The Mathematics Curriculum

The Redhill Academy mathematics curriculum is mapped across five years and developed across the Redhill Academy Trust. We deliver schemes of work that are differentiated at a detailed level to ensure that we tailor all learning to pupil ability. There is an expectation that students will use mathematical language routinely in lessons to develop fluency in terminology and the “language of mathematics”. In addition, students will build on prior mathematical knowledge whilst regularly revisiting key numeracy strands and applying critical skills to new contexts to ensure learning is secure in the spirit of a ‘spiral’ curriculum. We aim to provide a selection of contexts in which student learning is engaging and relevant to young people whilst also setting mathematical understanding in real-life situations. We also ensure that all students receive opportunities to participate in curriculum enrichment activities at appropriate points, enhancing their mathematics learning experience. The more adept students can participate in national mathematical competitions, develop their understanding of mathematics, and celebrate their successes.

Curriculum +

The mathematics department offers various extra-curricular offerings, including regular mathematics club sessions, allowing students of all ages in all year groups to attend a session that supports skills improvement. We also run engaging puzzle and chess clubs throughout the academic year. We have a maths ambassadors scheme for KS5 students who support in the engagement of KS3/4 students in their mathematics.

Curriculum Intent

The intent of our mathematics curriculum is to develop learners who:

- Become passionate mathematicians;
- Develop into resilient, independent learners;
- Have a strong awareness of the way mathematics fits into everyday life and can apply it to real-life situations;
- Have a sound understanding of mathematical techniques and terminology, which includes the ability to apply them in new contexts;
- Are inquisitive mathematicians, having developed an understanding of how mathematical processes are interlinked;
- Possess the ability to progress readily to the next stage of their mathematical learning;
- Enjoy pride in their mathematical achievements.

Curriculum Implementation

We implement the intent of our curriculum through:

- Awareness of students' KS2 mathematics experience and the inclusion of learning objectives in Year 7 for those identified as already working at a high level;
- Schemes of work which are differentiated at a detailed level to ensure that all learning targets ability;
- The expectation that students will use mathematical language routinely in lessons;
- Building on prior mathematical knowledge whilst regularly revisiting key numeracy strands and applying critical skills to new contexts to ensure knowledge is secure;
- A routine expectation that students will show resilience in every lesson, and we support this through independent learning resources;
- A selection of contexts that are engaging and relevant to young people, whilst also setting mathematical learning in real-life situations;
- Ensuring that the opportunity to take part in curriculum enrichment activities at appropriate points is available to all students, which enhances their mathematics learning experience;
- Providing the more adept students access to participate in national mathematical competitions, developing their understanding of mathematics and celebrating their successes.
- A reflective approach to the continuing professional development of mathematics teachers (an 'open classroom' policy, collaborative planning, a teaching and learning focus to all faculty CPD)

Subject	Mathematics (Y7 – 9)		Key Stage 3	Tiers: Foundation/Intermediate/Higher		
Unit/Topic	**Number**	**Algebra**	**Ratio and Proportion**	**Geometry and Measures**	**Probability**	**Data and Statistics**
Foundation	Calculations Negative Numbers Factors/Multiples/Primes LCM and HCF Squares, Cubes and Roots Fractions Decimals Percentages	Function Machines Simplify Expressions Coordinates Solve Equations Sequences Substitution Graphs	Write Ratios Use Ratios Proportion Unitary Method	Measure and Draw Angles Properties of Shapes Perimeter and Area Transformations 3D shapes Surface Area and Volume Angle Facts	Calculate probability Experimental probability Sample Space diagrams Two-way Tables Tree Diagrams	Frequency Tables Pictograms Bar Charts Pie Charts Scatter Graphs Averages and Range
Intermediate	Calculations Negative Numbers Factors/Multiples/Primes Units Scales Decimals Fractions Percentages Squares, Cubes and Roots Laws of Indices Standard Form	Functions Simplify Expressions Substitution Sequences Coordinates Straight line graphs Expand Factorise Solve Equations Real-life graphs Simultaneous Equations	Write Ratios Use ratios Measures Scales Proportion Rates of Change Percentage Change Scale factors	Lines and Angles Triangles and Quadrilaterals Congruency Transformations Area and Perimeter Volume and Surface Area Parallel line Angles Angles in Polygons Circles Bounds Trigonometry	Language of Probability Calculating Probability Experimental probability Independent Events Expected Outcomes	Averages and Range Frequency Tables Line Graphs Bar Charts Pie Charts Stem and Leaf Comparing Data Surveying
Higher	Factors/Multiples/Primes Negative Numbers Calculations Powers and Roots Decimals HCF/LCM Laws of Indices FDP Recurring decimals Percentage Change Standard Form Surds Compound Measures Bounds	Algebraic Expressions Expand and Factorise Solving Equations Sequences Substitute Coordinates Real-life Graphs Straight line graphs Quadratics Inequalities Changing the Subject Non-linear graphs Simultaneous Equations Proof	Units of Measure Ratios Proportion Unitary Method Non-Linear Proportion	Angles and Parallel Lines Triangles and Quadrilaterals Polygons Perimeter and Area Surface Area Volume Plans and Elevations Circles Pythagoras' Theorem Transformations Constructions Loci Bearings Congruency and Similarity Trigonometry	Comparing Probabilities Mutually Exclusive Events Experimental Probability Probability Diagrams Tree Diagrams	Frequency Tables Averages and Range Two-Way Tables Bar Charts Pie Charts Scatter Graphs More Graphs Estimating Statistics Cumulative Frequency Curves Box Plots Histograms

Subject	Mathematics		Year Group: 7	Tiers: Foundation/Intermediate/Higher		
Unit/Topic	**Number**	**Algebra**	**Ratio and Proportion**	**Geometry and Measures**	**Probability**	**Data and Statistics**
Skills	Calculate Identify Compare	Express Simplify Solve	Simplify	Calculate Identify Describe Explain	Calculate Compare	Draw Interpret Compare
Knowledge	Number Calculations Four Operations Negative Numbers Factors, Multiples and Primes Fractions Decimals Percentages	Function Machines Simplify Expressions Write Formulae Substitute Solve Sequences Co-ordinates	*Int. and H only* Writing Ratios Using Ratios Proportion – unitary method	Angle Properties Properties of Shapes Area and Perimeter Congruency Transformations	*Int. only* Calculating Probability Experimental vs. Theoretical Probability	Representing Data: Frequency tables, pictograms, bar charts, line graphs, pie charts Comparing data: Averages
Recall/review from previous learning	Interleaving Starters Homework					
Assessment	AfL e.g. use of mini-whiteboards (every lesson) Low-Stake Topic Quizzes (end of units) DC assessments					
Cultural Capital, Equality, Diversity Inclusion	Knowledge is transferable, therefore, pupils are given every opportunity to participate in a wide range of learning experiences both in and beyond their classroom. These experiences include real-life enrichment projects, investigations and the access to Chess/Games clubs. They are also given regular opportunities to participate in school and national competitions to encourage more positive attitudes towards Mathematics. Cultural Capital is the essential knowledge that children need to prepare them for their future success – in the world of work, in relationships forged throughout life and as a valued contributor to society. In maths, our aim is to give children the knowledge and skills to prepare them for what comes next in their lives and to enable them to understand how averages, percentages, rates of conversion and so on are used in everyday life. This includes the relevant vocabulary needed throughout their education and the opportunity to link maths to real-world problem solving!					
Literacy/Numeracy	The use of maths-specific vocabulary and good oracy skills are promoted in every lesson. Additional opportunities to promote literacy come through whole school initiatives that we engage with in maths, including DEAR time and Big Write. Numeracy is a core foundation for all learning that is done in mathematics and therefore features heavily in all lessons and regularly in homework and interleaving starters.					

Subject	Mathematics		Year Group: 7	Tiers: Foundation B	
Unit/Topic	**Number**	**Algebra**	**Ratio and Proportion**	**Geometry and Measures**	**Data and Statistics**
Skills	Calculate Identify Evaluate	Express Simplify Solve	Simplify Calculate Compare	Calculate Identify Describe Plot	Draw Interpret Compare
Knowledge	Calculations Number Properties Place Value Decimal Place Value	Function Machines -inputs -outputs -rule finding Writing Expressions Sequences	Investigating fractions Comparing fractions Fractions of amounts	2D shapes 3D shapes Measuring Perimeter Area Angles Units of Measure Exploring position and shape	Carroll and Venn diagrams Pictograms Bar Charts Line Graphs Tally Charts Frequency Tables
Recall/review from previous learning	Interleaving Starters		Homework	Numeracy Lessons	
Assessment	AfL e.g. use of mini-whiteboards (every lesson)		Low-Stake Topic Quizzes (end of units)	DC assessments	
Cultural Capital, Equality, Diversity Inclusion	Knowledge is transferable, therefore, pupils are given every opportunity to participate in a wide range of learning experiences both in and beyond their classroom. These experiences include real-life enrichment projects, investigations and the access to Chess/Games clubs. They are also given regular opportunities to participate in school and national competitions to encourage more positive attitudes towards Mathematics. Cultural Capital is the essential knowledge that children need to prepare them for their future success – in the world of work, in relationships forged throughout life and as a valued contributor to society. In maths, our aim is to give children the knowledge and skills to prepare them for what comes next in their lives and to enable them to understand how averages, percentages, rates of conversion and so on are used in everyday life. This includes the relevant vocabulary needed throughout their education and the opportunity to link maths to real-world problem solving!				
Literacy/Numeracy	The use of maths-specific vocabulary and good oracy skills are promoted in every lesson. Additional opportunities to promote literacy come through whole school initiatives that we engage with in maths, including DEAR time and Big Write. Numeracy is a core foundation for all learning that is done in mathematics and therefore features heavily in all lessons and regularly in homework and interleaving starters.				

Subject	Mathematics		Year Group: 7	Tiers: Foundation C
Unit/Topic	**Number**	**Geometry and Measures**	**Probability**	**Data and Statistics**
Skills	Calculate Identify Evaluate	Calculate Identify Classify	Predict Compare	Draw Interpret Compare Classify
Knowledge	Place Value Rounding Counting Decimal Place Value Addition and Subtraction Fractions Decimals Multiples and Factors Primes and Squares Multiplication Division Money Calculations	Properties of 2D shapes Exploring Time Properties of 3D shapes Measuring Length Perimeter Area Position Angles Measuring Units Coordinates	Language of Probability Probability Scale Experimental Probability	Carroll Diagram Venn Diagram Pictogram Frequency Table Bar Chart Dual bar chart Line Graph
Recall/review from previous learning	Interleaving Starters		Homework	Numeracy Lessons
Assessment	AfL e.g. use of mini-whiteboards (every lesson)		Low-Stake Topic Quizzes (end of units)	DC assessments
Cultural Capital, Equality, Diversity Inclusion	Knowledge is transferable, therefore, pupils are given every opportunity to participate in a wide range of learning experiences both in and beyond their classroom. These experiences include real-life enrichment projects, investigations and the access to Chess/Games clubs. They are also given regular opportunities to participate in school and national competitions to encourage more positive attitudes towards Mathematics. Cultural Capital is the essential knowledge that children need to prepare them for their future success – in the world of work, in relationships forged throughout life and as a valued contributor to society. In maths, our aim is to give children the knowledge and skills to prepare them for what comes next in their lives and to enable them to understand how averages, percentages, rates of conversion and so on are used in everyday life. This includes the relevant vocabulary needed throughout their education and the opportunity to link maths to real-world problem solving!			
Literacy/Numeracy	The use of maths-specific vocabulary and good oracy skills are promoted in every lesson. Additional opportunities to promote literacy come through whole school initiatives that we engage with in maths, including DEAR time and Big Write. Numeracy is a core foundation for all learning that is done in mathematics and therefore features heavily in all lessons and regularly in homework and interleaving starters. Additional numeracy support available via maths intervention programmes.			

Subject	Mathematics		Year Group: 8	Tiers: Foundation/Intermediate/Higher		
Unit/Topic	**Number**	**Algebra**	**Ratio and Proportion**	**Geometry and Measures**	**Probability**	**Data and Statistics**
Skills	Calculate Identify Compare	Express Simplify Solve	Simplify	Calculate Identify Describe Explain	Calculate Compare Estimate	Draw Interpret Compare
Knowledge	Number Properties Factors, Multiples and Primes Powers and Indices Fractions Decimals Percentages	Simplify Expressions Solve Equations Sequences (F) Substitute Straight Line Graphs (I/H) Proportion on graphs (I/H)	*Int. and H only* Writing Ratios Using Ratios Multiplicative Reasoning Decimals and Ratios (I)	2D and 3D shapes Area Volume Surface Area Angles Constructions (H) Transformations (H) Maps and Scales (H)	Calculating Probability Experimental vs. Theoretical Probability	Representing Data: Bar charts Pie charts Scatter Graphs (I)
Recall/review from previous learning	Interleaving Starters Homework					
Assessment	AfL e.g. use of mini-whiteboards (every lesson) Low-Stake Topic Quizzes (end of units) DC assessments					
Cultural Capital, Equality, Diversity Inclusion	Knowledge is transferable, therefore, pupils are given every opportunity to participate in a wide range of learning experiences both in and beyond their classroom. These experiences real-life enrichment projects, investigations and the access to Chess and Games clubs. They are also given regular opportunities to participate in school and national competitions to encourage more positive attitudes towards Mathematics. Cultural Capital is the essential knowledge that children need to prepare them for their future success – in the world of work, in relationships forged throughout life and as a valued contributor to society. In maths, our aim is to give children the knowledge and skills to prepare them for what comes next in their lives and to enable them to understand how averages, percentages, rates of conversion and so on are used in everyday life. This includes the relevant vocabulary needed throughout their education and the opportunity to link maths to real-world problem solving!					
Literacy/Numeracy	The use of maths-specific vocabulary and good oracy skills are promoted in every lesson. Additional opportunities to promote literacy come through whole school initiatives that we engage with in maths, including DEAR time and Big Write. Numeracy is a core foundation for all learning that is done in mathematics and therefore features heavily in all lessons and regularly in homework and interleaving starters.					

Subject	Mathematics			Year Group: 8	Tiers: Foundation B
Unit/Topic	**Number**	**Algebra**	**Ratio and Proportion**	**Geometry and Measures**	**Data and Statistics**
Skills	Calculate Identify Evaluate	Express Simplify Solve		Calculate Identify Describe Plot	Draw Interpret Compare
Knowledge	Comparing Numbers Negative Numbers Addition and Subtraction Fractions Decimals Percentages Multiplication Division Squaring, Cubing and Rooting Order of Operations Calculations in Context	Sequences Function Machines Writing Expressions Writing Equations Simplifying Expressions Substitution	Bar Model Writing Ratio Using Ratio	2D Shapes Symmetry 3D Shapes and Nets Angles Coordinates Transformations	Tally Charts Frequency Tables Pictograms Bar Charts Line Graphs Comparing Data Averages Range
Recall/review from previous learning	Interleaving Starters			Homework	Numeracy Lessons
Assessment	AfL e.g. use of mini-whiteboards (every lesson)		Low-Stake Topic Quizzes (end of units)		DC assessments
Cultural Capital, Equality, Diversity Inclusion	Knowledge is transferable, therefore, pupils are given every opportunity to participate in a wide range of learning experiences both in and beyond their classroom. These experiences include real-life enrichment projects, investigations and the access to Chess/Games clubs. They are also given regular opportunities to participate in school and national competitions to encourage more positive attitudes towards Mathematics. Cultural Capital is the essential knowledge that children need to prepare them for their future success – in the world of work, in relationships forged throughout life and as a valued contributor to society. In maths, our aim is to give children the knowledge and skills to prepare them for what comes next in their lives and to enable them to understand how averages, percentages, rates of conversion and so on are used in everyday life. This includes the relevant vocabulary needed throughout their education and the opportunity to link maths to real-world problem solving!				
Literacy/Numeracy	The use of maths-specific vocabulary and good oracy skills are promoted in every lesson. Additional opportunities to promote literacy come through whole school initiatives that we engage with in maths, including DEAR time and Big Write. Numeracy is a core foundation for all learning that is done in mathematics and therefore features heavily in all lessons and regularly in homework and interleaving starters.				

Subject	Mathematics		Year Group: 9	Tiers: Foundation/Intermediate/Higher		
Unit/Topic	**Number**	**Algebra**	**Ratio and Proportion**	**Geometry and Measures**	**Probability**	**Data and Statistics**
Skills	Calculate Compare Estimate Convert Evaluate	Express Simplify Solve Plot Rearrange	Simplify Convert Compare Identify	Calculate Identify Describe Explain	Calculate Compare Estimate	Draw Interpret Compare
Knowledge	*F only* Number Calculations (Negative Numbers and Indices) Fractions, Decimals, Percentages *Int. and H* Indices Standard Form Surds intro (H)	Sequences (n^{th} term) Substitution Straight Line Graphs *Int. and H* Expand and Factorise Expressions Solving Equations Simultaneous Equations Inequalities Non-linear graphs (H) Changing the Subject (H)	*F* Using Ratios Direct Proportion Measures Conversion Rates *Int.* Rates of Change Enlargement Percentage Change *H* Proportion Problems Non-linear proportion	Pythagoras *F* Angles 3D Shapes Transformations *F and Int.* Constructions *Int. and H* Trigonometry	*F and Int.* Sample Space Two-Way Tables Tree Diagrams Experimental Probability	Averages from Tables *F and Int.* Frequency Tables Pie Charts Scatter Graphs Surveys *H* Cumulative Frequency Box Plots
Recall/review from previous learning	Interleaving Starters			Homework		
Assessment	AfL e.g. use of mini-whiteboards (every lesson) Low-Stake Topic Quizzes (end of units) DC assessments					
Cultural Capital, Equality, Diversity Inclusion	Knowledge is transferable, therefore, pupils are given every opportunity to participate in a wide range of learning experiences both in and beyond their classroom. These experiences include real-life enrichment projects, investigations and the access to Chess/Games clubs. They are also given regular opportunities to participate in school and national competitions to encourage more positive attitudes towards Mathematics. Cultural Capital is the essential knowledge that children need to prepare them for their future success – in the world of work, in relationships forged throughout life and as a valued contributor to society. In maths, our aim is to give children the knowledge and skills to prepare them for what comes next in their lives and to enable them to understand how averages, percentages, rates of conversion and so on are used in everyday life. This includes the relevant vocabulary needed throughout their education and the opportunity to link maths to real-world problem solving!					
Literacy/Numeracy	The use of maths-specific vocabulary and good oracy skills are promoted in every lesson. Additional opportunities to promote literacy come through whole school initiatives that we engage with in maths, including DEAR time. Numeracy is a core foundation for all learning that is done in mathematics and therefore features heavily in all lessons and regularly in homework and interleaving starters.					

Subject	Mathematics		Year Group: 9	Tiers: Foundation B	
Unit/Topic	**Number**	**Algebra**	**Geometry and Measures**	**Probability**	**Data and Statistics**
Skills	Calculate Identify Evaluate	Express Simplify Solve	Calculate Identify Describe Plot		Draw Interpret Compare
Knowledge	Negative Numbers Money Decimal Calculations Fractions Percentages Factors/Multiples/Primes HCF and LCM Squares, Cubes and Roots Types of Numbers	Function Machines Expressions Formulae Substitution	Measures Calculations 2D shapes and Symmetry Coordinate Patterns 3D Shapes Perimeter Area Volume Angles Triangles Constructions	Language of Probability Probability Scale Listing Outcomes Calculate Probabilities	Averages Range Tally Chart Frequency Table Grouped Data Pictogram Dual Bar Chart Line Graphs Two-Way Tables Pie Charts
Recall/review from previous learning	Interleaving Starters		Homework	Numeracy Lessons	
Assessment	AfL e.g. use of mini-whiteboards (every lesson)		Low-Stake Topic Quizzes (end of units)	DC assessments	
Cultural Capital, Equality, Diversity Inclusion	Knowledge is transferable, therefore, pupils are given every opportunity to participate in a wide range of learning experiences both in and beyond their classroom. These experiences include real-life enrichment projects, investigations and the access to Chess /Games clubs. They are also given regular opportunities to participate in school and national competitions to encourage more positive attitudes towards Mathematics. Cultural Capital is the essential knowledge that children need to prepare them for their future success – in the world of work, in relationships forged throughout life and as a valued contributor to society. In maths, our aim is to give children the knowledge and skills to prepare them for what comes next in their lives and to enable them to understand how averages, percentages, rates of conversion and so on are used in everyday life. This includes the relevant vocabulary needed throughout their education and the opportunity to link maths to real-world problem solving!				
Literacy/Numeracy	The use of maths-specific vocabulary and good oracy skills are promoted in every lesson. Additional opportunities to promote literacy come through whole school initiatives that we engage with in maths, including DEAR time. Numeracy is a core foundation for all learning that is done in mathematics and therefore features heavily in all lessons and regularly in homework and interleaving starters.				

Subject	Mathematics (Y10 – 11)		Key Stage 4	Tiers: Foundation /Higher		
Unit/Topic	**Number**	**Algebra**	**Ratio and Proportion**	**Geometry and Measures**	**Probability**	**Data and Statistics**
Foundation	Calculations Negative Numbers Decimals Factors/Multiples/Primes LCM and HCF Squares, Cubes and Roots Index Notation Fractions Decimals Percentages Laws of Indices Standard Form	Algebraic Expressions Simplify Expressions Substitution Expand and Factorise Formulae Solve Equations Inequalities Sequences Coordinates Straight-Line Graphs Quadratics Equations Non-linear Graphs Simultaneous Equations Proof	Write Ratios Use Ratios Proportion Unitary Method Proportion Graphs Percentages Growth and Decay Compound Measures	Measure and Draw Angles Angles in Parallel Lines Angles in Polygons Properties of Shapes Perimeter and Area Units 3D shapes Surface Area and Volume Transformations Pythagoras' Theorem Trigonometry Plans and Elevations Constructions & Loci Bearings Circles and Sectors Similarity and Congruence Vectors	Calculate probability Experimental probability Two Events Sample Space diagrams Two-way Tables Tree Diagrams Venn Diagrams	Frequency Tables Two-Way tables Bar Charts Pie Charts Scatter Graphs Time Series Stem and leaf Averages and Range Estimating Averages Sampling
Higher	Number Calculations Estimating HCF/LCM Powers and Roots Laws of Indices Standard Form Surds Fractions Decimals Percentages FDP Recurring decimals Ratios	Algebraic Expressions Simplify Expressions Substitution Expand and Factorise Formulae Linear Graphs Real-life Graphs Non-linear Graphs Solving Quadratics Simultaneous Equations Inequalities Rearranging Formulae Surds Functions Proof	Percentage Change Growth and Decay Compound Measures Ratio Proportion Direct and Inverse Proportion Exponential Functions Non-linear Graphs Transformations of Graphs	Angles Parallel Line Angles Angles in Polygons Pythagoras' Theorem Trigonometry Area and Perimeter Units of Measure Circles and Sectors Volume Surface Area Transformations Constructions and Loci Bearings and Scales Bounds Trigonometric Graphs Circle Theorems Vectors	Calculating Probability Combined Events Mutually Exclusive Experimental Probability Independent Events Tree Diagrams Conditional Probability Venn Diagrams Set Notation	Bar Charts Line Graphs Pie Charts Time Series Scatter Graphs Frequency Tables Averages and Range Grouped Frequency Estimating Averages Sampling Cumulative Frequency Histograms

Subject		Mathematics			Year Group: 10	Tiers: Foundation/Higher	
Unit/Topic		**Number**	**Algebra**	**Ratio and Proportion**	**Geometry and Measures**	**Probability**	**Data and Statistics**
Skills		Calculate Compare Estimate Convert Evaluate	Express Simplify Solve Plot Rearrange	Simplify Convert Compare Identify	Calculate Identify Describe Explain	Calculate Compare Estimate	Draw Interpret Compare
Knowledge	**Foundation**	Decimals Factors, Multiples and Primes Powers and Roots Fractions & Percentages Calculations	Simplifying Expressions Substitution Expand and Factorise Solving Equations Inequalities Sequences Straight line Graphs Real-life Graphs	Using Ratios Measures Direct Proportion Proportion Graphs Problem solving with ratio and proportion	Angles Parallel Line Angles Perimeter Area Volume of 3D shapes Surface Area Transformations Pythagoras Trigonometry	N/A	Frequency Tables Two-Way Tables Pie Charts Scatter Graphs Averages Estimate the mean Sampling
	Higher	Estimation HCF and LCM Laws of Indices Standard Form Surds Fractions Percentages FDP equivalence	Simplifying Expressions Substitution Expand and Factorise Straight Line Graphs Graphs of Polynomials Real-life Graphs Solving Quadratic Equations Inequalities Simultaneous Equations	Ratio and Proportion Problem solving with ratio and proportion	Angles Pythagoras Trigonometry Area and Perimeter Volume Surface Area Circles and Sectors Transformations Constructions Loci	Mutually Exclusive Events Experimental Probability Tree Diagrams Conditional Probability Venn Diagrams	Frequency Polygons Two-Way Tables Time Series Pie Charts Scatter Graphs Averages Grouped Frequency Tables
Recall/review from previous learning		Interleaving Starters Homework					
Assessment		AfL e.g. use of mini-whiteboards (every lesson) Low-Stake Topic Quizzes (end of units) DC assessments					
Cultural Capital, Equality, Diversity Inclusion		Knowledge is transferable, therefore, pupils are given every opportunity to participate in a wide range of learning experiences. Cultural Capital is the essential knowledge that children need to prepare them for their future success – in the world of work, in relationships forged throughout life and as a valued contributor to society. In maths, our aim is to give children the knowledge and skills to prepare them for what comes next in their lives and to enable them to understand how averages, percentages, rates of conversion and so on are used in everyday life. This includes the relevant vocabulary needed throughout their education and the opportunity to link maths to real-world problem solving!					
Literacy/Numeracy		The use of maths-specific vocabulary and good oracy skills are promoted in every lesson. Numeracy is a core foundation for all learning that is done in mathematics and therefore features heavily in all lessons and regularly in homework and interleaving starters.					

Subject		Mathematics		Year Group: 11	Tiers: Foundation/Higher		
Unit/Topic		**Number**	**Algebra**	**Ratio and Proportion**	**Geometry and Measures**	**Probability**	**Data and Statistics**
Skills		Calculate Estimate Convert Evaluate	Simplify Solve Plot Rearrange	Simplify Convert Compare Identify	Calculate Identify Describe Explain	Calculate Compare Estimate	Draw Interpret Compare
Knowledge	**Foundation**	Operating on Fractions Laws of Indices Standard Form	Expanding Double Brackets Factorising Quadratics Plotting Quadratics Solving Quadratics Changing the Subject Simultaneous Equations Non-linear graphs	Using Ratios Ratio and Measures Direct Proportions Proportion Graphs Compound Measures Direct and Inverse Proportion	Pythagoras Trigonometry Constructions Loci Bearings Circles and Sectors Volume of 3D shapes Similarity and Congruence Vectors	Calculating Probability Experimental Probability Venn Diagrams Tree Diagrams	N/A
	Higher	N/A	Simultaneous Equations Graphically Graphs of Quadratics and Cubics Graphing Inequalities Changing the Subject Algebraic Fractions Surds Functions Proof	Compound Measures Ratio and Proportion Direct and Inverse Proportion Exponential Functions Transforming Functions	Similarity and Congruence Geometric Proof Sine and Cosine Rule Trig Graphs Area of any triangle Circle Theorems Vector Geometry	Combined Events Mutually Exclusive Events Tree Diagrams Conditional Probability Venn Diagrams and Sets	Cumulative Frequency Box Plots Histograms Sampling
Recall/review from previous learning		Interleaving Starters			Homework		
Assessment		AfL e.g. use of mini-whiteboards (every lesson)		Low-Stake Topic Quizzes (end of units)		DC assessments	
Cultural Capital, Equality, Diversity Inclusion		Knowledge is transferable, therefore, pupils are given every opportunity to participate in a wide range of learning experiences. Cultural Capital is the essential knowledge that children need to prepare them for their future success – in the world of work, in relationships forged throughout life and as a valued contributor to society. In maths, our aim is to give children the knowledge and skills to prepare them for what comes next in their lives and to enable them to understand how averages, percentages, rates of conversion and so on are used in everyday life. This includes the relevant vocabulary needed throughout their education and the opportunity to link maths to real-world problem solving!					
Literacy/Numeracy		The use of maths-specific vocabulary and good oracy skills are promoted in every lesson. Numeracy is a core foundation for all learning that is done in mathematics and therefore features heavily in all lessons and regularly in homework and interleaving starters.					

Subject	Mathematics		Year Group: 10/11		Tiers: Foundation B	
Unit/Topic	**Number**	**Algebra**	**Ratio and Proportion**	**Geometry and Measures**	**Probability**	**Data and Statistics**
Skills	Calculate Identify Evaluate	Express Simplify Solve	Simplify Calculate Compare	Calculate Identify Describe Plot	Calculate Compare Estimate	Draw Interpret Compare
Knowledge	Negative Numbers Order of Operations Place Value and Rounding Decimal Calculations Factors, Multiples, Primes Squares, Cubes and Roots Fractions Fractions, Decimals, Percentages Calculating Percentages Laws of Indices Standard Form	Algebraic Notation Simplify Expressions Substitution Expanding Brackets Function Machines Solving Equations Inequalities Sequences Coordinates Straight Line Graphs Midpoints Distance-Time Graphs Double Brackets Quadratic Graphs	Writing Ratios Simplify Ratio Sharing in a Ratio Proportion Unitary Method Percentage Change Compound Measures	Properties of Shapes Angles Parallel Line Angles Angles in Polygons Perimeter Area Surface Area Volume Transformations Pythagoras' Theorem Properties of 3D shapes Constructions Loci Circles Bounds Similarity and Congruence	Equally Likely Events Calculating Probability Two-Way Tables Experimental Probability Venn Diagrams Tree Diagrams	Frequency Tables Two-Way Tables Time and Distance Tables Pictograms Bar Charts Line Graphs Stem and Leaf Pie Charts Scatter Graphs Averages Range Grouped Data Sampling
Recall/review from previous learning	Interleaving Starters			Homework		
Assessment	AfL e.g. use of mini-whiteboards (every lesson) Low-Stake Topic Quizzes (end of units) DC assessments					
Cultural Capital, Equality, Diversity Inclusion	Knowledge is transferable, therefore, pupils are given every opportunity to participate in a wide range of learning experiences. Cultural Capital is the essential knowledge that children need to prepare them for their future success – in the world of work, in relationships forged throughout life and as a valued contributor to society. In maths, our aim is to give children the knowledge and skills to prepare them for what comes next in their lives and to enable them to understand how averages, percentages, rates of conversion and so on are used in everyday life. This includes the relevant vocabulary needed throughout their education and the opportunity to link maths to real-world problem solving!					
Literacy/Numeracy	The use of maths-specific vocabulary and good oracy skills are promoted in every lesson. Numeracy is a core foundation for all learning that is done in mathematics and therefore features heavily in all lessons and regularly in homework and interleaving starters.					

Subject	Mathematics						Year Group: 12			Core Maths		
Unit/Topic	**Social Distancing**	**Society**	**Sport**	**Clothing Industry**	**Finance**	**Creative Arts**	**Health**	**Economy**	**Travel**	**Environment**	**Disasters**	**Engineering**
Skills	Calculate Compare Draw Describe											
Knowledge	Frequency Tables Averages Cumulative Frequency Scatter Graphs Variance Standard Deviation	Product Moment Correlation Coefficient Time Series Moving Averages Inequalities	Cumulative Frequency Box Plots Quartiles Scatter Graphs Regression Lines Probability Tree Diagrams Venn Diagrams	Linear Equations Simultaneous Equations Inequalities Straight Line Graphs	Exchange Rates Iterative Formulae Compound Interest Percentage Change Cumulative Frequency	Plot Graphs Ratios and Fractions nth term Geometric Sequence	Percentage Change Tree Diagrams Averages Compare Data	Tangents APR Probability Histograms Time Series Geometric Series	Tangents Gradients Inequalities Moving Averages PMCC Box Plots	Straight Line Graphs Compound Interest Quadratic Sequence Time Series Scatter Graphs	Logs and Equations Scatter Graphs PMCC Box Plots Mean Variance Standard Deviation	Histograms Inequalities Reciprocals Velocity Probability Tree Diagrams
Previous learning	Builds upon and extends some topics covered in GCSE mathematics.											
Assessment	AfL e.g. use of mini-whiteboards (every lesson) Homework DC assessments/mocks											
Cultural Capital, Equality, Diversity Inclusion	Social Networking in different countries	Life Expectancy Risk Housing Population	Golf Athletics Football Tennis	Manufacturing clothes	Income Tax Life Insurance Car Loans Mortgages	Ratio in Art Music Software	Vaccines Medicine	Payday Loans Imports Exports	Stopping Distances Tourism	Deforestation Climate Weather	Earthquakes Hurricanes Fires	Spectrums Project management
Literacy/Numeracy	The use of maths-specific vocabulary and good oracy skills are promoted in every lesson. Numeracy is a core foundation for all learning that is done in mathematics and therefore features heavily in all lessons.											

Subject	Mathematics	Year Group: 12	A-Level Mathematics
Unit/Topic	**Pure**	**Statistics**	**Mechanics**
Skills	Evaluate Calculate Simplify Solve Sketch Recognise Interpret Manipulate	Understand Interpret Compare Calculate	Sketch Interpret Apply Calculate
Knowledge	Algebra and Functions Quadratics Equations and Inequalities Graphs and Transformations Straight Line Graphs Circles Algebraic Methods Binomial Expansion Trigonometry Trigonometric Identities Vectors Differentiation Integration Exponentials and Logs	Data Collection Measures of Location and Spread Representation of Data Correlation Probability Binomial Distribution Hypothesis Testing	Modelling Kinematics Forces Variable Acceleration
Recall/review from previous learning	Interleaving Starters	Homework	
Assessment	AfL e.g. use of mini-whiteboards (every lesson)	End of Unit Tests	DC assessments/mocks
Cultural Capital, Equality, Diversity Inclusion	Knowledge is transferable, therefore, pupils are given every opportunity to participate in a wide range of learning experiences both in and beyond their classroom. These experiences may include becoming maths ambassadors to help celebrate and support mathematics events in KS3/4. Cultural Capital is the essential knowledge that children need to prepare them for their future success – in the world of work, in relationships forged throughout life and as a valued contributor to society. In maths, our aim is to give children the knowledge and skills to prepare them for what comes next in their lives and to enable them to understand how probability/statistics, calculus, mechanics and much more, are used in everyday life. Furthermore, the course provides ample opportunity to link maths to real-world problem solving!		
Literacy/Numeracy	The use of maths-specific vocabulary and good oracy skills are promoted in every lesson. Additional opportunities to promote literacy come through whole school initiatives that we engage with in maths. Numeracy is a core foundation for all learning that is done in mathematics and therefore features heavily in all lessons.		

Subject	Mathematics	Year Group: 13	A-Level Mathematics
Unit/Topic	**Pure**	**Statistics**	**Mechanics**
Skills	Evaluate Calculate Simplify Solve Sketch Recognise Interpret Manipulate	Understand Interpret Compare Calculate	Sketch Interpret Apply Calculate
Knowledge	Algebraic Methods Function and Graphs Sequences and Series Binomial Expansion Radians Trigonometric Functions Trigonometry and Modelling Parametric Equations Differentiation Numerical Methods Integration Vectors	Regression Conditional Probability Normal Distribution	Moments Forces and Friction Projectiles Application Of Forces Further Kinematics
Recall/review from previous learning	Interleaving Starters	Homework	
Assessment	AfL e.g. use of mini-whiteboards (every lesson)	End of Unit Tests	DC assessments/mocks
Cultural Capital, Equality, Diversity Inclusion	Knowledge is transferable, therefore, pupils are given every opportunity to participate in a wide range of learning experiences both in and beyond their classroom. These experiences may include becoming maths ambassadors to help celebrate and support mathematics events in KS3/4. Cultural Capital is the essential knowledge that children need to prepare them for their future success – in the world of work, in relationships forged throughout life and as a valued contributor to society. In maths, our aim is to give children the knowledge and skills to prepare them for what comes next in their lives and to enable them to understand how probability/statistics, calculus, mechanics and much more, are used in everyday life. Furthermore, the course provides ample opportunity to link maths to real-world problem solving!		
Literacy/Numeracy	The use of maths-specific vocabulary and good oracy skills are promoted in every lesson. Additional opportunities to promote literacy come through whole school initiatives that we engage with in maths. Numeracy is a core foundation for all learning that is done in mathematics and therefore features heavily in all lessons.		

Subject	Mathematics	Year Group: 12	Further Mathematics
Unit/Topic	**Core Pure**	**Further Statistics**	**Decision**
Skills	Simplify Recognise Sketch Manipulate Calculate Solve Apply Prove	Recognise Calculate Understand Compare	Identify Describe Apply Understand Represent Formulate Interpret
Knowledge	Complex Numbers Argand Diagrams Series Roots and Polynomials Volumes of Revolution Matrices Transformations Proof by Induction Vectors	Discrete Random Variables Poisson Distribution Hypothesis Testing Chi-Squared Tests	Algorithms Graphs and Networks Algorithms and Graphs Route Inspection Linear Programming Critical Path Analysis
Recall/review from previous learning	Interleaving Starters	Homework	
Assessment	AfL e.g. use of mini-whiteboards (every lesson)	End of Unit Tests	DC assessments/mocks
Cultural Capital, Equality, Diversity Inclusion	Knowledge is transferable, therefore, pupils are given every opportunity to participate in a wide range of learning experiences both in and beyond their classroom. These experiences may include becoming maths ambassadors to help celebrate and support mathematics events in KS3/4. Cultural Capital is the essential knowledge that children need to prepare them for their future success – in the world of work, in relationships forged throughout life and as a valued contributor to society. In maths, our aim is to give children the knowledge and skills to prepare them for what comes next in their lives and to enable them to understand how averages/statistics, functions, probability, programming and much more, are used in everyday life. Furthermore, the course provides ample opportunity to link maths to real-world problem solving!		
Literacy/Numeracy	The use of maths-specific vocabulary and good oracy skills are promoted in every lesson. Additional opportunities to promote literacy come through whole school initiatives that we engage with in maths. Numeracy is a core foundation for all learning that is done in mathematics and therefore features heavily in all lessons.		

Subject	Mathematics	Year Group: 13	Further Mathematics
Unit/Topic	**Core Pure**	**Further Statistics**	**Decision**
Skills	Simplify Calculate Recognise Solve Sketch Apply Manipulate Prove Represent Convert	Recognise Calculate Understand Compare Apply	Identify Describe Apply Construct Formulate Interpret
Knowledge	Complex Numbers Series Methods in Calculus Volumes of Revolution Polar Coordinates Hyperbolic Functions Methods in Differential Equations Modelling with Differential Equations	Geometric and Negative Binomial Hypothesis Testing Central Limit Theorem Chi-Squared Tests Probability Generating Functions Quality of Tests	Graphs and Networks Route Inspection Travelling Salesperson Simplex Algorithm Critical Path Analysis
Recall/review from previous learning	Interleaving Starters Homework		
Assessment	AfL e.g. use of mini-whiteboards (every lesson) End of Unit Tests DC assessments/mocks		
Cultural Capital, Equality, Diversity Inclusion	Knowledge is transferable, therefore, pupils are given every opportunity to participate in a wide range of learning experiences both in and beyond their classroom. These experiences may include becoming maths ambassadors to help celebrate and support mathematics events in KS3/4. Cultural Capital is the essential knowledge that children need to prepare them for their future success – in the world of work, in relationships forged throughout life and as a valued contributor to society. In maths, our aim is to give children the knowledge and skills to prepare them for what comes next in their lives and to enable them to understand how averages/statistics, functions, probability, programming and much more, are used in everyday life. Furthermore, the course provides ample opportunity to link maths to real-world problem solving!		
Literacy/Numeracy	The use of maths-specific vocabulary and good oracy skills are promoted in every lesson. Additional opportunities to promote literacy come through whole school initiatives that we engage with in maths. Numeracy is a core foundation for all learning that is done in mathematics and therefore features heavily in all lessons.		