PLUME ACADEMY - LEARNING OVERVIEW

Year	12
Course	Mathematics
Specification Number/Exam Board	EDEXCEL
Examination Papers and Weighting	Pure – 67% Mechanics and Statistics – 33%

Prior Learning

- The course builds on prior learning by developing those more advanced skills in algebra, geometry and Handling data used in GCSE.
- Algebra is tested as part of the transition tasks. It is re-enforced.
- Geometry is tested as part of the transition tasks. It is re-enforced.
- These sections form the bedrock of the AS/A level course.
- The above are extensions of the GCSE course and are taught in the Autumn/Winter term.
- Calculus, Exponential and Logarithms, Binomial Expansion, Trigonometric methods and identities are not part of the GCSE course. They are the start of the AS/A level course and are taught in Spring/Summer terms.
- In Statistics, students recap data collection from GCSE and are introduced to other methods of collecting and displaying data.
- In Mechanics, students are introduced to modelling techniques, constant and variable acceleration and forces.

Curriculum Intent – What are the curriculum aims?

This course facilitates opportunities for students to:

● understand mathematics and mathematical processes in a way that promotes confidence, fosters enjoyment and provides a strong foundation for progress to further study

● extend their range of mathematical skills and techniques

● understand coherence and progression in mathematics and how different areas of mathematics are connected

● apply mathematics in other fields of study and be aware of the relevance of mathematics to the world of work and to situations in society in general

● use their mathematical knowledge to make logical and reasoned decisions in solving problems both within pure mathematics and in a variety of contexts, and communicate the mathematical rationale for these decisions clearly

● reason logically and recognise incorrect reasoning

● generalise mathematically

● construct mathematical proofs

● use their mathematical skills and techniques to solve challenging problems that require them to decide on the solution strategy

● recognise when mathematics can be used to analyse and solve a problem in context

● represent situations mathematically and understand the relationship between problems in context and mathematical models that may be applied to solve them

● draw diagrams and sketch graphs to help explore mathematical situations and interpret solutions

● make deductions and inferences and draw conclusions by using mathematical reasoning

● interpret solutions and communicate their interpretation effectively in the context of the problem ● read and comprehend mathematical arguments, including justifications of methods and formulae, and communicate their understanding ● read and comprehend articles concerning applications of mathematics and communicate their understanding ● use technology such as calculators and computers effectively and recognise when their use may be inappropriate ● take increasing responsibility for their own learning and the evaluation of their own mathematical development.

Curriculum Implementation – What will my child will be learning?

Term 1	Half Term 1	1. Algebraic expression 2. Quadratics 3. Equations and inequalities 4. Graphs and transformations 5. Straight line graphs 6. Circles 7. Algebraic methods
	Half Term 2	8 Binomial expansion- positive powers 9. Trigonometric ratios 10. Trigonometric identities and equations
Term 2	Half Term 3	11. Vectors 12. Differentiation 13. Integration14. Exponentials and Logarithms
	Half Term 4	1. Data Collection 2. Measures of location and spread 3. Representation of data 4. Correlation 8. Modelling in mechanics 9. Constant acceleration 10. Forces and motion
Term 3	Half Term 5	5. Probability 6. Statistical distributions – binomial 7. Hypothesis testing-binomial 11. Variable acceleration
	Half Term 6	Start Year 13 course – 1. Algebraic methods 2. Functions and graphs 3. Binomial Expansion

Curriculum Impact – How will my child be assessed and receive feedback?

Unit tests and practice papers by topic and practice exam papers are used.

Super-Curricular Opportunities – Supporting and Extending Learning

Useful study resources	**If a student is really passionate about this subject they can...**
• Mathsgenie • Solomon • Resourceaholic • NRICH • Underground Maths • Madasmathx.com • examsolutions	• UK Senior Maths Challenge • University taster days. • STEM (Science, Technology, Engineering and Mathematics) open/taster events