



Why Teach Mathematics?

We believe that mathematics will allow students to establish life-long skills to make informed decisions and choices throughout their lives. Our curriculum aims to support children in securing conceptual understanding through:

- making rich connections across mathematical ideas to develop fluency, reasoning and solving increasingly sophisticated problems.
- using concrete manipulatives to support conceptual understanding.
- the use of variation to help children notice and understand pattern and structure.
- fostering and maintaining a curiosity about mathematics in the world around us.
- developing an appreciation of the beauty and elegance of mathematics.
- applying their mathematical knowledge to other areas of the curriculum.

We want our children to be able to think like mathematicians and provide them with the necessary financial literacy and mathematical knowledge in preparation for the next step in their educational journey and ultimate employment.

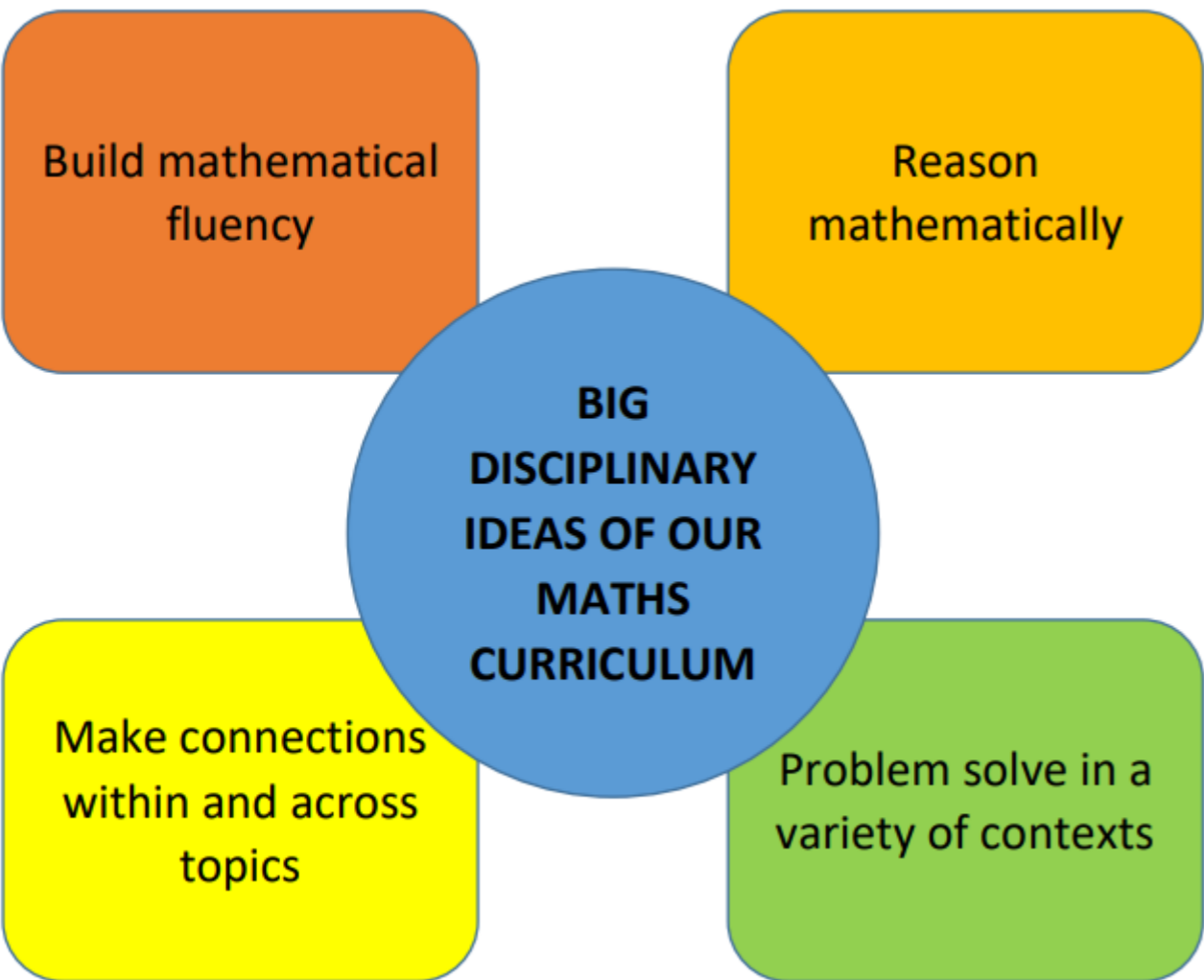
Progression of Substantive Concepts

Schemes of work create a spiral curriculum designed to embed the practice of retrieval persistently throughout the subject, so students retain and build upon knowledge throughout their time at NIA.

We revisit concepts each year but add complexity to the units studied to ensure to develop confidence and fluency in the subject.

In Key Stage 5 we further develop the concepts learnt prior and offer the opportunities to utilise mathematical concepts in broader contexts.

Substantive Topics and Units of Work on Scheme by Year Taught									
	Primary	1	2	3	4	5	6	Secondary	KS3&4
	Number							Number	
	Calculations								
	Fractions, Decimals, Percentages and Ratio							Ratio, Proportion and Rates of Change	
	Measures							Geometry and Measures	
	Time								
	Geometry								
	Position								
	Statistics							Statistics	
$2a + 3$	Algebra							Algebra	
								Probability	



Learning for Life and Careers

Employability skills

Resilience, inquisitiveness, problem solving, making connections and identify patters, explain, justify, reason logically, numeracy skills, communicate confidently.

Linking the curriculum to careers

Year group specific careers lessons delivered throughout the year.

Encounters with employers

Opportunity to speak to employers at careers fairs and work experience in Y10 and Y12.

Examples of qualification pathways

Students studying Maths at a higher level have access to some of the highest paid careers; if studying an A-Level in Maths, (the most popular A-Level in England), students can earn on average 11% more.

A-Level Maths is one of the most widely accepted and respected subject choice by universities and will keep your options open. Maths and Further Mathematics are 'facilitating subjects' which means they are amongst the most asked for by universities.

Degree choices where A-level Mathematics is an essential requirement of nearly all universities: Actuarial Science, Aeronautical Engineering, Chemical Engineering, Civil Engineering, Economics, Electrical/Electronic Engineering, Engineering (General), Mathematics, Mechanical Engineering, Physics, Statistics,

Degree choices where A-level Mathematics is listed as useful by most universities: Accountancy, Architecture, Biochemistry, Biology, Biomedical Sciences (including Medical Science), Business Studies, Chemistry, Computer Science, Dentistry, Dietetics, Geography – Some Geography BSc (science) degrees prefer one from Biology, Chemistry, Mathematics or Physics, Law – facilitating subjects at A-level are useful when applying for Law, Management Studies, Nursing and Midwifery.

“Every child deserves to be the best they can be...”



Northampton International Academy

Secondary Mathematics Curriculum Overview



N Number

A Algebra A

R Ratio, Proportion and Rates of Change

G Geometry and Measure

S Statistics

P Probability

	Year 7	Year 8	Year 9	Year 10		Year 11	
				Foundation	Higher	Foundation	Higher
Autumn	N Unit 1 Place value Unit 2 The four operations	N Unit 1 Number Properties Unit 2 Positive and negative numbers Unit 3 Rounding and estimation	N Unit 1 Arithmetic Unit 2 Powers and roots Unit 3 Fractions, decimals, and percentages	N Unit 1 Rounding and error intervals Unit 2 Percentages R Unit 3 Ratio and proportion	N Unit 1 Surds and indices A Unit 2 Drawing graphs and graphing inequalities G Unit 3 Solving quadratics G Unit 4 Arcs and sectors Unit 5 Circle theorems	N Unit 1 Multiples and factors A Unit 2 Algebraic manipulation Unit 3 Solving equations N Unit 4 Indices and standard form G Unit 5 Area, perimeter, and right-angled triangles	A Unit 1 Functions and iteration G Unit 2 Transforming graphs Unit 3 Advanced trigonometry G Unit 4 Vectors A Unit 5 Real life graphs & rates of change Unit 6 Algebraic proof
	G Unit 3 Perimeter, area, and units Unit 4 Angles and 2D shapes	G Unit 4 Length and area Unit 5 3D Shapes R Unit 6 Compound measures	A Unit 4 Algebraic manipulation Unit 5 Coordinates and graphs	A Unit 4 Perimeter and area Unit 5 Volume and surface area			
	N Unit 5 Fractions	N Unit 7 Calculations with fractions	G Unit 6 2D shapes	A Unit 6 Angles and bearings	G Unit 6 Similarity and congruence		
	R Unit 6 Fractions, decimals, and percentages A Unit 7 Introduction to algebra A Unit 8 Coordinates and graphs	P Unit 8 Probability A Unit 9 Algebraic manipulation A Unit 10 Solving equations	G Unit 7 3D Shapes A Unit 8 Solving equations A Unit 9 Sequences	G Unit 7 Transformations G Unit 8 Drawing graphs A Unit 9 Straight line graphs	G Unit 7 Complex transformations of shapes P Unit 8 Conditional probability A Unit 9 Volume and algebra		
Spring							
	N Unit 9 Order of operations	G Unit 11 Angles	R Unit 10 Percentages Unit 11 Proportion	N Unit 10 Compound measures	N Unit 10 Bounds and compound measures		
	R Unit 10 Ratio and proportion	G Unit 12 Transformations	G Unit 12 Constructions, loci, and bearings	P Unit 11 Probability	A Unit 11 Graphs of circles Unit 12 Linear and quadratic simultaneous equations		
Summer	S Unit 11 Working with data	S Unit 13 Statistics	S Unit 13 Statistics Revision	S Unit 12 Averages and the range	S Unit 13 Histograms, cumulative frequency, and box plots		
						Revision	
						Mock Examination Question Level Analysis (QLA)	
						Topic Review/Adaptive Teaching based on QLA	
						Revision	
						Mock Examination Question Level Analysis (QLA)	
						Topic Review/Adaptive Teaching based on QLA Revision	
						GCSE Examinations	

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		Y12		Y13				
		Pure & Mechanics	Pure & Stats	Pure & Mechanics	Pure & Stats			
Autumn 1	N	Binomial Expansion (P1) Straight Line Graphs (P1) Algebraic Methods (P1) Circles (P1)	A	Algebraic Expressions (P1) Quadratics (P1) Equations and Inequalities (P1) Graphs and Transformations (P1)	A	P2 - Differentiation P2 - Integration	S	S2 - Regression, correlation and hypothesis
	G	Trigonometric Ratios (P1)					P	S2 - Conditional Probability
Autumn 2	G	Trigonometric Ratios (P1) Trigonometric Identities and Equations (P1) Vectors (P1)	A	Graphs and Transformations (P1)	R	M2 - Moments M2 - Friction M2 - Projectile Motion	S	S2 - Normal Distribution
	N	Exponentials and Logarithms (P1)	S	Data Collection (S1) Measures of Location and Spread (S1) Representations of Data (S1) Correlation (S1)			G	P2 - Trigonometry and modelling
Spring 1	R	Units (M1) Constant Acceleration (M1) Forces and Motion (M1)	P	Probability (S1)	R	M2 - Applications of forces M2 - Further Kinematics	G	P2 - Trigonometry and modelling
			S	Statistical Distributions (S1) Hypothesis Testing (S1)			A	P2 - Parametric Equations
		Revision		Revision		Revision		Revision
		Mock Examination Question Level Analysis (QLA)		Mock Examination Question Level Analysis (QLA)		Mock Examination Question Level Analysis (QLA)		Mock Examination Question Level Analysis (QLA)
Spring 2	R	Forces and Motion (M1) Variable Acceleration (M1)	A	Differentiation (P1) Integration (P1)			G	P2 - Vectors
	Topic Review/Adaptive Teaching based on QLA		Topic Review/Adaptive Teaching based on QLA					
Summer 1	A	Algebraic Methods (P2)	A	P2 - Binomial Expansion(P2)	Revision A Level Examination			
	G	Functions and Graphs (P2)						
Summer 2	A	Sequence and Series (P2)	G	Radians (P2) Trigonometric Functions (P2)				
	N	Numerical Methods (P2)						

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