

Mathematics

Newent Community School and Sixth Form Centre

Whole school Curriculum INTENT

Our curriculum aims are underpinned by our values:

Our goal is for Newent Community School and Sixth Form Centre to be a thriving and supportive community underpinned by mutual respect. We strive for excellence by providing a challenging, stimulating, creative and diverse learning environment that enables us all to become the best we can be.

Mathematics - INTENT AND IMPLEMENTATION

In Mathematics_we:

The Mathematics curriculum is designed to provide students with the knowledge, skills, and understanding to engage confidently with the subject in both academic and real-world contexts. Our intent is to instil an appreciation that Mathematics is a language and collection of tools for problemsolving, understanding patterns, and making sense of the world around us, as well as being intrinsically fun.

Our vision for the Mathematics curriculum is to inspire and challenge students, providing them with the knowledge and skills to think logically, reason mathematically, and solve problems with resilience. We aim to develop students' ability to:

- **Understand mathematical concepts** by building fluency in number, algebra, proportional reasoning, geometry, statistics and probability.
- Apply mathematics in a range of contexts, across the whole curriculum and in everyday life.
- Reason mathematically, make logical deductions and justify answers and solutions.
- **Develop critical thinking skills** to approach complex problems and make decisions based on data.
- Communicate mathematical ideas clearly and coherently.
- **Understand how mathematics is used** in the world, and shapes society, business, and technology.

Our curriculum promotes cultural awareness by exploring mathematical contributions from diverse societies. It encourages spiritual and moral development through curiosity and reflection, the self-discipline of effort and resilience, fairness and ethical problem-solving, helping students understand how to make responsible decisions. Our curriculum enhances social development by encouraging teamwork, communication, and problem-solving. It encourages students to explain their reasoning clearly, collaborate respectfully, and apply Mathematics to real-world issues, building awareness, responsibility, and a sense of contribution to society.

Our curriculum encourages a positive learning attitude, ensuring equal access with high expectations and appropriate challenges for all students. It supports learning and progression, helping students achieve their goals and prepare every learner for future success in education and careers.

Our curriculum is structured to ensure that learning builds progressively from key stage to key stage, with a focus on key themes:

Key Stage 3

Key Stage 3 builds on Key Stage 2 by deepening numerical fluency, ensuring students confidently apply fractions, decimals, and percentages in real-life contexts. It enhances algebraic understanding, introducing more complex equations, expressions, and problem-solving strategies. Geometry and data handling advance as students explore shapes, angles, and statistical methods in greater depth. These developments allow students to combine multiple skills to tackle more sophisticated problems, encouraging logical thinking and reasoning. By linking concepts across different areas of mathematics, Key Stage 3 strengthens problem-solving abilities, preparing students for more advanced studies and real-world applications.

Key Stage 4

Key Stage 4 builds on Key Stage 3 and prepares students for GCSE by introducing a wider range of mathematical methods and algebraic techniques as well as more complex problem-solving techniques. Students develop deeper fluency in number, algebra, geometry, probability, and statistics, building towards confidently applying methods to solve to more complex, multi-step, real-world and abstract problems. Reasoning and proof become more rigorous, encouraging logical thinking, clear communication and justification of solutions. By encouraging independence and resilience, Key Stage 4 ensures students are equipped with practical skills for everyday decision-making as well as for future careers and further study within apprenticeships and A-levels.

Key Stage 5

A-level Mathematics develops analytical thinking by tackling complex problems in Pure Mathematics, Statistics, and Mechanics. Pure Mathematics builds algebraic and geometrical skills to describe, visualize, and model real-world situations, while calculus has a myriad of applications in science and technology. Statistics enhances data analysis and informed decision- making through study of probability, hypothesis testing, common distributions, bivariate data, and statistical analysis to identify patterns, trends, and relationships. Mechanics applies mathematics to physical systems, exploring forces in static and dynamic systems, kinematics in constant and variable acceleration situations, and modelling motion in two dimensions, strengthening problem-solving in physics and engineering. These skills prepare students for university courses in mathematics, sciences, engineering, economics, and computing, as well as higher-level apprenticeships in finance, technology, and industry. The course fosters logical reasoning, precision, and resilience, essential for academic and professional success

ASSESSMENT

At Key Stage 3 we assess students in three main ways. First, daily in-class assessment for learning involves interactive questioning and discussions to check understanding and guide teaching. Second, learning reviews are formative, ungraded assessments that help students reflect on their grasp of key techniques and identify areas for improvement. These reviews support self-awareness and inform next steps in learning. Third, termly formal assessments are summative and graded, providing a measure of student progress over time. Together, these methods offer a balanced approach, combining immediate feedback, personal reflection, and measurable outcomes to support and track each student's development and achievement in mathematics. All formal assessments include colour coded question-level analysis personal feedback sheets to highlight secure understanding and identify areas for future learning and improvement.

At Key Stage 4 we assess students in two main ways. Daily in-class assessment uses interactive questioning to check understanding and guide teaching. Formal assessments are summative, graded, and based on GCSE-style questions, providing a clear measure of progress. Together, these methods ensure ongoing feedback, support targeted intervention, and help track student achievement over time in a structured and meaningful way.

At Key Stage 5, students are assessed through formal written assessments using A-level questions. Detailed feedback and worked solutions are provided to help refine understanding, address misconceptions, support continued academic progress and improve independent learning skills. This approach ensures students develop confidence, exam skills, and a deeper grasp of key mathematical concepts.

HOME LEARNING

Weekly home learning includes a written task that consolidates new learning and revisits prior topics, plus online MyMaths activities. Class teachers mark the written work, providing feedback and opportunities for reflection in lessons to reinforce understanding and support continuous learning and progress. Prior to assessments, home learning focuses on revision activities, often including video links to support students' independent study and strengthen understanding of key topics.

HOW PARENTS CARERS CAN ASSIST AT HOME

Parents can support their child's maths learning by providing a positive, quiet space for home learning and revision, and encouraging a confident attitude towards the subject. We understand that everyone has their own individual level of confidence with Maths. Even if parents feel unsure about maths themselves, showing resilience and a positive mindset is key. Research shows that negative attitudes can lower student engagement and outcomes. Instead, be honest about your own experiences, emphasising effort and perseverance. Remember, we're always here to help and support both students and parents throughout the learning journey.