KS4 Higher Tier Maths	Topic/Learning Pathway	Key Words	Links to previous learning	Links to wider curriculum
AUTUMN 1	**Unit 1: Calculating** Negative Numbers Indices Standard Form Inequalities Limits of Accuracy **Unit 2: Visualising and Constructing** Enlargements Scale diagrams Plans and Elevations Loci Constructions	**Calculating** Negative number, Directed number, Improper fraction, Top-heavy fraction, Mixed number, Operation, Inverse, Long multiplication, Short division, Power, Indices, Roots **Visualising and Constructing** Similar, Similarity, Enlarge, enlargement, Scaling, Scale factor, Centre of enlargement, Object, Image, Scale drawing, Bearing, Plan, Elevation	**Calculating** BIDMAS, Prime factor form, Calculating with indices, Rounding, HCF, LCM, Prime Numbers, Multiplying by powers of 10 **Visualising and Constructing** Reflections, Rotations, Translations, Multiplication, Plans and Elevations, scale drawings	**English** - Mathematical Vocabulary **Calculating** Science – Standard Form - Sizes of planets Geography – Standard Form - Population History – Standard form - Number of years PE – Limits of accuracy - Track times **Visualising and Constructing** Art – Enlargements and scale drawings PE – Loci – Track, Netball positions Construction – Plans and elevations – design drawing
AUTUMN 2	**Unit 3: Algebraic Proficiency (Tinkering)** Simplifying Expressions Factorising Rearranging formulae Expanding Brackets Factorising Quadratics Difference of 2 squares **Unit 4: Proportional Reasoning** Ratio Compound Units Direct proportion Inverse proportion Congruency & Similar shapes	**Algebraic Proficiency (Tinkering)** Product, Variable, Term, Coefficient, Common factor, Factorise, Power, Indices, Formula, Formulae, Subject, Change the subject **Proportional Reasoning** Ratio, Proportion, Proportional, Multiplier, Speed, Unitary method, Units, Compound unit	**Algebraic Proficiency (Tinkering)** Solving simple equations, factorise linear expressions, collect like terms, Factors, Multiples, HCF, LCM **Proportional Reasoning** Ratio, Proportion, Fractions, Straight Line Graphs, Shapes, Units of Measure, Solving Equations	**English** - Mathematical Vocabulary **Algebraic Proficiency (Tinkering)** Science – Rearranging Formulae – Balancing chemical equations **Proportional Reasoning** Cooking – Ratio – Recipes Construction – Similar Shapes – Scale drawings PE – Compound units – Calculating speeds Science – Ratio – Chemistry Experiments

SPRING 1	**Unit 5: Pattern Sniffing** Sequences & Nth Term Fibonacci Quadratic Sequences Geometric Progression **Unit 6: Solving Equations and Inequalities** Solving linear equations and inequalities Solving equations and inequalities with unknowns on both sides Solving equations and inequalities involving brackets Constructing equations and inequalities Solving simultaneous equations by elimination Solving simultaneous equations by substitution	**Pattern Sniffing** Sequence, Linear, Term, Difference, Term-to-term rule, Position-to-term rule, Ascending, Descending **Solving Equations and Inequalities** Algebra, algebraic, algebraically, Unknown, Equation, Operation, Solve, Solution, Brackets, Symbol, Substitute, Graph, Point of intersection	**Pattern Sniffing** Ratio, Proportion, Fractions, expressions, solving equations, forming equations, addition, subtraction, multiplication, division, indices **Solving Equations and Inequalities** Expressions, solving equations, forming equations, addition, subtraction, multiplication, division, indices, substitution, collecting like terms	**English** - Mathematical Vocabulary **Pattern Sniffing** Art – Fibonacci – real world patterns Caring for children – sequences – leaning to count **Solving Equations and Inequalities** Construction – Area - Scale Drawings Construction – Perimeter - Scale Drawings Construction – Volume - Scale Drawings
SPRING 2	**Unit 7: Calculating space** Properties of 2D Shapes Area Perimeter Area and Perimeter of Arcs and Sectors Pythagoras theorem Surface area Volume Angles in Parallel Lines Angles in Polygons Geometric Proofs Trigonometric Ratios Trigonometric Bearings Area Perimeter Area and Perimeter of Arcs and Sectors Pythagoras theorem Surface area	**Calculating space** Circle, Centre, Radius, diameter, chord, circumference, Pi, (Right) prism, Cross-section, Cylinder, Polygon, polygonal, Solid **Conjectures** Degrees, Right angle, acute angle, obtuse angle, reflex angle, Vertically opposite, Geometry, geometrical, Parallel, Alternate angles, corresponding angles, Interior angle, exterior angle, Regular polygon	**Calculating space** Expressions, addition, subtraction, multiplication, division, indices, substitution, fractions of amounts, area, circumference, perimeter **Conjectures** Area, Perimeter, Rearranging Formulae, Ratio, Proportion, Shapes, Angles, Substitution , Solving Equations, Using a Calculator	**English** - Mathematical Vocabulary **Calculating space** Construction – Area - Scale Drawings Construction – Perimeter - Scale Drawings Construction – Volume - Scale Drawings **Conjectures** Art – Angles in Parallel Lines - Scale Drawings Outdoor Ed – Trigonometric Bearings – Map Reading

	Volume **Unit 8: Conjectures** Angles in Parallel Lines Angles in Polygons Geometric Proofs Trigonometric Ratios Trigonometric Bearings			
SUMMER 1	**Unit 9: Algebraic Proficiency (Visualising)** Linear graphs Quadratic Graphs Cubic functions Reciprocal functions Turning points and intercepts **Unit 10: Solving Equations and Inequalities ii** Real life graphs Solving equations and inequalities graphically	**Algebraic Proficiency (Visualising)** Plot, Equation (of a graph), Function, Formula, Linear, Coordinate plane, Gradient, y-intercept, Substitute, Quadratic, Piece-wise linear, Model, Kinematic, Speed, Distance **Solving Equations and Inequalities ii** Plot, Equation (of a graph), Function, Formula, Linear, Coordinate plane, Gradient, y-intercept, Substitute, Quadratic, Piece-wise linear, Model, Kinematic, Speed, Distance	**Algebraic Proficiency (Visualising)** Rearranging Formulae, Ratio, Proportion, Substitution , Solving Equations, Using a Calculator, Coordinates, Plotting Graphs, Compound Measures **Solving Equations and Inequalities ii** Rearranging Formulae, Ratio, Proportion, Substitution , Solving Equations, Using a Calculator, Coordinates, Plotting Graphs, Compound Measures	**English** - Mathematical Vocabulary **Algebraic Proficiency (Visualising)** Science – Linear Graphs – Rates of Change **Solving Equations and Inequalities ii** PE – Real Life Graphs – Speed
SUMMER 2	**Unit 11: Understanding Risk** Venn Diagrams Calculating Probability Dependant Events Independent Events Experimental Probability Histograms Scatter Graphs of bivariate data Time series graphs Compound bar charts Frequency polygons Stem and leaf diagrams Line of best fit	**Understanding Risk** Outcome, Event, Experiment, Combined experiment, Frequency tree, Enumerate, Set, Venn diagram, Possibility space, sample space, Equally likely outcomes, Theoretical probability, Random, Bias, Fairness, Relative frequency **Presentation of Graphs** Data, Categorical data,	**Understanding Risk** Ratio, Proportion, Using a Calculator, Fractions, Experimental Probability, Likelihood, Relative Frequency Experiments **Presentation of Graphs** Bar Charts, Scatter Graphs, Probability, Straight Line Graphs, Equation of a Line, Gradient	**English** - Mathematical Vocabulary

	Calculating Probability Dependant Events Independent Events Experimental Probability **Unit 12: Presentation of Graphs** Histograms Scatter Graphs of bivariate data Time series graphs Compound bar charts Frequency polygons Stem and leaf diagrams Line of best fit	Discrete data, Continuous data, Grouped data, Table, Frequency table, Frequency, Histogram, Scale, Graph, Axis, axes, Scatter graph (scatter diagram, scattergram, scatter plot), Bivariate data, (Linear) Correlation, Positive correlation, Negative correlation		