

Year 11 – Mathematics – Foundation Tier

Curriculum intent	<p>Mathematics is a creative and highly interconnected discipline. It is essential to everyday life; underpinning many other subjects such as science, geography and technology and is essential for most forms of employment. Through mathematics lessons we promote mathematical thinking to allow all learners to achieve their mathematical potential and engage in the study of mathematics. Learners are taught strategies to solve problems and are encouraged by teacher modelling to be able to express themselves in mathematical language.</p> <p>The Key Stage 4 scheme of learning allows learners to build on their understanding of the interconnected topics from Key Stage 3. Learners in Year 11 will retrieve, affirm, and extend their knowledge and understanding as we finish the curriculum and prepare for the GCSE examinations. Learners will continue to follow either the Foundation tier or the Higher Tier pathway. Learners are regularly assessed to ensure that they are following the correct pathway in Mathematics.</p> <p>The journey starts with geometrical reasoning, where learners learn to apply angle facts and clearly state justifications for their reasoning. Skills from Year 10 are built upon and consolidated as learners form and solve equations for example by using the angle facts they have just mastered. During term 1, learners will work on many key geometrical topics such as Pythagoras, trigonometry and finding the area and volume of compound shapes in 2D and 3D and learn how to transform shapes on a coordinate grid.</p> <p>Year 11 continues by learning how to complete a statistical investigation; they will be encouraged to question the data, look for potential bias and justify their conclusions. Geometrical skills are further developed when studying constructions, similar shapes and again use deductive reasoning to prove shapes if shapes are similar or congruent.</p> <p>Following the completion of the curriculum coverage, they will follow a revision plan that targets gaps in their knowledge as identified by the thorough question level analysis of each student's performance in the frequent assessments that take place. This will prepare them for success in the GCSE examinations.</p>
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Term	Autumn 1	Autumn 2	Spring 1	Spring 2 to GCSE Examinations
Knowledge	<ul style="list-style-type: none"> • Alternate and Corresponding Angles • Interior and Exterior Angles • Forming and Solving Equations • Coordinate Geometry • Pythagoras • Trigonometry • Trigonometry - Non-Calculator • Pythagoras with Trigonometry • Probability • Probability Trees 	<ul style="list-style-type: none"> • Circles • Arcs and Sectors • Surface Area and Volume • Compound Measures • Enlargements • Reflections • Rotations • Translations • Vectors 	<ul style="list-style-type: none"> • Sampling • Pie Charts • Plans and Elevations • Constructions • Bearings • Congruence • Similar Shapes • Simultaneous Equations • Direct Proportion • Inverse Proportion 	<p>Revision</p> <p>In preparation for the final exams, learners will complete revision of selected topics covered in years 9 to 11 based on their performance in mock exams.</p> <p>Learners should also be completing independent revision in preparation for final exams.</p>



Skills	Autumn 1	Autumn 2	Spring 1	Spring 2 to GCSE Examinations
	<ul style="list-style-type: none">• Find missing angles using angle facts and demonstrate understanding of the properties of angles in 2D shapes and in parallel lines.• Form and solve equations in various contexts.• Interpret and use $y = mx + c$ with straight line graphs.• Use Pythagoras' Theorem in 2D to find missing lengths, to justify if right-angled triangle and to solve problems.• Use the trigonometric ratios sine, cosine and tan, to find angles and lengths in 2D figures.• Know the exact values trigonometric ratios for given degrees.• Solve multi-step problems that require the use of both Pythagoras and trigonometry.• Find the probability of an event or multiple events occurring.• Use, design and interpret probability trees to calculate the probability of an event happening.	<ul style="list-style-type: none">• Recall and use formulae for the circumference and area of a circle.• Find the perimeters and areas of part circles and compound shapes which include circles.• Calculate the area of compound shapes made from triangles, rectangles, trapezia and parallelograms.• Find the surface area of prisms, including compound solids.• Find the volume of prisms including compound solids.• Convert between metric measures.• Understand, use and convert between metric speed measures.• Calculate using speed, distance and time.• Understand and calculate with pressure, force and area.• Be able to transform shapes by rotation, reflection and translation on a coordinate grid.• Enlarge shapes by a given scale factor.• Understand and use column vectors, calculate with column vectors and identify and justify if they are parallel.	<ul style="list-style-type: none">• Plan, collect and analyse data to complete a statistical investigation.• Read, draw, and interpret pie charts• Understand and draw front and side elevations and plans of shapes.• Given the front and side elevations and the plan of a solid, draw a sketch of the 3D solid.• Construct bisectors of angles and lines, construct angles and identify regions using constructions. Use constructions to answer loci questions.• Read, use, and interpret bearings.• Identify and use the rules of congruence for triangles.• Identify similar shapes, find and use the scale factor to find missing lengths.• Write and solve simultaneous equations both algebraically and using a graph.• Solve problems involving direct proportion, including worded problems, using graphs, and using the unitary method. Calculate the best buy or convert currencies.• Understand the relationship between direct proportion and inverse proportion. Solve problems using inverse proportion.	<ul style="list-style-type: none">• Revision topics will be selected based on individual class performance in the mock exams.• Using detailed analysis of assessments that have been completed, areas of weakness will be identified. These will be the topics of focus during in class revision.• To ensure that gaps are constantly being identified and addressed, learners will complete regular in-class assessments which will be used to inform planning and monitor progress. <p style="text-align: center;">It is essential to complement in class revision that all learners are completing independent revision and attending after school revision in addition to the revision that will be completed in class.</p>

Term	Autumn 1	Autumn 2	Spring 1	Spring 2 to GCSE Examinations
Assessments	<ul style="list-style-type: none"> Regular low stakes assessments at the end of each topic. Past GCSE Paper – non-calculator. 	<ul style="list-style-type: none"> Regular low stakes assessments at the end of each topic. 	<ul style="list-style-type: none"> Regular low stakes assessments at the end of each topic. Year 11 Mocks Full GCSE series – 1 x non-calculator 2 x calculator 	<ul style="list-style-type: none"> Regular low stakes assessments at the end of revision topic. Regular in-class assessments to aid revision and retrieval and build exam skills.
Enrichment	<ul style="list-style-type: none"> Make sure you are attending after school revision! Have you had your five a day? Consolidate your learning by completing the Corbettmaths five a day. Visit https://corbettmaths.com/ to find daily questions to challenge you. Have you used the interactive questions on https://vle.mathswatch.co.uk/vle/ yet? Watch the videos and answer the interactive questions linked to the video. How many can you get correct? 	<ul style="list-style-type: none"> Prepare for your mock examinations by completing online papers on https://www.onmaths.com/ Can you take on the Demon Questions? Do the 6-week MathsWatch Revision Schedule in preparation for your mock exams. Not sure where to find it – ask your teacher for more details. Make some flash cards of the key formulae that you need to learn for the exam. Do not forget to include the area of triangle, trapezium, and circles. Do you need to make flash cards for the exact trig values? 	<ul style="list-style-type: none"> Found a topic that you are struggling with? Try using https://corbettmaths.com/ This website has videos, questions and past exam questions to help you revise. 10 Mark March Can you get an extra 10 marks on each paper? Use the feedback from your assessments to see where you can get an extra 10 marks for each paper – 30 marks should move you up a grade! 	<ul style="list-style-type: none"> Remember the best way to revise maths is to do maths! Answer lots of revision questions. Try Maths Genie for past papers and questions on https://www.mathsgenie.co.uk/ Make sure you are attending after school revision! Calculator skills are the priority now. Use the resources you have been given by your teacher and make sure you are revising using Corbettmaths, MathsWatch and Maths Genie.