

## Year 11 – Maths Higher Set 2

<b>Curriculum intent</b>	<p>We believe that students deserve a creative and ambitious mathematics curriculum, rich in skills and knowledge, which ignites curiosity and prepares them well for everyday life and future employment. Our mathematics curriculum will give students the opportunity to:</p> <ul style="list-style-type: none"> <li>• become fluent in the fundamentals of mathematics, through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.</li> <li>• reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.</li> <li>• can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.</li> <li>• can communicate, justify, argue and prove using mathematical vocabulary.</li> <li>• develop their character, including resilience, confidence and independence, so that they contribute positively to the life of the school, their local community and the wider environment.</li> </ul>					
<b>Term</b>	<b>Autumn 1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
<b>Knowledge</b>	<ul style="list-style-type: none"> <li>• Standard Form</li> <li>• Laws of Indices</li> <li>• Fractions</li> <li>• Rounding</li> <li>• Bounds</li> <li>• Compound and Simple Interest</li> <li>• Reverse Percentages</li> <li>• Sketching Quadratics</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Rearranging formula</li> <li>• Solving Equations</li> <li>• Angles in Parallel Lines</li> <li>• Angles in Polygons</li> <li>• Transformations</li> <li>• Expanding</li> <li>• Factorising</li> </ul>	<ul style="list-style-type: none"> <li>• Pythagoras</li> <li>• Trigonometry</li> <li>• Sectors</li> <li>• Volume and Surface area</li> <li>• Speed, Distance, Time</li> </ul>	<ul style="list-style-type: none"> <li>• Pie Charts</li> <li>• Averages</li> <li>• Scatter Graphs</li> <li>• Probability Trees</li> <li>• Proportion</li> </ul>	Exam Preparation	
<b>Skills</b>	<p>To have a solid understanding of the conditions of standard form.            To convert between standard form and ordinary numbers.            To be able to perform all four operations with standard form.            To be able to use the laws of indices.            To be able to evaluate negative and fractional indices.            To be able to convert between mixed numbers and improper fractions.</p>	<p>Use inverse operations to rearrange formula or change the subject of an equation.            Solve an equation to find a value of x.            Isolate x in an equation with an x on both sides to be able to find the value of x.            Identify the different rules for angles in parallel lines.            Use the rules of angles in parallel lines to be able to give the value of a missing angle.            Calculate the sum of the interior angles in any polygon.</p>	<p>Identify and use Pythagoras theorem to find a missing side.            Recognise the trigonometric ratios.            Use SOHCAHTOA to find missing angles and sides in right angled triangles.            Find the area and circumference of a circle.            Find the area of a sector of a circle.            Find the perimeter of a sector of a circle.</p>	<p>To be able to read and interpret a pie chart.            To be able to calculate the size of the different sections of a pie chart in order to display the data.            Calculate the mean, median, mode and range of a data set.            Interpret and compare the</p>	<ul style="list-style-type: none"> <li>• To understand the various command words for maths questions.</li> <li>• To understand how to pick out the key information from the question.</li> <li>• How to check</li> </ul>	

	<p>To be able to perform all four operations with fractions. To be able to perform all four operations with fractions with mixed numbers. To be able to round to a given significant figure. Given an error interval of a rounded and truncated number. Recall how to find compound interest and use this to calculate interest gained. To know the difference between compound and simple interest. To be able calculate the starting value of a percentage after a reduction/increase. To be able to recognise key feature of a quadratic from an equation and use this to sketch a graph.</p>	<p>Calculate the interior and exterior angles of any regular polygon. Rotate a shape and describe a rotation of shape. Translate a shape and describe a rotation of a shape. Reflect a shape and describe a reflection of a shape. Enlarge a shape and describe an enlargement of a shape. Expand a single bracket using a grid. Expand a set of double brackets using a grid. Factorise a single bracket using a grid. Factorise a double bracket using a grid.</p>	<p>Find the volume of a prism (cube, cuboid, triangular prism, cylinder) Find the Surface Area of a prism (cube, cuboid, triangular prism, cylinder) To be able to rearrange the speed, distance, time formula to find the missing value.</p>	<p>averages of two data sets. Calculate the mean from a grouped frequency table. Calculate the mean from an ungrouped frequency table. To display information on a scatter graph. To identify and explain outliers on a scatter graphs. To interpret correlation and relationship from a Scatter graph. Complete a probability tree for independent and dependent events. Calculate probabilities from a probability tree. To be able to recognise a directly and inversely proportional relationship. To be able to create an equation for direct and inverse proportion.</p>	<p>accuracy of answers.</p> <ul style="list-style-type: none"> <li>• How to use a calculator effectively.</li> <li>• What to write down for working out.</li> </ul>	
<b>Assessments</b>	<ul style="list-style-type: none"> <li>• Baseline</li> <li>• Fortnightly exams</li> </ul>	<ul style="list-style-type: none"> <li>• Autumn Assessment (exam paper)</li> <li>• Fortnightly exams</li> </ul>	<ul style="list-style-type: none"> <li>• Mock exams</li> <li>• Fortnightly exams</li> </ul>	<ul style="list-style-type: none"> <li>• Fortnightly exams</li> </ul>	<ul style="list-style-type: none"> <li>• Regular exam practice ½ weekly exam papers</li> </ul>	

<p><b>Curiosity</b></p>	<ul style="list-style-type: none"> <li>• Try a mini exam paper <a href="https://www.onmaths.com/mock_exams/mini-mock-1-higher-calculator/">https://www.onmaths.com/mock_exams/mini-mock-1-higher-calculator/</a></li> <li>• Visit the oak national academy website to view lessons and videos of the above topics.</li> <li>• What is your average speed? Practice running the same distance and record your speed each time. Use this video to help you calculate your average speed - <a href="https://tutors.com/math-tutors/geometry-help/average-speed-formula">https://tutors.com/math-tutors/geometry-help/average-speed-formula</a> .</li> <li>• What am I looking at? can you identify the various elevations of these shapes? <a href="https://www.transum.org/Maths/Activity/Plans_and_Elevations/">https://www.transum.org/Maths/Activity/Plans_and_Elevations/</a></li> <li>• Apply your loci skills to exact scale drawings in this goat problem <a href="https://www.transum.org/Software/SW/Starter_of_the_day/starter_March6.ASP">https://www.transum.org/Software/SW/Starter_of_the_day/starter_March6.ASP</a></li> <li>• <a href="https://tutors.com/math-tutors/geometry-help/average-speed-formula">https://tutors.com/math-tutors/geometry-help/average-speed-formula</a> .</li> </ul>	<ul style="list-style-type: none"> <li>• Try a mini exam paper <a href="https://www.onmaths.com/mock_exams/mini-mock-2-higher-calculator/">https://www.onmaths.com/mock_exams/mini-mock-2-higher-calculator/</a></li> <li>• Visit the oak national academy website to view lessons and videos of the above topics.</li> <li>• How good are you at balancing? Can you you're your balancing skills here <a href="https://www.transum.org/software/SW/Starter_of_the_day/Students/Equations.asp">https://www.transum.org/software/SW/Starter_of_the_day/Students/Equations.asp</a></li> <li>• How does the recipe change? Here are some online questions to help you - <a href="https://www.transum.org/Maths/Exercise/Ratio/Recipe.asp">https://www.transum.org/Maths/Exercise/Ratio/Recipe.asp</a> . Alternatively, pick a recipe from a cookbook at home and practice changing the measurements based on how many people you would cook for?</li> <li>• Histograms practice</li> <li>• <a href="https://www.mathsisfun.com/data/histograms.html">https://www.mathsisfun.com/data/histograms.html</a></li> <li>• Practice your quadratics skills with this interactive activity:<a href="https://www.transum.org/software/SW/Starter_of_the_day/Students/Quadratic.asp?Level=1">https://www.transum.org/software/SW/Starter_of_the_day/Students/Quadratic.asp?Level=1</a></li> </ul> <p>Weekly revision sessions</p> <ul style="list-style-type: none"> <li>• Black history month</li> </ul>	<p>Weekly revision sessions</p>	<p>Weekly revision sessions</p>	<p>Weekly revision sessions</p>	
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	<ul style="list-style-type: none"><li>• Test your knowledge of vectors with this interactive activity <a href="https://www.transum.org/software/SW/Starter_of_the_day/Students/VectorsB.asp">https://www.transum.org/software/SW/Starter_of_the_day/Students/VectorsB.asp</a></li><li>• Have a go at this interactive activity around rearranging equations. How many levels can you progress through? <a href="https://www.transum.org/software/SW/Starter_of_the_day/Students/Changing_The_Subject.asp?Level=6">https://www.transum.org/software/SW/Starter_of_the_day/Students/Changing_The_Subject.asp?Level=6</a></li></ul> <p>Weekly revision sessions</p>	<ul style="list-style-type: none"><li>• Maths challenge Date tbc</li></ul>				
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