

Curriculum Guide – Mathematics



Year 7 Mathematics



Course Description	Course Content	Assessment
<p>The KS3 curriculum within mathematics is designed to build upon the skills and methods established in KS2. The purpose of the KS3 curriculum is to ensure that the skills developed within KS2 are firmly embedded to guarantee a solid foundation for the progression into KS4.</p> <p>The aim is to support and encourage students to actively engage with mathematical concepts and become fluent mathematical thinkers. The objective of the curriculum is to develop mathematical reasoning skills and support the mastery of concepts.</p>	<p>Over the course of the academic year, year seven students will cover a range of topics relating to the four key areas of mathematics. The coverage within the units of work is outlined below and will directly relate to the learning pathway each individual student is on.</p> <p>Autumn Term 1 Students begin with number operations to include the development of written and mental methods of calculation and the order of operations. Students will also develop their knowledge of place value, ordering and rounding numbers. Students will also begin a units focusing on measures, primarily angles and area and perimeter.</p> <p>Autumn Term 2 Students will continue work on measures and mensuration, developing knowledge on units of measure, conversion and volume. The following unit of work will focus on integers, powers and roots including negative numbers, multiples and factors. Students will also develop their knowledge on basic algebra.</p> <p>Spring 1 Students begin the spring term with a unit of work on algebra focusing on equations, formulae and expressions. The second unit focuses on statistics, including interpretation and construction of diagrams to represent data.</p> <p>Spring 2</p>	<p>Assessment is ongoing and students are provided with regular feedback on their progress in both a written and verbal form.</p> <p>Students receive regular feedback from teaching staff in the form of a marking sticker every three weeks. This provides information for each student on what they are succeeding with and areas to improve. Each student also receives an Improvement Phase to complete to support the areas of development.</p> <p>Formal assessments are conducted three times during the course of the academic year, one of which will be an internal exam. This will assess each individual student's progress over the course of the year.</p>

	<p>The second half of the term extends students' knowledge on fractions, decimals and percentages. This also involves work on ration and proportion. Students then begin a unit of work on properties of shape and construction.</p> <p>Summer 1 Students complete the properties of shape and construction, developing skills linked to angle reasoning and translation. The next unit of work focuses on functions and graphs and extends students' knowledge on extending sequences and plotting the graphs of linear functions.</p> <p>Summer 2 Students finally develop knowledge on probability and then conclude the academic year with a series of problem solving lessons.</p>	
<p>Extra-Curricular Opportunities</p>	<p>Important Information</p>	<p>Useful Websites</p>
<p>Homework drop in sessions are available during lunch times on Monday/Tuesday/Thursday/Friday.</p> <p>Teachers are available to help guide students with their homework or support any students who need additional support with the understanding of materials / concepts delivered in lessons.</p>	<p>The units covered over the course of the academic year provide a broad and balanced curriculum. They are essential to the overall development of each student's mathematical knowledge and understanding.</p> <p>It is vital that students have a clear understanding of their target and work to the best of their ability to achieve this target. We aim for students to not only achieve their targets, but exceed them and in order to do this, students must demonstrate an outstanding attitude to learning in all lessons. Students must also enhance the skills developed in class with further independent study including the completion of weekly homework tasks.</p>	<p>www.mymaths.co.uk</p> <p>Login: swbacademy Password: triangle</p> <p>Each student has a personal login to complete tasks set as homework</p> <p>www.bitesize.co.uk www.mathswatchvle.com</p>

Year 8 Mathematics



Course Description	Course Content	Assessment
<p>The KS3 curriculum within mathematics is designed to build upon the skills and methods established in KS2.</p> <p>The purpose of the KS3 curriculum is to ensure that the skills developed within KS2 are firmly embedded to guarantee a solid foundation for the progression into KS4.</p> <p>The aim is to support and encourage students to actively engage with mathematical concepts and become fluent mathematical thinkers. The objective of the curriculum is to develop mathematical reasoning skills and support the mastery of concepts.</p>	<p>Over the course of the academic year, year seven students will cover a range of topics relating to the four key areas of mathematics. The coverage within the units of work is outlined below and will directly relate to the learning pathway each individual student is on.</p> <p>Autumn Term 1 Students begin the academic year with a unit on number operations. This includes the development and application of written and mental methods of calculation. Students will also develop their knowledge of place value, ordering and rounding numbers. This unit also develops students' knowledge on accurate use of rounding skills to approximate answers to calculations. Students will also begin a unit focusing on measures, primarily estimating, measuring and drawing angles.</p> <p>Autumn Term 2 Students will continue work on measures and mensuration, extending knowledge on accurate conversion of units of measure, application of formula to work out volume and surface area. The following unit of work will focus on integers, powers and roots including negative numbers in context and the use of index notation. Students will begin a unit on simple formulae and algebraic notation.</p> <p>Spring 1 Students continue to work on algebra focusing on equations, formulae and expressions; Work includes</p>	<p>Assessment is ongoing and students are provided with regular feedback on their progress in both a written and verbal form.</p> <p>Students receive regular feedback from teaching staff in the form of a marking sticker every three weeks. This informs each student with information on what they are succeeding with and areas to improve. This is supported with the use of an Improvement Phase which will be personalised for each student.</p> <p>Formal assessments are conducted three times during the course of the academic year, one of which will be an internal exam. This will assess each individual student's progress over the course of the year.</p>

	<p>the manipulation of algebraic expressions and substitution involving formulae and expressions. The second unit focuses on statistics, including interpretation and construction of tables, charts and diagrams to represent data.</p> <p>Spring 2 The second half of the term extends students' knowledge on fractions, decimals and percentages. This unit also involves students applying knowledge of ratio and proportion. Students then begin a unit of work on properties of shape and construction.</p> <p>Summer 1 Students continue with properties of shape and construction, developing skills including angle reasoning, translation and the construction of triangles. The next unit of work focuses on functions and graphs and enhances students' knowledge on extending and describing sequences. Students will also be plotting the graphs of linear functions and using real life conversion graphs.</p> <p>Summer 2 Students finally embed knowledge on probability, including the use of the probability scale two – way tables. The academic year then concludes with a series of problem solving lessons where students are able to demonstrate their application of skills developed over the course of the year.</p>	
Extra-Curricular Opportunities	Important Information	Useful Websites
<p>Homework drop in sessions are available during lunch times on Monday/Tuesday/Thursday/Friday.</p> <p>Teachers are available to help guide students with their homework or support any students who need additional support with the understanding of materials / concepts delivered in lessons.</p>	<p>The units covered over the course of the academic year provide a broad and balanced curriculum. They are essential to the overall development of each student's mathematical knowledge and understanding.</p> <p>It is vital that students have a clear understanding of their target and work to the best of their ability to</p>	<p>www.mymaths.co.uk</p> <p>Login: swbacademy Password: triangle</p> <p>Each student has a personal login to complete tasks set as homework</p>

	<p>achieve this target. We aim for students to not only achieve their targets, but exceed them and in order to do this, students must demonstrate an outstanding attitude to learning in all lessons. Students must also enhance the skills developed in class with further independent study including the completion of weekly homework tasks.</p>	<p>www.bitesize.co.uk www.mathswatchvle.com</p>
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Year 9 Mathematics



Course Description	Course Content	Assessment
<p>GCSE specifications in Mathematics is designed to enable students to: Develop fluent knowledge, skills and understanding of Mathematics methods and concepts, acquire, select and apply Mathematics techniques to solve problems, reason Mathematically, make deductions and inferences and draw conclusions, comprehend, interpret and communicate mathematical information in a variety of forms appropriate to the information and context.</p>	<p>Students will start the course in Year 9 and will study the following topics.</p> <p>Foundation Integers and place value, Decimals, Indices, powers and roots, Factors, multiples and primes, Algebra: the basics, Expanding and factorising single brackets, Expressions and substitution into formulae, Tables, Charts and graphs, Pie charts, Scatter graphs, Fractions, FDP, Percentages, Equations, Inequalities, Sequences, Properties of shapes, parallel lines and angle facts, Interior and exterior angles of polygons.</p> <p>Higher Calculations, checking and rounding, Indices, roots, reciprocals and hierarchy of operations, Factors, multiples and primes, Standard form and surds, Algebra: the basics, Setting up, rearranging and solving equations, Sequences, Averages and range, Representing and interpreting data, Scatter graphs, Fractions, Percentages, Ratio and proportion, Polygons, angles and parallel lines, Pythagoras' Theorem and trigonometry, Graphs: the basics and real-life graphs, Linear graphs and coordinate geometry, Quadratic, cubic and other graphs</p>	<p>There is continuous assessment through-out the year via classwork and homework.</p> <p>A formal assessment will be undertaken every 6-8 weeks whereby students will be assessed on the work completed during that period.</p> <p>Towards the end of the school year a 'end of year' test will be undertaken by all students to assess their progress over the whole school year.</p>
Extra-Curricular Opportunities	Important Information	Use Websites
<p>Homework drop in sessions are available during lunch time on Monday/Tuesday/Thursday/Friday.</p> <p>Teachers are available to help guide students with their homework or if they would like any extra understanding of classwork.</p>	<p>GCSE Mathematics has a Foundation tier (grades 1 – 5) and a Higher tier (grades 4 – 9). Students must take three question papers at the same tier. One paper is taken without a calculator; the other two are taken with the use of a calculator.</p>	<p>www.mymaths.co.uk</p> <p>login: swbacademy</p> <p>password: triangle</p>

The expectation is that students dedicate time to independent study where they regularly revise and practise all topics covered in the KS4 curriculum.

Students will be examined by Edexcel exam board.

www.mathswatchvle.com

www.justmaths.com

Get your individual login from your class teacher.

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Year 10 Mathematics



Course Description	Course Content	Assessment
<p>GCSE specifications in Mathematics is designed to enable students to: Develop fluent knowledge, skills and understanding of Mathematics methods and concepts, acquire, select and apply Mathematics techniques to solve problems, reason Mathematically, make deductions and inferences and draw conclusions, comprehend, interpret and communicate mathematical information in a variety of forms appropriate to the information and context.</p>	<p>Students will continue the course they started in Year 9 and will study the following topics.</p> <p>Foundation Statistics and sampling, The averages, Perimeter and area, 3D forms and volume, Real-life graphs, Straight-line graphs, Transformations: translations, rotations and reflections, enlargements and combinations, Ratio, Proportion, Right-angled triangles: Pythagoras and trigonometry, Probability, Multiplicative reasoning.</p> <p>Higher Perimeter, area and circles, 3D forms and volume, cylinders, cones and spheres, Accuracy and bounds, Transformations, Constructions, loci and bearings, Solving quadratic and simultaneous equations, Inequalities, Probability, Multiplicative reasoning, Similarity and congruence in 2D and 3D, Graphs of trigonometric functions, Further trigonometry.</p>	<p>There is continuous assessment through-out the year via classwork and homework.</p> <p>A formal assessment will be undertaken every 6-8 weeks whereby students will be assessed on the work completed during that period.</p> <p>Towards the end of the school year a 'end of year' test will be undertaken by all students to assess their progress over the whole school year.</p>
Extra-Curricular Opportunities	Important Information	Useful Websites
<p>Homework drop in sessions are available during lunch time on Monday/Tuesday/Thursday/Friday.</p> <p>Teachers are available to help guide students with their homework or if they would like any extra understanding of classwork.</p>	<p>GCSE Mathematics has a Foundation tier (grades 1 – 5) and a Higher tier (grades 4 – 9). Students must take three question papers at the same tier. One paper is taken without a calculator; the other two are taken with the use of a calculator.</p> <p>The expectation is that students dedicate time to independent study where they regularly revise and practise all topics covered in the KS4 curriculum.</p> <p>Students will be examined by Edexcel exam board.</p>	<p>www.mymaths.co.uk</p> <p>login: swbacademy</p> <p>password: triangle</p> <p>www.mathswatchvle.com</p> <p>www.justmaths.com</p> <p>Get your individual login from your class teacher.</p> <p>Don't forget to download the PIXL app!</p>

Year 11 Mathematics



Course Description	Course Content	Assessment
<p>GCSE specifications in Mathematics is designed to enable students to: Develop fluent knowledge, skills and understanding of Mathematics methods and concepts, acquire, select and apply Mathematics techniques to solve problems, reason Mathematically, make deductions and inferences and draw conclusions, comprehend, interpret and communicate mathematical information in a variety of forms appropriate to the information and context.</p>	<p>Students will continue the course they started in Year 9 and will study the following topics.</p> <p>Foundation Plans and elevations, Constructions, loci and bearings, Quadratic equations: expanding and factorising, Quadratic equations: graphs, Circles, cylinders, cones and spheres, Fractions and reciprocals, Indices and standard form, Similarity and congruence in 2D, Vectors, Rearranging equations, graphs of cubic and reciprocal functions and simultaneous equations.</p> <p>Higher Collecting data, Cumulative frequency, box plots and histograms, Quadratics, expanding more than two brackets, sketching graphs, graphs of circles, cubes and quadratics, Circle theorems, Circle geometry, Changing the subject of formulae (more complex), algebraic fractions, solving equations arising from algebraic fractions, rationalising surds, proof, Vectors and geometric proof, Reciprocal and exponential graphs; Gradient and area under graphs, Direct and inverse proportion.</p>	<p>There is continuous assessment through-out the year via classwork and homework.</p> <p>A formal assessment will be undertaken every 6-8 weeks whereby students will be assessed on the work completed during that period.</p> <p>Towards the end of the school year a 'end of year' test will be undertaken by all students to assess their progress over the whole school year.</p>
Extra-Curricular Opportunities	Important Information	Useful Websites
<p>Homework drop in sessions are available during lunch time on Monday/Tuesday/Thursday/Friday.</p> <p>Teachers are available to help guide students with their homework or if they would like any extra understanding of classwork.</p>	<p>GCSE Mathematics has a Foundation tier (grades 1 – 5) and a Higher tier (grades 4 – 9). Students must take three question papers at the same tier. One paper is taken without a calculator; the other two are taken with the use of a calculator.</p> <p>The expectation is that students dedicate time to independent study where they regularly revise and</p>	<p>www.mymaths.co.uk</p> <p>login: swbacademy</p> <p>password: triangle</p> <p>www.mathswatchvle.com</p>

practise all topics covered in the KS4 curriculum.

Students will be examined by Edexcel exam board.

www.justmaths.com

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Course Description	Course Content	Assessment						
<p>A-level Maths provides students with a thorough grounding in the mathematical tools and techniques often needed in the workplace. The logic and reasoning skills developed by studying A-level Maths make sure the qualification is widely respected even in non-mathematical arenas.</p>	<p>A-level Maths is made up of six units – three at AS and three at A2. All units are available in the June series. There are four Pure Core units which make up two-thirds of the qualification and provide the techniques in Algebra, Geometry, Trigonometry, Numerical Methods, Logarithms and Calculus that form the fundamental building blocks of the subject. Mathematical applications make up the remaining third of the qualification and there are various options to suit the needs of individual students.</p> <p>Year 12</p> <table border="1" data-bbox="786 719 1447 959"> <tr> <td data-bbox="786 719 1010 959"> Pure Core 1 Algebra Coordinate Geometry Differentiation Integration </td> <td data-bbox="1010 719 1234 959"> Pure Core 2 Algebra and Functions Sequences and Series Trigonometry Exponentials and Logarithms Differentiation Integration </td> <td data-bbox="1234 719 1447 959"> Statistics 1 Numerical Measures Probability Data handling Binomial and Normal distributions Correlation and Regression. </td> </tr> </table> <p>Year 13</p> <table border="1" data-bbox="786 995 1447 1490"> <tr> <td data-bbox="786 995 1010 1490"> Pure Core 3 Algebra and Functions Trigonometry Exponentials and Logarithms Differentiation Integration Numerical Methods </td> <td data-bbox="1010 995 1234 1490"> Pure Core 4 Algebra and Functions Sequences and Series Coordinate Geometry Exponentials and Logarithms Differentiation Integration Vectors </td> <td data-bbox="1234 995 1447 1490"> Mechanics 1 or Statistics 2 Mathematical Modelling Kinematics Momentum Statics and Forces Newton's Laws of motion Projectiles <i>Discrete Random Variables</i> <i>Poisson Distribution</i> <i>Continuous Random Variables</i> <i>Estimation</i> <i>Hypothesis testing</i> <i>Chi Squared contingency tables test.</i> </td> </tr> </table>	Pure Core 1 Algebra Coordinate Geometry Differentiation Integration	Pure Core 2 Algebra and Functions Sequences and Series Trigonometry Exponentials and Logarithms Differentiation Integration	Statistics 1 Numerical Measures Probability Data handling Binomial and Normal distributions Correlation and Regression.	Pure Core 3 Algebra and Functions Trigonometry Exponentials and Logarithms Differentiation Integration Numerical Methods	Pure Core 4 Algebra and Functions Sequences and Series Coordinate Geometry Exponentials and Logarithms Differentiation Integration Vectors	Mechanics 1 or Statistics 2 Mathematical Modelling Kinematics Momentum Statics and Forces Newton's Laws of motion Projectiles <i>Discrete Random Variables</i> <i>Poisson Distribution</i> <i>Continuous Random Variables</i> <i>Estimation</i> <i>Hypothesis testing</i> <i>Chi Squared contingency tables test.</i>	<p>There is continuous assessment through-out the year via classwork and homework.</p> <p>A formal assessment will be undertaken at the end of each unit.</p> <p>Mock examinations will be taken in line with the school calendar</p> <p>Year 12 Students will take examinations in Core 1 – non calculator Core 2 – Graphic Calculator Statistics 1 Graphic Calculator</p> <p>Year 13 Students will take examinations in Core 3 Graphic Calculator Core 4 Graphic Calculator</p> <p>Either Statistics 2 or Mechanics 1 All units are of equal weighting and are assessed by an exam of 1 hour 30 minutes Graphic Calculator</p>
Pure Core 1 Algebra Coordinate Geometry Differentiation Integration	Pure Core 2 Algebra and Functions Sequences and Series Trigonometry Exponentials and Logarithms Differentiation Integration	Statistics 1 Numerical Measures Probability Data handling Binomial and Normal distributions Correlation and Regression.						
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Extra-Curricular Opportunities	Important Information	Useful Websites
<p>Homework drop in sessions are available during lunch time on Monday/Tuesday/Thursday/Friday.</p> <p>Teachers are available to help guide students with their homework or if they would like any extra understanding of classwork.</p>	<p>A-level Maths provides a foundation for further studies in a variety of subjects including Science and Engineering.</p> <p>Graphic Calculators are used in all modules except Pure Core 1. These are provided by the academy.</p> <p>The expectation is that students dedicate time to independent study where they regularly revise and practise all topics covered in the KS5 curriculum.</p> <p>Students will be examined by AQA exam board.</p>	<p>www.mymaths.co.uk</p> <p>login: swbacademy</p> <p>password: triangle</p> <p>www.mathswatchvle.com</p>