

Elements Curriculum Plan

Subject: Mathematics (GCSE Foundation Curriculum)

Building Block 6a ≈ KS4 (Y10)

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Half-Term	Topic/Content	Skills	Personal Development
Autumn 1	Non calculator methods	<ul style="list-style-type: none"> • Revisit types of number- extend to include rational and irrational • Revisit Arithmetic • Revisit Fraction arithmetic • Evaluate calculations involving percentages • Work with exact answers in area and volume 	Communication Problem Solving Life Skills
	Types of number and sequences	<ul style="list-style-type: none"> • Use factors multiples primes and prime factorisation • Recognise arithmetic and geometric sequences • Recognise and use other sequences 	Communication Problem Solving Life Skills
	Indices and roots	<ul style="list-style-type: none"> • Work out powers and roots • Use the rule of indices • Calculate with numbers and standard form 	Communication Problem Solving Life Skills
Assessment			
Autumn 2	Ratio and fractions	<ul style="list-style-type: none"> • Use ratios including with mixed units • Fractions in ratios • Fractions from ratios • Combining ratios • Unit pricing (best buys) • Currency Conversions 	Communication Problem Solving Life Skills Staying safe
	Percentages and Interest	<ul style="list-style-type: none"> • Convert Fractions Decimals and percentages • Find percentages and percentage changes • Find one number as a percentage of another • Calculate simple and compound interest • Evaluate exponential change • Find original values 	Communication Problem Solving Life Skills Staying safe
	Geometry Circles	<ul style="list-style-type: none"> • Name parts of a circle and perform related calculations • Review area and circumference 	Communication Problem Solving Life Skills

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		<ul style="list-style-type: none"> • Find areas and volumes related to circles, cylinder, cone sphere, etc.. and parts thereof for higher pupils. 	
Assessment			
Spring 1	Angles and bearings	<ul style="list-style-type: none"> • Review BB3-5 angles • Understand and use bearings • 	Communication Problem Solving Life Skills
	Congruence similarity and enlargement	<ul style="list-style-type: none"> • Understand the difference between congruency and similarity • Review Transformations from BB3-BB5 • Enlarge a shape about a given point • Find missing sides in similar shapes including similar triangles • Understand and use the conditions for a pair of congruent triangles 	Staying safe Teamwork Communication Problem Solving Life Skills Staying safe
	Trigonometry	<ul style="list-style-type: none"> • Understand trigonometric ratios • Work out missing lengths and angles in right angled triangles • Know and use the exact trig values 	Communication Problem Solving Self-Motivation
Assessment			
Spring 2	Algebra- representing solutions of equations and inequalities	<ul style="list-style-type: none"> • Recap terminology and equations from BB3- BB5 • Form and solve equations and inequalities in a variety of contexts including with unknowns on both sides. • Represent solutions to inequalities on a number line • Represent solutions to equations graphically 	Communication Problem Solving Life Skills Self-Motivation
	Simultaneous equations	<ul style="list-style-type: none"> • Understand what a simultaneous equations is • Solve simultaneous equation in puzzle form 	Communication Problem Solving Life Skills

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		<ul style="list-style-type: none"> • Understand the meaning of solution, appreciating that some equations have more than one solution • Form and solve pair of simultaneous equations graphically • Form and solve a pair of simultaneous equations algebraically 	Self-Motivation
Assessment			
Summer 1	Vectors	<ul style="list-style-type: none"> • Understand vector notation • Vector arithmetic- addition, subtraction, and multiplication by a scalar • Vectors and translations 	Communication Problem Solving Self-Motivation
	Delving into Data- The data handling cycle	<ul style="list-style-type: none"> • Understand sampling including possible limitations • Construct and interpret tables and line graphs for time series • Understand and represent grouped data • Understand and identify correlation • Use lines of best fit, understand the problems of extrapolation • Construct and interpret frequency polygons • Evaluate measure of location and dispersion • Use statistical diagrams • and measures to compare distributions 	Communication Problem Solving Life Skills Staying Safe Self awareness
Assessment			
Summer 2	Review and revision project	Review and revise areas from throughout the year apply skills of investigation and A02 and A03 through investigation and problem solving opportunities	Communication Problem Solving Life Skills Self Motivation Self awareness
Assessment			

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Building Block 6b ≈ KS4 (Y11) FOUNDATION

Half-Term	Topic/Content	Skills	Personal Development
Autumn 1	1. Fractions	<ul style="list-style-type: none"> • Add and subtract between fractions • Convert between fractions and mixed numbers • Add and subtract mixed numbers • Multiply fractions with mixed numbers • Divide fractions with mixed numbers • Order fractions with different denominations 	Communication Problem Solving Life Skills
	2. Powers and Indices	<ul style="list-style-type: none"> • Write integers as a product of their prime factors • Find the HCF of a pair of integers • Find the LCM of a pair of integers • Use and apply laws of indices • Convert between normal numbers and standard form 	Communication Problem Solving Life Skills
	3. Ratio and proportion	<ul style="list-style-type: none"> • Share amounts into a given ratio • Use proportion to solve problems • Use proportion for recipe problems • Calculate best value • Calculate side lengths of similar shapes • Use exchange rates to solve problems • Use compound measures, Speed distance time, density and pressure • 	Communication Problem Solving Life Skills Self-Awareness
	4. Percentages	<ul style="list-style-type: none"> • Calculate percentages of an amount • Calculate an increase or decrease by a given percentage • Calculate percentage change 	Communication Problem Solving Life Skills Staying- safe

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		<ul style="list-style-type: none"> • Calculate original value problems (reverse percentages) • Calculate compound interest/ depreciation 	
Assessment			
Autumn 2	5. Linear Equations	<ul style="list-style-type: none"> • Solve linear equations including multiples (2 step and brackets) • Solve linear equation involving quotients • Form and solve linear equations • Change the subject of linear equations 	Communication Problem Solving
	6. Quadratic equations	<ul style="list-style-type: none"> • Expand and simplify double brackets to form quadratic expressions • Factorise quadratic expressions • Solve quadratic expressions with an x coefficient equal to 1 	Communication Problem Solving Life Skills
	7. Sequences and graphs	<ul style="list-style-type: none"> • Generate terms of linear/quadratic sequences • Calculate the nth term of a linear sequence • Check if a term is part of a given sequence • Plot linear graphs given in the form $y=mx+c$ • Plot non standard linear graphs • Calculate the gradient of a linear graph • Rearrange the equation of graph into the form $y=mx+C$ • Plot quadratic graphs • Plot cubic graphs 	Communication Problem Solving Life Skills
	8. Algebraic manipulation including simultaneous equations	<ul style="list-style-type: none"> • Change the subject of simple equations and formulae • Change the subject of equations where the variable appears on both sides of the equation • Solve simultaneous equations graphically • Solve simultaneous equations algebraically by elimination (and where a common multiple must be identified) 	Communication Problem Solving Life Skills

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Assessment			
Spring 1	9. Data handling	<ul style="list-style-type: none"> • Plot and interpret bar charts • Plot and interpret pictograms • Construct and interpret frequency polygons • Calculate averages from frequency tables • Construct and interpret pie charts • Construct and interpret scatter graphs • Construct and interpret time series graphs and moving averages 	Communication Problem Solving Life Skills Staying safe Self Awareness Teamwork
	10. Probability	<ul style="list-style-type: none"> • Construct and interpret frequency trees • Construct simple tree diagrams • Calculate probabilities from tree diagrams • Construct Venn diagrams • Calculate probabilities from Venn diagrams • Construct and interpret two way diagrams • Construct and interpret sample space diagrams • Calculate relative frequency 	Communication Problem Solving Life Skills Staying safe Self Awareness Teamwork
	11. Pythagoras	<ul style="list-style-type: none"> • Understand the relationship between the sum of area of the squares constructed on the side of a right angled triangle • Use Pythagoras theorem to calculate the length of the hypotenuse • Use Pythagoras theorem to calculate the length of the shorter sides. 	Communication Problem Solving Life Skills Self-Motivation
Assessment			
Spring 2	12. Angles	<ul style="list-style-type: none"> • Use angle facts to calculate missing angles • Calculate missing angles in special triangles (equilateral, right angled isosceles) • Identify corresponding angles 	Communication Problem Solving Life Skills

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		<ul style="list-style-type: none"> • Identify alternate angles • Use angle facts to find missing angles in parallel lines • Calculate interior and exterior angles • Calculate the number of sides in a regular polygon has given the interior/exterior angle 	
	13. Trigonometry	<ul style="list-style-type: none"> • Correctly label sides of a right angled triangle (hypotenuse, opposite, adjacent) • Identify the correct trigonometric ratio (Using SOHCAHTOA) • Calculate missing sides and lengths with and without rearranging • Calculate missing angles using sine, cosine or tangent • Recognise sine cosine and tangent graphs 	
Assessment			
Summer 1	14. Revision	<ul style="list-style-type: none"> • Additional content to be identified by monitoring and using the mocks and other assessment materials to help identify need. 	Communication Problem Solving Life Skills Self Awareness Self Motivation
Assessment			
Summer 2	15. Final exams		

Rationale –

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BB3-5

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BB6ab

As above, plus:

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