



Academic Year <u>Year 7</u>	Content Unit title and brief outline of content.	Skills taught in each unit	Assessment – what knowledge and skills will be assessed and how?
<b>Autumn A</b>	Chp 1: Analysing and Displaying Data Chp 2: Number Skills	<p>Within the first unit the teaching will aim for students to be able to interpret a bar chart, use a two-way table, interpret and draw dual bar charts and compound bar charts. Students will also learn to choose the most appropriate average for a set of data, find the mode, median, mean and range for a set of data and compare sets of data using averages and the range. They should be able to recognise the difference between discrete and continuous data, grouping it and then producing and interpreting grouped frequency diagrams. Students will also learn the skill of drawing a line graph, pie chart and scatter graph, including the skill of interpreting it using a line of best fit and describing its correlation.</p> <p>Within the second unit, the skills imparted to students will include: understanding the difference between multiples, factors and primes, finding all the factor pairs of any whole number and the HCF and LCM of two whole numbers. Other skills will also be developed such as addition, subtraction, multiplication and division of integers, including long multiplication and division. Additional skills such as rounding, estimation and checking will also be taught.</p>	One 45-minute cumulative assessment mid-way through the half term using exam questions. Additionally, there are two shorter 20-30 minute topic tests, the first based on Analysing and Displaying Data and the second on Number Skills, again using exam questions.
<b>Autumn B</b>	Chp 3: Equations, functions and formulae Chp 4: Fractions	<p>The skills taught in Unit 3 include: collecting positive and negative like terms and simplifying algebraic expressions, constructing an expression from a sentence using the four operations. The unit also includes substitution into a formula involving brackets and squares, expanding expressions involving brackets and simplifying if necessary, then factorising an algebraic expression.</p> <p>The skills taught in Unit 4 include: comparing and simplifying fractions, writing one number as a fraction of another and working out fractions of amounts, writing an improper fraction as a mixed number and converting between the two. Additionally, students will learn to add and subtract fractions (including mixed numbers), work with equivalent fractions, decimals and percentages, use division to write a fraction as a decimal, divide an integer and a fraction by a fraction, multiply a fraction by a fraction (including mixed numbers).</p>	One 45-minute cumulative assessment mid-way through the half term using exam questions combining questions from Data, Number Skills and Equations. Additionally, there are two shorter 20-30 minute topic tests, the first based on Equations, Functions and Formulae and the second on Fractions, again using exam questions.
<b>Spring A</b>	Chp 5: Angles and Shapes Chp 6: Decimals	<p>In Unit 5, students will be taught how to: state whether an angle is acute, obtuse or reflex, work out unknown angles when two or more lines meet or cross at a point, work out unknown angles involving parallel lines, describe the line and rotational symmetry of triangles, use properties of triangles to work out unknown angles, use the properties of isosceles and equilateral triangles to solve problems, describe the properties of quadrilaterals, solve problems involving quadrilaterals, recognise and name different polygons, work out the interior angle of a polygon, work out the interior and exterior angles of a polygon.</p> <p>Within Unit 6, students will learn the skills necessary to: be able to order integers, state which number is bigger using an inequality sign, write decimals in ascending and descending order, round to the nearest whole number, 10, 100, 1000 or round to decimal places. Students will also learn to add, subtract, multiply and divide decimal numbers and convert between fractions, decimals and percentages, calculate percentage increases and decreases with and without a calculator.</p>	Same format as previous assessments, with the cumulative assessment now containing questions from all content taught in Aut A and Aut B. Topic tests on Angles and Decimals.
<b>Spring B</b>	Chp 7: Equations	Unit 7 develops the skills necessary to: write and solve simple equations, two-step equations, those with brackets, write and solve equations with letters on both sides, that include high powers of x.	Same format as previous assessments, with the cumulative assessment now containing questions from selected content from Aut A, Aut B and Spr A. Topic test on Equations.



<b>Summer A</b>	Chp 8: Multiplicative Reasoning Cp 9: Perimeter, Area and Volume	Unit 8 develops the skills necessary to: convert between metric and imperial units, simplify a ratio expressed in fractions or decimals, share a quantity in 2 or more parts in a given ratio, convert between fractions and percentages, simplify fractions and ratios, solve simple word problems involving ratio and direct and inverse proportion, write ratios in the form 1:n and solve best buy problems.  Unit 9 develops the skills necessary to: be able to calculate the area and perimeter of a rectangle, parallelogram, triangle and trapezium as well as compound shapes, sketch nets of 3D solids, calculate the volume and surface area of cubes and cuboids, convert between metric measures for area and volume	Same format as previous assessments, with the cumulative assessment now containing questions from selected content from Aut and Spr. Topic test on Multiplicative Reasoning and Geometry.
<b>Summer B</b>	Chp 10: Sequences and Graphs Revision and Examination	Unit 10 develops the skills necessary to: work out the terms of an arithmetic sequence using the term-to-term rule, work out the nth term in an arithmetic sequence, generate sequences and predict how they will continue, work out the midpoint of a line segment, draw straight-line graphs	End of year exams – two 50 minute papers (non-calculator and calculator) which assesses all content from Year 7.



Academic Year <u>Year 8</u>	Content Unit title and brief outline of content.	Skills taught in each unit	Assessment – what knowledge and skills will be assessed and how?
<b>Autumn A</b>	Chp 1: Number Chp 2: Working with powers	Unit 1 develops the skills necessary to: Find the HCF of two numbers using prime decomposition and a Venn diagram, Use the laws for indices for multiplying and dividing, Use the prefixes associated with powers of 10, Estimate the answer to problems using significant figures.  Unit 2 develops the skills necessary to: Simplify expressions involving powers and brackets, Use the index laws in algebraic calculations and expressions, Write and simplify expressions involving brackets and powers, Substitute integers into expressions and simplify	One 45-minute cumulative assessment mid-way through the half term using exam questions. Additionally, there are two shorter 20-30 minute topic tests, the first based on Number and the second on Working with powers, again using exam questions.
<b>Autumn B</b>	Chp 3: 2D shapes and 3D solids Chp 4: Real life Graphs	Unit 3 develops the skills necessary to: Sketch the net of a solid, Calculate the surface area of prisms, Calculate the volume of prisms, Calculate the circumference of a circle and calculate the radius or diameter when you know the circumference or area, Calculate the volume and surface area of a cylinder, Use Pythagoras' theorem in right-angled triangles.  Unit 4 develops the skills necessary to: Plot graphs and read values to solve problems, Interpret graphs from different sources, Use distance-time graphs to solve problems, Interpret graphs that are curved, Understand when graphs are misleading	One 45-minute cumulative assessment mid-way through the half term using exam questions combining questions from Aut A. Additionally, there are two shorter 20-30 minute topic tests, the first based on 2D shapes and 3D solids and the second Real life Graphs, again using exam questions.
<b>Spring A</b>	Chp 5: Transformations Chp 6: Fractions, Decimals and Percentages	Unit 5 develops the skills necessary to: be able to solve problems involving reflections and translations, describe a rotation given the object and its image after a rotation, enlarge a shape with a given centre of enlargement and scale factor and describe an enlargement with a given object and image, enlarge a shape using a fractional scale factor and solve problems, solve problems on Combining Transformations, solve problems with perimeter and area with enlargement  Unit 6 develops the skills necessary to: be able to convert any recurring decimal into a fraction and solve problems, work out the original value of something after a percentage change and solve problems, work out percentage increases / decreases, understand multipliers and powers depending on the number of years with an investment.	Same format as previous assessments, with the cumulative assessment now containing questions from all content taught in Aut A and Aut B. Topic tests on Transformations and Fractions, Decimals and Percentages.
<b>Spring B</b>	Chp 7: Construction and Loci Chp 8: Probability	Unit 7 develops the skills necessary to: draw triangles accurately using a ruler and a protractor, draw nets of 3D solids and triangles accurately using compasses/protractor, construct nets of pyramids to scale, construct the perpendicular bisector of any line, construct an angle bisector, to use Loci for complex problems  Unit 8 develops the skills necessary to: be able to find probabilities from two-way tables, interpret Venn Diagrams, work out the expected number of successful outcomes in n trials, solve harder problems and to identify factors that affect experimental probabilities (eg more trials closes the gap between experimental and theoretical probabilities), identify outcomes of 2 events in an experiment and to record them in sample space diagrams, be able to draw a tree diagram showing the outcomes and their probabilities for an experiment	Same format as previous assessments, with the cumulative assessment now containing questions from selected content from Aut A, Aut B and Spr A. Topic test on Construction and Loci and Probability.
<b>Summer A</b>	Chp 9: Scale Drawings and Measure	Unit 9 develops the skills necessary to: Create scale drawings based on real life information, be able to measure and draw and bearing between two points using a scale, Draw accurate scale drawings using scales given in the form of a ratio, Identify similar and congruent shapes and explain why with reasons and use similarity to find missing lengths, Identify similar triangles using angle properties and explain why with reasons.	Same format as previous assessments, with the cumulative assessment now containing questions from selected content from Aut and Spr. Topic test on Scale Drawings and Measure.



<b>Summer B</b>	Chp 10: Graphs	Unit 10 develops the skills necessary to: Plot a straight line graph, Calculate the gradient of a line and apply this in context, Plot a linear graph without a table of values for negative and fractional gradients, decide whether a point is on a line for equations not in the form $y=mx+c$ , solve problems with parallel and perpendicular lines, find the inverse of a function, use real life graphs to make predictions.	End of year exams – two 50 minute papers (non-calculator and calculator) which assesses all content from Year 8.
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Academic Year <u>Year 9</u>	Content Unit title and brief outline of content. GCSE Syllabus	Skills taught in each unit	Assessment – what knowledge and skills will be assessed and how?
<b>Autumn A</b>	Chp 1: Number Chp 2: Algebra – Indices, Expanding/Factorising, Equations, Formulae, Linear Sequences	<p>Unit 1 develops the skills necessary to: Write a number as a product of its prime factors, Use prime factor decomposition and Venn diagrams to find the HCF and LCM, Use powers and roots in calculations, Use index laws, Use negative indices, Calculate with numbers in standard form with positive powers, Understand the difference between rational and irrational numbers, Rationalise a denominator with one term, Simplify a surd</p> <p>Unit 2 develops the skills necessary to: Expanding the product of two brackets and simplify the expression, Solve problems involving factorising, Solve linear equations with unknowns on both sides, Solve linear equations containing fractions, Derive an algebraic formula from information given, Change the subject of a formula, Find a general formula for the <math>n</math>th term of an arithmetic sequence, Determine whether a particular number is a term of a given arithmetic sequence, Find the <math>n</math>th term of a quadratic sequence.</p>	One 45-minute cumulative assessment mid-way through the half term using exam questions. Additionally, there are two shorter 20-30 minute topic tests, the first based on Number and the second on Algebra, again using exam questions.
<b>Autumn B</b>	Chp 3: Interpreting and Representing Data Chp 4: Fractions, Ratio and Percentages	<p>Unit 3 develops the skills necessary to: Construct and interpret a Frequency Polygon, interpret bar charts, and pie charts, Solve problems including exam questions involving Time Series Graphs, Identify lines of best fit and use them in solving problems including exam questions, Use the line of best fit to predict values, Identify the modal class, the class where the median lies and to solve exam style problems, Analyse data and identify a suitable graph to display it, Analyse graphs/tables and give reasons to support particular claims about the data</p> <p>Unit 4 develops the skills necessary to: Multiply mixed numbers, Add and subtract mixed numbers, Write ratios in the form 1:n or n:1 and solve problems, Divide fractions (mixed and proper), Solve problems with fractions, Share a quantity in a given ratio and solve problems, Solve exam questions on direct proportion, Solve problems using reverse percentages, Convert recurring decimals into fractions</p>	One 45-minute cumulative assessment mid-way through the half term using exam questions combining questions from Aut A. Additionally, there are two shorter 20-30 minute topic tests, the first based on Interpreting and Representing Data and the second Fractions, Ratio and Percentages, again using exam questions.
<b>Spring A</b>	Chp 5: Angle properties and polygons, Pythagoras' theorem and Trigonometry	Unit 5 develops the skills necessary to: Derive and use the sum of angles in a triangle and in a quadrilateral, Derive and use the fact that the exterior angle of a triangle is equal to the sum of the two opposite interior angles, Calculate the sum of the interior angles of a polygon, Know the sum of the exterior angles of a polygon, Solve problems using Pythagoras' theorem, Calculate the length of a shorter side in a right-angled triangle, Use trigonometric ratios to solve problems, Use trigonometric ratios to calculate an angle in a right-angled triangle, Find angles of elevation and angles of depression.	Same format as previous assessments, with the cumulative assessment now containing questions from all content taught in Aut A and Aut B. Topic tests on Angle properties and polygons and Pythagoras' theorem and Trigonometry.
<b>Spring B</b>	Chp 6: Graphs Chp 7: Area and Volume	<p>Unit 6 develops the skills necessary to: Identify the gradient and <math>y</math> intercept from straight lines drawn on coordinate axes, Identify the equation of a straight line from pairs of coordinates and to identify the point where 2 lines intersect, Solve problems including exam questions on D/T graphs and other graphs, Plot scatter diagrams and identify the line of best fit and its equation, Work out the equation of parallel or perpendicular lines, Solve real life problems involving quadratic graphs and find graphical solutions, Plot a reciprocal function <math>y=k/x</math>, Plot a scatter graph and interpret it, Solve cubic graphs graphically, Interpret various graphs and to be able to draw a graph of a circle centre O with given radii</p> <p>Unit 7 develops the skills necessary to: Find the area and perimeter of compound shapes, Calculate volumes and surface areas of prisms, Calculate area and circumference of a circle, Calculate the arc lengths, angles and areas of sectors of circle, Calculate the volume and surface area of a sphere, Calculate volume and surface area of pyramids and cones</p>	Same format as previous assessments, with the cumulative assessment now containing questions from selected content from Aut A, Aut B and Spr A. Topic tests on Graphs and Area and Volume.



<b>Summer A</b>	Chp 8: Transformations	Unit 8 develops the skills necessary to: draw and reflect shapes using coordinate axes and describe a reflection given the object and its image on coordinate axes, enlarge a shape using a scale factor that is a positive whole number and to describe an enlargement using this method, rotate a shape on coordinate axes and to describe a rotation, enlarge a shape using a fractional scale factor and to describe an enlargement this way, translate a shape using column vectors and describe combinations of translations	Same format as previous assessments, with the cumulative assessment now containing questions from selected content from Aut and Spr. Topic test on Transformations.
<b>Summer B</b>	Chp 8: Bearings Loci and Constructions	Unit 8 also develops the skills necessary to: Draw and use scales on maps and scale drawings, Solve problems involving bearings, Construct a perpendicular bisector of a line, bisect an angle using a ruler and compass and construct angles using a ruler and compass, Draw a locus and use Loci to solve problems.	End of year exams – two 90 minute papers (non-calculator and calculator) which assesses all content from Year 9.



Academic Year <u>Year 10</u>	Content Unit title and brief outline of content. GCSE Syllabus	Skills taught in each unit	Assessment – what knowledge and skills will be assessed and how?
Autumn A	Chp 9: Equations and Inequalities	Unit 9 develops the skills necessary to: Solve a quadratic equal to zero, Solve a quadratic using the formula, complete the square in the form $p(x+q)^2+r$ , Solve quadratics by any means using a calculator if needed, Solve an inequality and use set notation, Solve simultaneous equations for real-life situations, Use real-life situations to construct quadratic and linear equations and solve them	One 45-minute cumulative assessment mid-way through the half term using exam questions. Additionally, there are two shorter 20-30 minute topic tests, based on Equations and Inequalities
Autumn B	Chp 10: Probability Chp 11: Multiplicative Reasoning	Unit 10 develops the skills necessary to: Use the product rule for finding the number of outcomes for two or more events, List all the possible outcomes of two events in a sample space diagram, Identify mutually exclusive outcomes and events in complex cases, Solve complex problems involving probabilities of mutually exclusive outcomes and events, Solve complex problems involving probability of an event not happening, Work out the expected results for experimental and theoretical probabilities for complex problems, Compare real results with theoretical expected values to see if a game is fair for complex problems, Calculate probabilities of repeated events for complex cases, Draw and use complex probability tree diagrams, Draw and use more complex tree diagrams to calculate conditional probability, Use complex Venn diagrams to calculate conditional probability.  Unit 11 develops the skills necessary to: Solve growth and decay problems, Convert between metric speed measures, Work out density, Find the relationship between two variables and use it to answer questions.	One 45-minute cumulative assessment mid-way through the half term using exam questions combining questions from Aut A. Additionally, there are two 45 minute topic tests, the first based on Probability and the second Multiplicative Reasoning, again using exam questions.
Spring A	Chp 12: Similarity and Congruence Chp 13: Trigonometry	Unit 12 develops the skills necessary to: Prove shapes are congruent, Use the ratio of corresponding sides to work out scale factors, Find missing lengths on similar shapes.  Unit 13 develops the skills necessary to: Understand and use upper and lower bounds to a given decimal point or significant figure, Know the graph of the sine function and use it to solve equations, Know the graph of the cosine function and use it to solve equations, Know the graph of the tangent function and use it to solve equations, Use the sine rule to solve 2D problems, Solve bearings problems using trigonometry, Use Pythagoras' theorem and trigonometry to solve 3D problems, Understand the rotational symmetry of the cosine curve, Sketch the graphs of trigonometric functions	Same format as previous assessments, with the cumulative assessment now containing questions from all content taught in Aut A and Aut B. Topic tests on Similarity and Congruence and Trigonometry.
Spring B	Chp 14: Further Statistics	Unit 14 develops the skills necessary to: Understand how to take a stratified sample, Draw and interpret cumulative frequency tables and diagrams, Work out the median, quartiles and interquartile range from a cumulative frequency diagram, Compare boxplots, Draw histograms, Work out the frequency density of a histogram from its graph, Compare cumulative frequency graphs.	Same format as previous assessments, with the cumulative assessment now containing questions from selected content from Aut A, Aut B and Spr A. Topic test on Further Statistics.
Summer A	Chp 15: Equations and Graphs	Unit 15 develops the skills necessary to: Identify the gradient and y intercept from straight lines drawn on coordinate axes, Identify the equation of a straight line from pairs of coordinates and to identify the point where 2 lines intersect, Sketch quadratic graphs, Use an iterative formula to find the positive roots of an equation and its graph, Solve cubic equations using an iterative process, Plot scatter diagrams and identify the line of best fit and its equation, Work out the equation of parallel or perpendicular lines, Solve real life problems involving quadratic graphs and find graphical solutions	Same format as previous assessments, with the cumulative assessment now containing questions from selected content from Aut and Spr. Topic test on Equations and Graphs.



<b>Summer B</b>	Chp 16: Circle Theorems	Unit 16 develops the skills necessary to: use facts about chords and their distance from the centre of a circle, Give reasons for angle and length calculations involving tangents, Solve problems involving chords and radii, Solve problems involving tangents, prove facts about angles subtended at the centre and circumference of circles and angles in semicircle being at a right angle, prove facts about angles subtended at the centre and circumference of circles and angles in semicircle being at a right angle, Find the equation of the tangent to a circle at a given point	End of year exams – two 90 minute papers (non-calculator and calculator) which assesses all content from Year 9 and 10.
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Academic Year <u>Year 11</u>	Content Unit title and brief outline of content. GCSE Syllabus	Skills taught in each unit	Assessment – what knowledge and skills will be assessed and how?
Autumn A	Chp 17: Advanced algebra	Unit 17 develops the skills necessary to: Change the subject of a formula where the subject appears twice, Change the subject of a formula involving fractions where all the variables are in the denominators, simplify algebraic fractions, Add and subtract algebraic fractions, Multiply and divide algebraic fractions, Solve equations that involve algebraic fractions, Find composite functions, Find inverse functions, Prove a result using algebra	90 minute mock paper taken in exam condition in the main hall and 45 minute half paper assessment in class
Autumn B	Chp 19: Proportion, exponential and non-linear graphs	Unit 19 develops the skills necessary to: Write and use equations to solve problems involving direct proportion, Solve problems involving square and cubic proportionality, Solve problems involving indirect proportion, Use and recognise graphs involving indirect proportion	90 minute mock paper taken in exam condition in the main hall. December mocks: complete series of papers (1, 2, 3), each 90 minutes
Spring A	Chp 18: Vectors	Unit 18 develops the skills necessary to: find the magnitude of vectors, identify vectors as column matrices when they are given as diagrams and to multiply a vector by a scalar quantity, identify the mid-point of a vector, add / subtract column vectors and vectors given as letters, identify resultant vectors using combinations of other vectors	Two 90 minute mock papers taken in exam condition in the main hall and 45 minute half paper assessment in class
Spring B	Revision	Using mock exams helps to develop exam technique, interpreting questions and markschemes, timing, checking working, attention to detail, and approaching questions in a methodical way	Two 90 minute mock papers taken in exam condition in the main hall and 45 minute half paper assessment in class
Summer A	Revision		Public Examinations Paper 1: 90 minutes (non calculator) Paper 2: 90 minutes (calculator) Paper 3: 90 minutes (calculcaor)



Key Stage 2 content summary; fundamentals of the number system including addition, subtraction, multiplication and division, basic algebra, ratio and proportion and links to decimals, fractions and percentages, basic geometry including angles, shapes and measurements, time, representing data

<p><b>Year 7 Content</b> <i>These units form the foundations of Maths. Without teaching these units, students would not have the basic knowledge to build upon over time.</i> Analysing and displaying data, fundamentals of number system, equations, functions and formulae, fractions, angles and shapes, decimals, multiplicative reasoning, perimeter, area and volume, sequences and graphs.</p>	<p><b>Skills taught.</b> <i>Are the skills taught in a spiral curriculum? What is the rationale for your sequencing of skills</i></p> <p><i>Maths has a spiral curriculum for both knowledge and skills. The skills learned in KS3 are subsequently built upon as students move in to KS4. They do not exist in isolation from each other, rather each is a necessary step in order to build the complexity and understanding of the range of mathematical knowledge and understanding that is required.</i></p> <p>Year 7:</p> <ul style="list-style-type: none"> <li>- reading, creating and interpreting tables and graphs</li> <li>- analyse raw data sets, ungrouped and grouped data and calculate their averages and range</li> <li>- define, list, calculate and solve problems with factors, multiples, primes as well as HCF and LCM</li> <li>- add, subtract, multiply and divide positive and negative integers and apply the rules of BIDMAS to calculations</li> <li>- square, cube, square root and cube root integers and link these skills to BIDMAS</li> <li>- form equations and expressions, simplifying them where necessary, solve the equations, and substitute in to formulae or expressions</li> <li>- expand brackets and factorise expressions</li> <li>- working with fractions, decimals and percentages including simplifying, adding, subtracting, multiplying and dividing, and conversion between forms. Expressing one amount as a quantity of another.</li> <li>- recognising, drawing and calculating with angles. Using parallel lines, triangles, quadrilaterals and other polygons.</li> <li>- simplifying and sharing terms in a given ratio.</li> <li>- calculating perimeter, area and volume of 2D and 3D shapes respectively, properties of 2D and 3D shapes</li> <li>- recognising and continuing sequences, finding the nth term</li> <li>- working with coordinates and line segments, drawing graphs</li> </ul> <p>Year 8:</p> <ul style="list-style-type: none"> <li>- to be able to identify factors and multiples of integers and prime factors of numbers in order to identify HCF/LCM and apply to problem solving</li> <li>- to be able to identify numbers in index form and apply the laws of indices</li> <li>- to be able to round numbers to appropriate degrees of accuracy based on significant figures or decimal places</li> <li>- to be able to estimate calculations using rounding to assist with reducing the complexity</li> <li>- to be able to simplify expressions using the index laws and apply to problem solving</li> <li>- to be able to substitute values and solve equations</li> <li>- to be able to identify plans and elevations of solids and calculate perimeter and area of 2D shapes</li> <li>- to be able to calculate surface area and volume of 3D shapes</li> <li>- to be able to apply Pythagoras' theorem to problems</li> <li>- recognise values are in direct proportion and interpret their meaning when put in context</li> <li>- to be able to recognise and perform transformations</li> <li>- to be able to work with terminating and recurring decimals</li> <li>- to be able to use percentages and calculate percentage change</li> <li>- to be able to make accurate drawings and constructions</li> <li>- to be able to calculate probabilities and draw and complete probability diagrams and tree diagrams</li> <li>- to be able to make scale drawings, use bearings and be able to draw and recognise congruent and similar shapes. To apply this to problem solving</li> <li>- to be able to plot linear graphs and use the equation <math>y=mx+c</math>, including working with parallel and perpendicular lines and inverse functions.</li> </ul>
<p><b>Year 8 Content</b> <i>These units build upon the foundations of KS2 and Year 7 content and deliver the basics that can then be layered upon with more complexity in the next key stage.</i> Factors and powers, 2D shapes and 3D solids, real-life graphs, transformations, fractions, decimals and percentages, constructions and loci, probability, scale drawings and measurements, graphs.</p>	
<p><b>Year 9 Content</b> <i>These units map out the start of GCSE and use all of the KS3 content to deepen the complexity and understanding of Maths. The majority of students follow the higher tier content, those studying foundation tier will not study every topic listed.</i> Number, place value, factors, powers, standard form, surds, fundamentals of algebra (simplifying, solving, substitution, sequences), interpreting and representing data, fractions, ratio and percentages, angles and trigonometry, graphs (linear, quadratic, cubic, reciprocal, real-life), area and volume of prisms, circles, cones and pyramids, transformations and constructions.</p>	
<p><b>Year 10</b> <i>These units are the culmination of content taught in previous years and require a firm grasp of skills and content before. They cannot be taught any earlier. Quadratic equations, simultaneous equations, inequations, probability, compound measures, similarity and congruence, sine and cosine rules, further statistics, solving equations graphically.</i></p>	



<p><b>Year 11 Content</b> – see above for rationale. Circle theorems, algebraic fractions, functions, proof, vectors, direct and inverse proportion, translating graphs of functions.</p>	<p>Year 9:</p> <ul style="list-style-type: none"> <li>- extend calculations to those involving numbers in standard form, surds and indices (zero, negative and fractional)</li> <li>- use and implement the manipulation of algebra including sequences, expanding, factorising equations, expressions and formulae</li> <li>- summarise, infer, interpret and compare data with the use of statistical diagrams and with the calculation of averages and range</li> <li>- organise, outline and integrate skills of manipulation for fractions, decimals and percentages</li> <li>- develop the fluency to use all prior knowledge to integrate problem solving and ratio</li> <li>- apply the trigonometric ratios to solve problems with right angled triangles</li> </ul> <p>Year 10:</p> <ul style="list-style-type: none"> <li>- combine the skills of solving, completing the square, factorising, substituting in to formulae in order to solve quadratic equations</li> <li>- combine the skills of algebraic manipulation and substitution in order to solve simultaneous equations</li> <li>- represent solutions to inequalities on a number line and plot them on a graph</li> <li>- construct a frequency tree, tree diagram, Venn diagram and use it to calculate probabilities</li> <li>- prove geometrical identities using clear mathematical reasoning and language</li> <li>- plot histograms, cumulative frequency graphs, box plots and draw comparisons between data sets using the graphs to help</li> </ul> <p>Year 11:</p> <ul style="list-style-type: none"> <li>- apply the circle theorems to problems using the angle rules, explaining reasoning clearly</li> <li>- balancing and rearranging equations and formulae</li> <li>- interpreting real-life data and graphs and calculating gradients of tangents, chords and the area under graphs</li> <li>- using mock exam to develop exam technique, interpreting questions and markschemes, timing, checking working, attention to detail, and approaching questions in a methodical way</li> </ul>
<p><b>Is all of the NC Ks3 content taught in Year 7 &amp; 8?</b> <b>If not, where is this made up?</b> The NC KS3 content is delivered in Year 7-9 in Maths. In Year 9, students start the GCSE course with any KS3 gaps delivered then.</p>	