Ansford Academy

Mathematics

Curriculum Booklet for 2025 - 2026

Subject Lead: Mrs Patricia Withers

Midsomer Norton Schools Partnership

Maths Curriculum Intent

At Ansford Academy, we value the role that Mathematics has to play in life which develops students' appreciation for an aptitude in numeracy skills. The curriculum at our school meets, and at times exceeds, the national curriculum and covers the five key areas of:

- Numbers
- Algebra
- Geometry and measure
- Ratio, proportion and rates of change
- Probability and statistics

Through these five key areas, we aim to ensure that all pupils:

- Become fluent in the fundamentals of Mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- Can solve problems by applying their Mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Our Key Stage 3 curriculum intends to develop in students a deep appreciation of the patterns and relationships between numbers and to provide a firm foundation with the tools of algebra, geometry and statistics to enable students to solve problems in both abstract and real-world contexts. The curriculum builds on prior knowledge by consolidating concepts and standardising techniques learnt at Key Stage 2, developing and enhancing understanding of all six areas of the secondary Mathematics curriculum and introducing new concepts such as Pythagoras' Theorem and Trigonometry that provide essential foundations for Key Stage 4 Mathematics.

Our Key Stage 4 curriculum intends to continue the development of all the areas of the Mathematics curriculum encountered in Key Stage 3 with an additional strand covering vectors. In Key Stage 4 problem-solving and reasoning skills are further developed and refined up to, and in many cases, beyond the standard required in GCSE Mathematics examinations. High attainers have the opportunity to follow the AQA Level 2 Certificate in Further Mathematics in Year 11 after-school. As Ansford's students progress to many different Sixth Forms or into the world of work, we use the most popular Mathematics exam board – Edexcel.

We also offer GCSE Statistics at Foundation Tier to some Year 11 students. The teaching of Statistics builds upon the knowledge students have gained in their Mathematics lessons and refines their application and understanding of these concepts to real world situations. Statistics supports students with many post-16 choices; the knowledge gained has direct links to Mathematics A-Level, Business Studies, Economics, Geography and the Social Sciences.

Maths Curriculum Implementation

Ansford Academy follows the MNSP Scheme of Learning, which is differentiated into a number of strands that provide challenge to the more able students and support for the less able.

Key Stage 3

The Long-Term Plan for each year presents and groups concepts in a logical sequence that enables students to develop the knowledge needed to access concepts later in the year and in subsequent years. This process begins with a 4-week induction phase at the start of Year 7 where we ensure knowledge acquired at Key Stage 2 is refreshed and securely in place. Mastery Resources from White Rose Maths have been incorporated into the Year 7 SoL to ensure students of all abilities are able to master the building blocks necessary for deeper mathematical understanding during subsequent years.

In Years 7 and 8 all areas of the curriculum are covered over 10 units with each topic enriched through mastery lessons which consolidate recall and retention and enable a deeper exploration of problem solving with each concept. In Year 9 students recap and consolidate their learning and are then provided with stretch and challenge in preparation for the GCSE content. This consolidation in learning helps students to build their knowledge and skills, whilst providing a valuable opportunity to 'knit together' the mathematical strands. You can find the MNSP Maths full curriculum implementation plan by clicking here.

Key Stage 4

The Key Stage 4 curriculum is divided into 3 carefully assembled modules of mutually reinforcing concepts. The year 10 modules last for 3 terms and conclude with a fortnight of revision before a comprehensive assessment split over 3 papers.

Students in Year 11 study the final module which has been revised to concentrate on problem-solving skills. Different topics that can be tackled using similar approaches are brought together; firstly, those that can utilise tables, then those involving multiplicative reasoning which can be solved using ratio, and finally problems that can be solved by forming and solving equations. One lesson per week is allocated to a graded "Weekly Ten" worksheet, which covers 10 (or 20 at Grade 2) key topics that will arise in the final exam. This module is followed by the first set of Mock exams. The remainder for Year 11 is dedicated to a program of revision in preparation for the second set of Mock exams, followed by the GCSE Exams.

Where appropriate students who struggle with the content of the GCSE are able to sit the Edexcel Entry Level Certificate. There are 3 levels, with students having the opportunity to attempt each level up to 3 times. The course covers basic numeracy, geometry and probability topics.

You can find the MNSP Maths full curriculum implementation plan by clicking here: here.

Allocated Curriculum Time

	Year 7	Year 8	Year 9	Year 10	Year 11
Lessons per fortnight	**7**	**7**	**7**	**7**	**7**

Year 7 Programme of Study

Term	Curriculum Foci	Formal Assessment
1	**Unit 0: Induction – Recap of KS2 Learning** ● KS2 subject knowledge is reviewed and students tackle more sophisticated problems than students encountered at KS2. ● Knowledge focus; Fractions, Percentages, Area & Perimeter, Sequences. ● Expectations of students' mathematical reasoning are increased and they are expected to communicate like a mathematician. **Unit 1: Sequences, Functions and Angles** ● Students learn to recognise patterns, continue sequences and progress to find general rules for sequences and using these rules to solve problems. Students use function machines with numbers and expressions and begin writing and simplifying expressions.	**Assessment 1:** **Unit - Induction** **Time:** 45 minutes
2	**Unit 1: Sequences, Functions and Angles (cont.)** ● Students develop their knowledge of angles rules from KS2 and present geometric arguments for their answers. **Unit 2: Percentages and Units, Area and Volume** ● Students learn to find percentages, and tackle percentage increase and decrease problems, compound interest and repeated percentage change. ● Students learn strategies for tackling these problems with or without a calculator and to be able to tackle more complex, real life problems.	**Assessment 2:** **Unit 1** **Time:** 45 minutes
3	**Unit 2 Percentages and Units, Area and Volume (cont.)** ● Students recap the metric conversions for weight, capacity and length. ● Students tackle Area & Volume problems, looking at increasingly complex shapes and how these may appear in unfamiliar contexts. **Unit 3: Number** ● Students develop their numerical understanding, securing their abilities at written methods; with an emphasis on securing accuracy in all calculations.	**Assessment 3:** **Unit 2** **Time:** 45 minutes
4	**Unit 3: Number (cont.)** ● Students learn to identify the properties of numbers and use these to solve problems. ● Students begin to explore rounding and the accuracy of solutions and are introduced to how reliable estimates can be made.	**Assessment 4:** **Unit 3** **Time:** 45 minutes
5	**Unit 4: Present and Interpret Data** ● Students learn how to use tables to organise different types of data and which charts and graphs are appropriate to present each type of data. ● Students learn to interpret graphs and charts and calculate averages.	**Assessment 5:** **End of Year Exam** **Time:** 1 hour
6	**Unit 5: Probability** ● Students learn how to describe and calculate probabilities for single and combined events. ● Students develop their ability to organise their thinking using diagrams and tables to help aid their probability calculations.	**Assessment 6:** **Unit 4 and Unit 5** **Time:** 45 minutes

Year 8 Programme of Study

Term	Curriculum Foci	Formal Assessment
1	**Unit 6: Expressions, Equations and Pythagoras** ● Students are introduced to formal algebra and learn to create and simplify expressions. Students also learn to solve equations and inequalities of progressive difficulty. ● Students have their first introduction to Pythagoras' Theorem and how this can be used to find missing sides in right angle triangles. Some will progress to more complex problems and trigonometry.	**Assessment 1: Unit 6** **Time:** 45 minutes
2	**Unit 7: Indices and Transformations** ● Students learn the laws on indices and how standard form can simplify calculations with very large and very small values. ● Students learn to perform the 4 transformations to shapes on a coordinate grid and describe which transformation has occurred.	**Assessment 2: Unit 7** **Time:** 45 minutes
3	**Unit 8: Ratio and Graphs** ● Students learn what a ratio is, how they can be simplified and how ratios can be used to solve problems, including real life problems. ● Students investigate different types of graphs. Beginning with real life graphs and progressing to visual interpretations of algebra concepts studied in Unit 6.	
4	**Unit 8: Ration and Graphs (cont.)** ● Students investigate different types of graphs. Beginning with real life graphs and progressing to visual interpretations of algebra concepts studied in Unit 6. **Unit 9: Fractions and Accurate Drawing** ● Students revise and strengthen their fractions knowledge from KS2, progressing their understanding to be able to deal with mixed numbers and perform the four operations with fractions. ● Students deepen their understanding of percentages building on their knowledge from Y7 to look at more complex problems, including reverse percentages and compound interest.	**Assessment 3: Unit 8** **Time:** 45 minutes
5	**Unit 9: Fractions and Accurate Drawing (cont.)** ● Students are introduced to the formal ruler and compass construction methods and how to use these to solve geometric problems. ● Students are also introduced to map scales, scale drawings and plans and elevations.	**Assessment 4: Unit 9** **Time:** 45 minutes **Assessment 5: End of Year Exam** **Time:** 45 minutes
6	**Unit 10: Statistics & Probability** ● Students deepen their understanding of averages from Y7 to be able to calculate averages from tables or graphs, use averages to find missing pieces of data and compare data sets. ● Students build on their Y7 knowledge of charts and graphs to look at more complex representations of data, such as pie charts and scatter graphs. ● Students aim to have a more fluent understanding of the key probability concepts and be better able to apply these to real life situations.	**Assessment 6 Unit 10** **Time:** 45 minutes

Year 9 Programme of Study

Term	Curriculum Foci	Formal Assessment
1	**Unit 11 - Number and Ratio** ● Students revise number content covered in Y7 and Y8, progressing to more complex concepts such as: reverse percentage problems, calculations in standard form and upper and lower bounds. ● Students revisit ratio topics covered in Y8 and develop their understanding to solve more complex problems including combined ratios.	**Assessment 1: Unit 11** **Time:** 45 minutes
2	**Unit 12 - Geometry and Measure** ● Students build on their knowledge of units and area from Y8 and tackle more complex problems in 3D and involving parts of circles. ● Students study compound measures; speed, density and pressure and begin to solve problems using these. ● Students develop their understanding of right-angled triangles and trigonometry, working on problems with multiple steps.	**Assessment 2: Unit 12** **Time:** 45 minutes
3	**Unit 13 - Algebra** ● Students consolidate their understanding of formal algebra notation with a focus on writing expressions and equations using conventional notation. ● Students solve equations and inequalities involving quadratic expressions and rearrange formulas. ● Students learn to find general rules for sequences, including quadratic sequences and use these to solve problems.	**Assessment 3: Unit 13** **Time:** 45 minutes
4	**End of KS3 Assessment** ● Students consolidate their fractions knowledge, focusing on more complex calculations with mixed numbers and converting between fractions and recurring decimals. ● Students recap the ruler and compass constructions and solve loci problems. ● Students develop their angles knowledge including angles in polygons and circle theorems, with a focus on providing full geometric arguments.	
5	**End of KS3 Assessment (cont.)** ● Students develop their indices knowledge, performing calculations in standard form, evaluating fractional and negative indices and estimating powers and roots. ● Students solve more complex equations than earlier in the year, using the quadratic formula and tackling problems that arise from geometric facts. ● Students develop their knowledge of graphs, looking more deeply at graphs of curves, rates of change and direct and inverse proportion.	**Assessment 4:: End of KS3 Mid-term Assessment** **Time:** 45 minutes
6	**End of KS3 Assessment (cont.)** ● Students develop their understanding of statistics, including estimating averages from grouped data and using combined means ● Students draw and interpret more complex graphs, understanding the difference between interpolation and extrapolation and make more precise estimates from graphs. ● Revision and preparation for end of KS3 assessment.	**Assessment 5: End of KS3 Exam** **Time:** 2 x 45 minutes

Year 10 GCSE Maths Programme of Study
Exam Board: Edexcel
Specification: 1MA1

Term	Curriculum Foci Areas Assessment Criteria	
1	**KS4 Assessment 1** ● Students revise their percentages with a focus on solving problems involving repeated percentage change, compound interest and reverse percentages. ● Students recap their knowledge of transformations progressing to enlargements and combined transformations. ● Students extend their knowledge of solving and simplifying to look at simultaneous equations, algebraic fractions and complex linear and quadratic equations.	**KS4 Assessment 1 Mid-term Assessment Time:** 45 minutes
2	**KS4 Assessment 1 (cont.)** ● Students learn to solve graphical problems using parallel and perpendicular gradients of lines, and find points of intersection. ● Students develop their knowledge of trigonometry to solve problems involving multiple steps and non-right-angled triangles. ● Students consolidate their understanding of sequences and using Nth term rules to generalise linear and quadratic sequences. ● Students develop their knowledge of ratio, solving problems using exchange rate, combined ratio and a mixture of ratio and fractions, decimals and percentages.	
3	**KS4 Assessment 1 (cont.)** ● Students develop their knowledge of angles, focussing on parallel lines, polygons and congruence. ● Students are introduced to the idea of sampling, the different types of sampling and why it may be necessary to obtain a sample. ● Students use a variety of diagrams to organise their probability thinking and solve problems where a combination of events occur.	**KS4 Assessment 1 Time:** 3 x 45 minutes
4	**KS4 Assessment 2** ● Students develop their numeracy, performing all calculations accurately, including with decimals, and improve their understanding of accuracy using bounds. Some will learn to calculate combinations of events and prove statements about divisibility. ● Students consolidate their understanding of indices, simplifying where index laws need to be applied multiple times and evaluating negative and fractional indices.	
5	**KS4 Assessment 2 (cont.)** ● Students develop their understanding of inequalities, showing these on a number line and solving them. ● Students develop their knowledge of graphs, looking at more complex graphs than they have previously studied. Some will be introduced to functions and learn to calculate area under a graph.	**KS4 Assessment 2 Mid-term Assessment Time:** 45 minutes
6	**KS4 Assessment 2 (cont.)** ● Students extend their knowledge of units, area and volume to look at more complex shapes than they previously studied. Some will be introduced to vectors. ● Students develop their understanding of probability and statistics, approach to calculating averages and interpreting graphs.	**Year 10 Exams Time:** 2 x 90 minutes

Curriculum Plan: Year 11 Mathematics
Exam Board: Edexcel
Specification: 1MA1

Term	Curriculum Foci Areas	Assessment Criteria
1	**KS4 Assessment 3** ● Students will investigate representations that can be applied across multiple problem solving questions such as the use of tables to solve mean or compound measure problems and the use of ratio representations in multiple contexts (including polygon angles and similar triangles). ● Students will extend their knowledge of algebraic manipulation, including factorising and solving quadratic equations as well as use of elimination and substitution methods for solving simultaneous equations.	**KS4 Baseline Assessment** 45 minute written assessment. **This is taken very early in Term 1 to ascertain what has been retained from Year 10.**
2 **3**	**KS4 Assessment 3 + Revision** ● Students will be provided with full Question Level Analysis (QLA) for the KS4 Assessment 3 Mid-term Assessment. ● Students will be given personalised areas for development from the QLA. ● Each class will revise content based on the QLA. **Revision** ● Students will be provided with full Question Level Analysis (QLA) for the Mock Exam 1. ● Students will be given personalised areas for development from the QLA. ● Each class will revise content based on the QLA. ● Students complete practice exam questions in class and for homework.	**Year 11 Mock GCSE Exams** 3 x 90 minute **written GCSE exam papers.**
4	**Revision** ● Students will be provided with full Question Level Analysis (QLA) for the Mock Exam 2. ● Students will be given personalised areas for development from the QLA. ● Each class will revise content based on the QLA.	**Year 11 Mock GCSE Exams** 3 x 90 minute **GCSE exam papers.**
5	**Revision and Exams** ● Final exam preparation involving practice example questions and MET Revision workbooks that provide exam questions corresponding to each area of development, which are highlighted on individual student's MET reports.	

Revision and Support:

There are many ways in which you can support your child in the study of Mathematics such as:

- The MET Site https://met.midsomernortonschoolspartnership.com/
- MathsWatch https://vle.mathswatch.co.uk/
- Dr Frost https://www.drfrost.org/
- Corbett Maths https://corbettmaths.com/

Final GCSE Assessment Structure:

Component	Weighting	Content	Proposed Date of Examination
Paper 1	33.3%	Non-Calculator 1 hour 30 mins	May/June of Year 11
Paper 2	33.3%	Calculator 1 hour 30 mins	May/June of Year 11
Paper 3	33.3%	Calculator 1 hour 30 mins	May/June of Year 11

Please see exam board websites for up to date information:

Mathematics: Edexcel (1MA1): please click here