Landau Learner Curriculum Overview

Subject: Mathematics **Director of Learning: Mr Ryan Bathew** **Year: 9 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 4.5 lessons per week.

What topics will students be studying this year? Includes links to National Curriculum, Curriculum Intent and Prior Related Learning*

Term 1:

- Numbers and the number system
- Visualising and Constructing
- Calculating

Links to Prior learning: Prime numbers, powers, rounding, formal methods for: multiplication, division, addition, subtraction; using a ruler and protractor to measure angles and lengths.

National Curriculum:

Identify and use the prime factorisation of a number. Understand and use standard form. Explore enlargement of 2D shapes. Use and interpret scale drawings. Use and interpret bearings. Explore ways of representing 3D shapes Calculate with negative numbers. Apply the correct order of operations.

Curriculum Intent:

To understand how to use mathematical instruments to construct diagrams and solve loci problems, and have an awareness of the uses for this in the real-world.

Term 2:

- Understanding Risk
- Algebraic Proficiency: Tinkering
- Pattern Sniffing
- Exploring Fractions, Decimals, Percentages

Links to Prior learning: Equivalent fractions, decimals and percentages, Simplifying fractions, Algebraic notation, Simplifying expressions, Expanding Brackets, Substitution, Negative numbers, Describing Sequences, Converting between improper fractions and mixed numbers.

National Curriculum:

Understand the meaning of probability. Explore experiments and outcomes. Develop understanding of probability. Understand the notation of algebra. Manipulate algebraic expressions. Evaluate algebraic statements. Explore sequences: including finding the nth term. Explore links between fractions, decimals and percentages.

Curriculum Intent:

To understand likeliness and how to determine the probability of an event based on sound mathematics. Be able to use this to understand the inherent risks in gambling

Term 3:

- Proportional Reasoning
- Investigating Angles

Links to Prior learning: Ratio notation, Divide an amount in a given ratio, Use angles at a point, angles at a point on a line and vertically opposite angles to calculate missing angles in geometrical diagrams, Know that the angles in a triangle total 180°.

National Curriculum:

Explore the uses of ratio. Investigate the connection between ratio and proportion. Solve problems involving proportional reasoning. Solve problems involving compound units. Develop knowledge of angles. Explore geometrical situations involving parallel lines.

Curriculum Intent:

Students understand ratio in a real-life context and how it is used in everyday life, for instance recipes/mixtures.
Enable students to have the skill of identifying appropriate angle rules and how to apply them to a geometrical problem.

Term 4:

- Solving Equations and Inequalities
- Calculating Fractions, Decimals, Percentages
- Calculating Space
- Algebraic Proficiency: Visualising
- Understanding Risk II

Links to Prior learning: Inverse operations, Solve linear equations, calculate with fractions, Percentages increase, decrease and change; Area of 2D shapes, coordinates, Substitution, 0-1 scale to measure probability.

National Curriculum:

Solve linear equations with the unknown on one side. Solve linear equations with the unknown on both sides. Explore connections between graphs and equations. Calculate with fractions. Calculate with percentages. Investigate circles. Discover pi. Solve problems involving circles. Explore prisms and cylinders. Plot and interpret linear graphs. Plot and quadratic graphs. Model real situations using linear graphs. Explore experiments and outcomes. Develop understanding of probability. Use probability to make predictions.

Curriculum Intent:

To allow students to make links between different areas mathematics and use the same skill in a number of areas.

Term 5:

- Presentation of data
- Measuring data

Links to Prior learning: Interpret and construct frequency tables, pictograms, bar charts, pie charts, tables and vertical line charts; Calculate the mean, median, mode and range.

National Curriculum:

Explore types of data. Construct and interpret graphs. Select appropriate graphs and charts. Investigate averages. Explore ways of summarising data. Analyse and compare sets of data.

Curriculum Intent:

To be able to analyse, interpret and present data and understand the uses of this in the real-world.

Equipment needed for sessions:

- Mathematics exercise book
- Scientific calculator with fractional display

What can you do to support your child?

- 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?

- 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

Extension and enrichment activities:

- Maths clinic extension – Tuesday 3:30 - 4:25 every week
- Weekly problem solving challenge
- Maths challenge (TBA)