

Maths Curriculum Map

	Autumn	Spring	Summer
Year 7	<p>Number:</p> <ul style="list-style-type: none"> • 4 operations with integers, decimals and negatives • Powers and roots • Factors, multiples and primes • Four operations with fractions <p>Shape:</p> <ul style="list-style-type: none"> • Co-ordinates • Properties of triangles and quadrilaterals • Angles • Plans and elevations <p>Algebra:</p> <ul style="list-style-type: none"> • Simplifying expressions • Expanding brackets • Substitution • Solving equations • Rearranging formulae • Sequences <p>Probability:</p> <ul style="list-style-type: none"> • Calculating simple probability • Experimental probability 	<p>Ratio:</p> <ul style="list-style-type: none"> • Simplifying a ratio • Sharing in a ratio <p>Percentages:</p> <ul style="list-style-type: none"> • Percentage increase and decrease • Simple and compound interest • Percentage change • Reverse percentages <p>Shape:</p> <ul style="list-style-type: none"> • Constructions • Area of triangles, trapezia, parallelograms and circles • Area of compound shapes • Volume of prisms • Bearings • Scale Drawings: <p>Fractions and Percentages:</p> <ul style="list-style-type: none"> • Ordering fractions and percentages • Best buys <p>Standard Form</p>	<p>Displaying data:</p> <ul style="list-style-type: none"> • Histograms • Frequency Polygons • Pie Charts • Bar Charts • Cumulative Frequency and Box Plots • Stem and Leaf diagrams <p>Scatter Graphs:</p> <ul style="list-style-type: none"> • Plotting • Drawing and interpreting <p>Algebra:</p> <ul style="list-style-type: none"> • Solving equations • Equation of straight line graphs <p>Number:</p> <ul style="list-style-type: none"> • Powers and roots including negative and fractional • Converting between fractions, decimals and percentages • Changing between recurring decimals and fractions

Year 8	<p>Pythagoras' Theorem and Trigonometry:</p> <ul style="list-style-type: none"> • Finding a side or angle • Applying to problem solving • Applying to 3D problems <p>Angles:</p> <ul style="list-style-type: none"> • Angles on parallel lines • Problem solving with angles <p>Transformations:</p> <ul style="list-style-type: none"> • Enlargement • Reflection • Rotation • Translation <p>Algebra:</p> <ul style="list-style-type: none"> • Expanding and factorising quadratics • Forming expressions <p>Shape:</p> <ul style="list-style-type: none"> • Problem solving with area • Congruency <p>Inequalities</p> <ul style="list-style-type: none"> • Representing and interpreting • Solving • Representing graphically 	<p>Ratio:</p> <ul style="list-style-type: none"> • Multiplicative reasoning • Problem solving <p>Shape:</p> <ul style="list-style-type: none"> • Similarity • Volume, including cones, pyramids and spheres • Surface area <p>Data:</p> <ul style="list-style-type: none"> • Two way tables • Venn diagrams <p>Probability:</p> <ul style="list-style-type: none"> • Probability trees • Conditional probability <p>Angles:</p> <ul style="list-style-type: none"> • Angles in polygons <p>Compound Measures:</p> <ul style="list-style-type: none"> • Speed, distance, time • Density, mass and volume • Converting between units of measure <p>Simultaneous Equations:</p> <ul style="list-style-type: none"> • Solving algebraically and graphically for linear equations • Estimating solutions graphically for linear and quadratic equations 	<p>Rounding:</p> <ul style="list-style-type: none"> • Significant figures <p>Algebra:</p> <ul style="list-style-type: none"> • Plotting graphs • Generating sequences • Nth term of quadratic and linear sequences <p>Percentages:</p> <ul style="list-style-type: none"> • Problem solving involving percentage change, interest and reverse percentages <p>Algebra:</p> <ul style="list-style-type: none"> • Substitution • Equation of a straight line • Plotting cubic, reciprocal and exponential graphs • Solving Equations • Algebraic fractions
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Year 9	<p>Pythagoras' Theorem and Trigonometry:</p> <ul style="list-style-type: none"> Solving problems involving right angle triangles <p>Iteration:</p> <ul style="list-style-type: none"> Finding approximate solutions to equations <p>Bounds</p> <p>Volume and Surface Area:</p> <ul style="list-style-type: none"> Finding the volume and surface area of prisms, cones, pyramids and spheres <p>Statistics:</p> <ul style="list-style-type: none"> Cumulative frequency and box plots Outliers Interquartile range Standard deviation 	<p>Inequalities:</p> <ul style="list-style-type: none"> Represent and interpret inequalities Solve inequalities Represent and interpret inequalities graphically <p>Circle Theorems</p> <p>Number:</p> <ul style="list-style-type: none"> 4 operations with fractions Surds Standard Form <p>Transformations:</p> <ul style="list-style-type: none"> All transformations including multiple describing and drawing multiple transformations <p>Angles:</p> <ul style="list-style-type: none"> Interior and exterior angles of a polygon <p>Direct and Indirect Proportion</p> <p>Bearings and Scale Drawings</p> <p>Probability:</p> <ul style="list-style-type: none"> Venn diagrams Venn notation Probability Tree Diagrams <p>Algebra:</p> <ul style="list-style-type: none"> Factorising linear and quadratic expressions Solving equations by factorising 	<p>Number:</p> <ul style="list-style-type: none"> Prime factor decomposition Using PFD to solve problems Using PFD to solve HCF and LCM problems involving algebra <p>Compound Measures:</p> <ul style="list-style-type: none"> Problems involving compound measures Rates of change <p>Similar Shapes</p> <p>Loci and Construction</p> <p>Circles and Sectors:</p> <p>Advanced Trigonometry:</p> <ul style="list-style-type: none"> Sine and Cosine rule Trigonometric graphs <p>Simultaneous Equations</p> <p>Vectors</p> <p>Ratio:</p> <ul style="list-style-type: none"> Problem solving with ratio and fractions
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Year 10 Foundation

Fractions and Percentages

- 4 operations with fractions
- Converting between fractions, decimals and percentages
- Percentage increase and decrease
- Single multiplier
- Compound and simple interest

Equations, Inequalities and Sequences

- Solving Equations
- Solving equations with brackets
- Representing inequalities on a line
- Integers that satisfy and inequality
- Solving inequalities
- Using Formulae
- Generating Sequences
- Nth term of sequences

Angles

- Properties of 2D shapes
- Angles in parallel lines
- Angles in triangles
- Exterior and Interior angles of polygons
- Problem solving

Averages and Range

- Estimating the mean from a frequency table
- Stem and Leaf
- Which average to use
- Sampling

Area and Volume

- Perimeter and area of shapes
- Area of trapezia
- Area of compound shapes
- Surface area
- Volume of prisms
- Problem Solving

Graphs

- Coordinates in 4 quadrants
- Plotting linear graphs
- Calculating the gradient of graphs
- $y = mx + c$
- Real Life graphs
- Distance time graphs
- Rates of change

Transformations

- All transformations
- drawing and describing

Ratio and Proportion

- Simplifying ratios
- Sharing in a ratio
- Ratio and measures
- Comparing ratios
- Best buys
- Conversion graphs
- Problem solving

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Year 10 Higher</p>	<p>Angles and Trigonometry</p> <ul style="list-style-type: none"> • Angle properties of triangles and quadrilaterals • Angles in polygons • Pythagoras' Theorem • Trigonometry • Problem solving <p>Graphs</p> <ul style="list-style-type: none"> • Linear graphs • Rates of change • Real life graphs • Quadratic graphs • Cubic and reciprocal graphs 	<p>Area and Volume</p> <ul style="list-style-type: none"> • Perimeter and area • Units and accuracy • Prisms • Circles – including sectors • Cylinders and spheres • Pyramids and cones <p>Transformations and Constructions</p> <ul style="list-style-type: none"> • 3D Solids • Reflection, rotation, enlargement and translation • Combined transformations • Bearings and scale drawings • Constructions 	<p>Equations and Inequalities</p> <ul style="list-style-type: none"> • Solving quadratics • Completing the square • Simultaneous equations • Solving inequalities <p>Probability</p> <ul style="list-style-type: none"> • Combined events • Experimental probability • Tree diagrams • Conditional probability • Venn diagrams and set notation
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Year 11 Foundation</p>	<p>Pythagoras and Trigonometry</p> <ul style="list-style-type: none"> • Finding the length of a side and an angle • Knowing when to use Trigonometry and when to use Pythagoras <p>Probability</p> <ul style="list-style-type: none"> • Calculating simple probabilities • Combined events • Experimental probability • Venn Diagrams • Tree Diagrams • Sample Space Diagrams <p>Multiplicative Reasoning</p> <ul style="list-style-type: none"> • Percentage change • Compound interest 	<p>Multiplicative reasoning Continued</p> <ul style="list-style-type: none"> • Speed distance time • Density mass volume • Direct and indirect proportion <p>Quadratic Equations and Graphs</p> <ul style="list-style-type: none"> • Plotting Quadratic graphs • Expanding double brackets • Factorising quadratics • Solving quadratics algebraically 	<p>Revision based on QLA data.</p> <p>Half termly mock papers.</p>

Year 11 Higher	<p>Multiplicative Reasoning</p> <ul style="list-style-type: none"> • Growth and decay • Compound Measures <p>Similarity and Congruence</p> <ul style="list-style-type: none"> • Congruence including proofs • Similarity with area and volume • Problem solving <p>Circle Theorems</p> <ul style="list-style-type: none"> • Circle theorems • Problem solving <p>Further Trigonometry</p> <ul style="list-style-type: none"> • Involving bounds • Trigonometric graphs • Sine rule and cosine rule • 2D and 3D trigonometric problems • Transforming trigonometric graphs <p>Vectors</p> <ul style="list-style-type: none"> • Vector notation • Vector arithmetic • Parallel and collinear vectors • Geometric problems 	<p>Equations and Graphs</p> <ul style="list-style-type: none"> • Solving simultaneous equations graphically • Representing inequalities on a line • Quadratic functions • Cubic graphs <p>Proportion and Graphs</p> <ul style="list-style-type: none"> • Direct proportion • Inverse proportion • Exponential functions • Translating graphs of functions • Reflecting and stretching graphs of functions 	<p>Revision based on QLA data.</p> <p>Half termly mock papers.</p>
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Year 13	<p>In year 13 students study 3 modules, these consist of the core modules C3 and C4 and an option module.</p> <p>C3: Algebra and functions; trigonometry; exponentials and logarithms; differentiation; numerical methods.</p> <p>C4: Algebra and functions; coordinate geometry in the (x,y) plane; sequences and series; differentiation; integration; vectors.</p>	<p>Students can choose from the option modules they did not complete in year 12 or students could continue to M2, D2, S2 but would need to be discussed with their teacher.</p>	<p>Preparation for Module exams</p>
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Useful Links

National Curriculum link: <https://www.gov.uk/government/publications/national-curriculum-in-england-mathematics-programmes-of-study>

www.mymaths.co.uk
www.pearsonactivelearn.co.uk
www.mrbartonmaths.co.uk
www.mathsgenie.co.uk
www.bbcbitessize.co.uk

KS4 Specification Information

Edexcel GCSE Mathematics (9-1)

There are 2 tiers of entry – higher (grades 4 to 9) and foundation (grades 1 – 5)
 For each tier there are 3 written exam papers - 1 non calculator paper and 2 calculator papers. Each paper is 1 hour and 30mins.

KS5 Specification Information

Edexcel GCE Mathematics (A-level)

For each module there is a 1 hour 30 minute exam.

For information, please look at the exam board website www.edexcel.org.uk

Please note, there is a new A-level programme of study to start in Sept 2017. The information for this will be updated shortly.

Where will this Subject take me?

Higher Education Pathways:

Degrees in: Mathematics, Medicine, Dentistry, Engineering, Computing Programming, Accountancy, Business, Operational Research, Actuarial Science, Law and Architecture.

Careers:

Careers can include Accountancy, Finance and banking, Computer game designer, Architect, Manager, Lawyer, Doctor, Pilot, Engineer, Management Consultant and many more!