

MATHS GSA Curriculum Map 2021-2

Curriculum intent statement for Maths:


We aim to develop all students into mathematicians who:

- have a coherent framework of knowledge about the mathematical areas of Number, Algebra, Geometry and Measure, Probability and Statistics, Ratio and Proportion;
- become fluent in the language of mathematics, have the ability to reason mathematically and have confidence in solving increasingly complex problems by applying a combination of mathematical skills to routine and non-routine problems with increasing sophistication;
- understand the practical applications of mathematics, relish the challenge that studying mathematics provides and believe that by working hard at mathematics they can succeed.

Year 7						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topics	1. Place value (including decimals) 2. Order positive and negative numbers (including decimals) including number lines and inequality symbols 3. Four operations with integers and decimals 4. Four operations with negatives	1. Order of operations 2. Special numbers - Primes - Squares/square root - Cubes/cube root 3. Prime factorisation 4. Factors and multiples (including HCF / LCM) 5. Introduction to fractions - Equivalent fractions - Mixed to improper fractions and vice versa - Fractions of amounts	1. Multiply and divide fractions (including multiplying integers by fractions and reciprocals) 2. Rounding decimal places (up to 3 decimal places) 3. Order fractions and decimals 4. Add and subtract fractions 5. Perimeter	1. Algebraic convention 2. Substitution and formulae 3. Form and simplifying algebraic expression 4. Form and solve equations $ax + b = c$ including negative and fractional co-efficient 5. Area of rectangles, triangles, parallelograms (not compound or trapezia)	1. Sequences - Term to term - Fibonacci sequence - Nth term 2. Draw, measure and estimate angles 3. Calculate angles - On a line - Around a point - In a triangle - Polygon (int/ext) - Vertically opposite 4. Bearings (not including back bearings)	END OF YEAR SUMMATIVE ASSESSMENT (Week 2) 1. Form and solve equations relating to angle reasoning (no further than $ax + b = c$ from half term 4) 2. Coordinates in all 4 quadrants and geometric problems 3. Using a calculator 4. Measures 5. Conversion graphs

Skills	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.
Links KS3 Nat. Curriculum	NC: Number N1, N2, N4i, N6, N12i, N16	NC: Number N3, N5, N11, R3	NC: Number N2, N4ii, N5, N9, N13, G1i	NC: Algebra A1, A2, A4i, A5, A7, G16	NC: A14, A15, A16, G3, G10, G12, G16	NC: A16, N12ii, N15, R1
Resources		Year 7 Autumn Term 2 Remote Learning	Year 7 Spring Term 1 Remote Learning	Year 7 Spring Term 2 Remote Learning	Year 7 Summer Term 1 Remote Learning	Year 7 Summer Term 2 Remote Learning
Cross-curricular links			Perimeter links to D&T Y7 HT3/4 - 'Knowledge and Skills'			Use of a calculator links to D&T Y7 KT % 'Problem Solving'
Year 8						
Topics	<p>1. Fraction, decimal, percentage equivalence</p> <p>2. Percentages</p> <ul style="list-style-type: none"> - Of amounts - Multipliers - % inc / dec <p>3. Ratio</p> <ul style="list-style-type: none"> - Equivalence - 1 : n and n : 1 including application to scale drawing - Simplifying - Recipes - Ratios as fractions and linear functions - Sharing - Problem solving 	<p>1. Reverse percentages</p> <p>2. Expand single brackets</p> <p>3. Form and solve equations $a(b + x) = d$ with fractional, decimal and negative coefficients</p> <p>4. Factorise a single bracket</p> <p>5. Area and perimeter of trapezia (revision) and compound shapes (including algebraic with brackets and solving)</p>	<p>1. Properties of 2D shapes (inc quadrilaterals and circles)</p> <p>2. Properties of 3D shapes and 2D representations of 3D shapes (plans, elevations and nets)</p> <p>3. Area and circumference of circles and part circles</p> <p>4. Volume</p> <ul style="list-style-type: none"> - cube / cuboid - prisms - cylinder - composite 	<p>1. Probability</p> <ul style="list-style-type: none"> - Use of FDP - And / Or - Sample space diagrams - Relative frequency - Mutually exclusive - Expected probability - Venn diagrams <p>2. Surface area</p> <ul style="list-style-type: none"> - cube / cuboid - prisms - cylinder - composite <p>3. Pythagoras in 2D</p>	<p>1. Recognise and sketch basic graphs (eg $y = x$, $y = -x$, $x = c$, $y = c$, c constant)</p> <p>2. Transformations</p> <ul style="list-style-type: none"> - Reflection and rotation (including symmetries) - Enlargements about a point (inc fractional SF) - Translation (inc vector notation) - variance and invariant points throughout <p>END OF YEAR SUMMATIVE ASSESSMENT (Week 6)</p>	<p>1. Statistical diagrams</p> <ul style="list-style-type: none"> - Collecting data - Data into tables - Line graphs - Bar charts - Pictograms - Pie charts <p>2. Scatter graphs and correlation</p> <p>3. Averages and range (including from a frequency table – not grouped)</p> <p>4. Data project</p>

Skills	Fluency, Problem Solving, Reasoning. DF2, DF3, DF7 RM1, RM2, SP1, SP2, SP3, SP4	Fluency, Problem Solving, Reasoning. DF1, DF3, DF4, DF5, DF6, DF7 RM1, RM3, RM4, RM5, RM6 SP1, SP2, SP3, SP4	Fluency, Problem Solving, Reasoning. DF5, DF7, RM1, RM5, SP4	Fluency, Problem Solving, Reasoning. DF2, DF5, RM2, RM4, RM6, SP3, SP4.	Fluency, Problem Solving, Reasoning. DF5, DF7, RM1, RM5, SP4	Fluency, Problem Solving, Reasoning. DF7, RM4, RM7, SP2, SP3
Links KS3 Nat. Curriculum	NC: Number N9, N10, N11, R2, R4, R5, R6, R7, R8	NC: Algebra A4ii, A4iii, G2ii, G16, R8	NC: Geometry & Measure G1ii, G5, G7, G15, G16	NC: G14, G16, P1, P2, P3, P4	NC: A10, G5, G8, G9	NC: S1i, S1ii, S2, S3
Resources		Year 8 Autumn Term 2 Remote Learning	Year 8 Spring Term 1 Remote Learning	Year 8 Spring Term 2 Remote Learning	Year 8 Summer Term 1 Remote Learning	Year 8 Summer Term 2 Remote Learning
Cross-curricular links				Link to Art Y8 HT3 - Portraits links with Maths Measures Links to D&T Y8 HT3/4 Knowledge and Skills	Link to Art Y7 H6 - Biscuits Observational Drawings with Enlargements in Maths	Link to D&T Y8 - Collecting Data with Statistical diagrams
Year 9						
Topics	1. Rounding, estimation and bounds 2. Standard form 3. Rules of indices (up to negative integer powers) 4. Geometric sequences including real life context and compound %	1. Equations and inequalities with unknowns on both sides 2. Expand single and double brackets 3. Factorise into single/double brackets $x^2 + bx + c$ (inc DOTS) 4. Change the subject of the formula (variable on one side only)	1. Straight line graphs: plotting and understanding $y = mx + c$ 2. Sketch and draw non-linear graphs 3. Real life graphs and compound measures including - contextual graphs using piece-wise linear, exponential and reciprocal graphs - speed, unit pricing, density	1. Construction 2. Loci 3. Angles in parallel lines (inc algebraic questions) 4. Back bearings (using angle knowledge) 5. Congruence and Similarity	1. Direct and inverse proportion END OF YEAR SUMMATIVE ASSESSMENT (Week 3) 2. Trigonometry in right angled triangles 3. Pythagoras and trigonometry problem solving 4. Averages from grouped frequency tables	1. Scatter graphs and Correlation 2. Surface area 3. Introduction to GCSE: Problem solving in context
Skills	Fluency, Problem Solving, Reasoning. DF2, DF3 DF4 RM1, RM3	Fluency, Problem Solving, Reasoning. DF5, DF6 RM1, RM3	Fluency, Problem Solving, Reasoning. DF4 RM4	Fluency, Problem Solving, Reasoning DF1, DF2, DF3, DF4, DF7	Fluency, Problem Solving, Reasoning. DF5, DF7 RM2, RM5	Fluency, Problem Solving, Reasoning. DF1, DF2, DF5 RM1, RM4, RM7

	SP1	SP3	SP1, SP2	RM2, RM5, SP1, SP4	SP1, SP4	SP1, SP4
Links KS3 Nat. Curriculum	NC: Number N13, N8, N7 Algebra A16	NC: Number N14 Algebra A4i, A4iii, A4iv, A5, A7	NC: Algebra A7, A8, A9, A10, A11, A12i, A12ii, A13 Representing Data R9	NC: Geometry & Measures G4i, G4ii, G6, G9, G10, 13,	NC: Representing Data R9, Geometry & Measures G13, G14 Statistics S1ii, S2	NC: Statistics S3 Geometry & Measures G15
Resources	Year 9 Autumn 1 Remote Learning Links - Google Sheets	Year 9 Autumn 2 - Remote Learning	Year 9 Spring Term 1 Remote Learning	Year 9 Spring Term 2 Remote Learning	Year 9 Summer Term 1 Remote Learning	Yr9 Half Term 6 Remote Delivery Plan
Cross-curricular links		Straight Line Graphs links with Y9 Science - 'Intro to GCSE'	Equations links with Y9 Science HT6 - Energy (rearranging equations)		Constructions & Loci link with Art - Year 8 HT2 project	
Year 10						
Topics	Number Algebraic Manipulation	Solving Equations and Inequalities Ratio and Proportion	Sequences Perimeter Area and Volume Basic Trig	Angle Properties and Constructions Graphs Measures	Measures continued... Probability Recap and Extension Statistics	Statistics Continued Revision
Skills AQA Assessment Objectives	Fluency, Problem Solving, Reasoning. AO1.1, 1.2, 1.3; AO2.1, 2.2, 2.3; AO3.1, 3.2, 3.3,	Fluency, Problem Solving, Reasoning. AO1.1, 1.3; AO2.1, 2.2, 2.2; AO3.1, 3.2	Fluency, Problem Solving, Reasoning. AO1.1, 1.3 AO2.1, 2.2, 2.3 AO3.2, 3.3, 3.4	Fluency, Problem Solving, Reasoning. AO1.1, 1.2, 1.3; AO2.1, 2.4; AO3.1, 3.2, 3.3	Fluency, Problem Solving, Reasoning. AO1.1, 1.2, 1.3; AO2.2, 2.3; AO3.1	Fluency, Problem Solving, Reasoning. AO1.1, 1.2, 1.3; AO2.2, 2.3; AO3.1
Links	AQA Spec: N1 - 16, R9, A2 - 7	AQA Spec: A17 - 22, R3-8, 10, 13 - 16	AQA Spec: A23 - 25, A8 - 16, G20-22, G12 - 13, R12	AQA Spec: G1 - 6, R1, 11, G14, A8 - 14,16	AQA Spec: R1, R11, G14, P1 - 9, S1 - 6	AQA Spec: S1 - 6
Resources	 Year 10 Remote Le...	Year 10 Remote Learning Term 2	Year 10 Remote Learning Term 3	Year 10 Remote Learning Term 4	Year 10 Remote Learning Term 5	Year 10 Remote Learning Term 6
Cross-curricular links	Links with Y10 D&T - HT1 - Core Theorem (links with SOH CAH TOA)	Links with chemical equations Y10 Science HT2	Links with Surface Area Structure and Bonding HT1	Measures links with Y9 Science - 'Intro to GCSE' Art - Y9 HT4 - Figure Drawings Proportion linking with Construction	Y10Physics Particle model of matter HT3 HT5 Motion Graphs.	Biology Correlation Y10 B7 HT4
Year 11						

Topics	Transformations inc. similarity and congruence Plans and elevations Scale drawing and bearings Interleaving revision	Tig recap and extension	Pre calculus area under the curve Gradients and Rates of Change Circle Theorems	Vectors	Targeted GCSE revision using the QLA documents following the PPEs.	Targeted GCSE revision using the QLA documents following the PPEs.
Skills AQA Assessment Objectives	Fluency, Problem Solving, Reasoning. AO1.1, 1.2, 1.3; AO2.1, 2.2, 2.3, 2.4, 2.5; AO3.1, 3.2, 3.3, 3.4, 3.5	Fluency, Problem Solving, Reasoning. AO1.1, 1.2, 1.3; AO2.1, 2.2, 2.3, 2.4; AO3.1, 3.2, 3.3, 3.4	Fluency, Problem Solving, Reasoning. AO1.1, 1.2, 1.3; AO2.1, 2.2, 2.3, 2.4; AO3.1, 3.2, 3.3, 3.4	Fluency, Problem Solving, Reasoning. AO1.1, 1.2, 1.3; AO2.1, 2.2, 2.3, 2.4; AO3.1, 3.2, 3.3, 3.4	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.
Links	AQA Spec:R12, G6 - 9, 19, 24	AQA Spec: R12, G20, G21, G22	AQA Spec: A15, R14, 15	AQA Spec: G25		
Resources	Year 11 Remote Learning Term 1	Year 11 Remote Learning Term 2	Year 11 Remote Learning Term 3	Year 11 Remote Learning Term 4	Year 11 Remote Learning Term 5	Year 11 Remote Learning Term 6
Cross-curricular links	DT: Y11 Design project.	Physics: Y10 Forces and Balance HT5 (SOHCAHTOA)	Science: Rates of Reaction HT4 Gradients of Graphs.	Physics Y9 HT4 Vectors Resultant Forces	NA	NA

Year 12 Mathematics (AQA - 7357 Course)

Topics	<p>Teacher A</p> <p><i>Pure Mathematics:</i></p> <ol style="list-style-type: none"> 1. Quadratics 2. Polynomials 3. Trigonometric Functions and equations <p>Teacher B</p> <p><i>Pure Mathematics:</i></p> <ol style="list-style-type: none"> 1. Indices and Surds 2. Using Graphs 3. Coordinate Geometry 	<p>Teacher A</p> <p><i>Pure Mathematics:</i></p> <ol style="list-style-type: none"> 1. Differentiation 2. Applications of Differentiation 3. Integration <p>Teacher B</p> <p><i>Pure Mathematics</i></p> <ol style="list-style-type: none"> 1. Coordinate Geometry 2. Triangle Geometry 3. Binomial Expansion 	<p>Teacher A</p> <p><i>Pure Mathematics:</i></p> <ol style="list-style-type: none"> 1. Logarithms 2. Exponential <p><i>Mechanics:</i></p> <ol style="list-style-type: none"> 3. Vectors <p>Teacher B</p> <p><i>Statistics</i></p> <ol style="list-style-type: none"> 1. Working with Statistical Data 2. Pure Maths Review 	<p>Teacher A</p> <p><i>Mechanics</i></p> <ol style="list-style-type: none"> 1. Kinematics 2. Motion with Constant Acceleration 3. Forces and Newton's Laws <p>Teacher B</p> <p><i>Statistics</i></p> <ol style="list-style-type: none"> 1. Probability 2. Statistical Hypothesis Testing <p><i>Pure Mathematics:</i></p>	<p>Teacher A</p> <p><i>Pure Mathematics:</i></p> <p>Review</p> <p><i>Mechanics</i></p> <ol style="list-style-type: none"> 1. Forces and Newton's Laws <p>Teacher B</p> <p><i>Statistics</i></p> <ol style="list-style-type: none"> 1. Large Data Set 	<p>Teacher A</p> <ol style="list-style-type: none"> 1. Exam Preparation and Revision 2. Year 13 Topics Rational Functions and Partial Fractions <p>Teacher B</p> <ol style="list-style-type: none"> 1. Exam Preparation and Revision 2. Begin A2 content (TBC)
--------	---	---	---	---	--	--

				3. Proof and Mathematical Communication.		
Skills	Fluency, Problem P, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique
Links Referring to AQA specification	Teacher A 1. B3 2. B6 3. E1 Teacher B 1 B1, B2 2 .B4, B5, B7, B9 3.C1 C2	Teacher A 1. G1,G2 2.G3 3. H1,H2,H3 Teacher B 1.C1, C2 2.E3,E5,E7 3.D1	Teacher A 1. F3, F4, F5 2. F1, F2, F6, F7 3. J1, J2, J3, J4, J5 Teacher B 1.L1, L2, L3, L4	Teacher A 1. P1 2.Q1, Q2, Q3, Q4 3. R1, R2, R3 Teacher B 1..M1, N1 2..K1, O1, O2 3. A1	Teacher A 1.R1, R2, R3 Teacher B 1.Sectoion 3.21.1	Teacher A TBC Teacher B TBC
Resources						
Cross-curricular links		Links to Physics Y10 HT5	Standard deviation links with - Y12 Biology HT5 - Statistics			
Year 13 Mathematics (AQA - 7357 Course)						
Topics	Teacher A: Introduction to Radians Further Trigonometry Calculus of Exponential and Trigonometric Functions Further Differentiation Further Integration Techniques Teacher B: Transformations of Graphs Rational Functions and Partial Fractions General Binomial Expansion Radian Measure	Teacher A: Further Integration Techniques Further Applications of Calculus Differential Equations Proof Teacher B: Radian Measure Functions Sequences and Series	Teacher A: Forces in Context Moments Numerical Solutions of Equations Teacher B: Sequences and Series Conditional Probability	Teacher A: Numerical Solutions of Equations Numerical Integration Application of Vectors Projectiles Teacher B: Conditional Probability The Normal Distribution Further Hypothesis Testing	Examination Preparation	Examination Preparation

Skills	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique
Links Referring to AQA specification	Teacher A: E4, E5, E6, E8, E9 G1, G2, H2, G4, G5 H5, H6 Teacher B: B7, B9 B6, B10 D1 E1, E2, E3	Teacher A: H5, H6 G1, C3, C4, G5, H3 G6, H7, H8 A1 Teacher B: E1, E2, E3 B8, B11 D2, D3, D4, D5, D6	Teacher A: R2, R4, R5, R6 P1, S1 I1, I2, I4 Teacher B: D2, D3, D4, D5, D6 M2, M3	Teacher A: I1, I2, I4 H4, I3 J1, J2, J3, J4, J5, Q3, Q4 J5, Q5 Teacher B: M2, M3 N2, N3 O1, O3		
Resources						
Cross-curricular links			Y13 PE - Moments linking with Angular Motion Y13 HT1	Y13 PE - Moments linking with Projection Motion Y13 HT2		

Level 3 Mathematical Studies 'Core Maths' (AQA - 1350 Course)						
Topics	Teacher A: Types of data and collecting data Sampling data Representing data numerically Representing data diagrammatically Teacher B: Numerical Calculation Introduction to Spreadsheet Percentages Taxation: Income Tax and National Insurance	Teacher A Analyse Critically Teacher B Repayments and credit Interest Rates Taxation: Value Added tax (VAT) Graphical representation Solutions to financial problems	Teacher A Equation of a straight line Perimeter. Circumference and area Similarity and pythagorean theorem Surface area and similarity Teacher B Fermi Estimation The Normal Distribution	Teacher A Correlation and regression Limits of accuracy Teacher B Probability and estimation	Revision	No Lesson - Course completed
Skills	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	

	Exam Technique	Exam Technique	Exam Technique	Exam Technique	Exam Technique	Exam Technique
Links Referring to AQA specification	Teacher A: B1-B7 Teacher B: C1-C6 Teacher C MC1-MC3, MC7	Teacher A: D1-D4 Teacher B: DA1 - DA6 DB1 - DB5 DD1 - DD2 Teacher C MA1-MA2 MB1	Teacher A: D6, A1 Teacher B: D8 - D9 and D12 - D16 Teacher C MB2-MB3 MD1-MD3	Teacher A: F1, F3, F4, F6 H1, H3, H4, H6 Teacher B: DG1 - DG5 DC1 - DC4 Teacher C MC2-MC6 MB2	Teacher A: E2, E3 G1, G2 Teacher B: DE1 - DE4 and DE5 - DE6 Teacher C MB4	Teacher A: DC2, DC5, DC6, DC7 DD3, DD4 Teacher B: DF1 - DF5 DF6 Teacher C MD4-MD5
Resources						
Cross-curricular links						

Year 13 Further Mathematics (AQA - 7367 Course)						
Topics	Teacher A: De Moivre's Theorem Further Complex Numbers applied to trigonometry Teacher B: Further Matrices Further transformations of the ellipse, hyperbola and parabola. Further Graphs and Inequalities Teacher C: Circular Motion 2	Teacher A: Further Hyperbolic Functions Further Calculus applied to inverse trigonometric and inverse hyperbolic functions. Teacher B: Maclaurin series and Limits Further Polar Coordinates Teacher C: Centre of Masses	Teacher A: Reduction Formula Arc Length & Area of surface of revolution Teacher B: Differential Equations Applications of Differential Equations. Teacher C: Centre of Masses Moments and Couples	Teacher A: Further Vectors Teacher B: Applications of Differential Equations. Numerical Methods Teacher C: Work, Energy and Power 2 (A Level Content)	Teacher A: Revision Teacher B: Revision Teacher C: Revision	Teacher A: Revision until exam. Teacher B: Revision until exam. Teacher C Revision until exam:
Skills	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique	Fluency, Problem Solving, Reasoning, Exam Technique
Links Referring to AQA specification	Teacher A: B8-B11 Teacher B: C5-C11 D10, D11, D12, D15, D16	Teacher A: H1, H2, H3, H5, H6 E4-E6 Teacher B: D5 - D7 G3	Teacher A: E7, E8 Teacher B: I1 - I6 I7 - I11 Teacher C	Teacher A: F2, F3, F5, F6 Teacher B: I7 - I11 J1 - J3 Teacher C	Teacher A: All Content Teacher B: All Content Teacher C All Content	Teacher A: All Content Teacher B: All Content Teacher C All Content

	Teacher C MD5-MD6	Teacher C ME1-ME4	ME5 - ME6	MC1-MC7		
Resources						
Cross-curricular links						