

Year 7 Maths - Our curriculum intent:

The Mathematics curriculum in year 7 is tailored to ensure that all students develop high levels of numeracy in order to become well-rounded citizens in the world we live. A significant amount of time in Year 7 is devoted to developing key number concepts, such as place value and calculations with integers and fractions. This is to build fluency in students understanding, given that number sense will affect their success in other areas of Mathematics. Students who are successful with numbers are much more confident Mathematicians. Our mastery approach enables students to build a deeper understanding through regular low stakes quizzes, knowledge retrieval exercises and continuous feedback.

Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Topic	Number	Number	Number Geometry and measures	Algebra Geometry and measures	Algebra Geometry and measures	Algebra Geometry and measures
Subject Specific Skills (KS3 National Curriculum)	- Place value (including decimals) - Order positive and negative numbers (including decimals) including number lines and inequality symbols - Four operations with integers and decimals - Four operations with Negatives	- Order of operations - Special numbers - Primes - Squares/square root - Cubes/cube root - Prime factorisation - Factors and multiples (including HCF / LCM) - Introduction to fractions - Equivalent fractions - Mixed to improper fractions and vice versa - Fractions of amounts	- Multiply and divide fractions (including multiplying integers by fractions and reciprocals) - Rounding decimal places (up to 3 decimal places) - Order fractions and decimals - Add and subtract fractions - Perimeter	- Algebraic convention - Substitution and formulae - Form and simplify algebraic expressions - Form and solve equations $ax + b = c$ including negative and fractional co-efficient - Area of rectangles, triangles, parallelograms (not compound or trapezia)	- Sequences - Term to term - Fibonacci sequence - Nth term - Draw, measure and estimate angles - Calculate angles - On a line - Around a point - In a triangle - Polygon (interior/exterior) - Vertically opposite - Bearings (not including back bearings)	END OF YEAR SUMMATIVE ASSESSMENT (Week 2) - Form and solve equations relating to angle reasoning (no further than $ax + b = c$ from half term 4) - Coordinates in all 4 quadrants and geometric problems - Using a calculator - Measures - Conversion graphs
Previous Links (KS2 National Curriculum)	- Place value of integers and decimals up to 3dp - Use negative numbers in context - Multiply 4 digit by 2 digit numbers and decimals by whole numbers - Divide up to 4 digits by a two-digit whole number - Interpret remainders - Mental strategies and estimation to check answers	- Equal parts - Factors, multiples and primes - Fraction equivalence - Multiplication and division - Common factors, common multiples and prime numbers - Order of operations – simple cases involving the four operations - Simplify fractions, equivalent fractions	- Place value - Estimation to check calculations - Compare and order fractions - Multiply simple fractions - Divide fractions by integers - Associate simple fractions with decimal equivalents - Rounding to units, 10, 100, 1000 - Simple fraction, decimal and percentage equivalence	- Negative numbers - Order of operations - Finding area by counting squares - Properties of triangles and quadrilaterals - Lengths and units - Simple formulae and expressions	- Number patterns - Linear number sequences - Angle names - Parallel and perpendicular lines (Recognising/Use of Vocabulary)	- Angles - Length and units - Order of operations - Coordinates

Post 16 and beyond:

We want students to develop a love for maths and a secure understanding of the content. Once this is achieved we encourage them to study A-level Maths, which builds on the skills, knowledge and understanding that students have gained throughout their time at Derby Moor. In year 7, the foundations in number, algebra and geometry are laid. Studying Maths at A-level will prepare students for a wide range of degree courses; including Mathematics, but also qualifications in Science, Engineering, Computing and Finance. It is important to add that a GCSE maths grade of a 5 or higher, which the government call a “strong pass”, is also a minimum entry requirement for many apprenticeships, college and university courses.

Year 8 Maths - Our curriculum intent: The mathematics curriculum at KS3 is tailored to ensure that every student has the opportunity to reach their potential, develop high levels of numeracy and to spark their interest in the subject ready for related careers, problem solving and further study. Our programme is compatible with the requirements of the KS3 National Curriculum and provides students with a solid foundation for their GCSE qualification. Opportunities for retrieval practice, including revisiting and building on prior knowledge, are embedded so that students develop a fluent, connected and adaptable understanding of mathematics. We believe students should have the opportunity to learn from mistakes and become resilient learners. To achieve this, we are developing a mastery approach that incorporates regular low stakes quizzes and continuous feedback. Our assessments are designed to identify areas of development and provide students and teachers with feedback to support future teaching and learning. The approach aims to enable students to build a deeper understanding of mathematics and develop into highly numerate citizens and the mathematicians of the future.

Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Subject Specific Skills (KS3 National Curriculum)	1. Fraction, decimal, percentage equivalence 2. Percentages - Of amounts - Multipliers - % increase / decrease 3. Ratio - Equivalence - 1 : n and n : 1 including application to scale drawing - Simplifying - Recipes - Ratios as fractions and linear functions - Sharing - Problem solving	1. Reverse percentages 2. Expand single brackets 3. Form and solve equations $a(b + x) = d$ with fractional, decimal and negative coefficients 4. Factorise a single bracket 5. Area and perimeter of trapezia and compound shapes (including algebraic with brackets and solving)	1. Properties of 2D shapes (including quadrilaterals and circles) 2. Properties of 3D shapes and 2D representations of 3D shapes (plans, elevations and nets) 3. Area and circumference of circles and part circles 4. Volume - cube / cuboid - prisms - cylinder - composite	1. Probability - Use of FDP - And / Or - Sample space diagrams - Relative frequency - Mutually exclusive - Expected probability - Venn diagrams 2. Surface area - cube / cuboid - prisms - cylinder - composite 3. Pythagoras in 2D	1. Recognise and sketch basic graphs (e.g. $y = x$, $y = -x$, $x = c$, $y = c$, c is constant) 2. Transformations - Reflection and rotation (including symmetries) - Translation (including vector notation - Enlargements about a point (including fractional SF)	1. Statistical diagrams - Collecting data - Data into tables - Line graphs - Bar charts - Pictograms - Pie charts 2. Scatter graphs and correlation 3. Averages and range (including from a frequency table – not grouped) 4. Data Handling Cycle including a data project END OF YEAR SUMMATIVE ASSESSMENT
Previous Links (Year 7 Curriculum)	- Fractions - Place value - Multiplication and division - Rounding - Decimals	- Order of operations - Factors and multiples - Area and perimeter of rectangles, triangles, parallelograms - Negative numbers - Powers and roots - Collecting like term	- Scale - Unit conversion - Area and perimeter	- Area and perimeter of plane shapes, including composite shapes - Fractions, decimals and percentages - Fractions and percentages of amounts - Multiply decimals and fractions	- Reflection and rotation - Symmetry - Cartesian co-ordinates - Sequences	- Using a Calculator - Angles - Measurement - Rounding - Coordinates

Maths groups are set according to prior attainment and teachers are given autonomy to tailor elements of the curriculum to the needs of their group. Assessment is used to identify areas where adaptation is needed. The highest attaining students will be stretched through studying topics in greater depth and more demanding problem-solving tasks and questions.

Post 16 and beyond: We want to give students a love for maths and a secure understanding of the content. Once this is achieved we encourage them to study A-level Maths, which builds on the skills, knowledge and understanding that students have gained during their time studying at Key Stage 3 and GCSE. At year 8, students continue on their journey, adding knowledge of ratio, statistics and probability to their foundations in number, algebra and geometry. Maths at A-level will prepare students for a wide range of degree courses, not only including Mathematics, but also Science, Engineering, Computing and Finance. Maths can lead to a Science based career, work as a Statistician, Accountant, within the Finance sector, in Engineering and Teaching. It is important to add that a GCSE maths grade of a 5 or higher, which the government call a “strong pass” is also a minimum entry requirement for many apprenticeships, college and university courses.

Year 9 Maths - Our curriculum intent: The mathematics curriculum at KS3 is tailored to ensure that every student has the opportunity to reach their potential, develop high levels of numeracy and to spark their interest in the subject ready for related careers, problem solving and further study. Our programme is compatible with the requirements of the KS3 National Curriculum and provides students with a solid foundation for their GCSE qualification. Opportunities for retrieval practice, including revisiting and building on prior knowledge, are embedded so that students develop a fluent, connected and adaptable understanding of mathematics. We believe students should have the opportunity to learn from mistakes and become resilient learners. To achieve this, we are developing a mastery approach that incorporates regular low stakes quizzes and continuous feedback. Our assessments are designed to identify areas of development and provide students and teachers with feedback to support future teaching and learning. The approach aims to enable students to build a deeper understanding of mathematics and develop into highly numerate citizens and the mathematicians of the future.

Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Subject Specific Skills (KS3 National Curriculum)	1. Rounding, estimation and bounds 2. Rules of indices (up to negative integer powers) 3. Standard form 4. Geometric sequences including real life context and compound %	1. Equations and inequalities with unknowns on both sides 2. Expand single and double brackets 3. Factorise into single/double brackets $x^2 + bx + c$ (including DOTS) 4. Change the subject of the formula (variable on one side only)	1. Straight line graphs: plotting and understanding $y = mx + c$ 2. Sketch and draw non-linear graphs 3. Real life graphs and compound measures including: - contextual graphs using piece-wise linear, exponential and reciprocal graphs - speed, unit pricing, density	1. Constructions 2. Loci 3. Angles on parallel lines (including algebraic questions) 4. Back bearings (using angle knowledge) 5. Congruence and similarity	1. Direct and inverse proportion 2. Trigonometry in right angled triangles 3. Pythagoras and trigonometry problem solving 4. Averages from grouped frequency tables END OF YEAR SUMMATIVE ASSESSMENT	Introduction to GCSE - Tier selection - Problem solving - Revisit topics from end of key stage assessment
Previous Links (Year 7 and 8 Curriculum)	- Using a calculator - Rounding and estimation - Decimal place value including $\times/\div$ powers of ten - Powers and roots - Fractions and % of amounts - Fraction, Decimal and Percentage equivalence	- Solving equations - Basic algebraic simplification - Negative numbers - Four operations with decimals - Order of operations	- Coordinates and geometric problems - Substitution - Time - Measures – basic metric, money - Reading scales	- Properties of shapes - Scale drawing - Basic angle facts - Equivalent fraction	- Ratio - Solving proportion problems - Money problems - Factors, multiples, primes, squares, cubes and roots - Basic area and perimeter	GCSE KEY SKILLS PASSPORT (for implementation Summer 2023)

Maths groups are set according to prior attainment and teachers are given autonomy to tailor elements of the curriculum to the needs of their group. Assessment is used to identify areas where adaptation is needed. The highest attaining students will be stretched through studying topics in greater depth and more demanding problem-solving tasks and questions.

Post 16 and beyond: We want to give students a love for maths and a secure understanding of the content. Once this is achieved we encourage them to study A-level Maths, which builds on the skills, knowledge and understanding that students have gained during their time studying at Key Stage 3 and GCSE. At year 9, students continue on their journey, securing the foundational knowledge of ratio, statistics, probability, number, algebra and geometry. Maths at A-level will prepare students for a wide range of degree courses, not only including Mathematics, but also Science, Engineering, Computing and Finance. Maths can lead to a Science based career, work as a Statistician, Accountant, within the Finance sector, in Engineering and Teaching. It is important to add that A GCSE maths grade of a 5 or higher, which the government call a “strong pass” is also a minimum entry requirement for many apprenticeships, college and university courses.



GCSE Maths - Our curriculum intent: The mathematics curriculum at KS4 is tailored to ensure that every student has the opportunity to grow their mathematical capability, reach their potential and to develop their interest in the subject ready for application in related careers, problem solving and further study. Our programme is compatible with the requirements of the AQA 8300 specification and provides students with the necessary structure to achieve a GCSE qualification that enhances their future prospects. Opportunities for retrieval practice, including revisiting and building on prior knowledge, are embedded so that students develop a fluent, connected and adaptable understanding of mathematics. We believe students should have the opportunity to learn from mistakes and become resilient learners. To achieve this, we are developing a mastery approach that incorporates regular low stakes quizzes and continuous feedback. Our assessments are designed to identify areas of development and provide students and teachers with feedback to support future teaching and learning. The approach aims to enable students to build a deeper understanding of mathematics and develop into highly numerate citizens and the mathematicians of the future.

Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Year 10 (Indicative Content)	Foundation <u>Number</u> - Structure and calculation AQA N1 – N9 - Measures and accuracy AQA N13 – N16 Higher <u>Number</u> - Structure and calculation AQA N1 – N9 - Fractions, decimals and percentages AQA N10 – N12 - Measures and accuracy AQA N14 – N16 <u>Ratio, proportion and rates of change</u> AQA R9, R16	Foundation <u>Number</u> - Fractions, decimals and percentages AQA N10 – N12 <u>Ratio, proportion and rates of change</u> AQA R9, R16 Algebra - Notation, vocabulary and manipulation AQA A1 – A7 Higher <u>Algebra</u> - Notation, vocabulary and manipulation AQA A1 – A7 - Graphs AQA A11 - Solving equations and inequalities AQA A17, A18, A21, A22	Foundation <u>Geometry and measures</u> - Properties and constructions AQA G1, G3, G4, G9 - Mensuration and calculation AQA G14 – G18 Higher <u>Geometry and measures</u> - Properties and constructions AQA G1, G3, G4 - Mensuration and calculation AQA G15, G20, G21 <u>Ratio, proportion and rates of change</u> AQA R2 – R8, R10, R13, R14	Foundation <u>Geometry and measures</u> - Mensuration and calculation AQA G20, G21 <u>Statistics</u> AQA S1, S2 <u>Probability</u> AQA P1 – P8 Higher <u>Geometry and measures</u> - Properties and constructions AQA G9 - Mensuration and calculation AQA G14, G16 – G19 <u>Ratio, proportion and rates of change</u> AQA R1, R11, R12 <u>Number</u> - Measure and accuracy AQA N13	Foundation <u>Statistics</u> AQA S4, S5 <u>Algebra</u> - Graphs AQA A8 – A10 - Solving equations and inequalities AQA A17, A19, A21, A22 <u>Geometry</u> - Properties and constructions AQA G11 Higher <u>Statistics</u> AQA S1 – S6	Foundation <u>Algebra</u> - Sequences AQA A23 – A25 - Graphs AQA A11, A12 - Solving equations and inequalities AQA A18 Higher <u>Probability</u> AQA P1 – P9 <u>Algebra</u> - Graphs AQA A8 – A10 - Solving equations and inequalities AQA A19, A21 END OF YEAR SUMMATIVE ASSESSMENT

Year 11 (Indicative Content)	Foundation <u>Ratio, proportion and rates of change</u> AQA R2 – R8, R10 <u>Geometry and measures</u> - Properties and constructions AQA G12, G13 Higher <u>Algebra</u> - Graphs AQA A11 – A16 - Solving equations and inequalities AQA A18, A20 <u>Ratio, proportion and rates of change</u> AQA R15	Foundation <u>Geometry and measures</u> - Properties and constructions AQA G5 – G7 - Mensuration and calculation AQA G16, G17, G19 - Vectors AQA G24 <u>Ratio, proportion and rates of change</u> AQA R12 Higher <u>Geometry and measures</u> - Properties and constructions AQA G5 – G8, G10, G13 - Mensuration and calculation AQA G22, G23 NOVEMBER MOCK EXAMS	Foundation <u>Algebra</u> - Graphs AQA A14 <u>Ratio, proportion and rates of change</u> AQA R1, R11 Higher <u>Geometry and measures</u> - Vectors AQA G24, G25 <u>Algebra</u> - Sequences AQA A23 – A25 <i>Time for coverage of outstanding 'Higher Tier only' content from previous modules</i>	Foundation <u>Statistics</u> AQA S6 <u>Geometry and measures</u> - Properties and constructions AQA G2 Higher <u>Geometry and measures</u> - Properties and constructions AQA G2 MARCH MOCK EXAMS	Foundation and Higher Implementation of targeted revision based on Question Level Analysis (QLA) from mock examinations
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Maths groups are set according to prior attainment and teachers are given autonomy to tailor elements of the curriculum to the needs of their group. Assessment is used to identify areas where adaptation is needed. For example, each teacher will be aware of their group's prior attainment at KS3. Therefore, as part of a holistic approach to the two-year GCSE course, teachers will have an element of freedom to address gaps, especially when these gaps form key prior knowledge for tackling something else.

The highest attaining students will be stretched through studying topics in greater depth and more demanding problem-solving tasks and questions. The Level 2 Certificate Further Mathematics runs alongside the curriculum (through weekly hour long after school sessions) to provide the greater depth for the most able students and as a transitional mechanism to further study in mathematics post-16.

See <https://filestore.aqa.org.uk/resources/mathematics/specifications/AQA-8300-SP-2015.PDF> for more details of the modules.

Post 16 and beyond:

We want to give students a love for maths and a secure understanding of the content. Once this is achieved we encourage them to study A-level Maths, which builds on the skills, knowledge and understanding that students have gained during their time studying at Key Stage 3 and GCSE. Maths at A-level will prepare students for a wide range of degree courses, not only including Mathematics, but also Science, Engineering, Computing and Finance. Maths can lead to a Science based career, work as a Statistician, Accountant, within the Finance sector, in Engineering and Teaching. It is important to add that A GCSE maths grade of a 5 or higher, which the government call a "strong pass" is also a minimum entry requirement for many apprenticeships, college and university courses.

Year 12 Maths: Our curriculum intent is to:

A-level Maths at Derby Moor is the perfect choice if you enjoy the subject and want to be taught by a team with over 30 years of A-level teaching experience. Our curriculum at Year 12 is designed to cover the three strands of AQA Year 1 A-level Maths (Pure, Statistics and Mechanics) by the first half of the Summer term. This allows us to begin the second year of teaching in the second half and ensures that ample time is available in your second year for vital revision and exam practice. Alongside our programme of study, our aim is also to provide you with a variety of assessments which challenge the core objectives and interleave mathematical knowledge to increase your retention of learning and your ability to transfer it to other contexts. Our assessments are designed to identify your areas of development and at frequent points throughout the year you will be provided with feedback and given the opportunity to securely embed a deeper understanding of the topics covered. Your first assessment will be a baseline where we diagnose the areas of Maths from Key Stage 4 that you need work on to be successful at A-level, with algebra being the focus. If at any point you find anything difficult, your teachers will be on hand during your independent study to drop into and seek support.

Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Subject Specific Skills (KS5 National Curriculum)	Pure: • Surds and indices • Quadratic functions • Equations and inequalities • Equation of a straight line • Equation of a circle	Pure: • Trigonometry • Solving trigonometric equations • Using trigonometric identities • Factorising and sketching polynomials • Binomial expansion • Differentiation	Pure: • Integration • Graphs and transformations • Exponentials and logs • Proof • Vectors	Statistics: • Statistical sampling • Data presentation and interpretation • Probability Mechanics: • Kinematics in 1 dimension	Statistics: • Probability distributions • Binomial distribution • Hypothesis testing using a binomial distribution Mechanics: • Newtons' laws	A-level Year 2 begins Pure: • Sequences and series • Radian measure • Arcs and sectors
Previous Links (KS4 National Curriculum)	• Surds - rationalising denominators • Indices, including negative and fractional • Solve quadratics using a variety of methods • Plotting quadratics • Solving linear and quadratic inequalities • Graphical inequalities • Equation of a straight line • Equation of a circle	• Trigonometry – right angled triangles, sine rule, cosine rule and area of a triangle • Graphs of trigonometric functions • Expanding double and triple brackets	• Transformations of graphs • Indices (Key Stage 4 and Year 12) • Equation of a straight line • Algebraic proof • Vectors	• Averages and range, including from frequency tables • Representing data using scatter diagrams, histograms, cumulative frequency graphs and box plots • Probability using Venn diagrams and tree diagrams	• Finding binomial coefficients (Year 12)	• Arcs and sectors • Arithmetic and geometric progressions • Nth term rules

Post 18 and beyond: We want to provide students with an opportunity to further their enjoyment of studying maths. Maths at A-level will prepare students for a wide range of degrees, not only including Mathematics, but also Science, Engineering, Computing and Finance. It can lead to a Science based career, work as a Statistician, Accountant, within the Finance sector, in Engineering and Teaching. That is by no means an exhaustive list and the way you are taught to think logically and systematically to solve problems will be beneficial in any degree and future career. Maths is a versatile subject that pairs well with several other numbers-based subjects. It can be studied with Chemistry, Physics, Economics, Accounting and Finance, Business and IT. If you want to keep your options open for further study and careers, Maths also pairs with subjects such as Biology, English, History, Geography and Psychology.

Year 13: Our curriculum intent:

A-level Maths at Derby Moor is the perfect choice if you enjoy the subject and want to be taught by a team with over 30 years of A-level teaching experience. Our curriculum at Year 13 is designed to cover the three strands of AQA Year 2 A-level Maths (Pure, Statistics and Mechanics) by the end of the Spring term. This allows us to ensure that ample time is available for revision and exam practice prior to the exams in June. Alongside our programme of study, our aim is also to provide you with a variety of assessments which challenge the core objectives and interleave mathematical knowledge to increase your retention of learning and your ability to transfer it to other contexts. Our assessments are designed to identify your areas of development and at frequent points throughout the year you will be provided with feedback and given the opportunity to securely embed a deeper understanding of the topics covered.

Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Subject Specific Skills (KS5 National Curriculum)	Pure: - Review trigonometry from Year 12 - Trigonometry, including addition formulae, double angle formulae, harmonic form and further trigonometric identities - Binomial expansion for negative and fractional indices - Functions, including composite, inverse and modulus	Pure: - Differentiation, including product rule, quotient rule and chain rule - Further differentiation, including working with trigonometric functions and implicit differentiation - Simplifying rational expressions - Decomposition to partial fractions - Transformations of graphs - Sequences and series review from Year 12	Pure: - Integration, including by substitution and by parts - Differential equations - Numerical methods - Parametric equations - Proof by contradiction	Statistics: - Conditional probability - Normal distribution - Hypothesis tests using normal distribution - Hypothesis tests for correlation coefficients Mechanics: - Kinematics in two dimensions - Forces and motion - Moments	Revision of topics needing development as identified by full mock exam	EXAMS Three 2-hour Papers Exam Board: AQA
Previous Links (KS4 National Curriculum and Year 12)	KS4: - Functions Year 12: - Arcs, sectors and radians - Trigonometric Identities - Binomial expansion	KS4: - Simplifying rational expressions Year 12: - Differentiation - Transformations of graphs - Sequences and series	KS4: - Iteration and sign change method for identifying location of a root - Direct and inverse proportion Year 12: - Integration - Proof	Year 12 Statistics: - Probability - Binomial distribution - Hypothesis tests Year 12 Mechanics - Kinematics in one dimension	Revision of topics from A-level Maths Year 1	

Post 18 and beyond: In Year 13 you will receive subject references from your teachers and a predicted grade for UCAS. Our comprehensive assessment plan is designed to give you plenty of opportunities to improve that prediction so you are not disadvantaged when it comes to applying for the courses you want. Maths at A-level will prepare students for a wide range of degrees, not only including Mathematics, but also Science, Engineering, Computing and Finance. It can lead to a Science based career, work as a Statistician, Accountant, within the Finance sector, in Engineering and Teaching. That is by no means an exhaustive list and the way you are taught to think logically and systematically to solve problems will be beneficial in any degree and future career.

