



VIA DIVERSA VITA UNA – ONE LIFE, MANY PATHS

Mathematics curriculum map

“Mathematics is not about numbers, equations, computations, or algorithms: It is about UNDERSTANDING” – William Paul Thurston

Curriculum text - *Alex Through the Looking-Glass: How Life Reflects Numbers, and Numbers Reflect Life* – Alex Bellos

Yr	Intent	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
7	<ul style="list-style-type: none"> Secure and extend understanding and confidence in the number system: make connections between number relationships and their algebraic and graphical representation. Make and test conjectures about patterns and relationships; look for proofs or counterexamples 	<ul style="list-style-type: none"> Numbers and the number system Calculating 	<ul style="list-style-type: none"> Checking, estimation and approximation Counting and comparing Visualising and constructing 	<ul style="list-style-type: none"> Investigating properties of shape Algebraic proficiency; tinkering Exploring FDP Proportional reasoning 	<ul style="list-style-type: none"> Pattern sniffing Measuring space Investigating angles Calculating FDP 	<ul style="list-style-type: none"> Calculating FDP cont. Solving equations and inequalities Calculating space - 	<ul style="list-style-type: none"> Mathematical movement Presentation of data Measuring data
8	<ul style="list-style-type: none"> Extend and formalise their knowledge of ratio and proportion in working with measures and geometry, and in formulating proportional relations algebraically Move freely between different numerical, algebraic, graphical and diagrammatic representations [for example, equivalent fractions, fractions and decimals, and equations and graphs] 	<ul style="list-style-type: none"> Numbers and the number system Calculating 	<ul style="list-style-type: none"> Visualising and constructing Understanding risk I Algebraic proficiency; tinkering 	<ul style="list-style-type: none"> Exploring FDP Proportional reasoning Pattern sniffing 	<ul style="list-style-type: none"> Investigating angles Calculating FDP Solving equations 	<ul style="list-style-type: none"> Calculating space Algebraic proficiency; visualising 	<ul style="list-style-type: none"> Understanding risk II Presentation of data Measuring of data
9	<ul style="list-style-type: none"> Use mathematical knowledge to solve problems within and outside mathematics, including financial mathematics and mechanics; particularly problems that are unfamiliar in presentation and context, and that embed mathematical ideas which have not yet been fully taught 	<ul style="list-style-type: none"> Calculating Visualising and constructing 	<ul style="list-style-type: none"> Algebraic proficiency; tinkering Proportional reasoning 	<ul style="list-style-type: none"> Pattern sniffing Solving equations and inequalities I Calculating space 	<ul style="list-style-type: none"> Conjecturing Algebra; visualising 	<ul style="list-style-type: none"> Algebra visualising cont. Solving equations and inequalities II 	<ul style="list-style-type: none"> Solving equations and inequalities II cont. Understanding risk Presentation of data
10	<ul style="list-style-type: none"> Increase learners use of multiple representations where appropriate model realistic situations mathematically within a given range of functions; express the results of their investigations using a range of formal mathematical representations work with linear and quadratic expressions and graphs, applying appropriate reasoning strategies to solve increasingly complex problems 	<ul style="list-style-type: none"> Calculating Investigating properties of shape Solving equations and inequalities I 	<ul style="list-style-type: none"> Mathematical movement I Algebraic efficiency; tinkering Proportional reasoning 	<ul style="list-style-type: none"> Pattern sniffing Solving inequalities Calculating space 	<ul style="list-style-type: none"> Conjecturing Algebraic proficiency; visualising I 	<ul style="list-style-type: none"> Exploring FDP Solving equations II Understanding risk 	<ul style="list-style-type: none"> Analysing statistics Algebraic proficiency; visualising II Mathematical movement II
11	<ul style="list-style-type: none"> Work fluently and accurately with fractions, surds, and symbolic expressions, simplifying appropriately Identify and express variables and relations algebraically and graphically and begin to use a range of functions in their reasoning Select and use other forms of reasoning as appropriate; algebraic, geometric, statistical, probabilistic and logical, and know when to express their arguments informally or formally, including working directly from definitions 	<ul style="list-style-type: none"> Investigating properties of shape Calculating Solving equations and inequalities I 	<ul style="list-style-type: none"> Mathematical movement I Algebra; tinkering Proportional reasoning Pattern sniffing 	<ul style="list-style-type: none"> Solving equations II Algebraic proficiency; visualising I Analysing statistics Algebraic proficiency; visualising II 	<ul style="list-style-type: none"> Mathematical movement II 	<ul style="list-style-type: none"> GCSE Revision GCSE Examination Paper 1 	<ul style="list-style-type: none"> GCSE Examination Paper 2 GCSE Examination Paper 3
12	<ul style="list-style-type: none"> AO1: Use and apply standard techniques. Learners should be able to: select and correctly carry out routine procedures, accurately recall facts, terminology and definitions. AO2: Reason, interpret and communicate mathematically. Learners should be able to: construct rigorous mathematical arguments (including proofs); AO3: Solve problems within mathematics and in other contexts. Learners should be able to: translate problems in mathematical and non-mathematical contexts into mathematical processes; 	<ul style="list-style-type: none"> Transition Support Algebraic tinkering Solving equations and inequalities Curve sketching, algebraic division and Binomial Expansion 	<ul style="list-style-type: none"> Differentiation first principles, rates of change, tangents, normal, turning points Trigonometry; Sine and Cosine rule and area of triangle Vectors Statistical Sampling 	<ul style="list-style-type: none"> Integration and area under a curve Kinematics Data; presentation and interpretation 	<ul style="list-style-type: none"> Exponentials and logarithms, curve fitting Forces Probability and DRV's 	<ul style="list-style-type: none"> Differentiation including chain rule, product rule and quotient rule Forces, Newton's Laws and Hypothesis testing 	<ul style="list-style-type: none"> Exam preparation, application of knowledge and links to Year 13 content
13	<ul style="list-style-type: none"> AO1: Use and apply standard techniques. Learners should be able to: select and correctly carry out routine procedures, accurately recall facts, terminology and definitions. AO2: Reason, interpret and communicate mathematically. Learners should be able to: construct rigorous mathematical arguments (including proofs); AO3: Solve problems within mathematics and in other contexts. Learners should be able to: translate problems in mathematical and non-mathematical contexts into mathematical processes; 	<ul style="list-style-type: none"> Further Proof, Functions, parametric Equations, Algebraic Fractions Sequences 	<ul style="list-style-type: none"> Trigonometry including inverse trig functions, reciprocals, identities, proof and solving equations. Motion in two directions CRV's and probability 	<ul style="list-style-type: none"> Differentiation including parametric equations, logs and exponentials, inverse trigonometry functions and connected rates of change Forces Hypothesis Testing 2 	<ul style="list-style-type: none"> Further Integration / Differential Equation Numerical Methods Large Data Set 	<ul style="list-style-type: none"> Exam preparation, practice and revision A-Level Final Examinations 	<ul style="list-style-type: none"> A-Level Final Examinations

The national curriculum frame work for mathematics is fully covered by the SRPA curriculum provision.