Birches Head Academy

Maths

Part of the Frank Field Education Trust

KS4 Curriculum Plan

Year 10

	LP1	LP2	LP3	LP4	LP5
TOPIC	***Repeated percentage change Surface area Volume Linear simultaneous equations***	***Rearranging formulae Right-angled trigonometry Constructions and loci Equations of linear graphs Plotting and interpreting real-life graphs***	***Plotting and interpreting real-life graphs Venn diagrams and set notation. Independent and dependent events Density and pressure Working with ratios and algebra***	***Foundation*** ***Velocity-time graphs Higher Velocity-time graphs Cubic, reciprocal and exponential graphs Arithmetic and geometric sequences Quadratic and geometric sequences Sampling, Direct and inverse proportion Transforming shapes Higher*** ***Higher*** ***Velocity-time graphs Cubic, reciprocal and exponential graphs Arithmetic and geometric sequences Quadratic and geometric sequences Sampling Direct and inverse proportion Transforming shapes***	***Foundation*** ***Error intervals Index laws Expanding and factorising brackets Grouped data. Drawing and interpreting statistical diagrams.*** ***Higher*** ***Bounds Index laws Fractions and recurring decimals Expanding and factorising brackets Cumulative frequency graphs Box plots***
Knowledge	Repeated percentage change, Surface area, Volume, Linear simultaneous equations	Rearranging formulae, Right-angled trigonometry, Constructions and loci, Equations of linear graphs, Plotting and interpreting real-life graphs	Plotting and interpreting real-life graphs, Venn diagrams and set notation, Independent and dependent events, Density and pressure, Working with ratios and algebra	**F** Velocity-time graphs, Cubic, reciprocal and exponential graphs, Arithmetic and geometric sequences, Sampling, Direct and inverse proportion, Transforming shapes, **H** Quadratic and geometric sequences, Sampling, Direct and inverse proportion, Transforming shapes	**F** Error intervals, Index laws, Expanding and factorising brackets, Grouped data, Drawing and interpreting statistical diagrams, **H** Bounds, Index laws, Fractions and recurring decimals, Expanding and factorising brackets, Cumulative frequency graphs, Box plots
Skills	Apply and demonstrate knowledge and understanding of mathematical skills to problem solve, using a range of modelling & mathematical representations. Use reasoning strategies to investigate mathematical concepts. Prove conjectures within the maths content taught.				
Key Vocab	Percentages Original amount, multiplier, percentage change, investment, profit, loss, compound interest, annual, salary, half-life, simple interest, Surface area Volume Perpendicular, parallelogram, triangle, trapezium, isosceles trapezium, compound shape, surface area, volume, cuboid, prism, cross-section, circumference, pi, chord, arc, segment, sector, tangent, pyramid, cone, slant height, sphere. Solving simultaneous equations algebraically Equation, Inequality, Solve, Solution, Expand, Variable, Formula (plural: Formulae) Subject, Rearrange, brackets, linear, quadratic, integer, factorise.	Algebraic manipulation Expression, equation, identity, formula, variables, substitute, rearrange, subject Constructions & Loci Perpendicular, bisect, radius, angle, measure, equidistant Straight line graphs Coordinate, parallel, axis, midpoint, linear, gradient, steepness, linear equation, intercept, Right angled triangles Hypothenuse, Pythagoras' theorem, surd, opposite, adjacent, sine, cosine, tangent	Straight line graphs Coordinate, parallel, axis, midpoint, linear, gradient, steepness, linear equation, intercept, Venn diagrams Intersection, universal set, subset, union Independent & dependant events Tree diagram, replacement, Branch, events Compound units Density, pressure, speed, force, rates of pay Ratio & Algebra Ratio, highest common factor, simplify, simplest form, share into, unit ratio sketch velocity	Graphs Coordinate, parallel, axis, midpoint, linear, gradient, steepness, linear equation, intercept, Exponential, cubic Sequences Nth term, position, rule, Difference Sampling Inequality, Discrete data, continuous data, grouped frequency table, two-way table, composite bar chart, line graph, trend, time series, pie chart, outlier, estimate, random sample Direct & inverse proportion proportion, unitary method, direct proportion, inverse proportion, Transformations Enlargement, rotation, translation, reflection, centre, scale factor, clockwise, anticlockwise, column vector, symmetry	Error intervals bounds estimate, significant digit, error interval, bounds, greater than or equal to, less than. Indices index (indices), power, prefix, root, standard form, ordinary form, Expand and factorise Equation, Inequality, Solve, Solution, Expand, Variable, Formula (plural: Formulae) Subject, Rearrange, brackets, linear, quadratic, integer, factorise. Grouped data Midpoint, frequency, Inequality, Discrete data, continuous data, grouped frequency table, two-way table, composite bar chart, line graph, trend, time series, pie chart, outlier, estimate, random sample Statistical diagrams Inequality, Discrete data, continuous data, grouped frequency table, two-way table, composite bar chart, line graph, trend, time series, pie chart, outlier

Year 11

	LP1	LP2	LP3	LP4	LP5
TOPIC	***Algebra***	***Number***	***Ratio, Proportion & Data***	***Geometry & Preparation for exams***	***Revision***
Knowledge	Manipulating expressions, solving equations & inequalities, sequences and graphs	Percentages, types of number, standard form, exact calculations and limits of accuracy	Ratio, proportion, compound measures, probability and data	Area & perimeter, transformations & similarity , angles and Pythagoras' Theorem	GCSE exams
Skills	Apply and demonstrate knowledge and understanding of mathematical skills to problem solve, using a range of modelling & mathematical representations. Use reasoning strategies to investigate mathematical concepts. Prove conjectures within the maths content taught.				
Key Vocab	**Manipulating expressions:** Expand, highest common factor (HCF), factorise **Solving equations & inequalities**: Expression, equation, formula, identity, subject **Sequences:** Factor, multiple, HCF, LCM, arithmetic, geometric, sequence **Graphs:** Gradient, y-intercept, midpoint, parallel, co-ordinate, linear, quadratic, turning point, cubic, reciprocal, simultaneous equation	**Percentages:** Exponent, compound interest, depreciation, growth, decay, multiplier, equivalent **Types of number:** Factor, multiple, HCF, LCM **Standard form:** Base, indices, power, standard form **Exact calculations:** Surd, pi **Limits of accuracy:** Truncation, estimate **Multiplicative reasoning:** Scale factor, similarity	**Ratio & Proportion:** Proportion, ratio, direct proportion, inverse proportion **Compound measures:** Pressure, density, force, mass **Probability:** Event, outcome, intersection, union, expected value, universal set, systematic, product **Data:** Mean, mode, median, range, interquartile range, stem and leaf, systematic, product rule, frequency, outlier, method	**Area & perimeter:** Parallelogram, trapezium, pyramid, sphere, **Transformations & similarity:** Translation, enlargement, rotation, reflection, symmetry **Angles:** Interior, exterior, corresponding, alternative, co-interior **Pythagoras' Theorem:** Square root, square number, hypotenuse, opposite, adjacent proof	GCSE exams