

Proportional Reasoning

Students will explore the definitions and properties of ratios and scales. Students will learn how to calculate and simplify ratios, and how to use scales to interpret and create scale drawings. Students will use various representations to model multiplicative relationships to deepen their understanding of ratio and proportion.

Sets and probability

Students will learn the basic principles of probability, including the concepts of outcomes, events, and probability measures. Students will explore how to calculate the probability of simple events. Students will gain a deeper understanding of probability, allowing them to calculate and interpret probabilities in real-life situations.

Angle Facts

Students will learn the key angle rules in geometry, including angles on a line, round a point, in a triangle, quadrilateral and angles formed by parallel lines and transversals. Enabling them to confidently solve geometric problems and understand the relationships between angles in various mathematical contexts

KS3 Mathematics

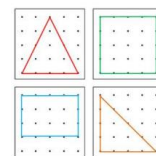
Curriculum Overview Map

Year 7



Constructing and Measuring

Students will learn about the properties of different 2D shapes, including sides, angles, and symmetry. Students will be able to identify and classify 2D shapes based on their properties. Students will learn how to construct 2D shapes using appropriate tools and techniques.

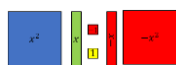


Algebra: Equality and Equivalence

Students will learn the concepts and techniques for solving linear equations and simplifying algebraic expressions. By the end of the unit students will be able to confidently solve one and two step equations and tell the difference between like and unlike terms.

$$\frac{6}{10} + 0.3$$

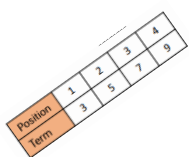
Algebraic Notation



Students will learn about algebraic notation. Students will understand the concept of function machines and how to substitute values into algebraic expressions and evaluate the results. By the end of the unit, students will be able to use these skills to confidently solve algebraic problems and understand the relationships between variables.

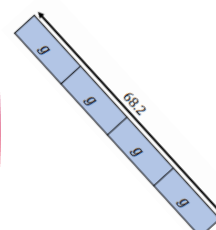
Sequences

Students will understand the definition of sequences and the difference between linear and non-linear. Students will be able to identify patterns and determine the rule governing a sequence. By the end of the unit, students will have a solid understanding of sequences, enabling them to confidently identify and continue sequences.



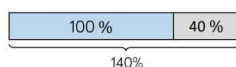
Addition and subtraction with fractions

Students will learn the concepts of fractions, equivalent fractions, and the need for common denominators in addition and subtraction. Students will apply their understanding to add and subtract fractions with like and unlike denominators enabling them to confidently use these skills in real-life situations.



Fraction, decimal and percentage equivalence

Students will learn about the concept of fractions, decimals, and percentages and how they represent parts of a whole, enabling them to convert between these forms and apply this knowledge in various mathematical contexts. Students will have a deep understanding of the equivalence of fractions, decimals, and percentages, and be able to convert between the forms.



Fractions and Percentages of amounts

Students will understand the concepts of fractions and percentages and how they relate to parts of a whole. Students will be able to calculate fractions and percentages of given amounts accurately. By the end of the unit, students will be able to confidently use these skills in various mathematical tasks and real-life

Spring Term

Prime Numbers

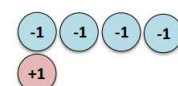
Students will learn about prime numbers, enabling them to identify prime numbers and express a number as a product of prime factors. Students will have a solid understanding of prime numbers, enabling them to confidently identify and use prime numbers in various mathematical tasks.

Application of Number (Multiplication and Division)

Students will learn about solving problems involving multiplication and division of integers and decimals. They will learn to solve problems in a range of contexts including area of 2D shapes and calculating with data. Students will have the ability to confidently use these operations in real-life situations.

Directed Number

Students will learn the concept of directed numbers (positive and negative numbers), they will learn to perform the four operations with these numbers and apply their understanding in various mathematical and real-life contexts. Students will develop a solid understanding of directed numbers, enabling them to confidently perform operations and solve problems.



Autumn Term

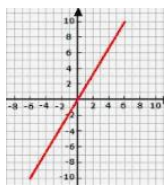
Place Value

Students will learn about the concept of place value, enabling them to recognize the value of each digit in a number based on its position, and to apply this understanding in various mathematical operations and real-life situations.

Decimal Place Value Chart									
Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Units	Tenths	Hundredths	Thousandths
M	HT	TT	T	H	T	U	T	H	Th

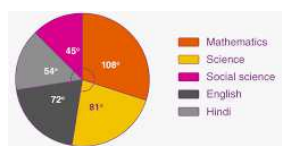
Application of Number (Addition and Subtraction)

Students will learn how to solve addition and subtraction problems, enhancing their ability to perform these operations accurately and apply them. Students will become proficient in solving addition and subtraction problems, enabling them to confidently use these operations in various mathematical tasks and real-life situations.



Measures of location

Students will be taught the fundamentals of measures of location, including mean, median, and mode, and understand their significance in data analysis. Students will develop the skills to accurately calculate and interpret the mean, median, and mode of a data set and from a table.



Straight line graphs

Students will learn about straight line graphs, including gradient, y-intercept, and the equation of a line in the form $(y = mx + c)$. Students will develop the skills to accurately plot and interpret straight line graphs, and determine the equation of a line from a graph, enhancing their algebraic and graphical skills.

KS3 Mathematics Curriculum Overview Map

Year 8

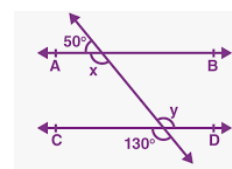


The data handling cycle

Students will learn about the data handling cycle to collect, process, analyse, and interpret data, enhancing their statistical reasoning skills. Students will be taught a variety of ways to represent data including bar and pie charts and how to effectively interpret them.

Tables and Probability

Students will learn the concepts of probability and how tables can be used to organize data and calculate probabilities. Students will use these skills with real life problems enhancing their statistical reasoning and problem-solving skills.



Standard index form

Students will understand and effectively use standard index form to represent and work with very large or very small numbers, including how to convert between standard form and ordinary numbers. Students will develop the skills to accurately perform arithmetic operations using numbers in standard index form.

Angles in parallel lines and polygons

Students will explore the fundamental properties of angles formed by parallel lines and transversals, as well as the angle properties of various polygons. Students will apply their knowledge to solve real-world and mathematical problems involving angles in parallel lines and polygons.

Indices

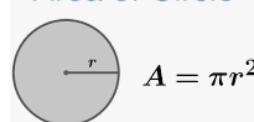
Students will learn about the laws of indices, including the product, quotient, power, zero, and negative exponent rules. Students will develop the skills to accurately simplify and manipulate expressions using the laws of indices.

Summer Term

Fractions and percentages

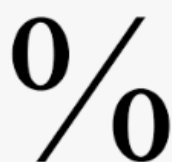
Students will learn the concepts of fractions and percentages as operators, recognizing how they can be used to represent parts of a whole and perform calculations. Students will learn how to find the result of a percentage change as well as calculating original amounts and the amount of percentage change.

Area of Circle



Area of trapezia and circles

Students will learn the formulas for calculating the area of trapeziums and circles, understanding the derivation and application of these formulas. Students will apply their knowledge of these shapes to solve more complex mathematical problems.

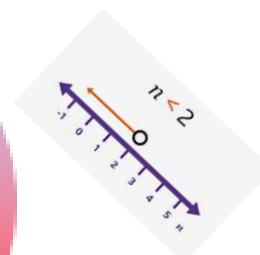


Number sense

Students will understand the basic principles of number sense, including place value, arithmetic operations, and the relationships between different units of measurement. Students will apply their number sense skills to solve real-world problems involving money and metric conversions, improving their practical and analytical abilities.

Sequences

To help students understand and work with sequences, including identifying patterns and finding the nth term of a sequence. Students will grasp the fundamental concepts of sequences, including arithmetic and geometric sequences, and the methods for identifying patterns.



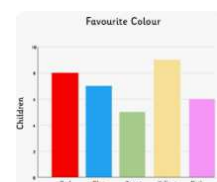
Line symmetry and reflection

Students will explore the fundamental principles of line symmetry and reflection, recognizing symmetrical shapes and understanding how reflections work. This will enable students to understand and apply the concepts of line symmetry and reflection in various mathematical and real-world contexts.

Spring Term

Representing Data

Students will learn the fundamental concepts of data representation, including different types of graphs, charts, and tables. Students will apply their knowledge to solve real-world problems involving data, enhancing their analytical and critical thinking skills.



Brackets, equations and inequalities

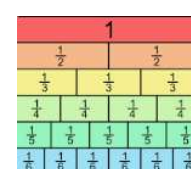
Students will learn the underlying concepts of solving equations and inequalities that involve brackets, including the distributive property and combining like terms. Students will develop the skills to accurately solve equations and inequalities with brackets through systematic steps, enhancing their algebraic skills and problem-solving abilities.

Proportional Reasoning

Students will explore the definitions and properties of ratios and scales. Students will learn how to calculate and simplify ratios, and how to use scales to interpret and create scale drawings. Students will use various representations to model multiplicative relationships to deepen their understanding of ratio and proportion.

Working in the cartesian plane

Students will be taught concepts of the Cartesian plane, including the x-axis, y-axis, origin, and coordinates. Students will develop the ability to accurately plot points, draw lines, interpret graphs and solve geometric problems.



Autumn Term

Multiplicative change

Students will learn the fundamental concept of multiplicative change, recognizing it as a process where quantities are scaled by a constant factor. Students will be able to solve real-world problems involving multiplicative change, such as calculating growth rates, scaling recipes, and understanding proportional relationships.

Multiplying and dividing fractions

Students explore the underlying principles of multiplying and dividing fractions, including the use of reciprocal values in division. Students will apply their knowledge to solve real-world problems involving fractions, enhancing their practical math skills.



KS3 Mathematics Curriculum Overview

Map Year 9

Representing solutions of equations and inequalities

Students will learn what it means for a value to be a solution to an equation or an inequality. Students will practice solving linear equations and inequalities and representing their solutions on a number line. Students will apply their knowledge to solve real-world problems involving equations and inequalities, interpreting the solutions in context.

Trigonometry

Students will learn about sine, cosine, and tangent, and how these functions relate to right-angled triangles. Students will use trigonometric ratios to find missing sides and angles in right-angled triangles. Students will apply trigonometric concepts to solve practical problems, such as determining heights, distances, and angles in various contexts.

Solving problems using graphs, tables and algebra

Students will learn about solving an equation graphically and how this method compares to algebraic solutions. Students will practice plotting linear and non-linear equations on a coordinate plane. Students will learn how to identify the points of intersection between graphs of equations, which represent the solutions to the equations.

Rates

Students will learn the definition of a rate, how it differs from a ratio. Students will practice calculating rates from given data, such as speed, density and other common rates. Students will learn how to interpret the meaning of rates in real-world contexts, such as understanding unit rates.

Ratio and proportion problems

Students will review the definitions and properties of ratios and proportions, ensuring a solid foundational understanding. Students will learn how to set up ratio problems from word problems and real-life scenarios, and solve them using appropriate methods.

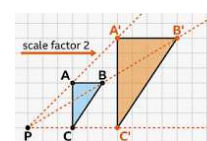


Probability

Students will learn the differences between theoretical and experimental probability. They will explore relative frequency and expected outcomes. Students will develop an understanding of independent versus dependent events. Students will be able to apply these skills to real life situations involving probability.

Enlargement and similarity

Students will learn about enlargement and similarity, and how to recognize these transformations. Students will understand how to use scale factors to enlarge shapes. Students will investigate the properties of similar shapes, including angles and proportional sides, and how these properties are used to solve problems.



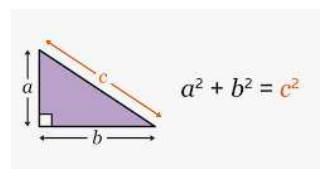
Summer Term

Rotation and Translation

Students will learn about rotation and translation, including the properties and effects of these transformations on geometric shapes within the Cartesian plane. Students will be able to complete and describe rotations and translations using correct notation, enhancing their spatial reasoning and geometric skills.

Pythagoras' Theorem

Students will learn the statement of the Pythagorean Theorem and its significance in geometry. Students will be able to recognize the hypotenuse of a right-angled triangle. Students will practice using the theorem to find a missing length in a right-angled triangle. Students will apply this skill to solve practical problems, such as determining distances, heights, and other measurements in real-life situations.



Deduction

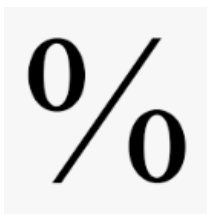
Students will learn about deductive reasoning, including the structure of mathematical arguments and the process of drawing conclusions from given premises. Students will develop the skills to construct and evaluate mathematical arguments, identifying valid and invalid reasoning. Students will explore chains of reasoning as they solve problems involving algebra and geometry.

Numbers

Students will start to develop their understanding of number to incorporate real and rational numbers. They will also enhance their understanding of fractions as operators and will look again at integers and decimals in real life context. Students will start to link their work with factors and multiples with other areas of mathematics.

Using percentages

Students will deepen their understanding of percentages, the links to fractions and decimals, and how they represent parts of a whole. Students will apply their knowledge to solve real-world and mathematical problems involving percentages, further developing their fluency.



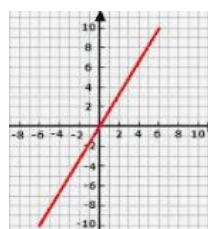
Spring Term

Constructions and congruency

Students will explore the fundamental principles of geometric constructions, including the use of tools like compasses and the concept of congruency. Students will be able to accurately perform geometric constructions and identify congruent shapes using mathematical reasoning.

Maths and money

Students will develop the skills to perform calculations involving money, such as addition, subtraction, multiplication, and division, as well as understanding interest rates and percentages. Students will apply their knowledge to solve real-world financial problems.

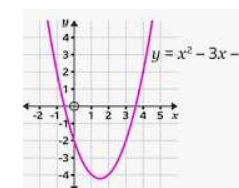


Straight line graphs

Students will learn about straight line graphs, including gradient, y-intercept, and the equation of a line in the form $y = mx + c$. Students will develop the skills to accurately plot and interpret straight line graphs, and determine the equation of a line from a graph, enhancing their algebraic and graphical skills.

Three dimensional shapes

Students will learn the properties of 3D shapes, including faces, edges, vertices, and the relationships between these elements. Students will develop the ability to identify and classify various 3D shapes and find the volume of surface area of cubes and prisms.



Autumn Term

Forming and solving equations

Students will learn the underlying concepts of linear equations, including variables, constants, coefficients, and the balance method. Students will develop the skills to accurately form linear equations from word problems and solve them using appropriate algebraic techniques.

Quadratics

Students will be taught about quadratic equations and functions, including their standard form, properties, and graphical representations. Students will be able to accurately solve quadratic equations using factorisation.



KS4 Mathematics Curriculum Overview

Map Year 10

Expanding & Factorising

Students will learn how to expand single and double brackets, simplify algebraic expressions, and reverse the process through factorisation, recognising and using common factors.

$$\text{SPEED (m/s)} = \frac{\text{DISTANCE (m)}}{\text{TIME (s)}}$$

Non-Calculator Methods

Students will practise mental and written methods for integer and decimal operations, apply fraction arithmetic, and work with exact answers. They will round to significant figures, estimate calculations, and understand limits of accuracy. Learners will also solve financial and multi-step problems, explore rational/irrational numbers, surds, bounds, and apply logical number sense effectively.

Quadratic Equations

Students will learn to solve quadratics through factorisation, completing the square, and the quadratic formula, interpret graphs, roots, and intercepts, and factorise simple and complex expressions for deeper algebraic understanding.

Year 10 GCSE Assessment

Students will complete a GCSE paper that covers a large variety of GCSE content.

Map Year 10

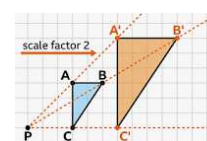


Sequences (H)

Students recognise, describe, and continue arithmetic, geometric, and other sequences, including surds. They learn to derive and apply nth term rules for linear and quadratic sequences, predicting terms accurately and confidently.

Indices & Roots

Students will explore squares, cubes, higher powers, roots, indices rules, zero and negative indices, fractional indices, powers of powers, and standard form, developing strong skills in manipulating and simplifying exponential expressions



Sequences (F)

Students learn about factors, multiples, primes, HCF, LCM, arithmetic and geometric sequences, exploring patterns, and finding nth-term rules, building strong foundations in number theory and sequences.

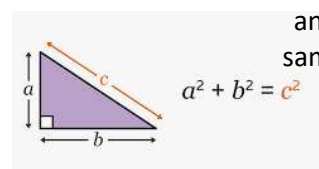
Manipulating Expressions

Students learn to expand and simplify algebraic expressions using single brackets and binomials, then factorise quadratic expressions, developing fluency in manipulating algebra and recognising links between expansion and factorisation.

Summer Term

Collecting & Representing Data

Students will learn to understand populations and samples, distinguish between primary and secondary data, and organise data using frequency tables, polygons, and two-way tables. They will construct and interpret charts, averages, scatter graphs, and time series. Probability skills include using tree diagrams, Venn diagrams, and conditional probabilities for data interpretation.



Probability (H)

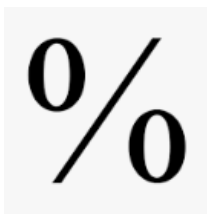
Students will develop fraction skills and apply them in probability contexts. They will explore equally likely outcomes, use probabilities summing to 1, and analyse experimental data. Learners will construct sample spaces, use Venn diagrams, frequency trees, and tree diagrams to solve independent and dependent events, and interpret conditional probabilities with advanced methods.

Vectors (H)

Students will learn to represent and interpret vectors using correct notation, perform scalar multiplication, and add or subtract vectors. They will apply vectors to journeys, quadrilaterals, parallel lines, and co-linear points, constructing geometric arguments and proofs, deepening understanding of algebraic and geometric connections in higher-level problem-solving contexts.

Ratios & Fractions

Students will learn will compare using ratios and fractions, link ratios with graphs and algebra, solve currency and best buy problems, to compare and share quantities using ratios, connect ratios to fractions, graphs, scales, and algebra, solve currency, best buy, area, and volume problems, and interpret real-life proportional contexts.



Percentages & Interest

Students will learn to convert between fractions, decimals, and percentages, calculate percentage changes, interest, growth and decay, find original values, and apply iterative methods to solve real-world percentage and ratio problems.

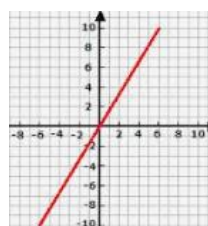
Circles (H)

Students will learn to recognise circle parts, apply circle theorems, calculate arc lengths, sector areas, and volumes of spheres, cones, and cylinders, as well as solve problems involving surface area and similarity.

Spring Term

Vectors (F)

Students learn vector notation, representation, scalar multiplication, addition, and subtraction to solve geometric problems.

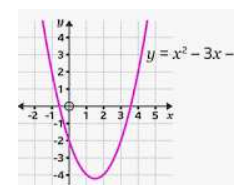


Angles & Bearings

Students learn to understand, measure, and represent bearings, as well as construct accurate scale drawings. They apply angle rules to calculate bearings and use Pythagoras and trigonometry to solve navigation and distance problems, strengthening spatial reasoning and practical geometry skills.

Simultaneous Equations

Students learn that equations can have multiple solutions and check coordinates in simultaneous equations. They solve linear pairs using substitution, elimination, and graphs, and form equations from real contexts. They practise adjusting equations, using related facts, and at higher level, solve linear-quadratic pairs graphically and algebraically, building strong algebraic fluency.



Autumn Term

Congruence & Similarity

Students learn to enlarge shapes using scale factors, find missing lengths and angles in similar figures, and prove triangle similarity. They explore how areas and volumes scale, tackle mixed similarity problems, and distinguish similarity from congruence. They also apply and prove congruence conditions, especially with higher-level triangle proofs.

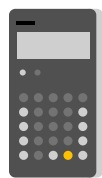
Trigonometry (H)

Students learn to apply trigonometry in 3D problems, use the formula $\frac{1}{2}ab\sin C$ for triangle areas, and apply the sine and cosine rules to find missing lengths or angles. They develop skills in selecting the correct rule, solving higher-level problems, and interpreting results in real-world contexts.



Calculators

All year 11 students should have a scientific calculator for use in lessons and in assessments. We recommend the Casio FX-85GTCW.



GCSE Mathematics Curriculum

Overview Map Year 11

REVISION



Revision

Revision will begin in lessons to consolidate prior knowledge and extend understanding, with a view to applying these skills to unfamiliar questions. Topics will be chosen by individual class teachers dependent on the needs of each class. This will be informed by careful analysis of mock exam scores and informal assessment in lessons.

Final Exam

Paper 1 – Thursday 14th May 9am
Paper 2 – Wednesday 3rd June 9am
Paper 3 – Wednesday 10th June 9am

Masterclasses

As the exam period advances students will use any additional free time to take part in masterclasses. For Maths this will involve exam preparation.



GCSE Exams

GCSE Exams
Exams start in all subjects in May

Past Paper Revision

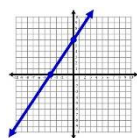
Students will be supported in developing exam technique and familiarity with style and content of Edexcel exam questions making use of all past papers.



Summer Term

Functions

Higher students will use function notation, including working with composite and inverse functions.

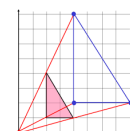


Proportion

Students will work with direct and inverse proportion and recognise graphs for both. Higher students will also construct equations for proportion.

Changing the Subject

Students will change the subject of increasingly complex formulae, for higher students this will include where the subject appears more than once. Higher students will also solve equations by iteration.



Transforming & Constructing

Students will perform and describe transformations. They will also carry out compass constructions and solve loci problems. Higher students will also identify invariant points as well as translating and reflecting graphs including trigonometrical graphs.



Using Graphs

Students will draw and interpret distance-time and speed-time graphs. Higher students will also work out acceleration and distance travelled from velocity-time graphs

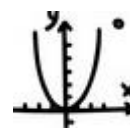
Mock Exams
February Dates TBC



Spring Term

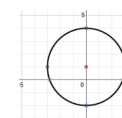
Gradients & Lines

All students will learn how to find the equation of a straight line from a graph, from two points, or from one point and the gradient. Higher students will also explore perpendicular lines and work out equations of perpendicular lines.



Non-Linear Graphs

Students will learn to plot and read from cubic and reciprocal graphs. Higher students will learn how to plot and understand exponential graphs. They will also work with the equation of a circle with centre (0, 0) and find the equation of a tangent to a circle.



Circle Theorems

Higher students will learn the remaining circle theorems as well as how to prove the circle theorems using their existing knowledge of angles

Mock Exams

5th November AM
6th November PM
11th November AM



Listing & Describing

Students will learn how to list outcomes systematically. Higher students will learn how to use the product rule for counting. All students will learn how to draw plans and elevations for 3D object. Higher students will develop their knowledge of vectors by answering proof and "show that" type questions.

$$9x^2 + 3x - 2 > 0$$

Autumn Term



Expanding & Factorising

Students will learn how to factorise and solve quadratic expressions and equations. Higher students will also learn to solve more complex quadratics including those which require rearrangement by factorising, completing the square and using the quadratic formula. All students will learn how to plot and read from quadratic graphs, as well as identifying roots and turning points from a graph and by completing the square.

Manipulating Expressions

All students will learn how to use identities. They will also learn how to form and solve equations and inequalities with fractions. Higher students will apply their algebra skills in order to add, subtract, multiply and divide algebraic fractions as well as solve equations with algebraic fractions.