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Ormiston Academies Trust
ACHIEVING MORE TOGETHER

Mathematics curriculum overview

Mathematics at Sandymoor Ormiston Academy

Key stage 3, Years 7, 8 and 9

Our KS3 mathematics curriculum develops students' mathematical knowledge across the domains of number and proportion, algebra, geometry and measures, and statistics and probability. Students learn mathematics with coherent methods and they get to apply their skills in increasingly complex ways to solve all sorts of problems.

We aim to build students' mathematical skills, reasoning and problem-solving and their knowledge of its applications. Students learn to appreciate how to think logically and search for patterns. By the end of KS3, our intent is for students to be able to think mathematically, to know how mathematics is applied throughout the world, and to be enthusiastic to continue to further study in mathematics.

Key stage 4, Years 10 and 11

Our KS4 mathematics curriculum is designed to prepare students for success in Mathematics GCSE using the Edexcel exam board. Building on strong foundations from KS3, students will learn to apply the core concepts in mathematics and will develop an understanding of how the discipline is applied to solve problems.

As well as leaving KS4 with a strong qualification in GCSE Mathematics, our intent is that this curriculum sets students up with the skills that will allow them to pursue a future in many related careers.

GCSE course information

Exam board	Edexcel
Course	GCSE Mathematics (1MA1)
Specification and resources	https://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html

Year 7

In year 7, students will study types of numbers and calculations with them, as well as key aspects of proportional reasoning with fractions and percentages. They will build on learning from Primary school and end the year with an in-depth knowledge of the maths that underpins everything else, while building on it with an introduction to algebra and generalisation.

Note our abbreviations for areas of the curriculum – NP: number and proportion; A: algebra; GM: geometry and measures; SP: statistics and probability

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
NP1: Place value and rounding NP2: Addition and subtraction with integers and decimals: techniques and applications	NP3: Multiplication and division with integers and decimals: techniques and applications NP4: Powers, roots and primes	NP5: Order of operations NP6: Calculating with directed (negative) numbers	NP7: Fractions: calculation techniques and applications	NP8: Percentages, fractions and decimals	A1 and A2: Introduction to algebra and working with expressions

Assessments will take place in January and June and we will share revision information a few weeks before each assessment.

Year 8

In year 8, students build on their solid foundations to work with various types of expressions, equations, formulae and graphs. They formalise their proportional thinking, build the geometric fundamentals and start to analyse data.

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Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
NP9: Estimation, error, and use of the calculator GM1: Drawing, measuring and constructing	A3: Manipulating expressions, including with brackets A4: Linear equations	NP10: Proportional reasoning GM2: Polygons and angles	SP1: Collecting, analysing and representing discrete data NP11: Ratio	A5: Working with formulae SP2: Bivariate data and time series	A6: The Cartesian grid – points and graphs

Assessments will take place in January and June and we will share revision information a few weeks before each assessment.

Year 9

In year 9, students start to bridge from the fundamentals to more advanced aspects of mathematics. They meet key areas of the discipline, such as trigonometry, for the first time, and they link algebra to geometry and proportional reasoning, while considering how to mathematically measure uncertainty.

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Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
GM3: Area of polygons and circles A7: Sequences	A8: Inequalities NP12: Standard form	A9: Contextual graphs SP3: Probability	GM4: Congruence and similarity, including transformations of shapes	GM5: Right-angled triangles, including Pythagoras and trigonometry	GM6: Circles NP13: Advanced proportion and rates of change, including compound units

Assessments will take place in January and June and we will share revision information a few weeks before each assessment.

Year 10

In year 10, students build on KS3 and follow one of three pathways, designed to maximise their achievement at GCSE.

Note our abbreviations for areas of the curriculum – NP: number and proportion; A: algebra; GM: geometry and measures; SP: statistics and probability

Pathway	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Higher	A10: Advanced linear graphs, equations and inequalities GM4-6: Revisiting and building on KS3, including circle theorems	NP13: Revising the essentials from KS3 GM7: Advanced drawing, measuring and constructing	SP4: Collecting, analysing and representing continuous data, including cumulative frequency and boxplots SP5: Set theory and logic	NP14: Number theory and error, including bounds A11: Advanced expressions, including quadratics	A12: Quadratic graphs and equations GM8: Surface area and volume	A13: Advanced sequences GM9: Advanced length and area, in 3D and with non-right-angled triangles
Crossover	NP4-9: Revisiting and building on KS3 A3-8: Revisiting and building on KS3	NP10-11: Revisiting and building on KS3 GM1-3: Revisiting and building on KS3	NP12-13: Revisiting and building on KS3	GM4: Revisiting and building on KS3 A9: Revisiting and building on KS3	A10: Advanced linear graphs, equations and inequalities SP3: Revisiting and building on KS3	GM5-6: Revisiting and building on KS3, including circle theorems
Foundation	NP1-7: Revisiting and building on KS3	A1-5: Revisiting and building on KS3	GM1-3: Revisiting and building on KS3 SP1-2: Revisiting and building on KS3	NP8-10: Revisiting and building on KS3 A6-8: Revisiting and building on KS3	GM4: Revisiting and building on KS3 SP3: Revisiting and building on KS3	NP11: Revisiting and building on KS3

Assessments will take place in April and we will share revision information a few weeks before each assessment.

Year 11

In year 11, students continue on one of three pathways, designed to maximise their achievement at GCSE.

Note our abbreviations for areas of the curriculum – NP: number and proportion; A: algebra; GM: geometry and measures; SP: statistics and probability

Pathway	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Higher	SP6: Sampling and advanced data analysis, including histograms NP15: Indices and surds A14: Advanced quadratic graphs, equations and inequalities	NP16: Algebraic representations of proportion and change GM10: Vectors SP7: Advanced probability	A15: Functions and advanced graphs A16: Pre-calculus A17: Advanced algebraic manipulation and proof	GM11: Geometric problem solving *Revision*	*Revision* *Exams*	*Exams*
Crossover	GM7: Advanced drawing, measuring and constructing SP4-6: Collecting, analysing and representing continuous data; set theory and logic; sampling and advanced data analysis	NP14: Number theory and error, including bounds A11-13: Quadratic expressions, equations, graphs and sequences	GM8-10: Surface area and volume, advanced trigonometry and vectors NP15-16: Indices and surds; algebraic representations of proportion	SP7: Advanced probability A15-17: Functions, graphs, pre-calculus and proof GM11: Geometric problem solving	*Revision* *Exams*	*Exams*

Foundation	NP12: Standard form NP13: Advanced proportion and rates of change, including compound units A9: Contextual graphs	A10-12: Linear graphs, equations and inequalities; quadratic expressions and graphs NP14-16: Number theory, error intervals, index laws, proportion GM5: Right-angled triangles, including Pythagoras and trigonometry	GM6: Circles GM7: Advanced drawing, measuring and constructing GM8: Surface area and volume GM10: Vectors	SP4-7: Analysing grouped data, sampling, set theory and logic, probability problems *Revision*	*Revision* *Exams*	*Exams*

Mocks will take place in November and February and we will share revision information a few weeks before each assessment.