CAISTER ACADEMY
Creative Education Trust

Mathematics Curriculum Map

Year	Overview	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	Student Resources and Educational Trips
7	During year 7, students will learn how to carry out calculations and check their answers using rounding and approximation, they will build on prior knowledge from key stage 2 and be able to identify and use different types of numbers in context, be able to identify the highest common factor and lowest common multiple of two or more numbers. They will learn how to represent inequalities on a number line and how to form and solve equations. They will begin to learn how to write algebraic and ratio notation and begin to make links between ratio, fractions, decimals, and percentages. They will learn the properties of 2d and 3d shapes and be able to calculate the perimeter and area of shapes. They will begin to substitute into formulae and identify and generate sequences. These skills will be used as building blocks for future units of learning and are essential pre-requisite knowledge to support future progress.	**Number Sense and Calculations** • Exploring and making sense of the structure of number • Adding and Subtracting • Multiplying • Dividing • Calculating with negative numbers • Exploring the order of operations	**Expressions and Equations** • Simplifying expressions and working with algebraic terminology • Substituting into expressions and formulae • Solving one and two step equations **Measures** • Working with time, and being and to read and interpret time • Estimating and measuring different types of units • Converting different units • Working with appropriate units.	**2D Shapes** • Know the properties of different lines and different shapes • Exploring symmetry **Perimeter and Area** • Calculating perimeter using grids, without girds, and of rectangles, simple shapes and compound shapes • Calculating area using grids, and of rectangles, triangles and compound shapes **Coordinates** • Read and plot coordinates, and begin to solve problems with them **Factors Multiples and Primes** • Finding lowest common multiples and highest common factor • Finding factors with divisibility tests • Exploring prime numbers • Complete a prime factor decomposition *(Factors, multiples and primes concludes in Spring 2)*	*(Begin the following units after concluding Factors, Multiples and Primes)* **Fractions** • Writing and comparing fractions • Finding fractions of shapes • Constructing and simplifying fractions • Ordering fractions • Converting between different types of fractions • Add and subtract with fractions **Brackets** • Working with single brackets • Using distributive laws • Expanding brackets, and simplifying resulting expressions	**Angles** • Know and work with the types of angles • Estimating and measuring angles • Drawing angles • Angles on a line rule • Angles in triangles **Handling Data and Statistical Diagrams** • Working with averages and range • Calculating these averages and spreads • Working with tables and charts • Constructing statistical diagrams • Interpreting statistical diagrams • Collecting data and representing it in tables • Finding averages from tables **Proportion** • Working with and solving proportion problems	**Fractions, Decimals and Percentages** • Multiplying and dividing fractions • Working with reciprocals • Finding and applying fractions of amounts with and without a calculator • Converting between fractions decimals and percentages • Ordering and writing fractions, decimals and percentages • Working with percentages of other numbers **Probability** • Working with probability phrases • Writing probabilities as fractions, decimals and percentages • Working with mutually exclusive events • Constructing and working within sample space diagrams	**Student Resources** Students across all years in KS3 will be given access to SPARX mathematics, for both homework and extra mathematical support. https://sparxmaths.com Additionally, students may also gain benefit from the mathematical courses through Seneca. https://senecalearning.com/en-GB/ Alternate locations for further resources are linked below: Corbett Maths https://corbettmaths.com Maths Made Easy https://mmerevise.co.uk Dr Frost Maths (Extend Work) https://www.drfrostmaths.com KS3 Maths BBC Bitesize https://www.bbc.co.uk/bitesize/subjects/zqhs34j **Student Educational Trips** In year 7, during the Autumn term, students will be given the opportunity to visit the Royal Greenwich Observatory. Students will begin to see the relationship between mathematics and science as they explore the grounds of this museum, considering the mathematics used to work in astronomy. In addition, performances in the planetarium will help inspire students for future studies.
		Assessment • Year 7 baseline assessment on entry to KS3. Formative assessment at the end of the half term, to take place in class and last 30 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Summative assessment at the end of the term, to take place in class and last 50 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Formative assessment at the end of the half term, to take place in class and last 30 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Summative assessment at the end of the term, to take place in class and last 50 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Formative assessment at the end of the half term, to take place in class and last 30 minutes. End of year assessment to take place at the end of the half term, of content up to this point. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Summative assessment at the end of the term, to take place in class and last 50 minutes. Additionally, trust common assessment to take place if different. Diagnostic assessment taking place throughout lessons to inform future teaching.	

8	By the end Year 8 students will be more confident in transferring skills between different areas of mathematics. They will be able to apply their understanding of algebra to solve problems in geometry and proportion; make connections with sequences and drawing linear graphs and be able to explain the relationship between parallel lines. Students will confidently calculate measures of central tendency and spread, applying these to their own hypotheses; draw accurate graphs to best represent their data and understanding which is the most suitable diagram for their data. Students will have a good understanding of the angle properties of polygons and be familiar with simple proofs. They will be able to calculate the area of some polygons and use this knowledge to calculate the volume and surface area of prisms. Most student will understand the relationship between the circumference of a circle and the radius and will be able to apply this understanding to calculate the area and circumference of a circle. Cross curricular links will have been explored, notably in the analysis and presentation of data.	**Percentages** • Find and work with percentages of amounts, with and without a calculator. • Calculate with percentage change with and without a calculator **Money** • Perform calculations with money, including those where value is the context **Indices** • Learn about index laws including positive indices and negative indices • Simplify expressions using index laws • Consider indices in fraction to remove common factors **Equations** • Solving multi-step equations involving basic operations. • Solve equations with brackets • Solve with unknowns on both sides • Construct equations *(Fractions concludes during the next half term)*	*(Conclude Fractions, then move on to the following units)* **Sequences** • Explore term to term rules of sequences involving numbers and patters. • Explore position to term rules for arithmetic sequences • Substitute into position to term rules **Ratio** • Writing and simplifying rations, including 1:n • Convert between ratios, fractions and percentages • Use equivalent ratios • Share in a given ratio • Draw and interpret scale diagrams	**Rounding** • Rounding integers and decimals to significant figures. • Estimating calculations **Coordinate** • Calculating midpoints between coordinates • Working with mixed problem solving **Area** • Finding areas of parallelograms and trapeziums • Converting units of area **Circles** • Identifying parts of circles • Finding the circumference and area of a circle **Standard form** • Using standard form with positive and negative indices *(Standard Form concludes during the next half term)*	*(Conclude Standard Form, then move on to the following units)* **Venn Diagrams** • Interpreting Venn diagrams, calculating probabilities • Finding the HCF and LCM using prime factor decomposition **3D Shapes** • Working with nets of 3D shapes • Know the properties of 3D shapes **Surface area and Volume** • Find surface area from nets • Find surface area of cubes, cuboids and prisms • Find volume of cubes, cuboids and prims • Convert units of volume	**Linear graphs** • Plotting and finding equations of graphs of vertical and diagonal lines **Transformations** • Performing a translation of a shape • Performing a reflection of a shapes **Angles** • Work with angles in quadrilaterals • Combine angle facts • Angles on parallel lines • Using quadrilateral properties to find angles • Work with angles in all polygons **Statistical Diagrams** • Draw and interpret pie charts • Draw and interpret line graphs • Finding averages from diagrams	**Inequalities** • Read and draw inequalities on number lines • Solve single inequalities **Brackets** • Expanding double brackets **Algebra and Fractions** • Review calculating with fractions including mixed number fractions • Simplify fractions with algebraic components **Recurring Decimals** • Working with recurring decimal notation • Converting fractions to recurring decimals	**Student Resources** Students across all years in KS3 will be given access to SPARX mathematics, for both homework and extra mathematical support. https://sparxmaths.com Additionally, students may also gain benefit from the mathematical courses through Seneca https://senecalearning.com/en-GB/ Alternate locations for further resources are linked below: Corbett Maths https://corbettmaths.com Maths Made Easy https://mmerevise.co.uk Dr Frost Maths (Extend Work) https://www.drfrostmath.com KS3 Maths BBC Bitesize https://www.bbc.co.uk/bitesize/subjects/zqhs34j **Student Educational Trips** In year 8, during the spring term, students will be given the opportunity to visit Bletchley Park. Students will begin to see the development of the Turing machine, which aided in the reduction of time in WWII. Additionally, they will explore the mathematics in codes and cyphers, and learn about one of the most famous mathematicians in recent History – Alan Turing.
		Assessment • Formative assessment at the end of the half term, to take place in class and last 30 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Summative assessment at the end of the term, to take place in class and last 50 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Formative assessment at the end of the half term, to take place in class and last 30 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Summative assessment at the end of the term, to take place in class and last 50 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Formative assessment at the end of the half term, to take place in class and last 30 minutes. End of year assessment to take place at the end of the half term, of content up to this point. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Summative assessment at the end of the term, to take place in class and last 50 minutes. Additionally, trust common assessment to take place if different. Diagnostic assessment taking place throughout lessons to inform future teaching.	
9	In year 9 students will have looked at all 6 of the key areas of maths using previous learning from Y7 and Y8 and developing it further to help prepare for GCSE by giving them a solid foundation of key skills used throughout various topics of the mathematics syllabus. By the end of year 9 students will have used their knowledge of algebraic manipulation, solving, and graphing and applied this in quadratic contexts being able to expand and graph a quadratic equation. Their existing knowledge of fractions, decimals and percentages will be applied	**Sequences** • Working with term-to-term rules for both numerical sequences and those with shapes and patterns • Substitute into a position-to-term rule • Find position-to-term rules for sequences with numbers and shapes **Probability** • Look at expected results from repeated experiments. • Calculating with experimental probability	*(Conclude Quadratic Equations, then move on to the following units)* **Formulae** • Change the subject of formulae with one step • Change the subject of formulae with two or more steps **Constructions** • Constructing bisectors of angles • Constructing perpendicular bisectors of lines **Circles**	**Rounding** • Working with error intervals • Working with truncation • Finding error intervals of truncated values **3D Shapes** • Exploring plans and evaluations of 3D shapes **Pythagoras' Theorem** • Interpret Pythagoras theorem in relation to 2D shapes • Use Pythagoras' in 2D • Apply Pythagoras' theorem as a tool in 2D	*(Conclude Ratio and Proportion, then move on to the following units)* **Linear Graphs** • Plotting straight line graphs • Find and interpret equations of straight-line graphs **Compound Measures** • Calculating with speed • Calculating with rates **Motion-time Graphs** • Plotting distance-time graphs	**Angles and Applications** • Work with angles on parallel lines • Use quadrilaterals to find properties of angles • To use angles in applied real-life problems • Calculate missing angles in real-life problems **Transformations** • Perform and describe a translation • Perform and describe a reflection • Perform and describe a rotation	**Handling data and statistical diagrams** • Plot and interpret scatter graphs • Using lines of best fit • Knowing and using the types of data • Presenting data and making conclusions • Comparing populations with diagrams • Choosing averages to solve problems • Interpreting grouped frequency, and calculate their averages • Draw and interpret frequency polygons	**Student Resources** Students across all years in KS3 will be given access to SPARX mathematics, for both homework and extra mathematical support. https://sparxmaths.com Additionally, students may also gain benefit from the mathematical courses through Seneca https://senecalearning.com/en-GB/ Alternate locations for further resources are linked below: Corbett Maths https://corbettmaths.com Maths Made Easy https://mmerevise.co.uk Dr Frost Maths (Extend Work)

	into probability problems including two-way tables and Venn diagrams. Year 9's will also develop the ability to construct triangles and bisectors leading into solving problems using loci. They will start to develop an understanding of Pythagoras and trigonometry in 2 dimensions. Their prior learning of ratio and proportion will be strengthening and used to solve problems involving reverse percentages and direct and inverse proportion. Year 9 will then review their algebra knowledge and apply to solve simultaneous equations algebraically and graphically. They will further develop their Geometry knowledge of shape by reviewing transformations and progressing this into congruency and similarity. Finally, their work from earlier in the year on powers can now be expanded to look at surds, indices, and standard form.	• Working with frequency trees **Standard form & Indices** • Working with index rules for positive and negative powers • Multiply and divide numbers in standard form • Add and subtract in standard form • Work with standard form on a calculator **Inequalities** • Solve inequalities with an unknown on both sides • Solve double inequalities • Constructing and solving inequalities **Quadratic Equations** • Factorise a quadratic where a=1 • Factorise with the difference of two squares • Solve quadratic equations equal to zero. *(Quadratic Equations concludes during the next half term)*	• Finding arc length of sectors • Find area of sectors • Sinding surface area and volume of cylinders	**Ratio and Proportion** • Write and simplify ratios • Sharing amounts in each ratio • Solving direct and inverse proportion word problems • Working with currency conversions *(Ratio and Proportion concludes during the next half term)*	• Interpreting distance-time graphs • Calculating speed from distance-time graphs • Plotting distance-time graphs using speeds	• Perform and describe an enlargement with positive scale factors • Describe mixed transformations **Similarity and Congruence** • Understand and use similarity to find unknown sides in similar shapes • Know and use the term congruence correctly • Working with congruent triangles • Working with constructing triangles	**Vectors** • Working fluently with column vectors • Add and subtract vectors • Multiply and divide vectors • Identify parallel vectors	https://www.drfrostmaths.com KS3 Maths BBC Bitesize https://www.bbc.co.uk/bitesize/subjects/zqhs34j **Student Educational Trips** In year 9, during the summer term, students will be given the opportunity to visit Thorpe Park. Mathematics is central to the construction of rollercoasters, along with the application of scientific theory. Students will explore these concepts in a workshop completed by Thorpe Park members of staff. This helps draw the knowledge gained in Key Stage 3 to a close, and strengthens links to physics aiding future study
		Assessment • Formative assessment at the end of the half term, to take place in class and last 30 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Summative assessment at the end of the term, to take place in class and last 50 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Formative assessment at the end of the half term, to take place in class and last 30 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Summative assessment at the end of the term, to take place in class and last 50 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Formative assessment at the end of the half term, to take place in class and last 30 minutes. End of year assessment to take place at the end of the half term, of content up to this point. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Summative assessment at the end of the term, to take place in class and last 50 minutes. Additionally, trust common assessment to take place if different. Diagnostic assessment taking place throughout lessons to inform future teaching.	
10	In year 10 students will continue to traverse all 6 of the key pillars of math's using previous learning from Y7, Y8 and Y9 and developing it further to help finalize their preparations for GCSE by giving them a solid foundation of key skills used throughout various topics of the mathematics syllabus. Higher students will begin to stretch further into more advanced applications of these skills. By the end of year 10 students will have used their knowledge of algebraic manipulation, solving simultaneous equations and will practice applying this in real life and problem-solving contexts.	**Percentages** • Calculating with compound interest • Working with growth and decay problems **Surface Area and Volume** • Calculating surface area of pyramids, cones, spheres, frustrum's and composite shapes. • Calculating the volume of pyramids, cones, spheres, frustrum's and composite shapes **Simultaneous Equations** • Solving simultaneous equations using elimination	*(Conclude Simultaneous Equations, then move on to the following units)* **Formulae** • Changing the subjects of formulae with multiple steps. • Changing the subject where it appears more than once. **Trigonometry** • Using the different trigonometric functions • Finding unknown sides and angles in right-angled triangles using trigonometry	**Linear Graphs** • Find equations of parallel lines • Find equations from its gradient and a point • Find equations from two points • Explore equations of parallel and perpendicular lines **Real-life Graphs** • Plotting real life graphs. • Find equations of linear real-life graphs **Set Notation** • Explore Venn diagrams with set notation • Use set notation fluently	*(Conclude Tree Diagrams, then move on to the following units)* **Compound Measures** • Performing calculations with density • Performing calculations with pressure **Ratio** • Combine ratios together • Calculating with ratio and algebra • Solve problems where the ratio changes **Graphs** • Calculate acceleration from velocity-time graphs • Plot velocity time graphs	**FOUNDATION** **Sequences** • Explore position to term rules for: arithmetic sequences; sequences with patterns; and geometric sequences. **Vectors** • Work with reading column vectors • Add and subtract column vectors • Multiply and divide column vectors • Identify parallel vectors **Proportion**	**FOUNDATION** *(Conclude Indices, then move on to the following units)* **Brackets** • Expanding double brackets • Factorising and solve quadratic equations where a=1 • Factorise with difference of two squares **Handling data and statistical diagrams** • Interpreting grouped frequency tables • Find averages from grouped frequency tables • Draw line graphs	**Student Resources** Students across all years in KS4 will be given access to SPARX mathematics, for both homework and extra mathematical support. https://sparxmaths.com Additionally, students may also gain benefit from the mathematical courses through Seneca. https://senecalearning.com/en-GB/ Further to physical links, revision guides and workbooks will be made available to parents to purchase through the school, which are developed by CGP resources. https://www.cgpbooks.co.uk Alternate locations for further resources are linked below: Corbett Maths https://corbettmaths.com

	Their knowledge of Pythagoras' Theorem will be built upon into three dimensions for the Higher Tier and more abstract, problem-solving examples of two-dimensional Pythagoras for the foundation students. Year 10's will also develop the ability to look for cues in questions and situations to decide upon which mathematical skill is best to apply. Their prior learning of probability in Year 9 will be built upon into conditional probability, independent events and combinations across both tiers of entry. Ratio and proportion will be extended to solving problems involving direct and inverse proportion, both graphically and algebraically. Year 10 will begin to lay foundations for the thinking required for A Level Maths, and explore the methods and ideas associated with that. then review their algebra knowledge and apply to solve simultaneous equations algebraically and graphically.	• Solve simultaneous equations using substitution. • Solve simultaneous equations graphically *(Simultaneous Equations concludes during the next half term)*	• Using the exact values of trigonometry • Solve applied problem-solving questions using these techniques. **Constructions** • Construct and work with Loci and solve problems with it.	**Tree Diagrams** • Construct and interpret tree diagrams for independent event • Construct and interpret tree diagrams for dependent events. *(Tree Diagrams concludes during the next half term)*	• Explore graphs of cubic, reciprocal and exponential functions.	• Interpret equations of direct proportion • Interpret equation of inverse proportion • Explore the graphs of inverse and direct proportion. **Transformations** • Recall the transformations from KS3 • Combine transformations together. **Rounding** • Work with and calculate error intervals (including for truncated values) **Indices** • Explore the index rules with both positive and negative indices. • Simplify expressions using index laws. *(Indices concludes during the next half term)*	• Interpret line graphs • Draw and interpret bar charts and other statistical diagrams **Bearings** • Measure and draw bearings • Calculate missing bearings from geometric problems.	Maths Made Easy https://mmerevise.co.uk Dr Frost Maths (Extend Work) https://www.drfrostmaths.com KS4 AQA Maths BBC Bitesize https://www.bbc.co.uk/bitesize/examspecs/z8sg6fr **Student Education Trips** In Y10, during the school year, students will have the opportunity to attend an inspiring mathematics talk, led by some of the country's leading mathematicians in both academic spaces and creative spaces.
						HIGHER **Sequences** • Position to term rule for quadratic and geometric sequences • Working with special sequences **Bearings** • Measure and draw bearings • Calculate missing bearings from geometric problems. **Proportion** • Constructing direct and indirect proportion equations • Explore the graphs of direct and indirect proportion **Transformations** • Enlargement by a positive or negative scale factor (including fractional) • Combining transformations **Rounding** • Finding bounds of calculations, and working with their limits **Indices** • Estimating roots and powers • Indices in the form 1/a and a/b *(Indices concludes during the next half term)*	**HIGHER** *(Conclude Indices, then move on to the following units)* **Recurring Decimals** • Convert fraction to recurring decimals • Convert recuring decimals to fractions **Brackets** • Expanding triple brackets • Completing the square • Factorizing and solving quadratic equations where a>1 • Finding the turning point of a quadratic from completing the square. **Vectors** • Work with reading column vectors • Add and subtract column vectors • Multiply and divide column vectors • Identify parallel vectors **Handling data and statistical diagrams** • Draw and interpret cumulative frequency graphs • Draw box plots • Interpret box plots • Comparing populations using box plots and cumulative frequency.	

		Assessment • Formative assessment at the end of the half term, to take place in class and last 30 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Summative assessment at the end of the term, to take place in class and last 50 minutes. Diagnostic assessment taking place throughout	**Assessment** • Formative assessment at the end of the half term, to take place in class and last 30 minutes. Diagnostic assessment taking place throughout	**Assessment** • Summative assessment at the end of the term, to take place in class and last 50 minutes. Diagnostic assessment taking place throughout	**Assessment** • Formative assessment at the end of the half term, to take place in class and last 30 minutes. End of year assessment to take place at the end of the half term, of content up to this point. Diagnostic assessment taking place throughout lessons to inform future teaching.	**Assessment** • Summative assessment at the end of the term, to take place in class and last 50 minutes. Additionally, trust common assessment to take place if different. Diagnostic assessment taking place throughout lessons to inform future teaching.	
11	In year 11, for the first term students will learn and work with the topics required for success at GCSE. Once completed, the focus will turn to ensuring that students consolidate and reinforce their knowledge of all KS4 topics. They will also develop their ability to apply their knowledge to a variety of different problems. This will include linking different topics and using underlying core skills over a range of different questions.	**FOUNDATION** **Factors, Multiples and Primes** • Finding the lowest common multiple • Finding the highest common factor • Working with prime factor decomposition **Fractions** • Ordering fractions and mixed numbers • Add and subtract all type of fractions • Multiply and divide all types of fractions **Expressions** • Simplifying expressions using index laws • Simplifying algebraic expressions with fractions by cancelling common factors. **Equations** • Solve equations with multiple steps, and/ or with an unknown on both sides • Solve equations with the unknown in the denominator of a fraction • Constructing equations • Factorise and solve quadratics where a=1 • Solve quadratics graphically • Solve simultaneous equations using all methods • Explore simultaneous equation graphs • Construct simultaneous equations from worded problems. **Angles** • Combine angle facts	**FOUNDATION** *(Conclude Angles, then move on to the following units)* **Right-angled triangles** • Recalling Pythagoras' theorem and trigonometry • Finding both unknown sides and angles • Working with exact values • Using trigonometry with bearings **Surface area and volume** • Find the surface area of 3D shapes, including cones, spheres, frustrums and composite shapes • Finding the volume of 3D shapes, including cones, spheres, frustrums and composite shapes **Statistical Diagrams** • Draw and interpret pie charts • Plot scatter graphs • Use lines of best fit	**FOUNDATION** **Probability** • Probabilities of mutually exclusive events • Working with sample space • Expected results from repeated frequences • Working with Venn diagrams and set notation • Constructing and interpreting tree diagrams • Working with experimental data **Inequalities** • Solve line inequalities with unknowns on both sides • Solve double inequalities • Construct inequalities **Vectors** • Add and subtract vectors • Multiply and divide vectors • Solve problems using vectors **Percentages** • Non calculator percentage change • Find original amounts • Find the percentage and amount has changed by • Compound interest calculations • Growth and decay **Compound Measures** • Calculating with speed • Calculating with rates • Calculating with Density • Calculating with Pressure	**FOUNDATION** **Ratio and Proportion** • Combining ratios • Working with ratio and algebra • Changing ratios • Solve direct and inverse proportion problems • Working with currency conversion **Standard Form** • Perform the basic operations with standard form numbers • Work with standard form on a calculator **Sequences** • Working with position to term rules for arithmetic's sequences • Working with position to term rules for sequences with patterns • Working with geometric sequences • Working with special sequences **Linear Graphs** • Plot straight line graphs • Find equations of straight line graphs • Interpret straight line graphs • Equations of parallel lines • Finding the equation of a straight line given different information.	**FOUNDATION** **Revision and assessment for GCSE Exams** Content delivered to student in this time will be consolidative and revision based and will be strategically decided based on individual class feedback from assessments across the KS4 programme.	**Student Resources** Students across all years in KS4 will be given access to SPARX mathematics, for both homework and extra mathematical support. https://sparxmaths.com Additionally, students may also gain benefit from the mathematical courses through Seneca. https://senecalearning.com/en-GB/ Further to physical links, revision guides and workbooks will be made available to parents to purchase through the school, which are developed by CGP resources. https://www.cgpbooks.co.uk Alternate locations for further resources are linked below: Corbett Maths https://corbettmaths.com Maths Made Easy https://mmerevise.co.uk Dr Frost Maths (Extend Work) https://www.drfrostmaths.com KS4 AQA Maths BBC Bitesize https://www.bbc.co.uk/bitesize/examspecs/z8sg6fr **Student Education Trips** In Y11, during the school year, students will have the opportunity to attend an inspiring mathematics talk, led by some of the country's leading mathematicians in both academic spaces and creative spaces.

		• Work with angles on parallel lines • Explore angles in quadrilaterals and wider polygons. *(Angles concludes during the next half term)*					
		HIGHER **Surds** • Performing operations with surds • Simplifying surds • Expanding brackets with surds • Rationalising denominators of expressions containing surds **Algebraic Fractions** • Working with algebraic fractions by factorising with one bracket • Algebraic fractions containing double brackets • Perform operations with algebraic fractions **Equations** • Solving quadratic equations using: factorising, completing the square, quadratic formula and the difference of two squares. • Constructing equations from worded problems • Solve quadratics graphically • Solve simultaneous equations involving quadratics.	**HIGHER** **Pythagoras Theorem and Trigonometry** • Work with exact values of trigonometry • Using trigonometric graphs • Working with the: sine, cosine and area trigonometry rules • Using Pythagoras theorem in 3D • Trigonometry in 3D shapes **Circle Geometry** • Working with circles theorems, including angles subtended from the centre or circumference; angles in segments; cyclic quadrilaterals; chords and tangents; and alternate segment theorem **Statistical Diagrams** • Draw and interpret histograms • Calculate averages from histograms • Solve problems with histograms	**HIGHER** **Probability** • Conditional probability from tables and Venn diagrams • Using conditional probability formulas • Conditional probability tree diagrams • Using the product rule for counting **Inequalities** • Working with both linear and quadratic inequalities • Graphs of inequalities • Solving quadratic inequalities **Functions** • Substituting into functions and composite functions • Finding and constructing composite functions and inverse functions **Transformations** • Translating and reflecting graphs • Transforming graphs **Iteration** • Using recurrence relations • Substituting into iterative formulae • Finding approximate solutions to equations using iteration *(Iteration concludes during the next half term)*	**HIGHER** *(Conclude Iteration, then move on to the following units)* **Algebraic Proof** • Working with conjecture • Writing algebraic proof **Similarity** • Finding area and perimeter of similar shapes • Finding surface area of similar shapes **Geometric Proof** • Solving geometric problems with vectors • Working with proof in the context of vectors • Geometric proof with angle facts • Geometric proof with congruence and similarity • Proving the circle theorems **Graphs** • Estimating gradients of non-linear graphs using tangents • Calculating distances from velocity time graphs • Estimating areas under non-linear graphs • Equations of circles and tangents.	**HIGHER** **Revision and assessment for GCSE Exams** Content delivered to student in this time will be consolidative and revision based and will be strategically decided based on individual class feedback from assessments across the KS4 programme.	
		Assessment: • Formative assessment at the end of the half term,	**Assessment:** • Formative assessment at the end of the half term,	**Assessment:** • Formative assessment at the end of the half term,	**Assessment:** • Formative assessment at the end of the half term,	**Assessment:**	

		to take place in class and last 30 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	to take place in class and last 30 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	to take place in class and last 30 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	to take place in class and last 30 minutes. Diagnostic assessment taking place throughout lessons to inform future teaching.	During this time, assessment will be diagnostic only, to help further inform future topics to be re-explored as part of revision for upcoming GCSE exams.	

Notes: Assessments are conducted to assess cumulative knowledge. All formative assessments look at the knowledge of the previous unit. Retrieving content from across either key stage is done so through appropriately crafted engage tasks.	**Examination Specification:** AQA GCSE Mathematics (8300) Higher and Foundation tier differentiated curriculum base to ensure adequate content delivery. Topic plans are tier specific.	**Homework:** All homework across mathematics is set and scheduled on SPARX. Students get increasing amounts of homework over the five years they are in secondary education. Homework is retrieval based, whilst also interleaving content of current teaching throughout the year.