

Overview:

There are fifteen topics covered in each year of Years 7, 8 and 9. Every year students revisit each topic advancing to more difficult aspects of each topic.

Careers in the Curriculum:

The topics covered will highlight links to careers in Logistics (Transport Manager, Production Scheduler and Location Planner) and Manufacturing (Plumber, Electrician and Woodworker)

| Term | Topic | Assessment |
|------|--|--|
| Aut1 | <ul style="list-style-type: none"> Place value and negative numbers - BIDMAS, recapping the 4 operations including negative numbers, rounding numbers to the nearest 10, 100, 1000 and decimal places Probability - Use probability scale to calculate and describe probabilities, calculate the theoretical probability of events happening, find experimental probability of events happening, understand and use Venn Diagrams Ratio and Proportion - Simplify ratio, share into a ratio, use unitary method to work with direct proportion | <ul style="list-style-type: none"> Aiming High 1 |
| Aut2 | <ul style="list-style-type: none"> Measures, Perimeter and Area - Convert between metric units, find perimeter of a range of shapes (including compound shapes), find area of rectangles, triangles and compound shapes Expressions and Formulae - Multiplying algebraic terms, simplifying algebraic terms, expanding single brackets, expanding two sets of single brackets and simplifying Fractions, Decimals and Percentages - Convert between mixed numbers and improper fractions, four operations with proper fractions, find fractions of amounts, find percentages of amounts (without a calculator), convert between fractions, decimals and percentages | <ul style="list-style-type: none"> Aiming High 1 |
| Spr1 | <ul style="list-style-type: none"> Angles and 2D Shapes - Know facts about angles on a straight line, at a point and in a right angle. Recognise and use facts about angles in triangles, quadrilaterals. Recognise different types of polygons Graphs - Plot coordinates including on negative axes, plot and recognise graphs for horizontal and vertical lines, plot and recognise $y = x$ and $y = -x$, work with graphs describing real life situations | <ul style="list-style-type: none"> Aiming High 2 |
| Spr2 | <ul style="list-style-type: none"> Whole number and Decimal calculations - Adding and subtracting decimals, multiplying decimals, dividing decimals by an integer, use a calculator for a range of calculations Statistics - Recognise and describe different types of data, find the median, mode and range, find the mean of a set of numbers, construct and interpret pictograms, construct and interpret bar charts (including dual and compound), construct pie charts, collect data in a frequency table (including grouped data) | <ul style="list-style-type: none"> Aiming High 2 |
| Sum1 | <ul style="list-style-type: none"> Transformations and Symmetry - Rotations, reflections, translations and basic enlargements using positive integers. Recognise and describe reflectional and rotational symmetry Equations - Solve one and two step equations, solve equations with brackets, solve equations with unknowns on both sides Multiples, Factors, Indices and Surds - Find the highest common factor and lowest common multiple of a pair of numbers, express a number as a product of prime factors | <ul style="list-style-type: none"> Aiming High 3 |
| Sum2 | <ul style="list-style-type: none"> Constructions and 3D Shapes - Construct triangles ASA and SAS, construct a perpendicular bisector of a line, construct angle bisectors, use and construct scale drawings, recognise and name 3D shapes, draw plans and elevations of 3D solids Sequences - describe a sequence using a term to term rule (positive and fractional), describe a linear sequence using a position to term rule (nth term) and use the nth term, find a formula to fit a sequence of patterns | <ul style="list-style-type: none"> Formative assessment in lesson |



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Careers in the Curriculum:

The topics covered will highlight links to careers in Healthcare (Pharmacist, Prosthetics, Nursing) and Law enforcement (Criminologist, Police accident Investigator, Judge)

| Term | Topic | Assessment |
|-------------|---|--|
| Aut1 | <ul style="list-style-type: none"> • Place value and negative numbers - BIDMAS (including powers, roots and fractions), round numbers to significant figures, multiply and divide with positive and negative powers of ten • Probability - Sample space diagrams, use Venn diagrams to calculate probabilities, list outcomes for combined events • Ratio and Proportion - Simplify ratios to 1 : n or n : 1, convert ratios into fractions, divide a quantity in a given ratio. | <ul style="list-style-type: none"> • Aiming High 1 |
| Aut2 | <ul style="list-style-type: none"> • Measures, Perimeter and Area - Area of a trapezium, calculate the area and circumference of a circle • Expressions and Formulae - Simplify expressions that involve brackets, powers and division, factorise an expression, substitute into a formula, change subject of a formula • Fractions, Decimals and Percentages - Four operations with mixed numbers, calculate percentages of an amount (with a calculator), calculate percentage change, calculate reverse percentages | <ul style="list-style-type: none"> • Aiming High 1 |
| Spr1 | <ul style="list-style-type: none"> • Angles and 2D Shapes - know and use angle facts with parallel lines, calculate missing angles in triangles and quadrilaterals, calculate interior and exterior angles of polygons • Graphs - Plot linear and quadratic graphs, find midpoint of a pair of coordinates, be able to write the equation of a graph from observing it | <ul style="list-style-type: none"> • Aiming High 2 |
| Spr2 | <ul style="list-style-type: none"> • Whole number and Decimal calculations - recap multiplying decimals, division of decimals by decimals • Statistics - Plot scatter diagrams, create questionnaires, data sheets and samples, construct and interpret pie charts | <ul style="list-style-type: none"> • Aiming High 3 |
| Sum1 | <ul style="list-style-type: none"> • Transformations and Symmetry - Introduce vectors for translations, enlargement from a centre of enlargement, carry out enlargement with a fractional scale factor, carry out combinations of transformations • Equations - Solving linear equations with fractional and negative solutions, form equations to describe geometric and worded scenarios, finding approximate solutions using trial and improvement • Multiples, Factors, Indices and Surds - Finding Highest Common Factor and Lowest Common Multiple using prime factors, use basic index laws | <ul style="list-style-type: none"> • Aiming High 3 |
| Sum2 | <ul style="list-style-type: none"> • Constructions and 3D Shapes - Calculate the volume and surface area of a variety of prisms, interpret scale drawings using ratios, solve loci problems involving equidistance from two points and two lines • Sequences - describe linear sequence using fractional and negative, describe linear sequence using position to term rule (include negative nth term), recognise geometric sequences | <ul style="list-style-type: none"> • Formative assessment in lesson |

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Careers in the Curriculum:

The topics covered will highlight links to careers in the Food Industry (Chef, Butcher, Gastronomist, Nutritionist, Restaurant Manager and Farmer)

| Term | Topic | Assessment |
|------|--|--|
| Aut1 | <ul style="list-style-type: none"> • Place value and negative numbers - use rounding to make estimates and approximations, find upper and lower bounds of a rounded measure, find upper and lower bounds of a calculation • Probability - Use tree diagrams to calculate probabilities (with replacement), relative frequency • Ratio and Proportion - Combine two ratios into one, solve problems using ratio fractions and percentages | <ul style="list-style-type: none"> • Aiming High 1 |
| Aut2 | <ul style="list-style-type: none"> • Measures, Perimeter and Area - Calculate arc length and sector area, area of compound shapes including circles • Expressions and Formulae - Multiply out two linear brackets, factorise simple quadratics and difference of two squares, change the subject of more complex formulae • Fractions, Decimals and Percentages - Four operations with simple algebraic fractions, convert fractions to recurring decimals, find percentages of amounts using multipliers | <ul style="list-style-type: none"> • Aiming High 1 |
| Spr1 | <ul style="list-style-type: none"> • Angles and 2D Shapes - Use knowledge of angles in parallel lines to formulate proof, use three figure bearings, recognise congruent shapes • Graphs - Find gradient from a pair of coordinates, find equation of straight line graphs which are defined implicitly, solve simultaneous equations using graphs | <ul style="list-style-type: none"> • Aiming High 2 |
| Spr2 | <ul style="list-style-type: none"> • Whole number and Decimal calculations - recap four operations with decimals, use calculator for more complex calculations • Statistics - Drawing and interpreting vertical line charts, compare distributions using line charts, scatter diagrams and bar charts | <ul style="list-style-type: none"> • Aiming High 2 |
| Sum1 | <ul style="list-style-type: none"> • Transformations and Symmetry - Enlarge 2D shapes using fractional and negative scale factors from a centre of enlargement, calculate unknown lengths in similar shapes • Equations - Simultaneous equations, solving linear inequalities with one variable, solving linear equations with fractions and brackets • Multiples, Factors, Indices and Surds - Use more complex index laws, write numbers and calculate in standard form | <ul style="list-style-type: none"> • Aiming High 3 |
| Sum2 | <ul style="list-style-type: none"> • Constructions and 3D Shapes - Calculate surface area and volume of a cylinder, draw the locus of a point from a given rule • Sequences - Explore triangular and square numbers, find position to term rule for a quadratic sequence (basic quadratic sequences only) | <ul style="list-style-type: none"> • Formative assessment in lesson |

Overview:

Our GCSE scheme of work is split into Foundation and Higher tiers which align with AQA specification.

Careers in the Curriculum:

The topics covered will highlight links to careers in Engineering (Biomedical, Aerospace, Civil, Structural, Network and Software Engineering)

| Term | Topic | Assessment |
|-------------|---|--|
| Aut1 | Foundation <ul style="list-style-type: none"> Fractions and Ratio Expressions Higher <ul style="list-style-type: none"> Fractions and decimal; Ratio Data collection Expanding, factorising and solving Averages, charts and graphs | Aiming High 1 (November) One 60 minute exam |
| Aut2 | Foundation <ul style="list-style-type: none"> Probability Angles and congruence Data collection Decimals, upper and lower bounds Higher <ul style="list-style-type: none"> Equations Percentages Substitution and rearranging Scatter Graphs and cumulative frequency | |
| Spr1 | Foundation <ul style="list-style-type: none"> Area, graphs and charts Percentages Higher <ul style="list-style-type: none"> Angles and circle theorems Measures and dimensions Probability Pythagoras and trigonometry | Aiming High 2 (February) One 60 minute exam |
| Spr2 | Foundation <ul style="list-style-type: none"> Number Skills Equations Higher <ul style="list-style-type: none"> Straight line graphs Transformations | |
| Sum1 | Foundation <ul style="list-style-type: none"> Averages and range Units and scale Sequences Higher <ul style="list-style-type: none"> Estimation and types of number Standard form and bounds Loci and constructions Area and volume | |
| Sum2 | Foundation <ul style="list-style-type: none"> Straight line graphs Loci and constructions Factors, powers and roots Higher <ul style="list-style-type: none"> Sequences Quadratics | Year 10 - PPE (June) 2 Full Past Papers |

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Careers in the Curriculum:

The topics covered will highlight links to careers where skills in Science (Doctor, Ecologist, Psychologist, Astrobiologist, Climate Scientist and Biomedical Science)

| Term | Topic | Assessment |
|--------------|---|--|
| Aut1 | <p>Foundation</p> <ul style="list-style-type: none"> Pythagoras and trigonometry Venn and tree diagrams Quadratics <p>Higher</p> <ul style="list-style-type: none"> Functions Non-linear graphs Indices and surds Further trigonometry | |
| Aut2 | <p>Foundation</p> <ul style="list-style-type: none"> Substitution and Indices Transformations <p>Higher</p> <ul style="list-style-type: none"> Congruence and similarity Advanced algebra (algebraic fractions leading to quadratics etc) | <p>Aiming High 1</p> <p>(November)</p> <p>2 x 1 hour exams on GCSE Papers</p> |
| Spr1 | <p>Foundation</p> <ul style="list-style-type: none"> Non-linear graphs 3D Shapes Vectors <p>Higher</p> <ul style="list-style-type: none"> Vectors Transformations of functions Pre Calculus and area under a curve | <p>February PPEs</p> <p>2 full GCSE Papers</p> |
| Spr2 | <p>Foundation</p> <ul style="list-style-type: none"> Simultaneous equations Standard form <p>Higher</p> <ul style="list-style-type: none"> Equation of a circle Iterations | |
| Sum1 | <p>Foundation</p> <ul style="list-style-type: none"> Exam preparation and revision <p>Higher</p> <ul style="list-style-type: none"> Exam preparation and revision | <p>Aiming High 3</p> <p>Past Papers in lessons</p> |
| Sum 2 | <p>Foundation</p> <ul style="list-style-type: none"> Exam preparation and revision <p>Higher</p> <ul style="list-style-type: none"> Exam preparation and revision | <p>Aiming High 3</p> <p>Past Papers in lessons</p> |

Overview:

It is a two year linear qualification following the OCR specification. The subject content is divided into three areas: Pure Mathematics, Statistics and Mechanics. Year 12 Mathematics builds on the knowledge and skills developed at GCSE and extends the range of mathematical skills and techniques, including differentiation, integration, logarithms hypothesis testing and kinematics.

Careers in the Curriculum:

The topics covered will highlight links to careers in Finance (Hedgefund Manager, Trader, Actuary, Auditor, Financial Analyst, Risk Management)

| Term | Topic | Assessment |
|------|---|--|
| Aut1 | Pure Mathematics <ul style="list-style-type: none"> • Indices and surds • Quadratics • Straight line graphs • Binomial expansion • Differentiation • Vectors | <ul style="list-style-type: none"> • Baseline assessment after two weeks with questions from the bridging work • End of topic reviews made from past OCR examination questions |
| Aut2 | Pure Mathematics <ul style="list-style-type: none"> • Trigonometry • Graphs • Logs and exponentials • Polynomials • Circles • Integration • Proof | <ul style="list-style-type: none"> • End of topic reviews • Aiming High 1 summative assessment |
| Spr1 | Statistics <ul style="list-style-type: none"> • Data handling • Standard deviation • Probability Mechanics <ul style="list-style-type: none"> • Kinematics | <ul style="list-style-type: none"> • End of topic reviews |
| Spr2 | Statistics <ul style="list-style-type: none"> • Further probability • Hypothesis testing Mechanics <ul style="list-style-type: none"> • Newton's laws of motion | <ul style="list-style-type: none"> • End of topic reviews • Aiming High 2 summative assessment |
| Sum1 | Start the Year 2 Specification Pure Mathematics <ul style="list-style-type: none"> • Radians and trigonometry • Differentiation and integration | <ul style="list-style-type: none"> • End of topic reviews |
| Sum2 | Pure Mathematics <ul style="list-style-type: none"> • Functions • Rational functions • Sequences and series | <ul style="list-style-type: none"> • End of topic reviews • Year 12 pre public examinations |

Overview:

Year 13 Mathematics is a continuation of Year 12 but with more complex topics that require students to use a wider range of multidisciplinary knowledge.

Careers in the Curriculum:

The topics covered will highlight links to careers in Technology (Software writer, Software Developer, Web Developer, App Developer, CyberSecurity and Computer Programming)

| Term | Topic | Assessment |
|--------------|---|---|
| Aut1 | <p>Pure Mathematics</p> <ul style="list-style-type: none"> • Modulus functions • Further trigonometry including compound/double angle identities, reciprocal trig functions, expressions for $a\sin x + b\cos x$ • Binomial expansion • Parametric equations • Further differentiation including chain rule, product rule and quotient rule | <ul style="list-style-type: none"> • End of topic reviews made from past OCR examination questions • Aiming High 1 summative assessment |
| Aut2 | <p>Pure Mathematics</p> <ul style="list-style-type: none"> • Further integration including integration by substitution, integration by parts, integration using trig identities and integrating rational functions • Numerical integration - trapezium rule • Proof by contradiction and criticising proofs • Iteration • Differential equations • Vectors in three dimensions | <ul style="list-style-type: none"> • End of topic reviews |
| Spr1 | <p>Statistics</p> <ul style="list-style-type: none"> • Conditional probability • Normal distribution <p>Mechanics</p> <ul style="list-style-type: none"> • Kinematics • Projectiles | <ul style="list-style-type: none"> • End of topic reviews • Year 13 Pre Public Examinations |
| Spr2 | <p>Statistics</p> <ul style="list-style-type: none"> • Further normal distribution • Hypothesis testing <p>Mechanics</p> <ul style="list-style-type: none"> • Force as a vector • Forces in context • Moments | <ul style="list-style-type: none"> • End of topic reviews |
| Sum1 | Consolidation, revision and preparation for public examinations using OCR past papers | <ul style="list-style-type: none"> • A level examinations |
| Sum 2 | Consolidation, revision and preparation for public examinations using OCR past papers | <ul style="list-style-type: none"> • A level examinations |