

## Curriculum

In Key Stage 3 Maths, the curriculum is broken into three termly modules, each containing a Number, Algebra, Data Handling and Geometry topic. Towards the end of each term, pupils will sit a progress test in which they can demonstrate their mastery of the topics they have been learning. Throughout the year, pupils will continue to develop their problem-solving skills as well as their ability to reason and communicate mathematically. At Key Stage 4, study is structured around GCSE course content.

	<b>What pupils will learn</b>	<b>How it builds on learning</b>
<b>Year 7</b>	Number 1: Number skills including order of operations, place value and negative numbers. Investigating and discovering special properties of certain numbers.	Consolidates and extends the Number content of the Key Stage 2 Maths curriculum
	Algebra 1: Expressions and manipulating algebra including using letters to represent numbers and simplifying expressions.	Consolidates and extends the Algebra content of the Year 6 programme of study from the Key Stage 2 Maths curriculum
	Data Handling 1: Using different types of graphs to represent data.	Consolidates and extends the Statistics content of the Key Stage 2 Maths curriculum
	Geometry 1: Angles and angle facts at a variety of levels from looking at angles along a straight line to angles in polygons of various sizes. Accurately drawing shapes using a ruler and a protractor. Developing an understanding of mathematical convention for labelling sides and angles.	Consolidates and extends the Geometry, properties of shapes, content of the Key Stage 2 Maths curriculum
	Number 2: Calculations including different methods of multiplication or division and rounding.	Consolidates and extends the Number content of the Key Stage 2 Maths curriculum
	Algebra 2: Forming equations, looking at ways to solve them including using a number machine and writing the problem as a sentence.	Consolidates and extends the Algebra content of the Year 6 programme of study in the Key Stage 2 Maths curriculum
	Data Handling 2: Analysing data using averages and measures of how spread out the data is. At some levels this will include finding averages from data presented in frequency tables or graphs.	Consolidates and extends the Statistics content of the Key Stage 2 Maths curriculum
	Geometry 2: Area and perimeter of shapes, ranging from rectangles to compound shapes and then circles.	Consolidates and extends the Measurement content of the Key Stage 2 Maths curriculum
Number 3: Fractions, decimals and percentages. Ratio and Proportion.	Consolidates and extends the Number and Ratio & Proportion content of the Key Stage 2 Maths curriculum	

	Algebra 3: Sequences including spotting patterns; filling in gaps and finding the rule to generate the sequence. Plotting coordinates onto a graph and plotting ones which follow a set rule with a view to looking at how this links in with straight line graphs.	Consolidates and extends the Algebra content of the Year 6 programme of study in the Key Stage 2 Maths curriculum
	Data Handling 3: Starting to investigate probability ranging from words to describe likelihood, working out numerical probabilities and drawing diagrams to display all possible outcomes.	New content at Key Stage 3.
	Geometry 3: Reflective and rotational symmetry, similarity, and a selection of the different transformations depending on the level of the pupil – from translations, reflections, rotations and enlargements.	Consolidates and extends the Geometry, position and direction, content of the Key Stage 2 Maths curriculum
	<b>What pupils will learn</b>	<b>How it builds on learning</b>
<b>Year 8</b>	Number 1: Number skills including working with decimals, negative numbers, indices and prime factors.	Builds on the content and skills learnt in Year 7 Number 1
	Algebra 1: Expressions and manipulating algebra including substituting into expressions; expanding brackets; and at the higher end, working with indices.	Builds on the content and skills learnt in Year 7 Algebra 1
	Data Handling 1: Representing data using a variety of graphs suitable to the level of the students – pie charts, scatter graphs or stem and leaf diagrams leading into bar charts.	Builds on the content and skills learnt in Year 7 Data Handling 1
	Geometry 1: Using angle facts and Pythagoras' theorem to solve problems. Standard constructions and loci.	Builds on the content and skills learnt in Year 7 Geometry 1
	Number 2: Learning to use a calculator well, thinking about accuracy and estimation. There will be an emphasis on using a calculator to solve multi-step problems. Understanding measures and some compound measures such as speed and density.	Builds on the content and skills learnt in Year 7 Number 2
	Algebra 2: Forming and solving equations and inequalities.	Builds on the content and skills learnt in Year 7 Algebra 2

	Data Handling 2: Analysing data, presented in a variety of ways, using averages and range.	Builds on the content and skills learnt in Year 7 Data Handling 2
	Geometry 2: Perimeter and area of 2D shapes, including triangles, parallelograms, trapezia and circles. Some groups will also focus on volumes and surface area of prisms.	Builds on the content and skills learnt in Year 7 Geometry 2
	Number 3: Fractions, decimals and percentages. Working with fractions, performing operations with them and working out reciprocals. Working with percentages to look at how percentage increase and decrease can affect amounts. Solving problems involving ratio and proportion.	Builds on the content and skills learnt in Year 7 Number 3
	Algebra 3: Different groups will look at different difficulties of sequences from linear and geometric to basic quadratic. Using graphs to investigate straight lines. Some groups will also look at real-life graphs.	Builds on the content and skills learnt in Year 7 Algebra 3
	Data Handling 3: Experimental probability and theoretical probability. Looking at compound events and how to display information, including using sample space diagrams.	Builds on the content and skills learnt in Year 7 Data Handling 3
	Geometry 3: A range of different topics depending on the level of the pupils including understanding similarity and congruency, carrying out transformations of shapes and investigating scale drawings.	Builds on the content and skills learnt in Year 7 Geometry 3
	<b>What pupils will learn</b>	<b>How it builds on learning</b>
<b>Year 9</b>	Number 1: Working with decimals, negative numbers, indices, standard form and prime factors.	Builds on the content and skills learnt in Year 8 Number 1
	Algebra 1: Expressions and manipulating algebra including substituting into expressions; expanding brackets; working with indices and at the higher end, starting to look at quadratic equations.	Builds on the content and skills learnt in Year 8 Algebra 1
	Data Handling 1: Representing data using a variety of graphs suitable to the level of the	Builds on the content and skills learnt in Year 8 Data Handling 1

pupils – two way tables, pie charts, scatter graphs or stem and leaf diagrams leading into bar charts.	
Geometry 1: Using angle facts and Pythagoras’ theorem to solve problems. Standard constructions and loci. Introduction to trigonometry for some.	Builds on the content and skills learnt in Year 8 Geometry 1
Number 2: Learning to use a calculator well, thinking about accuracy and estimation and how to use a calculator to solve multi-step problems. Understanding measures and some compound measures such as speed, density and pressure. Practice of multiplication and division methods without a calculator.	Builds on the content and skills learnt in Year 8 Number 2
Algebra 2: Forming and solving equations and inequalities.	Builds on the content and skills learnt in Year 8 Algebra 2
Data Handling 2: Analysing data, presented in a variety of ways, using averages and range.	Builds on the content and skills learnt in Year 8 Data Handling 2
Geometry 2: Perimeter and area of 2D shapes, including circles and sectors. Volume and surface area of 3D solids, including prisms, pyramids, cones and spheres.	Builds on the content and skills learnt in Year 8 Geometry 2
Number 3: Calculations with fractions, decimals and percentages. Percentage amounts, increase and decrease including compound percentages. Solving problems involving ratio, direct and indirect proportion.	Builds on the content and skills learnt in Year 8 Number 3
Algebra 3: Different groups will look at different difficulties of sequences from linear and geometric to basic quadratic. Using graphs to investigate straight lines and tangents to curves.	Builds on the content and skills learnt in Year 8 Algebra 3
Data Handling 3: Experimental and theoretical probability. Looking at compound events and how to display information, including use of sample space diagrams, Venn diagrams, and probability trees.	Builds on the content and skills learnt in Year 8 Data Handling 3

	<p>Geometry 3: A range of different topics depending on the level of the pupils including understanding similarity and congruency, carrying out transformations of shapes and investigating scale drawings. Some groups will also be introduced to vectors.</p>	<p>Builds on the content and skills learnt in Year 8 Geometry 3</p>
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## **Assessment**

After each unit, pupils complete an end of topic review task; this may be in class or at home.

At the end of each term, students sit a progress test in class. The test is to assess the students' learning and understanding of the topics taught in each term.

## **Supporting your child**

### **What you can do at home:**

Please regularly look at your child's individual learning log with them. This can be found either in the front of their exercise book or on Microsoft Teams / OneNote. This will detail the learning objectives that are being covered in each topic and your child's progress in relation to them. Please support us with the expectations on equipment and homework (detailed below) and encourage your child to be independent with these too.

### **Equipment:**

We would expect all pupils to have the following equipment the core equipment, plus some maths essentials. During assessments the department operates a zero-tolerance policy and will not lend out any equipment.

The additional maths equipment is: a pair of compasses, a scientific calculator and a protractor

## **Extended learning**

### **Homework policy:**

Year 7 and Year 8 students will be set an average of 30 minutes homework every week; this may be one piece of work, or the total of more than one shorter tasks. Year 9 students will be set an average of 40 minutes homework every week; again, this may be one piece of work, or the total of more than one shorter tasks.

Homework tasks will range from question-and-answer based homeworks, to activities set on [www.SparxMaths.com](http://www.SparxMaths.com), investigations, posters or revision for an upcoming assessment. These may include end-of-topic homework sheets, which will be found on Satchel One and Microsoft Teams, although these are set at the discretion of the teacher.

### **Enrichment opportunities:**

The UKMT Junior Maths Challenge for Year 7 and Year 8 students takes place in April, and the UKMT Intermediate Maths Challenge for Year 9 takes place in February. Other enrichment opportunities will be provided throughout the year. Examples from previous years include Christmas origami, Hurricane Houses project and MegaMenger.

### **Extended study suggestions:**

The school subscribes to the Sparx website: [www.SparxMaths.com](http://www.SparxMaths.com)

This resource can be used both to review learning done in classes but also to complete online homework on topics recently covered.

All pupils are encouraged continually to practise their timetables to ensure fast and accurate recall. A fun way to do this is through [www.trockstars.com](http://www.trockstars.com)

For a more open-ended selection of maths problems the nrich website can prove useful: <http://nrich.maths.org>