

Landau Learner Curriculum Overview

Subject: Mathematics

Director of Learning: Mr Ryan Bathew

Year: 11 Higher

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"> Investigating properties of shapes. Calculating. Solving equations and inequalities. Mathematical Movement 	<ul style="list-style-type: none"> Algebraic proficiency Proportional reasoning Pattern sniffing Calculating Space 	<ul style="list-style-type: none"> Solving equations and inequalities Exploring FDP Understanding risk Analysing statistics 	Deepening and broadening understanding of all topics	External exams
<p>Links to Prior learning: Solving equations, Pythagoras, similar shapes.</p> <p>National Curriculum: Investigate similar triangles. Explore trigonometry in right-angled triangles. Set up and solve trigonometric equations. Estimate with powers and roots. Calculate with powers and roots. Calculate with positive indices using written methods and negative indices in the context of standard form. Know the multiplication and division laws of indices. Round to a given number of decimal places or significant figures. Identify the minimum and maximum values of an amount that has been rounded (to nearest x, x d.p., x s.f.). Find approximate solutions to complex equations. Solve simultaneous equations. Solve problems involving simultaneous equations. Explore enlargement of 2D shapes. Investigate the transformation of 2D shapes.</p> <p>Curriculum Intent: Students will understand how to use estimation in real life contexts. They will apply knowledge to solve a range of practical problems. Students will understand the limitations of accuracy of data.</p>	<p>Links to Prior learning: Calculations involving fractions, powers/roots, rounding numbers to decimal places as well as significant figures.</p> <p>National Curriculum: Calculate with negative numbers. Multiply two linear expressions of the form $(x \pm a)(x \pm b)$. Factorise a quadratic expression of the form $x^2 + bx + c$. Add, subtract, multiply and divide proper fractions. Explore graphs of exponential functions. Create and use graphs of non-standard functions. Investigate gradients of graphs. Find and interpret areas under graphs. Investigate features of quadratic graphs. Explore differences between direct and inverse proportion. Investigate ways of representing proportion in situation. Solve problems involving proportion. Explore quadratic sequences. Investigate geometric progressions. Calculate surface areas of solids. Calculate volumes of solids. Solve problems involving enlargement and 3D shapes. Explore graphs of exponential functions. Create and use graphs of non-standard functions. Investigate gradients of graphs. Find and interpret areas under graphs. Investigate features of quadratic graphs.</p> <p>Curriculum Intent: 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>Links to Prior learning: move freely between fractions, decimals and percentages, factorising quadratic expressions, know when to add or multiply two probabilities, interpret and construct frequency tables</p> <p>National Curriculum: Explore the links between recurring decimals and fractions. Solve problems involving repeated percentage change. Solve problems involving exponential growth and decay. Solve quadratic equations. Use graphs to solve equations. Understand and use the product rule for counting. Use Venn diagrams to represent probability situations. Use two-way tables to represent probability situations. Solve probability problems involving combined events. Construct and interpret cumulative frequency graphs. Construct and interpret box plots. Analyse distributions of data sets.</p> <p>Curriculum Intent: Students will look at growth and decay in real life contexts, such as population or investments. Students understand combinations and security of passwords and data. Students use probability to understand risk in the real world.</p>	<p>Curriculum intent: Students solve a range of real life problems incorporating all aspects of mathematics</p>	
Equipment needed for sessions:		What can you do to support your child?		
<ul style="list-style-type: none"> Mathematics exercise book Scientific calculator with fractional display 		<ul style="list-style-type: none"> Encourage them to complete homework tasks to the best of their ability Encourage your child to aid in common place mathematical problems (managing money, measuring space etc). Check understanding of commonly used language such as 'credit' and 'debit'. 		
How will learning be assessed and progress measured?		Extension and enrichment activities:		
<ul style="list-style-type: none"> Marking of bookwork is carried out on a regular basis in line with college policy Two summative assessments Individual topic assessments Regular peer and self-marking 		<ul style="list-style-type: none"> Maths clinic extension – Tuesday 3:30 - 4:25 every week Weekly problem solving challenge Maths challenge (TBA) 		