BEECHEN CLIFF

Mathematics

Curriculum Booklet

2025 - 2026

Head of Faculty: Mr R. Burnby

Subject Curriculum Intent:

According to Andreas Schleicher (Director for Education and Skills, and Special Advisor on Education Policy to the Secretary-General at the Organisation for Economic Co-operation and Development (OECD)), *"Good maths skills are the best protection against unemployment, low wages and poor health*." This is a responsibility that we, as a faculty, take very seriously and is why our motto is "Every Child Counts". Whilst our students come to us with above average levels of attainment, they do come from a large number of primary schools and so our aim is to ensure all learners make excellent progress irrespective of their previous experience.

The curriculum at Beechen Cliff meets, and at times exceeds the national curriculum and covers the five key areas of:

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

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 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.

Many students at Beechen Cliff continue on to study A-level Mathematics and/or Further Mathematics in our 6th form as well as other 6th forms in the local area. Our curriculum provides them with all the necessary skills to be successful in these courses. We also recognise that for many other students who do not take mathematics beyond Key Stage 4, Mathematics is a critical skill for many professions and opens a world of opportunity for children. Our curriculum is designed to provide them with the knowledge and skills they will need to be successful in their future careers.

Subject Curriculum Implementation:

At Beechen Cliff, the MNSP Scheme of Learning is differentiated into 5 strands. This enables all students to have the opportunity to move between sets whilst ensuring work is challenging but accessible providing all with the opportunity to make excellent progress.

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.

In Years 7 and 8 all areas of the curriculum are covered over 9 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 their 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: https://met.midsomernortonschoolspartnership.com/met-curriculum/key-stage-3-iii

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 (1 non-calculator, 2 calculator). Year 11 commences with a module of work explicitly focussed on developing problem solving and application of knowledge to GCSE exam questions.

Lesson resources are interspersed with content explaining the relevance of Mathematics topic to a broad range of further study and careers. Progress is monitoring through the same weekly cycle of homework, feedback and follow-up work as at Key Stage 3

Attainment is measured through tri-termly cycle of revision, assessment and holistic feedback on progress through MET reports emailed to students and parents.

In addition, a mid-unit assessment is used at the start of Year 10 to help students in the transition from Key Stage 3 style assessments to Key Stage 4 style assessments.

More able students are offered the opportunity to study for GCSE Further Maths in Year 11.

You can find the MNSP Maths full curriculum implementation plan by clicking here: https://met.midsomernortonschoolspartnership.com/met-curriculum/key-stage-4-iii

Allocated Curriculum Time:

	Year 7	Year 8	Year 9	Year 10	Year 11
Fortnightly lesson allocation	6	6	6	7	8

Year 7

Term	Curriculum Foci Areas	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.	**Induction Assessment (1 paper)**
2	**Unit 1: Sequences, Functions and Angles (cont.)** ● Students develop their knowledge of angles rules from KS2 and present geometric arguments for their answers, using correct mathematical terminology. **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 calc be able to tackle more complex, real life problems.	**Unit 1 (1 paper)**
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: Numeracy** ● Students develop their numerical understanding, securing their abilities at methods; with an emphasis on securing accuracy in all calculations.	**Unit 2 (1 paper)**
4	**Unit 3: Numeracy (cont.)** ● Students develop their numerical understanding, securing their abilities at methods; with an emphasis on securing accuracy in all calculations. ● 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 i how reliable estimates can be made.	**Unit 3 (1 paper)**
5	**End of Year 7 Consolidation** ● Students prepare for a summative assessment covering all content studied in Year 7. **Unit 4: Present 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.	**End of Year Assessment (1 paper)**
6	**Unit 5: Interpret Data** ● Students learn to interpret graphs and charts and calculate averages.	**Unit 4/5 (1 paper)**

For further detail of the Year 7 Curriculum, please click here.

Year 8

Term	Curriculum Foci Areas	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.	**Unit 6 (1 paper)**
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.	**Unit 7 (1 paper)**
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 many real life problems. • Students investigate different types of graphs starting with real life graphs and progressing to visual interpretations of the algebra concepts studied in unit 6. • Students investigate different types of graphs. Beginning with real life graphs and progressing to visual interpretations of the algebra concepts studied in unit 6.	**Unit 8 (1 paper)**
4	**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. • 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.	**Unit 9 (1 paper)**
5	**End of Year 8 Consolidation** • Students prepare for a summative assessment covering all content studied in Year 8.	**End of Year Assessment (2 papers)**
6	**Unit 10 - 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.	**Unit 10 (1 paper)**

For further detail of the Year 8 curriculum please click here

Year 9

Term	Curriculum Foci Areas	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.	**Unit 11** **(1 paper)**
2	**Unit 12 - Geometry and Measure** • Students build on their knowledge of units and area from Y8 and tacking 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.	**Unit 12** **(1 paper)**
3	**Unit 13 - Algebra** • Students consolidate their understanding of formal algebra notation with writing expressions and equations using conventional notation. • Students solve equations and inequalities involving quadratic expressions rearrange formulas. • Students learn to find general rules for sequences, including quadratic seq use these to solve problems.	**Unit 13** **(1 paper)**
4-6	**End of KS3 Unit** • Students consolidate their fractions knowledge to date, 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. • 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 which 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. • 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.	**End of KS3 Midterm Assessment** **(1 paper)** **End of KS3 Assessment** **(2 papers)**

For further detail of the Year 9 curriculum please click here

Year 10 **Exam Board: Edexcel** **Specification: 1Ma1**

Term	Curriculum Foci Areas	Assessment
1	**Percentages** ● Students revise their knowledge of percentages with a focus on solving problems involving repeated percentage change, compound interest and reverse percentages. **Transformations** ● Students recap their knowledge of transformations progressing to enlargements and combined transformations. **Algebra & Graphs** ● Students extend their knowledge of solving and simplifying to look at simultaneous equations, algebraic fractions and complex linear and quadratic equations. ● Students learn to solve graphical problems using parallel and perpendicular gradients of lines, and find points of intersection.	**KS4 Assessment 1 Midterm (1 paper)**
2	T**rigonometry** ● Students develop their knowledge of trigonometry to solve problems involving multiple steps and non-right-angled triangles. **Sequences** ● Students consolidate their understanding of sequences and use *n*th term rules to generalise linear and quadratic sequences. **Ratio & Proportion** ● Students develop their knowledge of ratio, solving problems using exchange rate, combined ratio and a mixture of ratio and fractions, decimals and percentages.	
3	**Angles** ● Students develop their knowledge of angles, focussing on parallel lines, polygons and congruence of triangles. **Sampling & Numeracy** ● Students are introduced to the idea of sampling, the different types of sampling and why it may be necessary to obtain a sample. ● Students develop their numeracy, performing all calculations accurately, including with decimals, and develop their understanding of bounds.	**KS4 Assessment 1 (3 papers)**
4	**Worded Problems and Indices** ● Students develop their numeracy, through worded problems presented in context, such as estimation, value for money, and recipes. ● Some will learn to calculate combinations of events and algebraic proof. ● Students consolidate their understanding of indices, simplifying where index laws need to be applied multiple times and evaluating negative and fractional indices. **Inequalities & Graphs** ● 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 the area under a graph.	

5	**Functions & Vectors** ● Students develop their knowledge of equations, inequalities and formulae. Students learn what an iterative process is and how to complete iteration to approximate solutions. Some will learn formal function notation and how to create inverse and composite functions. ● Students will extend their knowledge of vectors to include the use of free vectors to describe compound vectors. Some will develop an understanding of vector proofs. **Units, Area, and Volume** ● 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 will extend their knowledge of units to include compound units such as density. They will further develop understanding of area, and volume to include more complex and composite shapes. They will understand the link between length, area and volume scale factors. ● Students develop their understanding of probability and statistics, refining approach to calculating averages and interpreting graphs.	**KS4 Assessment 2 Midterm (1 paper)**
6	**Statistics & Probability** ● Students will extend their knowledge of presenting data to include cumulative frequency curves, box plots and histograms. Students will learn methods for correctly interpreting data from these charts. ● Students use a variety of diagrams to organise their probability thinking and solve problems where a combination of events occur. ● Students will extend their knowledge of probability to include mutually exclusive and independent definitions. Some will learn the addition and multiplication rules for probability as well as understanding binomial reasoning and algebraic probability.	**KS4 Assessment 2 (2 papers)**

Year 11

Term	Curriculum Foci Areas	Assessment
1	**Problem Solving & Exam Technique** ● Students cover a variety of themes focussed on solving high-frequency exam topics using a blend of techniques. These include the use of tables for problem solving, ratio methods for various forms of proportionality, and in-depth look into algebra, with a focus on linear equations for foundation tier and quadratic equations for higher tier.	**Baseline Assessment (1 paper)**
2	**Assessment Follow-up & Topic Recap** ● Students will spend time improving on their knowledge from their mock exams with a follow-on period for consolidating topics.	**KS4 Assessment 3 (3 papers)**
3	**Revision**	
4	**Revision**	**Mocks (3 papers)**
5	**Revision and Exams**	
6	**Revision and Exams**	

Revision and Support:

How to support your child with their learning:

The most important thing that a parent can do to support their child's mathematics learning is to not shy away from or be negative about the subject. We understand that for many parents, mathematics may not be a subject they look back on too fondly from their own school days. This should not impede a child's own motivation and progress in mathematics and we ask all parents to be a positive influence on their child's attitude towards mathematics. We can also provide access to our resources for parents so that, if they wish, they can improve their own mathematical knowledge alongside that of their child. We have a bank of past GCSE papers from Edexcel as well as other exam boards that can be downloaded from our own website.

Key Stage 3
Useful resources:

- CGP complete revision and practise (ISBNs: 9781841463834, 9781789082449)
- https://beechencliffmaths.weebly.com
- MNSP MET: https://met.midsomernortonschoolspartnership.com
- MET EBI Website: https://metebi.space/
- Sparx Maths: https://www.sparxmaths.uk/

Key Stage 4
Useful resources:

- CGP complete revision and practise - Edexcel GCSE
- https://beechencliffmaths.weebly.com
- MNSP MET: https://met.midsomernortonschoolspartnership.com
- MET EBI Website: https://metebi.space/
- Sparx Maths: https://www.sparxmaths.uk/

Final Assessment Structure:

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

Please see exam board websites for up to date information:
https://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html