THE Lodge AP

— At Sandbach House —

Year 10 Maths Curriculum Sequence

Intent

The Year 10 Mathematics curriculum is designed to support all students in achieving meaningful, recognised qualifications while developing the numerical fluency, problem-solving ability, and confidence needed for successful transition into post-16 education, training, or employment. Students will follow one of two purposeful pathways: GCSE Mathematics (OCR) or Functional Skills Mathematics at Level 1 or Level 2, selected to best match their individual strengths, needs, and future goals.

Both pathways are equally valued and provide a rigorous and appropriate level of challenge, ensuring that every student is supported to make progress and experience success. The curriculum is structured to promote engagement, deepen understanding, and build resilience in tackling mathematical problems. Students develop their knowledge across key areas including number, algebra, ratio and proportion, geometry, and statistics, applying these skills in both abstract and real-life contexts

Pathway 1: GCSE Maths (OCR)

Autumn HT1	Autumn HT2	Spring HT1	Spring HT2	Summer HT1	Summer HT2
Congruence, similarity & enlargement Trigonometry	Representing solutions of equations & inequalities Simultaneous Equations	Angles and Bearings Working with circles Vectors	Ratios & fractions Percentages & interest / Probability	Collecting, representing & interpreting data Non-calculator methods	Types of number & sequences/ Indices & roots Manipulating expressions
Intent: Students deepen their understanding of geometric transformations through congruence and similarity, extending enlargement to include fractional and negative scale factors. They build on prior knowledge from Year 9, developing reasoning and problem-solving skills for applications in coordinate geometry and real-world contexts. Students also extend their use of trigonometry beyond right-angled triangles by applying the sine and cosine rules. They develop fluency with exact values and use these skills to solve problems in contexts such as navigation and physics, preparing for more advanced applications.	**Intent:** Students build on their algebraic reasoning by solving linear equations and inequalities both graphically and algebraically, interpreting solutions in real-life contexts. This provides a foundation for future work on quadratic and simultaneous equations. Students also develop problem-solving skills by solving simultaneous equations algebraically and graphically, exploring applications such as break-even analysis. This strengthens the link between algebra and real-world decision-making, preparing them for further study in quadratic equations and coordinate geometry.	**Intent:** Students consolidate their understanding of angle rules and apply them to bearings, while exploring circle properties such as arc length, sector area, and volumes of composite shapes. This supports problem-solving in real-world contexts and links to subjects like physics and geography. Students also develop a formal understanding of vectors, including addition, subtraction, and scalar multiplication, applying these to geometric problems. This builds a foundation for further study in coordinate geometry, mechanics, and wider applications in mathematics and science.	**Intent:** Students extend their understanding of proportional reasoning through ratios and fractions, applying these to multi-step problems in contexts such as science, technology, and finance. This prepares them for further study in algebraic fractions and proportionality. Students also deepen their knowledge of percentage change, interest, and probability, applying these to real-world financial and statistical problems. This strengthens mathematical literacy and supports informed decision-making, with links to business and economics.	**Intent:** Students build on prior knowledge of data representation by studying histograms, cumulative frequency, and box plots, developing skills in statistical analysis to interpret real-world data. This supports links with subjects such as science, geography, and business. Students also refine their numerical fluency, improving their ability to perform efficient, accurate calculations without a calculator. They develop strategies for exact calculations, preparing for non-calculator assessments and real-life situations requiring mental arithmetic.	**Intent:** Students explore number properties and sequence patterns, reinforcing their understanding of indices, surds, and numerical reasoning. They apply this knowledge to algebraic proofs, building a foundation for A-level mathematics and scientific calculations. Students also deepen their algebraic manipulation skills, including factorising, expanding, and simplifying complex expressions with surds and algebraic fractions. They develop logical reasoning and proof skills essential for advanced mathematics and STEM applications.
Intended Skills and Outcomes: The below 'I can' statements clarify what students will be able to do by the end of this unit. • I can apply the ideas of congruence and similarity to solve problems. • I can describe and use the relationships between lengths, areas and volumes in similar shapes. • I can use fractional scale factors to enlarge or reduce shapes. • I can use negative scale factors to perform enlargements involving reflections. • I can use Pythagoras' Theorem to find missing lengths in right-angled triangles. • I can use sine, cosine and tangent ratios to find missing angles or sides in right-angled triangles. • I can recall and use the exact values of sin, cos and tan for special angles. • I can calculate the area of any triangle using appropriate formulae.	**Intended Skills and Outcomes:** The below 'I can' statements clarify what students will be able to do by the end of this unit. • I can translate simple real-life situations into algebraic expressions or formulae. • I can solve linear inequalities in one & two variables. • I can represent the solutions to inequalities on a number line. • I can show my answers using formal mathematical representations such as equations, graphs or tables. • I can solve two simultaneous equations in two variables algebraically. • I can solve simultaneous equations where one is linear, and one is quadratic.	**Intended Skills and Outcomes:** The below 'I can' statements clarify what students will be able to do by the end of this unit. • I can interpret and use bearings to describe direction. • I can use Pythagoras' Theorem to find missing lengths in right-angled triangles. • I can use trigonometric ratios (sine, cosine and tangent) to find missing angles or sides in right-angled triangles. • I can calculate arc lengths of circles. • I can calculate angles in sectors of circles. • I can calculate the surface area & volumes of spheres, pyramids and cones. • I can calculate the surface area and volume of composite solids. • I can describe translations using 2D vectors. • I can add and subtract vectors. • I can multiply a vector by a scalar. • I can represent vectors diagrammatically & using column notation.	**Intended Skills and Outcomes:** The below 'I can' statements clarify what students will be able to do by the end of this unit. • I can divide a quantity into two parts using a given ratio. • I can link ratio problems to fractions, linear graphs & functions. • I can solve problems using compound units such as speed. • I can solve problems using unit pricing. • I can solve problems using density. • I can express one quantity as a percentage of another. • I can compare two quantities using percentages. • I can work with percentages greater than 100%. • I can set up and solve growth & decay problems, as well as interpret answers. • I can solve problems involving compound interest. • I can calculate conditional probability. • I can use expected frequencies to represent conditional probability.	**Intended Skills and Outcomes:** The below 'I can' statements clarify what students will be able to do by the end of this unit. • I can describe & interpret distributions of a single variable. • I can compare different distributions. • I can construct diagrams for grouped discrete & continuous data. • I can draw and interpret histograms with equal & unequal class intervals. • I can use statistics to describe a population. • I can calculate exactly using fractions, surds and multiples of π. • I can simplify surd expressions involving squares. • I can rationalise denominators involving surds. • I can convert recurring decimals into fractions. • I can convert fractions into recurring decimals. • I can apply limits of accuracy when rounding or truncating. • I can find upper and lower bounds in calculations.	**Intended Skills and Outcomes:** The below 'I can' statements clarify what students will be able to do by the end of this unit. • I can recognise triangular number sequences. • I can recognise simple arithmetic progressions. • I can recognise quadratic sequences. • I can recognise simple geometric progressions. • I can estimate powers & roots of any positive number. • I can simplify expressions involving sums, products and powers. • I can simplify algebraic expressions. • I can manipulate expressions involving surds. • I can manipulate algebraic fractions. • I can factorise quadratic expressions. • I can show that two algebraic expressions are equivalent. • I can use algebra to construct and support mathematical arguments or proofs.

Feeds from: This sequence builds on prior numeracy skills from Year 9 and previous functional mathematics experience; it strengthens reasoning, problem-solving, and algebraic skills needed to tackle more complex mathematical concepts, while supporting the ability to interpret data, apply mathematical methods in real-life contexts, and communicate solutions clearly. Learners will gain confidence in using number, measurement, algebra, and data skills, preparing them for practical and exam-based applications

Feeds into: This Year 10 scheme develops core algebra, geometry, and numerical skills that underpin Year 11 topics. Students build fluency in problem-solving, reasoning, and non-calculator methods. These foundations are extended into more complex GCSE content and exam questions. Overall, it prepares students for the increased challenge and independence required in Year 11.

Pathway 2: Functional Skills Maths (Pearson Edexcel)

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<tr><td colspan="4">Functional Skills Mathematics is a flexible, accessible qualification designed to meet the varied needs of students at The Lodge. Delivered through a modular, skill-based sequence, it allows learners to develop number, algebra, measurement, and data handling skills at a pace that reflects their prior attainment, confidence, and engagement. Teaching, assessment, and progression are responsive, with content selected and revisited based on learner readiness and real-world relevance. The roll-on, roll-off structure and individualised pathways ensure all students can achieve a nationally recognised qualification while building the mathematical skills essential for life beyond school.</td></tr>
<tr><td>Entry Level 3</td><td colspan="2">Level 1</td><td>Level 2</td></tr>
<tr><td>Intent: At Entry Level 3, our intent is to strengthen foundational numeracy skills and develop confidence in everyday mathematics. We focus on practical applications, for example money, time and measure, plus basic calculations to provide a solid foundation for progression to Level 1.</td><td colspan="2">Intent: Develop learners' ability to use mathematics independently and accurately in real-life contexts. Focus on fluency, problem-solving, and multi-step functional tasks, bridging the gap to GCSE-level maths.</td><td>Intent: At Level 2 Ensure learners can apply mathematics confidently, accurately, and independently in everyday, professional, and unfamiliar contexts. Focus on complex multi-step problems, interpreting data, and justifying decisions; prepares learners for employment, apprenticeships, or further study.</td></tr>
<tr><td>Intended Skills and Outcomes: The below 'I can' statements clarify what students will be able to do by the end of the unit.

• I can use numbers, including whole numbers, fractions, decimals and percentages.
• I can estimate answers and check my work.
• I can measure and use common units (length, width, capacity etc...)
• I can read and interpret simple data from charts, tables and graphs.
• I can solve practical maths problems in real-life situations.</td><td colspan="2">Intended Skills and Outcomes: The below 'I can' statements clarify what students will be able to do by the end of the unit.

• I can use ratio, proportion and percentages to solve problems.
• I can apply my number skills to real-life financial situations.
• I can read, interpret and compare information from charts, graphs and tables
• I can calculate area, perimeter and volume of different shapes
• I can explain my mathematical thinking clearly and show how I reached my answers.</td><td>Intended Skills and Outcomes: The below 'I can' statements clarify what students will be able to do by the end of the unit.

• I can solve problems including ratio, proportion and rates of exchange.
• I can use algebra to solve problems in real-life contexts.
• I can interpret and analyse data, including probability.
• I can use mathematical reasoning to justify and explain my decisions.
• I can apply my maths skills confidently in unfamiliar situations.</td></tr>
<tr><td>Functional Skills Entry Level 3 is offered in exceptional circumstances, where learners are unable to access the Functional Skills Level 1 curriculum, despite sustained intervention and high-quality teaching.</td><td>Feeds from: Functional maths across vocational subjects

GCSE Mathematics (Foundation) for suitable learners</td><td>Feeds into: Maths Functional Skills Level 2
or
GCSE Maths (Foundation)
or
A maths Functional Skills qualification plays a key role in post 16 pathways (A Level, vocational. BTECs, apprenticeships or employment)</td><td>Feeds from: Functional Skills Level 1</td><td>Feeds into: A maths Functional Skills qualification plays a key role in post 16 pathways (A Level, vocational, BTECs, apprenticeships and employment)</td></tr>
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