Maths

Part of the Frank Field Education Trust

KS4 Curriculum Plan 2023-24

Year 10 (Higher)

	LP1	LP2	LP3	LP4	LP5
TOPIC	*Similarity*	*Developing Algebra*	*Geometry*	*Proportions and Proportional Change*	*Delving into data and using number*
Knowledge	Similarity – congruence, similarity, enlargement and trigonometry for non-rightangled triangles	Developing Algebra – solving quadratic equations, drawing and interpreting graphs, representing solutions of equations and inequalities, solving simultaneous equations including with quadratics.	Geometry – angles, bearings, working with circles, vectors, volume and surface area of complex solids.	Proportions and Proportional Change – ratios and fractions, percentages and interest, probability including conditional.	Delving into data – collecting, representing and interpreting data, sampling, histograms

Using number – non-calculator methods, types of number sequences, indices and roots, solving surds problems, bounds |
| **Skills** | Use the equation of the line formula to solve problems.
Solve simultaneous linear and quadratic equations both algebraically and graphically.
Represent linear and quadratic inequalities visually and solve them.
Sketch graphs of non-linear functions.
Find estimates for gradients and areas under graphs.
Calculate the probability of independent and dependent combined events.
Calculate and interpret conditional probabilities through representation.
Calculate with roots, indices and recurring decimals.
Solve problems involving Pythagoras and Trigonometry in 2D and 3D shapes.
Use vectors to construct arguments and proofs.
Use and prove standard circle theorems.
Simplify and manipulate algebraic fractions.
Interpret and use function notation to solve problems. | | | | |
| **Key Vocab** | Similarity, congruence, Pythagoras, trigonometry, hypotenuse, adjacent. | Equations, inequality, representation, factorisation, simultaneous, quadratic. | Bearing, circumference, sector, segment, cyclic quadrilateral, sphere, collinear. | Proportional, interest, probability, experimental, dependent, conditional. | Stratified, polygon, histogram, cumulative, indices, surds, bounds. |

Year 10 (Foundation)

	LP1	LP2	LP3	LP4	LP5
TOPIC	*Similarity*	*Developing Algebra*	*Geometry*	*Proportions and Proportional Change*	*Delving into data and using number*
Knowledge	Similarity – congruence, similarity, enlargement and trigonometry for rightangled triangles	Developing Algebra – drawing and interpreting graphs, representing solutions of equations and inequalities, solving linear simultaneous equations	Geometry – angles, bearings, working with circles, vectors, volume nad surface area	Proportions and Proportional Change – ratios and fractions, percentages and interest, probability	Delving into data – collecting, representing and interpreting data

Using number – non-calculator methods, types of number sequences, indices and roots |
| **Skills** | Use the equation of the line formula to solve problems.
Solve simultaneous linear equations both algebraically.
Represent linear inequalities visually and solve them.
Sketch graphs of non-linear functions.
Calculate the probability of independent events
Calculate and interpret probabilities using Venn and tree diangrams.
Calculate with roots, indices and recurring decimals.
Solve problems involving Pythagoras and Trigonometry in 2D and 3D shapes.
Solve vector problems using column vectors.
Calculate area, volume and surface area. | | | | |
| **Key Vocab** | Similarity, congruence, Pythagoras, trigonometry, hypotenuse, adjacent. | Equations, inequality, representation, factorisation, simultaneous, quadratic. | Bearing, circumference, sector, segment, quadrilateral, sphere. | Proportional, interest, probability, experimental, independent | Polygon, data, indices, roots, sequences |

	LP1	LP2	LP3	LP4	LP5
TOPIC	*Graphs and Probability*	*Number and Shape*	*Shape and Algebra*	*Problem Solving*	

Year 11 (Higher)

	Knowledge	Indices and Standard form Graphs and Equations - linear equations, straight line, quadratic, cubic and reciprocal graphs, algebraic fractions.	Number and Shape – Properties of number, percentages, Pythagoras and trigonometry, vectors	Shape and algebra – Circle Theorems, proof and functions	Problem solving – Bringing together all knowledge from the KS4 course to solve problems linking topics together.	
	Skills	Use the equation of the line formula to solve problems. Solve simultaneous linear and quadratic equations both algebraically and graphically. Represent linear and quadratic inequalities visually and solve them. Sketch graphs of non-linear functions. Find estimates for gradients and areas under graphs. Calculate the probability of independent and dependent combined events. Calculate and interpret conditional probabilities through representation. Calculate with roots, indices and recurring decimals. Solve problems involving Pythagoras and Trigonometry in 2D and 3D shapes. Use vectors to construct arguments and proofs. Use and prove standard circle theorems. Simplify and manipulate algebraic fractions. Interpret and use function notation to solve problems.				
	Key Vocab	Quadratic, parallel, perpendicular, simultaneous, index, standard form, equations, inequality, reciprocal, exponential.	Surds, rationalise, denominator, Pythagoras, Trigonometry, vectors, geometrical.	Circle, tangent, equation, theorem, sector, quadratic, function, algebraic, composite, inverse.	Calculation, manipulation, simplification, interpret, representations.	

Year 11 (Foundation)

		LP1	LP2	LP3	LP4	LP5
	TOPIC	Graphs	Number and Algebra	Number and Shape	Problem Solving	
	Knowledge	Graphs - Straight line, quadratic, cubic and reciprocal graphs and transformation of shapes about axes.	Number and Algebra – Standard form, solving equations, substituting into formula, inequalities, factorisation.	Number and Shape – Properties of number, percentages, Pythagoras and trigonometry, area and volume, vectors.	Problem solving – Bringing together all knowledge from the KS4 course to solve problems linking topics together.	
	Skills	Find the gradient and y-intercept of a linear graph. Plot quadratic, cubic and reciprocal graphs and estimate solutions from these. Use construction methods to accurately draw the locus of points. Transform shapes by reflecting, rotating, translating and enlarging them following a given instruction. Solve problems with numbers written in standard form. Solve linear equations, including ones with brackets and with unknowns on both sides of the equals sign. Solve compound measure problems by selecting and using the correct formula. Solve prime number percentage problems. Use Pythagoras and trigonometry to find missing values. Solve area and volume problems.				
	Key Vocab	Straight, quadratic, equation, cubic, reciprocal, translate, enlargement, reflection, rotation.	Standard form, estimate, expand, simplify, factorise, equation, expression.	Percentage, Pythagoras, trigonometry, surface area, volume, cuboid, prism, cylinder, vector.	Calculation, manipulation, simplification, interpret, representations.	