CAISTOR YARBOROUGH ACADEMY

Curriculum Overview - Mathematics

7	Lower sets	Middle Sets	Higher Sets
Autumn	**Analysing & Displaying Data** Understanding pictograms and tables, Interpret bar charts, Grouped data, Averages **Calculating** Addition, Subtraction, Multiplication, Factors, Multiples, rounding **Time** Reading analogue clocks, using analogue and digital clocks, interpreting how long, converting 12.24 hr time, timetables and journey planning **Expressions & formulae** Function machines, simplify, write expressions &formula, Substitute **Graphs** Real-life graphs, Coordinates, linear graphs, scientific graphs	**Analysing and Displaying data** Averages, Charts and tables, grouped data, line graphs, dual bar charts, compound bar charts **Number Skills** BIDMAS, Add/Subtract large numbers, Multiply/Divide Large numbers, Time problems, Money problems, Negative numbers, Factors, Multiples, Primes, HCF, LCM **Expressions, Formulae** Functions, simplify, expressions, substitute, formulae **Decimals and Measures** Order, round decimals, convert measurements, scale and coordinates, + - x, ÷ decimals, perimeter, area	**Data** Compound and dual bar charts, two way tables, Averages from tables, Averages from grouped tables, line graphs, pie charts, scatter graphs and correlation **Number Skills** Add, subtract, multiply and divide negative numbers, squares, roots, Powers, BIDMAS **Equations, functions, formulae** Simplifying algebra, writing expressions, using formulae substitution, powers, expanding brackets, factorising **Fractions:** Compare fractions, add and subtract, multiply and divide fractions, compare fractions, decimals and %, Mixed numbers
Spring	**Factors and Multiples** BIDMAS, Multiples, Multiplication, Division, Factors, Primes, HCF and LCM **Decimals and Measures** Read scales, using decimals, Metric units, rounding decimals, Estimate, multiply decimals, Divide decimals, Money problems **Angles** Recognise angles and lines, Measure, draw angles, Calculate angles on line and at a point **Measuring and Shape** Recognise shapes, Symmetry, Rotational symmetry, Regular polygons, Perimeter, Area	**Fractions, Decimals and %** Compare and order fractions, improper fractions/mixed numbers, + - fractions, fractions of amounts, convert, % amounts **Probability** Calculate probability, Probability NOT happening, Sample space diagram, estimate events, expected outcome **Ratio and Proportion** Direct proportion, writing rations, Share in a ratio, Scale	**Angles:** Angles in triangles, quadrilaterals, vertically opposite, in quadrilaterals. Angles in parallel lines, Polygons and Regular polygons **Decimals and %:** Ordering decimals, round decimals, add, subtract, multiply and divide decimals, fdp, calculate %, increase %, reverse % **Equations** Solve 1 step and 2 step equations, solve equations with brackets, set up equations from diagrams, Substitution, (Trial and Improvement) **Multiplicative Reasoning** Metric & Imperial units, simplify ratios, sharing ratios, ratios as fractions, proportions, direct proportion, inverse proportion, best buys

7	Lower Sets	Middle Sets	Higher Sets
Summer	**Measuring and Shape Cont.** Recognise shapes, Symmetry, Rotational symmetry, Regular polygons, Perimeter, Area **Fractions, decimals and %** Compare fractions, Equivalent fractions, calculating fractions, adding and subtracting fractions, Basic %, Finding %, Increasing and decreasing by % **Transformations** Reflection, rotation, translation, congruent shapes, plans and views **Probability** Probability scale, probability words, calculate simple probability, events not happening	**Lines and angles 1** Label lines and angles, draw/measure angles, **Lines and angles 2** Draw triangles accurately, missing angles, interior, exterior angles, angles in quadrilaterals **Sequences and Graphs** Generate, Find patterns, nth term, coordinate, midpoint, linear graphs **Transformations** Congruent, Enlargement, Reflection, Rotation, Translation	**Perimeter, Area and Volume** Area triangles, parallelograms, trapeziums, compound shapes, 3D solids, surface area, volume, Measures of volume and area **Sequences and graphs** Sequences,nth term, sequences from diagrams, co-ordinates and line segments, Graphs

8	Lower sets	Middle sets	Higher sets
Autumn	**Number Properties and calculations** Multiply large numbers, calculate negative numbers, simplify ratio, Share ratio, proportion **Shapes and Measures** 3D Shapes, Draw isometric paper, Nets of solids, Surface area, Volume, Metric measures **Time** Reading analogue clocks, using analogue and digital clocks, interpreting how long, converting 12.24 hr time, timetables and journey planning **Statistics** Collecting data, Bar charts, Compound bar charts, Pie charts **Expressions and Equations** Simplify expressions, Function machines, solve equations, Expand brackets	**Number** + - decimals, Calculate negative numbers, Squares, Cubes, Roots, Multiples, Factors, Prime factors, LCM, HCF **Area and Volume** Area of triangles, Parallelograms, Trapezium, Volume cubes cuboids, nets, solids, views, elevation, Surface area **Statistics** Pie charts, averages from tables, 2-way table, stem and leaf diagrams, line graphs, scatter graphs, **Expressions and Equations** Simplify expressions, Substitute, Expand brackets, Factorise, Solve equations, unknowns both sides, Set up equations	**Factors and Powers** Prime factors, HCF and LCM large numbers, powers, powers of 10, rounding, significant figures, estimating **Algebra 1** Simplifying expressions, expanding 2 brackets, laws of indices, factorising, algebra in shapes, equations, unknowns both sides **2D shapes and 3D solids** Nets, Plans and elevations, surface are of prisms, volume of prisms circumference of circles, area of circles, Cylinders, Pythagoras **Real –life Graphs** Simple direct proportion, inverse proportion, interpreting line graphs, trends, distance time graphs, rates of change, misleading graphs
Spring	**Decimal Calculations** Add and Subtract decimals, multiply decimals, Order and round decimals, problem solve decimals **Angles** Measure, draw angles, Estimate angles, calculate angles on line and at a point, angles in special	**Real -life graphs** Conversion graphs, Distance-time graphs, Line graphs, Real-life graphs, Linear graphs **Decimals and Ratio** Order and round decimals, multiplying decimals, divide decimals, Share in a ratio, unit ratios **Lines and Angles**	**Transformations** Translate, Reflect, Rotate, Enlarge, Negative Enlargement, Combine transformations, Symmetries, ratio of L:A:V **Fractions, Decimals and %** Convert fractions, decimals and %, Reverse %, % change, Simple/compound interest, Repeated % change

	triangles, vertically opposite angles, draw triangles accurately **Number Properties** Squares, Cubes, Square roots, Cube roots, BIDMAS, Powers, Indices, LCM, HCF, Prime, Prime Factors	Quadrilaterals, Alternate angles, Corresponding angles, Interior angles, Exterior and Interior angles, Regular polygons, Set up equations from diagrams	**Constructions and Loci** Accurately draw triangles, Construct triangles and angles, Line and angle bisectors, Loci **Probability** Calculate probabilities, fair or not, probability of event not happening, relative frequency, estimated frequencies, experimental probabilities, Venn diagrams, Simple tree diagrams
Summer	**Sequences** Next term, Generate, term-to-term, real-life sequences, special sequences, use nth term, find nth term **Fraction, decimal, %** Compare fractions, simplify, fractions of amounts, add & Subtract fractions, Change fractions -> %, % amounts **Probability** Language of probability, calculate probability, List outcomes, Probability NOT happening, Experimental probability **Transformations** Reflection, rotation, translation, congruent shapes, plans and views	**Calculating with fractions** + - fractions, convert top heavy-mixed numbers, multiply fractions, divide fractions, Convert fractions to decimals, calculate mixed numbers **Straight line graphs** Gradients, draw graph from table, Midpoint of graph, Y-intercept, y = mx +c, direct proportion **Fraction, decimal, %** Order fractions, convert fractions, dec, %, Write %, work out % increase or decrease, multiplier, find original given % **Probability** Calculate probability, List outcomes, Probability NOT happening, Experimental probability, expectation **Transformations** Reflection, rotation, translation, congruent shapes, plans and views	**Scale Drawings and Measures** Convert metric measures, use scale, bearings, accurate scale drawings, congruent and similar shapes, Similarity and compound shape similarity **Graphs** Straight line graphs, gradient, y = mx + c, inverse functions, non-linear graphs

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, solve equations Change the subject **Number**	**Basic number** Number Calcs, Significant figures, Estimating, Prime factors HCF, LCM, Negative numbers **Fractions, ratios and proportion** Find value, given fraction, reciprocals, +-x ÷ fractions and Mixed Numbers, % of amount, % increase, decrease, % Change, 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, solve equations, write equations change subject **Ratio and proportion** Simplify ratio, share ratio, ratio with parts missing, combined ratio, Direct proportion problems, inverse

	Factors, Multiples and Primes, LCM, HCF, Prime factors, LCM and HCF of Venn Diagrams, square, cube numbers, square and cube roots, complicated calculator	proportion problems, Best Buys, Compound Measures, SDT, MDV, FPA **Angles** Angles lines, triangles, VO, quadrilateral, parallel lines, 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** Generate linear sequences, find linear nth term, generate 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 from tables, Gradient, y = mx + c, find equation of graph, Real life graphs, Midpoints of graphs, Conversion graphs, interpret real life graphs, Parallel and perpendicular graphs **Right-angled triangles** Pythagoras, Apply Pythagoras, 3D Pythagoras, Trigonometry, Apply Trig, Trig in isosceles triangles
Summer	**Geometry and measures** Perimeter and area, shapes, compound shapes, circles, parts of circles **Geometry and measures** Transformations, symmetry **Probability** 2-way table, frequency tree, expectation, combinations, sample space **Linear Graphs** Recognise simple graphs, draw linear graphs using a table, gradients, use y = mx + c, Interpret gradient and y-intercept of graph. Match graphs to real situations. Solve simultaneous equations using graphs	**Similarity** Similar triangles, compound similar triangles, ratio of similar shapes A:L:V **Exploring and applying probability** Experimental probability, Mutually exclusive events, Exhaustive outcomes, Expectation, 2 way tables, Venn diagrams **Powers and standard form** Laws of indices, Standard form **Equations** Linear equations, unknowns both sides, set up and solve equations, simultaneous equations **Accuracy** Rounding, Significant figures, estimating, Error Intervals, Intro to Bound

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 Carried from Y9 due to COVID	**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 (Y9) 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
Summer	**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 **Carried from Y9 due to Covid**	**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** Prove algebraic statements are correct, Prove odd and even numbers, multiples of a number etc. **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 **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
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**	**Algebraic Proof** Prove algebraic statements are correct, Prove odd and even numbers, multiples of a number etc. Geometric proofs **Vector Geometry** Add and subtract column vectors, draw vectors, find the magnitude of vectors, prove parallel and on same line. **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**