

Subject: Mathematics

Mathematics Lead: Anna Holland

Exam Board: Edexcel

Qualification type: GCSE

Intent

Principles of the Mathematics Curriculum

The United Curriculum for Mathematics is built upon the core United Curriculum principles available [**here**](#).

The purpose of the mathematics curriculum is to provide a secure understanding of mathematical concepts, from basic principles of mathematics to complex topics that combine several areas of study into a single question. The curriculum promotes retention of knowledge and a depth of learning rather than an accelerated curriculum, resulting in pupils who are confident in taking their studies further into sixth form, university and beyond.

In all year groups, there is an intentional focus on numeracy which will support pupils not only in their study of mathematics but will also enable them to access mathematical questions in other subjects.

The rationale behind the sequencing of lessons:

The rationale behind the sequencing of topics in Year 10 GCSE Maths is to ensure a coherent progression that builds on prior knowledge, allowing students to deepen their understanding and apply mathematical concepts in increasingly complex ways. The sequence is carefully designed to support the curriculum intent, ensuring that foundational skills are mastered early so they can be applied in more advanced topics later in the course.

Knowledge acquired in the first term is revisited and applied in subsequent terms. For instance, algebra introduced early on is crucial when studying linear graphs or quadratic functions later. Interleaving these concepts through regular "Do Now" tasks ensures that previous knowledge is kept fresh and students see connections across topics, improving retention and mastery.

Towards the later stages, the sequencing aligns with the types of questions and skills assessed in the GCSE exam. This ensures that by the time students approach their exams, they are familiar with the full range of topics and question formats, having built a strong mathematical foundation throughout the year.

Implementation

In Key Stage 4 the Mathematics curriculum is implemented as follows:

Year 10

All teachers have the autonomy to combine or separate the shared resources to fit their pupils' needs. However, we do expect all lessons to follow a similar pattern. This pattern links directly to the Rosenshine Principles:

- Do now' activity:

- Mixed fluency skills based on pre-requisite knowledge presented in a structured starter grid.
- Answers will be displayed to increase the pace and ease the transition to the next part of the lesson.
- Poorly answered questions will appear in the next starter.

- Introduction of new skills:

- Carefully chosen examples are modelled in detail with the whole class focused on their teacher in silence.
- Students complete a similar example to the modelled example.
- Teachers ask targeted questions to check understanding.

- Checking for understanding:

- Checking for understanding with further examples can be done in students' books, on mini whiteboards, through questioning and/or by a teacher circulating the room while students complete work in their books.
- Teachers will re-model questions that were not understood.

- Independent practice:

- Independent practice is informed by AFL i.e. mini quiz, targeted questions.
- Independent practice relates directly to the modelled examples.
- Enough time is given for students to complete questions with minimal copying out.
- Problem-solving questions will follow when the fluency is secure.

- Review of independent practice:

- Pre-prepared answers given to independent practice to increase the pace and maximise the clarity.
- Students self-assess their work (coloured pen).

- Regular review:

- Use of starters and regular quizzing to review knowledge taught.

Year 11

Targeted Support Based on Assessments: From the outset of Year 11, the curriculum is tailored using data from tests and mock exams to identify key areas where students need extra support. Gaps in knowledge, such as difficulties with algebra, geometry, or

ratio, are addressed through targeted revision and intervention sessions. This personalized approach ensures that each student receives the specific help they need to improve.

Structured Revision and Cumulative Learning: The curriculum incorporates regular revision of core topics from both Year 10 and earlier Year 11 lessons. Topics are revisited and interleaved, allowing students to practice different areas of maths simultaneously, which strengthens long-term retention and enables them to see connections between concepts. This ensures a strong foundation in key topics such as algebra, statistics, and trigonometry.

Exam Preparation and Practice: A key focus of the Year 11 curriculum is preparing students for their GCSE exams. This includes regular exposure to exam-style questions, time-managed assessments, and past papers. Through this, students develop essential exam techniques, such as problem-solving, interpreting complex questions, and managing time effectively under exam conditions. These sessions are key to building confidence and competence in applying their knowledge.

Responsive Teaching and Flexibility: Teachers regularly assess student progress through mini-assessments, classwork, and mock exams, allowing for real-time adjustments to the curriculum. If a particular class or group of students demonstrates a common difficulty, lessons can be adapted to revisit and clarify those topics, ensuring no student falls behind.

Mock Exam Cycles and Feedback: As part of the exam preparation, students sit several mock exams during the year. Detailed feedback is provided, highlighting areas for improvement and giving students the opportunity to learn from their mistakes. Lessons following the mocks are structured to address common areas of weakness, further reinforcing the curriculum's focus on addressing knowledge gaps.

Intensive Revision Blocks: In the lead-up to exams, the curriculum transitions into focused revision periods. These blocks concentrate on practicing high-value exam topics, tackling common misconceptions, and refining techniques for solving more challenging questions.

By implementing the Year 11 curriculum with this focused, data-driven approach, students are given the tools and support they need to overcome weaknesses, master key mathematical concepts, and approach their final exams with confidence.

Impact

The careful sequencing of the curriculum – and how concepts are gradually built over time – is the progression model. If pupils keep up with the curriculum, they are making progress. Formative assessment is prioritised and is focused on whether pupils are keeping up with the curriculum.

In general, this is done through:

- Questioning in lessons. Teachers check understanding so they can fill gaps and address misconceptions as required.

- Pupil conferencing with books. Subject leads and SLT talk to pupils about what they have learnt – both substantive and disciplinary knowledge – and how this connects to the vertical concepts that they have been developing in previous years and other subjects.
- Post-learning quizzes at the end of each unit. These give teachers an understanding of the knowledge that pupils can recall at the end of the unit and can be used to identify any remaining gaps to be filled.
- Pre-learning quizzes at the start of each unit. These assess pupils' understanding of the prior knowledge that is required to access the new content in the unit. These are used to identify gaps to be filled prior to teaching the new unit.