

# Landau Learner Curriculum Overview

Subject: Mathematics

Director of Learning: Mr Ryan Bathew

Year: 10 Foundation

Curriculum organisation				
Students are taught in tiered ability groups; higher, intermediate and foundation. Group selection is based on which scheme of work will help each individual make the most progress at the greatest rate. There is always scope for movement between groups. Students have the equivalent of 5 lessons per week.				
What topics will students be studying this year? Includes links to National Curriculum, Curriculum Intent and Prior Related Learning*				
Term 1:	Term 2:	Term 3:	Term 4:	Term 5:
<ul style="list-style-type: none"> <li>Algebraic proficiency</li> <li>Visualising and constructing</li> <li>Solving equations and inequalities</li> <li>Proportional reasoning</li> </ul>	<ul style="list-style-type: none"> <li>Solving equations and inequalities</li> <li>Calculating</li> </ul>	<ul style="list-style-type: none"> <li>Calculating space</li> <li>Exploring Fractions, Decimals and Percentages.</li> <li>Proportional Reasoning</li> </ul>	<ul style="list-style-type: none"> <li>Pattern sniffing</li> <li>Understanding risk</li> <li>Presentation of data</li> </ul>	<ul style="list-style-type: none"> <li>Investigating properties of shapes</li> </ul>
<p><b>Links to Prior learning:</b> Factorising and expanding, negative numbers, constructions, ratio and proportion.</p> <p><b>National Curriculum:</b> understand and use the concepts and vocabulary of identities. Know the difference between an equation and an identity. Simplify and manipulate algebraic expressions by expanding products of two binomials and factorising quadratic expressions of the form <math>x^2 + bx + c</math>. Argue mathematically to show algebraic expressions are equivalent, and use algebra to support and construct arguments</p> <p>translate simple situations or procedures into algebraic expressions or formulae</p> <p><b>Curriculum Intent:</b> Develop algebraic skills so that students can identify and solve quadratics and identities. Students can form and express proofs algebraically. Students understand direct/inverse proportion and where it applies itself in the real world.</p>	<p><b>Links to Prior learning:</b> Calculations involving fractions, powers/roots, rounding numbers to decimal places as well as significant figures.</p> <p><b>National Curriculum:</b> understand and use the concepts and vocabulary of inequalities. Solve linear inequalities in one variable. Represent the solution set to an inequality on a number line. Calculate with roots, and with integer indices. Calculate with standard form <math>A \times 10^n</math>, where <math>1 \leq A &lt; 10</math> and <math>n</math> is an integer. Use inequality notation to specify simple error intervals due to truncation or rounding</p> <p><b>Curriculum Intent:</b> Students are able to manipulate and calculate with indices in different forms. Students understand the difference between equalities and inequalities in a mathematical sense. Students recognise the range of solutions that inequalities provide.</p>	<p><b>Links to Prior learning:</b> Area and perimeter of prisms and compound shapes. Angles in triangles.</p> <p><b>National Curriculum:</b> identify and apply circle definitions and properties, including: tangent, arc, sector and segment. Calculate arc lengths, angles and areas of sectors of circles. Calculate surface area of right prisms (including cylinders). Calculate exactly with multiples of <math>\pi</math>. Know the formulae for: Pythagoras' theorem, express the division of a quantity into two parts as a ratio; apply ratio to real contexts and problems (such as those involving conversion, comparison, scaling, mixing, concentrations). Identify and work with fractions in ratio problems. Explore links between fractions, decimals and percentages.</p> <p><b>Curriculum Intent:</b> Cultural and historical aspects of maths will be covered to broaden understanding. A range of real life applications of maths are looked at.</p>	<p><b>Links to Prior learning:</b> linear sequences, finding the nth term, finding probabilities, drawing graphs, circles and angles.</p> <p><b>National Curriculum:</b> Understand and use tree diagrams. Develop understanding of probability in situations involving combined events. Use probability to make predictions. interpret and construct tables, charts and diagrams, including tables and line graphs for time series data and know their appropriate use. Draw estimated lines of best fit; make predictions. Know correlation does not indicate causation.</p> <p><b>Curriculum Intent:</b> Students will be more informed citizens as they understand the applications and inherent risk of probability, for instance in gambling.</p>	<p><b>Links to Prior learning:</b> Properties of special triangles. Manipulating algebraic expressions and formulae, solving equations. Similar shapes. Pythagoras's theorem.</p> <p><b>National Curriculum:</b> Make links to similarity (including trigonometric ratios) and scale factors. Know the trigonometric ratios, <math>\sin\theta = \text{opposite/hypotenuse}</math>, <math>\cos\theta = \text{adjacent/hypotenuse}</math>, <math>\tan\theta = \text{opposite/adjacent}</math> apply it to find angles and lengths in right-angled triangles in two dimensional figures.</p> <p><b>Curriculum Intent:</b> Students will be able to apply their knowledge to solve a range of real life problems involving applications of maths</p>

<p><b>Equipment needed for sessions:</b></p> <ul style="list-style-type: none"> <li>Mathematics exercise book</li> <li>Scientific calculator with fractional display</li> </ul>	<p><b>What can you do to support your child?</b></p> <ul style="list-style-type: none"> <li>Encourage them to complete homework tasks to the best of their ability</li> <li>Encourage your child to aid in common place mathematical problems (managing money, measuring space etc).</li> <li>Check understanding of commonly used language such as 'credit' and 'debit'.</li> </ul>
<p><b>How will learning be assessed and progress measured?</b></p> <ul style="list-style-type: none"> <li>Marking of bookwork is carried out on a regular basis in line with college policy</li> <li>Two summative assessments</li> <li>Individual topic assessments</li> <li>Regular peer and self-marking</li> </ul>	<p><b>Extension and enrichment activities:</b></p> <ul style="list-style-type: none"> <li>Maths clinic extension – Tuesday 3:30 - 4:25 every week</li> <li>Weekly problem solving challenge</li> <li>Maths challenge (TBA)</li> </ul>