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Extracurricular activities Careers links Curriculum links Threshold topics (bold) PSHE, PD and cultural capital links

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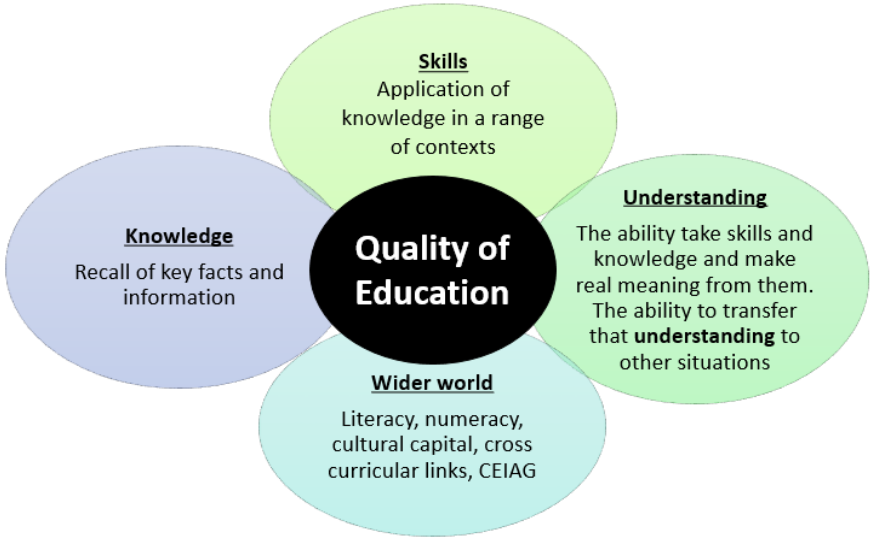

Curriculum Objectives

Our curriculum is designed to build mathematical fluency and foster curiosity through the exploration of core principles. Students are encouraged to apply their skills in novel and challenging contexts, deepening their understanding and confidence in mathematics.

Curriculum Values and Context

We aim to create a collaborative learning environment that supports students' confidence, problem-solving abilities, and mathematical reasoning. Our goal is to equip students not only for academic success but also with the resilience, independence, and skills needed beyond school. We strive to instill a lifelong passion for mathematics and a willingness to embrace challenge.

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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Knowledge and Understanding

Students develop a strong conceptual foundation across key areas: number, algebra, geometry, proportional reasoning, probability, and data analysis. Our focus extends beyond procedural fluency to ensure deep, transferable understanding of mathematical concepts.

Curriculum Sequencing and Structure

The curriculum follows a coherent, spiral structure from Key Stage 3 to Key Stage 5. Each topic builds on prior knowledge and connects logically to subsequent content, reinforcing understanding and progression. The three year spiralled KS3 Course lays the groundwork for the two-year GCSE programme, ensuring depth and continuity. We teach all topics to all students until the end of their 4th year, to ensure the maximum number of students have access to higher tier content. At Key Stage 5, pure mathematics, mechanics, and statistics are taught concurrently by subject specialists, enabling interleaving and a comprehensive grasp of the subject.

Cultural Capital, British Values, and Personal Development

Mathematics is contextualised within real-world applications and career pathways, highlighting its relevance across disciplines and industries. We promote mathematics as a gateway to opportunity, not just a qualification, helping students develop the analytical skills needed to navigate and contribute to the modern world.

Curriculum Equality and Access

Aligned with the school's ethos of "achievement for all," we ensure inclusive access through differentiated pathways, including an Entry Level qualification and unit awards that recognise non-examined achievements. These provisions support diverse learners, including those with SEND.

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Meeting the needs of SEND students within the classroom

Intent:

- Teach to the top and scaffold up is our key identity

Implementation:

- Knowledge of SEND needs - knowing who they are, targeted T&L and classroom strategies to meet needs.
- Staff trained to meet needs of SEND students specifically to their subject area, including a faculty SEND specialist
- Targeted live marking and questioning
- Deploying TA's to support wider group to allow subject specialist support for SEND (helicopter approach)
- Personalised home learning
- Access arrangements – identification and application
- **Impact:**
- Grading below Grade 1 to monitor progress
- Being able to access the entire curriculum and not disadvantage students based on need.

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Year 13

Trigonometry and circular measures
Students start working with radian measures, including use for arc length and area of sector and understand and use the standard small angle approximations of sine, cosine and tangent such as sin⍰θ≈θ , cos⍰〖θ≈1-θ^2/2〗 , tan⍰〖θ≈θ〗 where θ is in radians. Learners will know and use exact values of sin and cos for 0 , π/6 , π/4 , π/3 , π/2 , π and multiples thereof, and exact values of tan for 0 , π/6 , π/4 , π/3 , π and multiples thereof, building to understand and use the definitions of secant, cosecant and cotangent and of arcsin, arccos and arctan and their relationships to sine, cosine and tangent. Finally, in this comprehensive module, we link to their understanding of their graphs; their ranges and domains and use sec^2θ = 1 + tan^2θ and cosec2^θ = 1 + cot^2θ.

Functions and Transformations
Learners simplify rational expressions including by factorising and cancelling, and algebraic division (by linear expressions only) together with the modulus of a linear function. Critically, we build to understand and use composite functions; inverse functions and their graphs and combinations of transformations (translations and stretches).

Further Differentiation
This comprehensive unit combines understanding gained in both differentiation and geometry and the derivative of sin⍰x and cos⍰x, showing the second derivative and its connection to convex and concave sections of curves and points of inflection. Students learn to differentiate ekx and akx , sin⍰kx , cos⍰kx , tan⍰kx and related sums, differences and constant multiples. Learners use the derivative of ln⍰x to apply differentiation to find points of inflection. Finally, this is brought together with the introduction of the product, quotient and chain rules for differentiation.

Further Integration
Building on the year 12 curriculum, students integrate ekx , 1/x , sin⍰kx , cos⍰kx and related sums, differences and constant multiples and use a definite integral to find the area between two curves. Learners use integration as the limit of a sum Carry out simple cases of integration by substitution and integration by parts and understand these methods as the inverse processes of the chain and product rules respectively (Integration by substitution includes finding a suitable substitution and is limited to cases where one substitution will lead to a function which can be integrated; integration by parts includes more than one application of the method but excludes reduction formulae)

Numerical Methods
Here we locate roots of f(x)= 0 by considering changes of sign of f(x) in an interval of x on which f(x) is sufficiently well-behaved and understand how change of sign methods can fail! Learners begin to solve equations approximately using simple iterative methods; be able to draw associated cobweb and staircase diagrams and solve equations using the Newton-Raphson method and other recurrence relations of the form xn+1 = g(xn). This links to previous topics on integration, where students use numerical integration of functions, including the use of the trapezium rule and estimating the approximate area under a curve and limits that it must lie between.

Further Trigonometry

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	Students will understand and use double angle formulae together with use the of formulae for sin(A ± B) , cos(A ± B) and tan(A ± B); understand geometrical proofs of these formulae, and use expressions for a cos θ + b sin θ in the equivalent forms of rcos(θ±α) or rsin(θ±α). **Partial Fractions** Learners decompose rational functions into partial fractions (denominators not more complicated than squared linear terms and with no more than 3 terms, numerators constant or linear) and will be able to integrate using partial fractions that are linear in the denominator. **Differential equations** Here we use functions in modelling, including consideration of limitations and refinements of the models, in order to differentiate simple functions and relations defined implicitly, for first derivative only and construct simple differential equations in pure mathematics and in context,(contexts may include kinematics, population growth and modelling the relationship between price and demand). Learners evaluate the analytical solution of simple first order differential equations with separable variables, including finding particular solutions. (Separation of variables may require factorisation involving a common factor) and interpret the solution of a differential equation in the context of solving a problem, including identifying limitations of the solution; which includes links to kinematics in both Physics and further maths **Parametric equations** This final pure chapter brings mechanics and pure mathematics together by introducing the notion of parametric equations of curves and the conversion between Cartesian and parametric forms, to use parametric equations in a variety of real-world forms and contexts. This links to previous work on differentiation, as students will be expected to differentiate simple parametric functions. **Kinematics in two dimensions** Linking to prior work on vectors, students learn about the application of 3D vectors, which link to trigonometric functions and allow to problem solve a variety of challenges in real world context. Learners will learn and use the formulae for constant acceleration for motion in two dimensions, involving vectors. This leads to using calculus for motion in 2D and modeling projectile motion under gravity. **Moments** Giving valuable context to parallel modules in the physics course, students learn to use moments in simple static contexts. **Probability** Students will build on their understanding of calculating probability of events by applying conditional probabilities in formal methods, including Bayes theorem for the probability of an event given another occurring. **Normal Distribution** Building from the binomial distribution module in Y12, students use the normal distribution for a continuous random variable and learn to calculate the probability of an event by using the CDF. Students will also learn the approximation for normally distributed binomial values under certain conditions.

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	Normal Hypothesis testing Here, students conduct a statistical hypothesis test using the normal distribution to calculate and analyse the p – value or critical value, which build on prior understanding from both the normal distribution and binomial hypothesis testing modules.

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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Year 12

Mathematical proof
In this unit, students will understand and use the structure of mathematical proof, proceeding from given assumptions through a series of logical steps to a conclusion; use methods of proof, including proof by deduction, proof by exhaustion, disproof by counter example and proof by contradiction (including proof of the irrationality of √2 and the infinity of primes, and application to unfamiliar proofs).

Binomial expansion
Here, students will discover and use the binomial expansion of (a+b〖x)〗^n for positive integer n; the notations n! and nCr; linking to binomial probabilities later in the course.

Base Units
This unit will focus on fundamental quantities and units in the S.I. system: length, time and mass, building to understand and use derived quantities and units: velocity, acceleration, force, weight. This complements the concurrent unit in the physics a level

Kinematics
Students build on the language of kinematics: position; displacement; distance travelled; velocity; speed; acceleration to understand, use and interpret graphs in kinematics for motion in a straight line: displacement against time and interpretation of gradient; velocity against time and interpretation of gradient and area under the graph.

Kinematics in one dimension
following on from the first unit, students derive the formulae for constant acceleration for motion in a straight line, and build into using calculus in kinematics for motion in a straight line: v=dr/dt , a=dv/dt=(d^2 r)/(dt^2) , r=∫1▒〖v dt〗 , v=∫1▒〖a dt〗

Circles and Straight lines
Developing the understanding gained from the GCSE course, students learn different form for the equation of a straight line and in conjunction use and apply the equation for a circle, building an understanding of how these two functions integrate together.

Binomial Probabilities
Following on from understanding combinatorics and binomial expansion, students will apply this understanding to calculate probabilities that can be modelled using a binomial distribution, using both the PDF and CDF to calculate the likelihood of an extreme event occurring, which in turn build understanding towards the hypothesis testing module.

Binomial Hypothesis testing
Here, students aim to understand and apply the language of statistical hypothesis testing, developed through a binomial model: null hypothesis, alternative hypothesis, significance level, test statistic, 1-tail test, 2-tail test, critical value, critical region, acceptance region, p-value, and apply them to real world problems in a variety of contexts.

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Differentiation
Students learn and use the derivative of f(x) as the gradient of the tangent to the graph of y=f(x) at a general point (x, y) ; the gradient of the tangent as a limit; interpretation as a rate of change; sketching the gradient function for a given curve; second derivatives; differentiation from first principles for small positive integer powers of x. This is a natural entry point into both further differentiation and integration later in the course.

Stationary Points
Here, students use the second derivative as the rate of change of gradient, Differentiate x^n , for rational values of n , and related constant multiples, sums and differences, and apply differentiation to find gradients, tangents and Normals, maxima and minima and stationary points to identify where functions are increasing or decreasing.

Vectors
Following from the GCSE, students learn to use vectors in two dimensions and calculate the magnitude and direction of a vector and convert between component form and magnitude/direction form. Further, students learn to add vectors diagrammatically and perform the algebraic operations of vector addition and multiplication by scalars, and understand their geometrical interpretations, together with understanding and use of position vectors; to calculate the distance between two points represented by position vectors

Integration
Central to most STEM subjects, crucially physics, engineering and applied maths topics, students develop and use the Fundamental Theorem of Calculus, to integrate x^n (excluding n=-1) , and related sums, differences and constant multiples, moving to evaluate definite integrals and use a definite integral to find the area under a curve.

Exponentials and logarithms
Here we learn and use the function a^x and its graph, where a is positive, moving into using the function e^x and its graph. Students will learn that the gradient of e^kx is equal to 〖ke〗^kx and hence understand why the exponential model is suitable in many applications.

Laws of logarithms
Using the definition of loga x as the inverse of a^x , where a is positive and x≥0, students use the function ln⁡x and its graph, and use ln⁡x as the inverse function of e^x. Understand and use the laws of logarithms:loga x+loga y=loga(xy), loga x-loga y=loga (x/y) k logax=logax^ (including, for example k=-1 and k=-1/2). This is also taught in the physics and computer science A levels, so therefore is essential to bridging curriculum gaps between subjects

Forces and Newtons Laws
This unit develops the idea of forces int he context of Newton's first law, the conservation of momentum and the inverse square law, which compliments the parallel physics topics and scaffolds learning for further study of collisions and kinematics later in the qualification.

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Trigonometry
Building from GCSE, students refresh their understanding and use the definitions of sine, cosine and tangent for all arguments, together with the sine and cosine rules and the area of a triangle in the form 1/2 ab sin C and use the sine, cosine and tangent functions; their graphs, symmetries and periodicity.

Trigonometric equations
Using tan⁡θ=sin⁡θ/cos⁡θ, we use the unit circle to develop the identity (sin〗^2〖θ+〖cos〗^2〖θ=1〗 〗 to solve simple trigonometric equations in a given interval, including quadratic equations in sin, cos and tan and equations involving multiples of the unknown angle using double angle formulae.

Transition from Higher Tier to A Level:

- Number
- Algebra
- Ratio
- Geometry
- Indices, surds, Fractions
- Algebraic manipulation, Equations including simultaneous, algebraic graphs and functions
- Proportionality equations
- Circles, transformations

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Year 11
Higher

Further quadratics
Covers solving quadratic equations using factorisation, completing the square, and the quadratic formula. Links to algebraic manipulation and graphing quadratic functions.

Congruence and similarity
Focuses on proving shapes are congruent or similar using geometric rules, such as geometric proof and scale factors in terms of volume and area, as well as developing previous topics such as enlargement by scale factors.

Histograms

Involves constructing and interpreting histograms to represent grouped data with inconsistently sized intervals by introducing the notion of frequency density. This is fundamental to the statistics GCSE, together with being developed in both A level mathematics and core maths

Equations of circles

Explores the standard form of a circle equation and how to derive it, including an introduction to the unit circle and the connection to trigonometric graphs and ratios. This is a fundamental topic for understanding A level content in both maths and further maths.

Arcs and sectors
Covers calculating arc lengths and areas of sectors in circles, including finding the perimeter of sectors, and finding missing angles subtended by an arc, both numerically and algebraically. This links to circle theorems and geometry topics in the maths curriculum and is extended upon in the maths and further maths A level courses.

Algebraic Proof
Involves proving identities and equations using algebraic techniques, such as using mathematical arguments to prove two expressions are equivalent. This logical unit helps to bridge between mathematics and computer science, through developing students' understanding of proof.

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Year 11
Higher

Rational numbers
Focuses on operations with rational and irrational numbers and their properties, such as building into surd manipulation and rationalising the denominators of algebraic fractions. Irrational numbers are key for advanced mathematical subjects, including computer science.

Trigonometric graphs
Covers plotting and interpreting sine, cosine, and tangent graphs. Links to trigonometry and transformations of functions in the maths curriculum, and provides key context for waves in the physics and maths A level courses

Volume
Involves calculating volumes of complex 3D shapes including compound shapes including prisms and cylinders, including how to calculate missing values algebraically and in surd form. Links to geometry topics, algebra and measurement across all STEM subjects

Cones and Spheres
Focuses on volume and surface area calculations for cones and spheres. Links to geometry, substitution into formulae and real-world applications.

Upper and Lower Bounds
This unit covers estimating values using bounds and understanding error intervals, which is a critical skill in many practical applications in design technology and engineering, as it builds towards an understanding of tolerances, which is crucial in all forms of construction, manufacturing and engineering careers.

Functions and Transforming Functions
Explores function notation and transformation sketching techniques such as translations and reflections. This provides a neat curriculum bridge between more complex functions found in A level maths and further maths, and is crucial to careers in all types of engineering and medicine

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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Year 11 Higher	**Vectors** Involves vector notation, addition, and geometric applications such as resolving more complex vector problems such as more complex pathways and algebraic forms. This topic combines neatly with forces in physics to provide a solid foundation in further study in the A levels of both subjects **Iteration** Covers iterative methods for solving equations, which is the basis of many A level maths and further maths topics and scaffolds further university study, which in turn is the foundations for careers in finance and economics. **Financial Calculations and Product Rule** Focuses on compound interest, depreciation, and the product rule for counting. This links to the general understanding of both percentages indices in the main curriculum, and links to decay in physics and interest in business. **Pre-Calculus and Area Under a Curve** Introduces concepts of gradients and estimating areas using trapeziums, which form the basis of the understanding of integration in mathematics A level and further maths A level. Calculus forms the basis of many STEM subjects in vastly different fields, from mechanical engineering to data programming and statistics. **Sine and Cosine Rule** Covers solving triangles using the sine and cosine rules, their derivation, and finding the area of triangles where the perpendicular height is not known. Links to trigonometry and geometry but also algebraic manipulation and substitution. This is particularly useful in careers in engineering and mechanics, where geometry is crucial. **Circle Theorems** This topic introduces the circle theorems, both in terms of practical application and proving them algebraically. These theorems form the basis of A level mathematical geometry and are useful in careers in applied physics and engineering. This unit links to angles and shapes in mathematics, alongside algebraic manipulation and proof

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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	Algebraic Fractions Involves simplifying, adding, and multiplying algebraic fractions. Links to algebra and rational expressions in mathematics, and is a key threshold topic for the A levels in maths, physics and further maths.

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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Year 11 Foundation	**Using a Calculator** This section covers the GCSE content related to using a calculator. It includes key concepts, methods, and applications. Curriculum links include connections to other mathematical topics and relevant subjects such as science, geography, business and design technology. **Review of brackets, substitution and solving linear equation** This section covers the GCSE content related to reviewing brackets, substitution and solving linear equations. It includes key concepts, methods, and applications to secure the key foundational knowledge to access the highest marks in foundation, such as simultaneous equations and forming expressions. Curriculum links include connections to other mathematical topics and relevant subjects such as science, geography, and economics. **Gradient and Rate of Change** This section covers the GCSE content related to gradient and rate of change, looking at the relationship between graphs and speed calculations from a distance – time graph. This is central to many key concepts in Physics, as well as working well with real life graphs and proportion in mathematics **Arcs and Sectors** This section covers the GCSE content related to arcs and sectors, for example calculating both circumference and area, as well as missing lengths, both in terms of pi and with a calculator. This is crucial to many applications of problem solving, including in science and an understanding of spheres and cones in mathematics. **Probability Tree Diagrams** This section covers the GCSE content related to probability tree diagrams. It builds on tree diagrams from year 10, looking at it in terms of probability, defining how to calculate exhaustive and codependent probabilities. These concepts link to probability, sets and Venn diagrams in the maths curriculum **Venn Diagrams** This section covers Venn diagrams and set notation, from a numerical and probabilistic direction. Students learn to populate and calculate probabilities from 2 and 3 set diagrams. It includes key concepts, methods, and applications. Curriculum links include connections to other mathematical topics such as sets, set notation and probability.

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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Volume

Building on 3D shapes in year 10, this topic covers calculating volume for cuboids, prisms and cylinders, together with problem solving in real world contexts and finding missing sides. This is vital in developing understanding in design technology and product design, as well as developing problem solving and an understanding of area in mathematics.

Financial Calculations and Product Rule

This section recaps financial problems and concepts, such as conversion and best value, together with bank statements. It also looks at systematic listing. This is a key topic to recap proportion, but also for business and economics.

Linear Simultaneous Equations

This challenging topic shows the link between 2 sets of linear equation by relating the area if intersection of 2 lines on a graph to the algebraic solution of 2 simultaneously solved linear equations. The focus is on building the connection through the whole topic, and helps develop skills in linear algebra, graphs and equations of lines.

Cones and Spheres

This section covers the GCSE content related to cones and spheres, from using the given formulae for volume and surface area, to long form, problem solving questions involving multiple step calculations. This links to substitution, rearranging formulae and volume in the maths curriculum.

Trigonometry

This topic builds on Pythagoras' theorem from year 10, to develop a more complete understanding of calculating missing sides and angles in right angled triangles on a 2d plane. This leans heavily on 2d shapes, Pythagoras' theorem and angles.

Solving Quadratic Equations and Graphs

Moving on from the understanding of factorising monic quadratic in year 10, students relate this to graphs of parabolas by comleting solving steps when the function is equal to 0, showing the link between the algebraic roots of the parabola and the intercepts of the curve.This is fundamental knowledge for kinematics in physics.

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Sampling

Students focus on the notion of sampling, where the focus is on methods, advantages and drawbacks of random and non – random sampling. Data handling is essential in careers like marketing, healthcare, and research. This topic links to probability, averages, and graphs.

Vectors

Here students build on their understanding of transformations by looking at scaling, adding and subtracting vectors to calculate a resultant vector. This links to forces and parallelograms in physics and science.

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Year 10

Percentages

Students build fluency in calculating percentages, percentage change, and reverse percentages. Understanding percentages is essential in careers such as finance, retail, and data analysis. This topic links to ratio, fractions, and real-life problem solving.

Surface area and volume

Learners continue to explore the properties of 3D shapes, calculating surface area and volume on both straight sided shapes and curved surfaces. Students will learn to calculate missing lengths and areas in volume problems. These skills are vital in careers like architecture, engineering, and manufacturing. This topic links to measurement, nets, and unit conversions.

Simultaneous equations

Students solve systems of equations algebraically and graphically, developing key algebraic reasoning to scaffold year 11. Simultaneous equations are used in fields such as economics, logistics, and computer science. This topic links to linear graphs, substitution, and problem solving.

Formulae

Learners manipulate and substitute into formulae, including more complex operations such as roots and powers, as well as manipulate formulae with a variable on both sides of an equation. Understanding formulae is crucial in careers like physics, engineering, and programming. This links to equations, sequences, and geometry.

Trigonometry

Students learn to apply trigonometric ratios to right-angled triangles, gaining an appreciation for the relationship between side lengths and the values of sin, cosine, and tangent. Students will calculate side lengths, missing angles, and exact values for key angles. Trigonometry is essential in careers such as surveying, aviation, and architecture. This topic links to Pythagoras' theorem, angles, and real-life applications.

Constructions

Learners use compasses and rulers to construct geometric figures, building on the notion of regions from a point and a line to solve problems. Construction skills are important in careers like design, engineering, and technical drawing. This topic links to angles, loci, and transformations.

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Year 10

Linear graphs

Students further their understanding of plotting, sketching, and interpreting linear graphs, including rearranging the equation of a line to create a graph of a function. Graphing skills are used in careers such as data science, economics, and engineering. This topic links to equations, sequences, and real-life graphs.

Real life graphs

Learners interpret and construct graphs representing real-world situations, including calculating speed and acceleration from distance/velocity time graphs. These skills are important in careers such as logistics, science, and business analysis. This topic links to linear graphs, proportion, and compound measures.

Set notation

Students learn to use set notation and Venn diagrams, building up to calculating the probability of an event happening and not happening, and representing this graphically. Set theory is used in careers such as computer science, mathematics, and data science. This topic links to probability, number systems, and statistics which are foundational in logic and data handling.

Tree diagrams

Learners use tree diagrams to represent and calculate probabilities, building an understanding of conditional probabilities and probabilities of multiple outcomes. Tree diagrams are used in careers like actuarial science, genetics, and risk analysis. This topic links fractions, set notation, and independent/dependent events.

Compound measures

Students calculate with compound units such as speed, density, and pressure, applying maths in real-world contexts. Compound measures are essential in careers like physics, engineering, and logistics. This topic links to proportion, graphs, and formulae.

Ratio

Learners develop fluency in simplifying, sharing with and combining ratio - a threshold concept in proportional reasoning. Ratio reasoning is used in careers such as cooking, design, and pharmacology. This topic links to percentages, fractions, and scaling.

Year 10

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Graphs

Students explore more complex graphs, such as cubic, reciprocal and exponential. Graph interpretation is vital in careers like statistics, science, and economics. This topic links to functions, sequences, and data handling.

Sequences

Learners identify and generate sequences, including linear, Fibonacci and geometric progressions. Understanding sequences is important in careers such as computing, finance, and engineering. This topic links to graphs, expressions, and functions.

Handling data

Students focus on the notion of sampling, where the focus is on methods, advantages and drawbacks of random and non – random sampling. Data handling is essential in careers like marketing, healthcare, and research. This topic links to probability, averages, and graphs.

Proportion

Learners solve problems involving direct and inverse proportion, where the algebraic sense of a constnt of proportionality is added to their understanding. Proportional reasoning is used in careers such as construction, science, and finance. This topic links to ratio, percentages, and graphs.

Transformations

Students perform and describe all 4 transformations of shapes on a 2d plane, including more complex translations and enlargements with fractional or negative scale factors, developing spatial awareness. Transformation skills are important in careers like animation, architecture, and design. This topic links to coordinates, congruence, and symmetry.

Indices

Learners apply the laws of indices including negative and fractional exponents, linking this to roots and infinite decimals Indices are used in careers such as computing, physics, and engineering. This topic links to standard form, equations, and powers.

Brackets

Students expand and factorise expressions involving brackets, including quadratic and linear expressions (and cubic in terms of expanding). Bracket manipulation is important in careers like software development, mathematics, and engineering. This topic links to equations,

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Year 10	expressions, and graphs. **Handling data** Students collect, represent, and interpret data using statistical diagrams and select appropriate measures to describe them in context. Data handling is essential in careers like marketing, healthcare, and research.This topic links to probability, averages, and graphs. **Recurring decimals (higher only)** Learners convert recurring decimals to fractions and vice versa, deepening understanding of infinite decimals. These skills are useful in careers such as finance, statistics, partiicularly computer science.This topic links to fractions, percentages, set theory and imaginary numbers.

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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Year 9

Fractions and percentages
Students build fluency in working with fractions, decimals, and percentages, which are threshold concepts for proportional reasoning and numerical fluency. This topic links ratio and proportion, algebra, data handling and is essential in fields like finance, science, and everyday decision-making.

Probability
Learners explore the likelihood of events, developing an understanding of randomness and chance – then applying them to problems involving probability trees, and expected outcomes. This is a crucial concept for statistical thinking and links to data handling, fractions and percentages. Probability is widely used in fields such as insurance, gaming, and risk analysis.

Standard form
Students learn to represent very large and very small numbers efficiently, then use these with problems involving the four operations, a threshold concept in scientific notation. This topic connects to indices, scientific applications, and calculator use and is vital in careers such as engineering and physics.

Inequalities
Learners understand how to represent and solve inequalities, both graphically on number lines and algebraically, including creating a range of values algebraically, linking to equations, graphs, problem solving and is important in fields such as economics and computer science.

Quadratic equations
Students solve monic quadratic equations using factorisation to find the roots of a parabola algebraically. This connects graphs, factorising, functions and is foundational in physics, engineering, and architecture.

Formulae

Learners develop the ability to substitute into real-world and rearrange formulae, a threshold concept for algebraic manipulation. This links to equations, geometry, problem solving and is essential in science, engineering, and technology.

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Year 9

Constructions
Students use geometric tools to construct shapes and angles accurately, including bisection of lines and angles to create regions, as well as constructing triangles using an understanding of the conditions where this is possible This topic connects to angles, triangles, loci and is important in design, architecture, and engineering.

Circles
Learners explore the properties of circles, calculating and problem solving in terms of circumference and area, for both whole circles and arcs and sectors. This links to π (pi), area and perimeter, compound shapes and is useful in design, construction, and manufacturing.

Rounding
Students learn to round numbers to a given degree of accuracy, in terms of decimal places and significant figures, and apply them to real world estimation problems. This topic connects estimation, significant figures, calculations, and is important in science, finance, and data reporting.

3D shapes
Learners explore the properties and measurements of three-dimensional shapes, specifically 2d representations of 3d shapes using nets, plans, and elevations. This links to volume, surface area, nets and is essential in architecture, engineering, and product design.

Pythagoras's theorem
Students apply Pythagoras's theorem to find missing lengths in right-angled triangles and apply them in real-world, problem-solving contexts. This topic connects trigonometry, distance, coordinate geometry and is widely used in construction, navigation, and physics.

Ratio and proportion
Learners develop proportional reasoning through solving problems involving ratios and direct/inverse proportion, including the notion of best buy, currency conversion, and other real-world applications. This links to fractions, percentages, scaling and is vital in cooking, map reading, and financial planning.

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Year 9	**Linear graphs** Students plot and interpret linear graphs, threshold concepts in algebra, and coordinate geometry. Students will be able to plot straight line graphs, as well as read gradient and intercepts from linear graphs to construct an equation of a line. This topic connects equations, functions, gradients and is important in data analysis, economics, and science. **Compound measures** Learners work with compound units such as speed, density, and pressure, a threshold concept in applied mathematics. This links to ratios, formulas, real-life contexts and is essential in science, engineering, and logistics. **Motion – time graphs** Students interpret and construct distance-time graphs in terms of plotting, reading and interpreting – including calculating average speed from a graph. This topic connects graphs, rates of change, area under curves and is used in physics, transport, and sports science. **Quadratic graphs** Learners plot and interpret quadratic graphs, including how to interpret the roots and y intercept graphically and diagramatically. This links to quadratic equations, functions, transformations and is important in physics, economics, and engineering. **Angles and bearings** Students measure and calculate angles and bearings, Including angles inside polygons, on parallel lines and around a point. This topic connects to constructions, triangles, directional reasoning and is used in geography, aviation, and surveying. **Transformations** Learners perform translations, rotations, reflections, and enlargements, a threshold concept in understanding the mathematical transformations of algebraically explained points, lines, and shapes. This links to coordinates, symmetry, congruence and is important in design, art, and in particular computer graphics.

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

CIM - Curriculum Intent Map Maths
Exam board - GCSE: AQA Exam board – A Level: AQA

Year 9	**Similarity and congruence** Students explore the properties and proof of similar and congruent shapes, and the effect of a scale factor transformation in 1d, 2d and 3d. This topic connects transformations, triangles, proof and is used in architecture, modelling, and design. **Handling data and statistical diagrams** Learners collect, represent, and interpret data using various diagrams, including time series, scatterplots and other pictorial representations in conjunction with this, students learn how to analysise data from graphs and diagrams, as well as data tables and charts. This links to averages, probability, data analysis and is essential in research, business, and social sciences. **Vectors** Students understand vector notation and operations, including scalar multiplication, addition and subtraction to create a resultant vector - a threshold concept in coordinate geometry. This topic connects to translations, geometry, algebra, and is important in physics, engineering, and computer graphics.

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

CIM - Curriculum Intent Map Maths
Exam board - GCSE: AQA Exam board – A Level: AQA

Year 8	**Percentages** Students learn to calculate and interpret percentages, including percentage change, which is a key threshold concept in proportional reasoning. This topic links fractions, decimals, and financial maths. Understanding percentages is essential in finance, retail, and data analysis careers. **Money** Learners apply mathematical operations in real-life financial contexts, developing concepts such as budgeting, profit/loss, and unit pricing. This topic connects decimals, percentages, and proportional reasoning, reinforcing curriculum links. Financial literacy is vital in everyday life and careers in banking, business, and accounting. **Indices** Students explore the laws of indices and their applications, which are fundamental concepts in algebra and exponential growth and decay. This topic links with standard form, algebraic manipulation, and scientific notation. Indices are widely used in computing, physics, and engineering. **Equations** Learners solve linear equations, developing the threshold concept of balancing and inverse operations. This topic connects with expressions, graphs, and inequalities. Equation solving is essential in programming, engineering, and economics. **Sequences** Students identify and generate number patterns, including arithmetic sequences and nth term, which are key threshold concepts in algebraic thinking in terms of recurring linear sequences. This topic links functions, graphs, and geometric sequences. Sequences are important in computer science, design, and financial forecasting.
Year 8	**Ratio** Learners understand and apply ratios in various theoretical and real-world contexts, including sharing by ratio, a vital threshold concept in proportional reasoning. This topic connects fractions, percentages, and scaling. Ratio skills are used in cooking, design, and pharmacology. **Rounding** Students learn to round numbers to a given degree of accuracy, including significant figures and decimal places, estimation and error intervals. This topic integrates measures, calculations, and error bounds, forming vital curriculum links. Rounding is essential in science, engineering, and finance.

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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Year 8	**Coordinates** Learners plot and interpret coordinates in all four quadrants, developing the threshold concept of spatial representation. This topic connects graphs, transformations, geometry - reinforcing curriculum links. Coordinate systems are used in navigation, game design, and architecture. **Area** Students calculate the area of various 2D shapes, including polygon and circles and sectors. This topic links with perimeter, measures, and surface area. Area calculations are important in construction, landscaping, and interior design. **Circles** Learners explore the properties of circles, including calculating circumference and area, parts of circles and their properties, and parts of circles. This topic connects arcs, measures, and sectors. Circle geometry is used in engineering, design, and manufacturing. **Venn Diagrams** Students use Venn diagrams to represent and analyze sets, form raw data and theoretical probabilities, developing key concepts in logic and data classification. This topic links with probability, statistics, and set notation. Venn diagrams are used in data science, logic, and decision-making roles. **3D shapes** Learners identify and describe 3D shapes and their properties including volume and surface area of prisms, a key threshold concept in spatial reasoning. This topic connects with nets, volume, and surface area. Understanding 3D shapes is crucial in architecture, engineering, and product design. **Surface area and volume** Students calculate surface area and volume of 3D shapes, reinforcing threshold concepts in measurement and geometry. This topic links with area, nets, and units of measure, forming strong curriculum links. These skills are essential in construction, packaging, and manufacturing. **Linear graphs** Learners plot and interpret linear graphs, calculate mid points, developing threshold concepts in algebra and coordinate geometry. This topic connects with equations, gradients, and real-life graphs. Graphing is widely used in economics, science, and data analysis. **Transformations** Students perform transformations including translation and reflection, which are key threshold concepts in geometry. This topic links with coordinates, symmetry, and congruence. Transformations are used in design, animation, and architecture.

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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Angles
Learners calculate angles in various contexts, including polygons and parallel lines, developing threshold concepts in geometric reasoning. This topic connects with shapes, transformations, and constructions, forming strong curriculum links. Angle knowledge is vital in engineering, surveying, and carpentry.

Statistical diagrams
Students interpret and construct statistical diagrams such as bar charts, pie charts and time series, reinforcing threshold concepts in data representation. This topic links with averages, probability, and data analysis. These skills are important in journalism, business, and public health.

Inequalities
Learners solve and represent inequalities on number lines, developing threshold concepts in algebraic reasoning. This topic connects equations, graphs, and problem solving Inequalities are used in economics, logistics, and operations research.

Brackets
Students use and expand brackets in algebraic expressions, reinforcing threshold concepts in structure and simplification. This topic links expressions, factorising, and equations. Bracket manipulation is essential in programming, physics, and engineering.

Algebraic Fractions
Learners simplify and manipulate algebraic fractions, developing threshold concepts in algebraic structure and operations. This topic connects with fractions, equations, and rational expression. Algebraic fractions are used in advanced mathematics, engineering, and science.

Recurring decimals
Students convert between recurring decimals and fractions, reinforcing threshold concepts in number representation. This topic links with decimals, fractions, and percentages. These skills are relevant in finance, computing, and mathematical modelling.

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Year 7	**Number Sense and Calculations** Students develop a strong grasp of place value, number operations, and mental and written calculation strategies, which are foundational threshold concepts for all future mathematical learning. These skills underpin topics across the curriculum, including algebra, fractions, and proportional reasoning — all of which are curriculum links. Understanding number sense is essential in careers such as finance, engineering, and data science, where accurate and efficient calculations are critical. **Expressions and Equations** Learners explore algebraic notation, simplifying expressions, and solving linear equations, which are key threshold concepts for algebraic thinking. This topic connects directly to functions, graphs, and problem solving — strong curriculum links. Algebraic reasoning is vital in fields like computer programming, architecture, and economics, where abstract thinking and modelling are required. **Measures** Students learn to convert between units, estimate, and calculate with length, mass, capacity, and time, which are essential threshold concepts for applying maths in real-world contexts. This topic links to geometry, data handling, and proportional reasoning — all important curriculum links. Measurement skills are crucial in careers such as construction, healthcare, and logistics, where precision and unit conversions are part of daily tasks. **2D Shapes** This unit focuses on recognising, classifying, and analysing properties of 2D shapes, a fundamental threshold concept in geometry. It connects with angles, area, and transformations — reinforcing spatial reasoning across the curriculum. Understanding 2D shapes is important in design, engineering, and manufacturing careers, where interpreting and creating technical drawings is essential. **Perimeter and Area** Students learn to calculate perimeter and area of various 2D shapes, reinforcing the threshold concept of spatial reasoning and geometric measurement. This topic links closely with 2D shapes, measures, and later volume and surface area — strong curriculum links.These skills are widely used in architecture, landscaping, and interior design, where accurate spatial calculations are essential.

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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	Coordinates Learners explore plotting and interpreting coordinates in all four quadrants, a key threshold concept for understanding graphs and spatial relationships.This topic connects to graphs of functions, transformations, and geometry — important curriculum links. Coordinate systems are foundational in careers such as cartography, game design, and engineering, where spatial positioning and mapping are critical. **Factors, Multiples & Primes** Students deepen their understanding of number structure through identifying factors, multiples, and prime numbers, which are essential threshold concepts in number theory. This topic supports learning in fractions, algebra, and problem solving — key curriculum links. These concepts are relevant in cryptography, coding, and cybersecurity, where prime numbers and divisibility play a central role. **Fractions** This unit focuses on understanding and manipulating fractions, including equivalence, operations, and simplification — a vital threshold concept for proportional reasoning. It links directly to decimals, percentages, and ratios — forming a core part of the curriculum. Mastery of fractions is crucial in fields like finance, culinary arts, and construction, where precise part-to-whole relationships are frequently applied. **Brackets** Students learn to use brackets in algebraic expressions, developing the threshold concept of order of operations and algebraic structure. This topic connects expressions and equations, expanding and factorising, and functions. Understanding brackets is important in programming, engineering, and physics, where structured expressions and formulas are used regularly. **Angles** Students learn to identify, measure, and calculate angles, including those in triangles, quadrilaterals, and around a point — a key threshold concept in geometry. This topic links with 2D shapes, parallel lines, and transformations — reinforcing geometric reasoning across the curriculum. Angle knowledge is essential in careers such as architecture, engineering, and surveying, where precise spatial calculations are required. **Statistical Diagrams** Learners interpret and construct statistical diagrams such as bar charts, pie charts, and line graphs, developing the threshold concept of data representation. This topic connects to data analysis, averages, and probability — forming a strong part of the curriculum. Skills in data

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	visualisation are crucial in business analytics, journalism, and public health, where clear communication of data is vital. **Proportion** Students explore direct and inverse proportion, a fundamental threshold concept in understanding relationships between quantities. This topic links with fractions, ratios, and scaling — supporting problem-solving across the curriculum. Proportional reasoning is widely used in fields like pharmacology, economics, and design, where scaling and comparative analysis are key. **Fractions, Decimals and Percentages** This unit focuses on converting and calculating with fractions, decimals, and percentages, reinforcing the threshold concept of equivalence and proportionality. It connects with proportion, number sense, and financial maths — forming a core part of the curriculum. These skills are essential in retail, finance, and hospitality, where accurate percentage calculations and conversions are routine. **Probability** Students learn to calculate and interpret probability, including theoretical and experimental approaches — a key threshold concept in statistical reasoning. This topic links data analysis, fractions, and proportional reasoning — supporting decision-making across the curriculum. Probability is central to careers in insurance, risk management, and artificial intelligence, where predicting outcomes and assessing risk are fundamental.

	Year 7					
	Half term 1	**Half term 2**	**Half term 3**	**Half term 4**	**Half term 5**	**Half term 6**
Knowledge, Skills and Understanding 	• Number sense and calculations	• Expressions and equations • Measures	• 2D shapes • Perimeter and area • Coordinates	• Factors, multiples & primes • Fractions • Brackets	• Angles • Statistical diagrams • Proportion	• Fractions, decimals and percentages • Probability

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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	• Baseline test – no revision necessary (Week 1 – 2) • End of term test on all work completed in the term (Weeks 13 – 14)	• End of term test on all work completed in the term (Weeks 21 – 22)	• End of term test on all work completed in the term (Weeks 29- 30)
 **Embed your knowledge**	• Check https://www.sparxmaths.uk/student/ for homework and practice tasks. • Oak Academy KS3 units: Sequences, Numbers and numerals, positive and negative numbers	• Check https://www.sparxmaths.uk/student/ for homework and practice tasks. • Oak Academy KS3 units: Positive and negative numbers, Order of operations, Manipulating and calculation of fractions	• Check https://www.sparxmaths.uk/student/ for homework and practice tasks. • Oak Academy KS3 units: Classifying 2 –D shapes, Coordinates, Angles, Prime factor decomposition
Extend your learning 	• Full Backup Knowledge organiser available for free (see website link) • Further reading – CGP KS3 mathematics	• Full Backup Knowledge organiser available for free (see website link) • Further reading – CGP KS3 mathematics	• Full Backup Knowledge organiser available for free (see website link) • Further reading – CGP KS3 mathematics

	Year 8					
	Half term 1	**Half term 2**	**Half term 3**	**Half term 4**	**Half term 5**	**Half term 6**
Knowledge, Skills and Understanding 	• Percentages • Money • Indices	• Equations • Sequences • Ratio	• Rounding • Coordinates • Area • Circles	• Venn Diagrams • 3D shapes • Surface area and volume	• Linear graphs • Transformations • Angles • Statistical diagrams	• Inequalities • Brackets • Algebraic Fractions • Recurring decimals

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

CIM - Curriculum Intent Map Maths

Exam board - GCSE: AQA Exam board – A Level: AQA

	• Baseline test – no revision necessary (Week 1 – 2) End of term test on all work completed in the term (Weeks 13 – 14)	• End of term test on all work completed in the term (Weeks 21 – 22)	• End of term test on all work completed in the term (Weeks 29- 30)
 **Embed your knowledge**	• Check https://www.sparxmaths.uk/student/ for homework and practice tasks. • Oak Academy KS3 units: Ratio, Coordinates, Univariate Data	• Check https://www.sparxmaths.uk/student/ for homework and practice tasks. • Oak Academy KS3 units: Expressions, Equations and inequalities, Indices and standard form (just first 4 lessons)	• Check https://www.sparxmaths.uk/student/ for homework and practice tasks. • Oak Academy KS3 units: Area Review, Bivariate data, Famous maths problems
Extend your learning 	• Full Backup Knowledge organiser available for free (see website link) • Further reading – CGP KS3 mathematics	• Full Backup Knowledge organiser available for free (see website link) • Further reading – CGP KS3 mathematics	• Full Backup Knowledge organiser available for free (see website link) • Further reading – CGP KS3 mathematics

	Year 9					
	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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Exam board - GCSE: AQA Exam board – A Level: AQA

Knowledge, Skills and Understanding 	• Fractions and percentages • Probability • Standard form • inequalities	• Quadratic equations • Formulae • Constructions • Circles	• Rounding • 3D shapes • Pythagoras's theorem • Ratio and proportion	• Linear graphs • Compound Measures • Motion – time graphs	• Quadratic graphs • Angles and bearings • Transformations • Similarity and congruence	• Handling data and statistical diagrams • Vectors
	• Baseline test – no revision necessary (Week 1 – 2) End of term test on all work completed in the term (Weeks 13 – 14)		• End of term test on all work completed in the term (Weeks 21- 22)		• End of term test on all work completed in the term (Weeks 29- 30)	
 **Embed your knowledge**	• Check https://www.sparxmaths.uk/student/ for homework and practice tasks. • Oak Academy KS3 units: Ratio (8.6a), Bearings, FDP review,		• Check https://www.sparxmaths.uk/student/ for homework and practice tasks. • Oak Academy KS3 units: Direct proportion, Factors and Multiples		• Check https://www.sparxmaths.uk/student/ for homework and practice tasks. • Oak Academy KS3 units: Transforming 2D figures, Constructions, congruence and Loci	
Extend your learning 	• CGP AQA year 9 knowledge organiser and workbook • Wider Reading – Matt parker, Humble Pi		• CGP AQA year 9 knowledge organiser and workbook • Wider reading - Alex Bellos, Alex's adventures in number land		• CGP AQA year 9 knowledge organiser and workbook • Wider reading – The man who counted, Malba Tahan	

Year 10

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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Exam board - GCSE: AQA Exam board – A Level: AQA

	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Knowledge, Skills and Understanding 	• Percentages • Surface area and volume • Simultaneous equations	• Formulae • Trigonometry • Constructions	• Linear graphs • Real life graphs • Set notation • Tree diagrams	• Compound measures • Ratio • Graphs	• Sequences • Handling data • Proportion • Transformations • Indices	• Brackets • Handling data • Recurring decimals (higher only)
	• Half term 2 – Termly assessment – current topics and past recall (1 hour)		• Half term 4 – Termly assessment – current topics and past recall (1 hour)		Half term 5 – End of block assessment – current topics and past recall (1 hour) **June PPE** **Foundation** – Full set (3 papers) AQA full papers **Higher** – Full set (3 papers) AQA full papers	
 **Embed your knowledge**	• Check https://www.sparxmaths.uk/student/ for homework and practice tasks.		• Check https://www.sparxmaths.uk/student/ for homework and practice tasks.		• C Check https://www.sparxmaths.uk/student/ for homework and practice tasks.	
Extend your learning 	• CGP AQA year 10 knowledge organiser and workbook		• CGP AQA year 10 knowledge organiser and workbook		• CGP AQA year 10 knowledge organiser and workbook	

	Year 11 Higher

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Knowledge, Skills and Understanding 	• Further quadratics • Congruence and similarity 2 • Histograms • Equations of circles • Arcs and sectors	• Algebraic Proof • Rational numbers • Trigonometric graphs • Volume	• Further Algebra • Trigonometry • Solving Quadratic Equations and Graphs • Sampling • Vectors • Iteration	• Financial Calculations and Product Rule • Pre-Calculus and Area Under a Curve • Sine and Cosine Rule • Circle Theorems • Algebraic Fractions	• Revision and review	
	**November PPE** **Foundation** – Full set (3 papers) AQA full papers **Higher** – Full set (3 papers) AQA full papers		**Spring PPE** **Foundation** – Full set (3 papers) AQA full papers **Higher** – Full set (3 papers) AQA full papers		**GCSE examinations begin**	
 **Embed your knowledge**	• Check https://www.sparxmaths.uk/student/ for homework and practice tasks.		• C Check https://www.sparxmaths.uk/student/ for homework and practice tasks.			
Extend your learning 	• CGP AQA year GCSE revision guide and workbook		• CGP AQA year GCSE revision guide and workbook			

	Year 11 Foundation

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Knowledge, Skills and Understanding 	• Using a Calculator • Review of brackets, substitution and solving linear equations • Gradient and Rate of Change • Arcs and Sectors • Probability Tree Diagrams	• Venn Diagrams • Volume • Financial Calculations and Product Rule • Linear Simultaneous Equations • Cones and Spheres	• Further Algebra • Trigonometry • Solving Quadratic Equations and Graphs • Sampling • Vectors	• Revision and review	• Revision and review	
	**November PPE** **Foundation** – Full set (3 papers) AQA full papers **Higher** – Full set (3 papers) AQA full papers		**Spring PPE** **Foundation** – Full set (3 papers) AQA full papers **Higher** – Full set (3 papers) AQA full papers		**GCSE examinations begin**	
 **Embed your knowledge**	• Check https://www.sparxmaths.uk/student/ for homework and practice tasks.		• C Check https://www.sparxmaths.uk/student/ for homework and practice tasks.			
Extend your learning 	• CGP AQA year GCSE revision guide and workbook		• CGP AQA year GCSE revision guide and workbook			

	Year 12

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

CIM - Curriculum Intent Map Maths

Exam board - GCSE: AQA Exam board – A Level: AQA

	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Knowledge, Skills and Understanding 	• Transition from GCSE • Differentiation • Stationary Points • Binomial expansion • Kinematics	• Vectors • Integration • Binomial Probabilities • Kinematics in one dimension	• Trigonometry • Trigonometric equations • Binomial Hypothesis testing	• Circles and Straight lines • Forces and Newtons Laws	• Mathematical proof • Base Units	• Exponentials and logarithms • Laws of logarithms
	• Each unit of work will have a 32-mark topic test with a question level analysis applied to each, reflected back to the students. • Tests will be applied periodically throughout the year. Pupils will be expected to keep hold of the tests as revision for their end of year exam. • **End of year assessment –** Full suite (2 x 1 hour 45 min) AS assessments, consisting of Pure maths (66%), Statistics (17%) and mechanics (17%) questions. 80 marks per paper.					
 **Embed your knowledge**	• Students will be set an average of 5 hours independent study per week, across all 3 strands, using a mixture of textbook questions and independent research • Students will be completing homework set in their textbooks, alongside resources put onto the TEAMS learning channel. • Students are expected to use their textbook to create their own notes during independent study homework					
Extend your learning 	• CGP AQA revision guides and practice question books for A level (year 1) available at good retailers. • Websites to use include TL maths, Maths Genie, Save my exams, Physics and maths tutor and MME					

	Year 13

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**

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Exam board - GCSE: AQA Exam board – A Level: AQA

	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Knowledge, Skills and Understanding 	• Trigonometry and circular measures • Functions and Transformations • Probability	• Further Differentiation • Further Integration	• Numerical Methods • Further Trigonometry • Kinematics in two dimensions	• Partial Fractions • Differential equations • Normal Distribution	• Parametric equations • Moments • Normal Hypothesis testing	
	• Each unit of work will have a 32-mark topic test with a question level analysis applied to each, reflected back to the students. • Tests will be applied periodically throughout the year. Pupils will be expected to keep hold of the tests as revision for their end of year exam. • **February PPE–** Full suite (3 x 2 hour) A level assessments, consisting of Pure maths (66%), Statistics (17%) and mechanics (17%) questions. 80 marks per paper.					
 **Embed your knowledge**	• Students will be set an average of 5 hours independent study per week, across all 3 strands, using a mixture of textbook questions and independent research • Students will be completing homework set in their textbooks, alongside resources put onto the TEAMS learning channel. • Students are expected to use their textbook to create their own notes during independent study homework					
Extend your learning 	• CGP AQA revision guides and practice question books for A level (year 1) available at good retailers. • Websites to use include TL maths, Maths Genie, Save my exams, Physics and maths tutor and MME					

Extracurricular activities **Careers links** **Curriculum links** **Threshold topics (bold)** **PSHE, PD and cultural capital links**