Rationale

The curriculum ensures that all pupils become **fluent** in the fundamentals of mathematics, including through varied and frequent practise with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. All pupils will **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language. In addition, all pupils will **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Mathematics in an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programme of study for key stage 3 builds on key stage 2, and the key stage 4 curriculum builds on these. The curriculum is organised into distinct domains, but pupils will build on connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge in science, geography, computing and other subjects.

Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content in preparation for key stage 4. Those who are not sufficiently fluent should consolidate their understanding, including through additional practice, before moving on.

Pupils will be given opportunity to use calculators when appropriate, and explicitly taught how to use them effectively and efficiently.

What students will know when they leave Year 11

Pupils will develop confidence and competence with mathematical content and apply it flexibly to solve problems in each of the six areas of mathematics.

- Number
- Algebra
- Ratio, proportion and rates of change
- Geometry and measures
- Probability
- Statistics

By the end of year 11, pupils will have the ability to use mathematics successfully in their everyday lives and be able to apply their mathematical knowledge in further education and in their work place.

Upon completion of this course, students will have the skills and experience to progress onto A-level and beyond.

Appropriate mathematical vocabulary will be used by teachers throughout the course, and new vocabulary will be defined when needed.

Pedagogical Methodology

Each topic will begin with recapping previous knowledge before advancing onto new material. Teachers will explicitly highlight links within and between topics including terminology, linking facts, and different ways to approach problems using various applications of previous methods.

The first lesson of each week (with the exception of changing the time for timetabling reasons) is allocated to retrieval practice. In KS4, the full lesson is used for retrieval practise; KS3 will have approximately half the lesson used. Other lessons will have a short 'Prepare' activity used to revisit previous knowledge that is linked learning that lesson.

All key aspects of knowledge will be taught explicitly in the unit and formatively assessed throughout. Knowledge and skills will be revisited frequently both within and across year groups.

Students will be given a knowledge organiser at the start of each term.

Criteria based on GCSE assessments will be used to inform teacher assessment. Exam mark schemes will be used by teachers and shared with students when suitable.

Teachers will formatively mark student responses to some classwork and homework using school and department feedback codes.

Students will be given the opportunity to mark corrections and improvements in green pen after each marking cycle (DIT)

Assessments

Common assessments will be sat half-termly by all classes. The data from each of these will be used to feedback to subject leader, and used by class teachers to inform planning for the next term and retrieval practise time.

Across KS3 and KS4, the assessments will comprise of exam board created questions and will use the associated mark schemes.

In KS4, the assessments will be tiered as Foundation/Higher based on students' previous attainment.