and Volume** Area of simple polygons, area of trapezium, area of compound shapes, volume of simple prisms, volume of composite solids, plans and elevations, surface area of cuboids **Data** Pie charts, averages from tables, 2-way table, stem and leaf diagrams, **Percentages** Expressing one value as a percentage of another, calculating percentage increase and decrease, solving percentage of amounts problems **Expressions and Equations** Solving equations with brackets, solving two step equations with fractions, solving equations with unknowns on both sides, substituting into formulae, writing formulae, changing the subject of a formula, simplifying expressions with single and double brackets, solving inequalities **Indices** Using simple index laws, combing index laws **Ratio** Using unit ratio to solve problems, comparing ratios and proportions, applying ratio to solve problems, calculating best value, similarity
Spring	**Decimals** Rounding to significant figures, estimating calculations, multiplying and dividing decimals **Circles** Parts of a circle, circumference and area of circles, simple sectors **Standard Form** Converting ordinary numbers to and from standard form, calculating with standard form, solving contextual index and standard form **Venn Diagrams and Probability** Creating and using frequency trees, calculating probabilities from a frequency tree, creating and using Venn Diagrams, calculating probabilities from Venn Diagrams **Linear Graphs** Midpoint of a line segment, identifying horizontal and vertical graphs, constructing linear graphs, calculating gradients, finding the equation of a straight line
Summer	**Lines and Angles** Calculating angles in triangles and quadrilaterals, identifying and using parallel line angle facts, calculating interior angles, calculating exterior angles, solving equations in angle problems **Calculating with Fractions** Ordering fractions, adding, subtracting, multiplying and dividing proper, improper and mixed fractions, identifying and using the reciprocal, multiplying and dividing simple algebraic fractions **Constructions and Loci** Draw and use scale diagrams, construct perpendicular and angle bisectors, construct angles, triangles and simple polygons **Real -life graphs** Plotting and reading conversion graphs, calculating speed, distance and time, Distance-time graphs, constructing and interpreting time series graphs, recognising linear and non linear real life graphs, line graphs, scattergraphs

9	Lower sets	Higher sets
Autumn	**Number:** + - x ÷Negative numbers, + - x ÷decimals, Bidmas **Geometry and measures:** Convert metric units, order different units, use scales, 3d shapes, plans, views, elevation, nets, isometric drawings **Statistics:** Frequency tables, pictogram, bar chart, line graph, compare line graphs, averages, justify averages, averages from tables, averages from grouped tables **Algebra:** Expressions and formulae, substitute, expand single brackets, 2 brackets and double brackets, factorise 1 bracket, 2 brackets, Change the subject **Number:** Factors, Multiples and Primes, LCM, HCF, Prime factors, LCM and HCF of Venn Diagrams, square, cube numbers, square and cube roots, complicated calculator	**Basic number** Calculations, Significant figures, Estimating, Prime factors HCF, LCM, Negative numbers **Fractions, ratios and proportion** Find value given fraction, reciprocals, +-x ÷ Mixed Numbers, % of amount, Reverse %, Compound interest. Find interest rate **Stats diagrams and averages** Averages from tables, Averages from grouped tables, Scatter diagrams **Algebra Manipulation** Factorise, expand, expand 3 brackets, change subject, Quadratic Factorisation **Ratio and proportion** Simplify ratio, share ratio, ratio with parts missing, combined ratio, Direct proportion problems, inverse proportion problems, Best Buys, SDT, MDV, FPA **Angles** Missing angles, angles in polygons, regular polygons, bearings and scale **Transformations, constructions and loci** Congruent triangles, Transformations, combined transformations
Spring	**Number:** Rounding decimals and large numbers. Significant figures, estimation, estimate square roots **Number:** Decimals and fractions, converting fractions, decimals and %, reciprocal, fractions of amounts, + - x ÷ fractions and mixed numbers **Geometry and measures:** Angles at point, on line, vertically opposite, in triangles, special triangles, quadrilaterals special quadrilaterals, interior angles polygons and regular polygons, **Ratio and proportion and rates of change:** Ratio, speed, distance, time, Multistep SDT, proportion, best buy	**Transformations, constructions and loci Cont.:** Line/angle bisectors, other construction, 3D plans/views etc. **Number & Sequences** linear sequences, find linear nth term, quadratic sequences, find nth term quadratic sequences **Length, area and Volume** Circles and part circles, Parallelograms and trapeziums, arc length, sector area, Volume prisms, Surface area prisms, Cylinders **Graphs** Draw linear graphs, Gradient, y = mx + c , find equation of graph, Real life graphs, Midpoints of graphs, interpret real life graphs, Parallel and perpendicular graphs **Right-angled triangles** 2D and 3D Pythagoras, Trigonometry application
Summer	**Geometry and measures:** Perimeter and area, compound shapes, circles, parts of circles **Geometry and measures:** Transformations, symmetry **Probability** 2-way table, frequency tree, expectation, combinations, sample space **Geometry and measures:** Volumes and surface areas of prisms **Linear Graphs:** Recognise simple graphs, draw linear graphs using a table, gradients, use y = mx + c, Match graphs to real situations. Solve simultaneous equations using graphs	**Exploring and applying probability** Experimental probability, Mutually exclusive events, Exhaustive outcomes, Expectation, Venn diagrams **Powers and standard form** Laws of indices, Standard form **Equations** Linear equations, unknowns both sides, set up and solve equations, simultaneous equations **Counting, accuracy, powers and surds** Surds, Limits and bounds

10	Foundation	Higher
Autumn	**Algebra** Expand brackets, factorise, expand double brackets, factorise quadratics Carried from Y9 due to COVID **Algebra** Solve Linear equations, solve with Brackets, Unknowns both sides Set up and solve, Change the subject **Geometry and measures:** Volume and Surface area Prisms and Cylinders May need to review area 1st, covered during lockdown **Number:** Convert fractions, decimals and %, Calculate fractions and % amount Convert fractions, decimals and %, Calculate fractions and % amount, increase. Decrease by %, repeated % change, Writing %, reverse % **Compound Measures** SDT, MDV, Direct & inverse proportion **Geometry and measures:** Transformations, symmetry	**Algebra and number:** Reinforce equations, Draw and solve inequalities, Inequality regions, reciprocals, Converting recurring decimals to fractions **Counting, accuracy, powers and surds** Laws of indices, negative and fractional powers, Surds, Rationalise denominator, error interval and limits and bounds **Quadratic equations** Plotting quadratic graphs, factorising quadratics, solving by factorising, solving using formula, Complete the square Significant points of the curve. Solve quadratic inequalities **DATA: Diagrams** Frequency Polygons, Cumulative Frequency, Box plots, Histograms, sample space, Tree Diagrams, Conditional Probability, Independent events
Spring	**Statistics:** Pie charts, Scatter diagrams, Averages from tables, Estimated mean **Number and sequences** Extend patterns, generate, find nth term, Special number sequences **Geometry and measures:** Circles, parts of circles,donut problems Was taught during Lockdown Pythagoras, apply Pythagoras, Trigonometry to find sides and angles, Exact Trig, Apply Trig **Probability:** Probability, Venn diagrams and notation, Tree Diagrams **Number** Laws of indices, standard form, calculate with standard form	**Properties of circles** Circle Theorems, Cyclic quadrilaterals, Tangents and Chords, Alternate segment theorem **Similar shapes** Missing sides, compound shapes, ratio area/length/vol **Variation** Direct and Inverse proportion using the constant of proportionality **Triangles** Pythagoras, 3D pythagoras, Exact Trig, Trig, 3D Trig, Sine Rule, Cosine Rule, Area any triangle **Volume and Surface area** Prisms, cones, Pyramids and Spheres
	Algebra: Non-linear graphs, Real life graphs, Velocity time graphs, Quadratic graphs, solve quadratics by factorising, Draw cubic graphs **Geometry and measures:** Congruency triangles, similar shapes, similar compound shapes, Ratio in similar shape A:L:V **Algebra:** Simultaneous equations, draw linear inequalities, state integers for inequalities, solve inequalities **Geometry and measures:** Constructions and loci **Vectors:** Describe, add and multiply vectors	**Graphs** Distance time graphs, Velocity time graphs, Estimating area under curve, Rates of change, **Algebraic fractions and functions** 4 rules algebraic fractions, simplify algebraic fractions, change subject of formulae, functions, composite & Inverse functions, Iteration **Algebraic Proof** **Data:** Capture, recapture, Stratified sampling

11	Foundation	Higher
Autumn	**Number Review:** Product of primes, fractions and mixed numbers, fractions, %, decimals, fraction, % ratio problem **Algebra Review:** Simplify, expand, Solve, Substitute, setup and solve, inequalities **DATA Review:** Venn diagrams, Averages, Averages from tables, estimated mean, Frequency polygons, Probability, Probability trees and Pie charts **Number:** Best Buy, Direct and inverse proportion, Simple and compound interest, Error intervals and limits **SSM:** Angles, Regular polygons, multi-step sdt, mdv, bearings, Scale, Pythagoras, Trig **Algebra:** Factorise, Factorise quadratics **Algebra:** Non-linear graphs, Real life graphs, Velocity time graphs, Quadratic graphs, solve quadratics by factorising, Draw cubic graphs,	**Number Review** Compound interest, Reverse %, Direct and Inverse proportion, Surds **Algebraic fractions and functions** 4 rules algebraic fractions, simplify algebraic fractions, change functions, composite & Inverse function, Iteration, nth term of quadratic **Data Review** Probability trees, Cumulative Frequency, Box Plots, Histograms, Venn Diagrams, Capture/recapture, combinations, stratified sampling, Product rule for counting **Graphs** Gradient, y-intercept, equation, midpoint, parallel and perpendicular graphs, acceleration and area under curve **Transformations, constructions and loci** Congruent triangles, Transformations, combined transformations **Similar shapes and Congruent triangles** Missing sides, compound shapes, ratio area/length/vol **Algebraic Proof** Prove algebraic statements are correct. Prove odd and even numbers, multiples of a number etc. Geometric proof
Spring	**SSM:** Transformations, Plans and elevations, Similar shapes, conversion graphs **Number:** Standard Form, Reverse %, deposits, exchange rates **ALGEBRA:** nth term, setup and solve, simultaneous equations **REVISON** **COMPLETE Exam Papers** **AIMING for Booklets** **BY TOPIC REVISION**	**Vector Geometry** + x vectors, vector geometry, prove lines and parallel **Trigonometry review** Sine rule, Cosine rule, Area of any triangle, Trig graphs, Exact trig **ALGEBRA:** simultaneous equations one linear, one quadratic, Inequality regions, Solve quadratic inequalities **TO BE CONFIRMED, BASED ON STUDENTS**
Summer	**REVISON** **COMPLETE Exam Papers** **AIMING for Booklets** **BY TOPIC REVISION**	**REVISON** **COMPLETE Exam Papers** **AIMING for Booklets** **BY TOPIC REVISION**