Landau Learner Curriculum Overview

Subject: Mathematics   Director of Learning: Mr Ryan Bathew   Year: 10 Intermediate

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:
• Algebraic proficiency • Visualising and constructing • Solving equations and inequalities • Proportional reasoning	• Solving equations and inequalities • Calculating	• Calculating space • Conjecturing	• Algebraic proficiency - visual • Pattern sniffing • Understanding risk • Presentation of data	• Investigating properties of shapes
Links to Prior learning: Factorising and expanding, negative numbers, constructions, ratio and proportion. **National Curriculum:** 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 $x^2 + bx + c$. Argue mathematically to show algebraic expressions are equivalent, and use algebra to support and construct arguments translate simple situations or procedures into algebraic expressions or formulae **Curriculum Intent:** 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.	**Links to Prior learning:** Calculations involving fractions, powers/roots, rounding numbers to decimal places as well as significant figures. **National Curriculum:** 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 $A \times 10^n$, where $1 \le A < 10$ and n is an integer. Use inequality notation to specify simple error intervals due to truncation or rounding apply and interpret limits of accuracy **Curriculum Intent:** Students are able to manipulate and calculate with indies in different forms. Students understand the difference between equalities and inequalities in a mathematical sense. Students recognise the range of solutions that inequalities provide.	**Links to Prior learning:** Area and perimeter of prisms and compound shapes. Angles in triangles. **National Curriculum:** 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 π. Know the formulae for: Pythagoras' theorem, $a^2 + b^2 = c^2$, use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS) apply angle facts, triangle congruence, similarity and properties of quadrilaterals to conjecture and derive results about angles and sides and use known results to obtain simple proofs. **Curriculum Intent:** Students develop understanding of historical aspects of maths. Students use knowledge to solve problems in a range of real life contexts	**Links to Prior learning:** linear sequences, finding the nth term, finding probabilities, drawing graphs, circles and angles. **National Curriculum:** identify and interpret gradients and intercepts of linear functions algebraically. Use the form $y = mx + c$ to identify parallel lines. Find the equation of the line through two given points, or through one point with a given gradient. Interpret the gradient of a straight line graph as a rate of change. Understand and use tree diagrams. 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. **Curriculum Intent:** Develop understanding of probability in real life situations, understand that correlation does not indicate causation.	**Links to Prior learning:** Properties of special triangles. Manipulating algebraic expressions and formulae, solving equations. Similar shapes. Pythagoras's theorem. **National Curriculum:** Make links to similarity (including trigonometric ratios) and scale factors. Know the exact values of sinθ and cosθ for θ = 0°, 30°, 45°, 60° and 90°; know the exact value of tanθ for θ = 0°, 30°, 45° and 60°. Know the trigonometric ratios, sinθ = opposite/hypotenuse, cosθ = adjacent/hypotenuse, tanθ = opposite/adjacent apply it to find angles and lengths in right-angled triangles in two dimensional figures. **Curriculum Intent:** Be able to apply knowledge of trigonometric ratios in a range of real life contexts.

Equipment needed for sessions:	What can you do to support your child?
• Mathematics exercise book • Scientific calculator with fractional display	• 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:**
• 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	• Maths clinic extension – Tuesday 3:30 - 4:25 every week • Weekly problem solving challenge • Maths challenge (TBA)