



## Year 9 Maths

### Aims:

- *Create students who think, write, and speak like mathematicians*
- *Revisit, embed, and build upon topics covered in Y7 and Y8 to prepare for KS4*
- *Understand how to structure and record their thoughts and processes in a clear and logical way*
- *Improve techniques for problem solving through generating links between topics*

### Content:

#### Key Focus:

- Formal methods
- Multi-step problem solving
- Mathematical modelling

#### Main Content Areas:

- Algebra:
  - Rearranging formulae
  - Quadratics (expanding, graphing)
  - Equations & inequalities (including unknowns on both sides)
- Geometry:
  - Pythagoras' Theorem
  - Similarity and enlargement
  - Circle area and volume of prisms/cylinders
- Ratio & proportion:
  - Direct and inverse proportion
  - Speed, density, flow problems
  - Percentages:
- Compound interest
  - Reverse percentages
  - Repeated percentage change
- Probability:
  - Tree diagrams (with & without replacement)
  - Relative frequency and expected outcomes
- Statistics:
  - Comparing distributions
  - Misleading graphs
  - Mean from grouped data

#### Pedagogical Emphasis:

- Explicit GCSE links
- Algebra as the primary problem-solving tool
- Contextual problem solving and interpretation

## Curriculum Map

Year	Term	Curriculum	Assessment
9	Term 1	Prime number calculations, Further algebra, 2D & 3D shapes, straight line graphs, quadratics, constructions	Exit ticket assessments End of term assessment
	Term 2	Number, percentages, money, angles	Exit ticket assessments End of term assessment
	Term 3	Transformations, Pythagoras, enlargement, proportion, value for money, speed, rates, probability	Exit ticket assessments End of term assessment

### Assessment:

In class feedback will be provided throughout lessons using a variety of methods that check for understanding such as mini-whiteboards, vote cards, and carefully selected questioning. Students will receive regular and specific feedback between lessons using peer and self-review techniques to develop the reflective and resilient STRIPE habit. Teacher input in these feedback routines will be given if, and when, needed to support and personalise the student review process. 27 Low stakes quizzes and retrieval practice will be used regularly to provide students with self-assessment opportunities. Pre-topic tests will be carried out using online, multiple-choice questions to highlight any areas of improvement before the topic begins to inform teacher planning. Topic assessments will be carried out at the end of each topic. These will be short 15-20 minutes paper-based quizzes containing questions from each of the BASE levels. The aim of these assessments is to determine the understanding of a topic at the point of study. End of unit assessments will be used one and a half terms to assess the retention of a mixture of topics after a period of 'forgetting'. This method determines whether the content has been truly assigned to long term memory rather than just understanding and the time of study.

### Extended Learning:

Extended learning in Maths will take two forms: retrieval via online platforms and open-ended tasks based upon the driving question for that term. The online extended learning will be set once a week and there is an expectation that even though it is computer-based, a clear record of methods is recorded in the exercise book. Open-ended tasks investigating the mathematical contribution to the driving question will be set over a longer period of time, normally two weeks.

### Connection to the JTFs Approach

Whole School Theme	How does Maths support this?
STRIPE	STRIPE tags will be added to all lessons to demonstrate which STRIPE habit produces the most effective and efficient mathematics. Reflective and resilient review tickets will be used regularly to promote understanding of the students' pathway through the topic. Following each unit assessment there will be a STRIPE review to assess how performance was affected by implementation of the STRIPE habits.
STEAM	In class discussions to show how mathematical topics can be applied in job roles in conjunction with other STEAM subjects.
Literacy	Key words will be integrated into every lesson. Student explanations will need to contain subject specific vocabulary when presenting their thoughts to promote improved oracy.
Numeracy	'Know your Numeracy' tags will be used across all subjects with a maths emphasis so common teaching methods are used throughout the school.
SMSC, British Values and Citizenship	Problems in context, such as speed, provide chance to understand the impact of the topic as well as hinterland experiences regarding Pythagoras and his beliefs.

