

## Course title: Mathematics A-Level Pearson (Block B)

<b>Academic year:</b>	2020
<b>Course Venues:</b>	The Weston Road Academy
<b>Course Type:</b>	A-level
<b>Course Code:</b>	12BWrMA1
<b>Duration:</b>	2 years

### Course Description:

Mathematics is a highly regarded A Level that develops students' understanding of both Pure and Applied concepts. The A Level works well in combination with many other subjects, such as the Sciences, Business Studies and Psychology, but is also a challenging and enjoyable course in its own right.

The course aims to enable 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.
- Take increasing responsibility for their own learning and the evaluation of their own mathematical development.

### Course Content:

Students study both Pure and Applied Content:

#### Pure Content overview

- Topic 1 – Proof
- Topic 2 – Algebra and functions
- Topic 3 – Coordinate geometry in the  $(x, y)$  plane
- Topic 4 – Sequences and series
- Topic 5 – Trigonometry
- Topic 6 – Exponentials and logarithms
- Topic 7 – Differentiation
- Topic 8 – Integration
- Topic 9 – Numerical methods
- Topic 10 – Vectors

### Applied Content overview

#### Section A: Statistics

- Topic 1 – Statistical sampling
- Topic 2 – Data presentation and interpretation
- Topic 3 – Probability
- Topic 4 – Statistical distributions
- Topic 5 – Statistical hypothesis testing

#### Section B: Mechanics

- Topic 6 – Quantities and units in mechanics
- Topic 7 – Kinematics
- Topic 8 – Forces and Newton's laws
- Topic 9 – Moments

A large data set will be provided, which will support the assessment of Statistics. Students will be required to become familiar with the data set in advance of the final assessment.

**Entry requirements:** The standard entry criteria to study in the sixth form are a 9-4 in at least seven different subjects, including English and mathematics, which would usually be at grade 4 or above.

To study mathematics, you will be required to achieve a grade 6 at GCSE.

**Assessment:** The A level consists of three externally-examined papers; Pure Mathematics 1, Pure Mathematics 2 and Statistics and Mechanics. Each paper is a 2 hour written examination. Paper 1 and 2 may contain questions on any topic from the Pure Mathematics content. Paper 3 will contain questions on topics from the Statistics and Mechanics content. Calculators can be used in all examinations.

#### **Financial Information:**

The use of technology permeates the study of A Level Mathematics. Calculators used **must** include the following features:

- An iterative function
- The ability to compute summary statistics and access probabilities from standard statistical distributions.

The Maths Department at the Weston Road Academy will offer students the opportunity to buy a suitable calculator at a competitive price.

**Future opportunities:** The successful study of A Level Mathematics can help progression onto numerous higher education courses and into careers such as engineer, economist, statistician, computer scientist and actuary.

#### **Further information:**