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:**
• Investigating properties of shapes. • Calculating. • Mathematical Movement	• Solving equations and inequalities • Algebraic proficiency • Proportional reasoning • Pattern Sniffing	• Algebraic proficiency – visualising • Mathematical movement • Analysing statistics	• Deepening and broadening understanding of all topics.	• External Examination Period
Links to Prior learning: Apply Pythagoras' theorem in two dimensions. Set up and solve a trigonometric equation to find a missing side or angle in a right-angled triangle. Calculate exactly with surds. Use the functionality of a scientific calculator when calculating with roots and powers. **National Curriculum:** Explore three-dimensional shapes. Apply Pythagoras' theorem in three dimensions. Apply trigonometry in three dimensions. Know and use the sine rule. Know and use the cosine rule. Manipulate expressions by simplifying surds. **Curriculum Intent:** Use mathematical techniques to solve real life problems in 3 dimensions. Deepen understanding of cultural impact of mathematics.	**Links to Prior learning:** Solve a quadratic equation by rearranging and factorising. Identify when a quadratic equation cannot be solved by factorising. Calculate fluently with negative numbers. Rearrange algebraic expressions and equations. Understand and use interval bisection. Rearrange an equation to form an iterative formula **National Curriculum:** Solve quadratic equations. Solve practical problems involving quadratic equations. Understand and use iterative processes. Solve problems involving functions. Explore differences between direct and inverse proportion. Solve problems involving proportion. Investigate geometric progressions. **Curriculum Intent:** Students will be able to use algebraic techniques to solve real life practical problems	**Links to Prior learning:** Recognise exponential graphs. Plot graphs of linear, quadratic, cubic and reciprocal functions. Know the meaning of continuous data. Understand and use grouped frequency tables. Complete the square for a given quadratic expression. Know the meaning of roots, intercepts and turning points. **National Curriculum:** Explore graphs of exponential and trigonometric functions. Investigate the connections between graphs of functions and their translations. Construct and interpret histograms. Analyse distributions of data sets. Solve problems involving histograms. Manipulate quadratic functions, solve problems involving graphs of quadratic functions. **Curriculum Intent:** Students can interpret data and will become more informed decision makers in the real world.	**Links to Prior learning:** Individual / class trial exam analysis. **National Curriculum:** After analysis of individual and class results, tutor will deliver topic revision/recaps which meet student's requirements. **Curriculum Intent:** Students will make links across all aspects of mathematics and see how using a range of techniques can be used to solve a multitude of real life problems.	**Students will be sitting their external exams during this time.**

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)