

# Mathematics

Alternative Education Syllabus.

# Pre GCSE

You will learn the foundation of your learning to prepare for your exams. This will include the following in the following order:

- Basic adding, taking away, multiplying and dividing.
- Basic algebra ( $y = mx + c$ )
- Fractions ( $\frac{4}{10} = \frac{2}{5}$  and  $\frac{6}{2} = \frac{3}{1}$ )
- The use of brackets
- The use of indices
- BIDMAS (The order in which operations are carried out)
- Sketching curves (e.g. draw a graph of  $y = x^2$ ,  $y = 3x + 4$ )

# GCSE

To prepare for the exam you will do the following:

- Follow the instructions in the video series. Especially algebra, differentiation (if it is in that syllabus), trigonometry and Pythagoras theorem.
- Practice these skills, ideally every day although a minimum of five days per week.

# A level non-further maths

This contains much of the skills previously learned but we will now learn integration.

# A level - further maths

Same as A level with learning methodology, this time first focus on complex numbers and matrices, then focus on calculus after you are good at this.

# Additional Maths

- Integrating factor
- Laplace transform
- Fourier transform
- Fourier series
- Partial differential equations
- Differentiating under the integral sign (feynman technique)