



Thomas Mills
High School & Sixth Form

KS3 Physics Curriculum Intent Statement

At Thomas Mills High School our Key Stage 3 Physics curriculum is designed to provide all pupils with a strong foundation in the fundamental principles of physics, enabling them to understand and explain the physical world around them. The curriculum follows the National Curriculum requirements, ensuring pupils acquire a deep understanding of scientific concepts and develop the skills necessary to become curious, confident, and capable scientists.

Our intent is to:

Develop Scientific Knowledge and Understanding: We aim to ensure that pupils build a strong understanding of the key concepts in physics, including forces, energy, waves, electricity, and the structure of matter. These concepts are taught progressively, starting with core ideas and expanding to more complex topics.

Curiosity, Inquiry and Skills Development: Through practical experiments, demonstrations, and inquiry-based learning, we aim to ignite pupils' curiosity and encourage them to question, investigate, and explore the world of physics. As they engage in hands-on activities, pupils will not only develop an understanding of the scientific method and its role in discoveries but also build essential practical skills, such as working safely in a lab, designing experiments, making accurate observations, and analysing data.

Prepare for Future Learning: We ensure that pupils are well-prepared for their future learning in physics, whether they choose to pursue further study in the subject or simply wish to understand the world better. By emphasizing the relevance of physics to everyday life, current technology, and the natural world, we aim to foster a lifelong interest in science.

Note: Due to the carousel-based teaching schedule within science in year 7 pupils will complete a total of 6 science units, 2 from Biology, Chemistry and Physics during their first year.



Unit	Topic	Knowledge and Skills	Useful Links
1	P1: Energy	Knowledge: The Key Stage 3 energy topic introduces pupils to fundamental principles of energy stores, transfers, and conservation. Pupils learn about different forms of energy, including kinetic, thermal, chemical, and gravitational potential energy. They explore how energy moves through systems via conduction, convection, and radiation, as well as the concept of efficiency and dissipation. The curriculum also covers renewable and non-renewable energy resources, examining their advantages, disadvantages, and environmental impact. Skills: Through practical investigations, pupils develop an understanding of how energy is measured, calculated, and applied in real-world contexts. In the energy topic, pupils use numeracy skills to calculate energy transfers, efficiency, and power. Pupils also interpret graphs, convert units, and apply mathematical concepts to energy-related problems.	Energy stores - Energy - KS3 Physics - BBC Bitesize Generating electricity guide for KS3 Physics pupils - BBC Bitesize Science, secondary, Year 7 - Lesson listing Oak National Academy
Assessments		Standardised assessments: Topic Summary Check Lists – Pupils use these to review progress and self-reflect on content taught Mid Unit Assessment – An extended project task on the theme of Energy End of Unit Test – Formal, in class assessment on content covered in the unit	
2	P2: Earth & Beyond	Knowledge: The Key Stage 3 space topic introduces pupils to fundamental astronomical concepts. This unit covers the structure of the universe, the solar system, and the movements of celestial bodies. Pupils learn about the characteristics of planets, stars, galaxies, and the vastness of space. They explore phenomena such as day and night cycles, seasons, and the phases of the Moon,	Features of our solar system guide for KS3 Physics pupils - BBC Bitesize



		understanding how Earth's position and motion relative to the Sun and Moon influence these events. Skills: Throughout this unit, pupils develop various scientific skills. Analytical skills are honed through interpreting data related to planetary movements and understanding the scale of the universe. Practical investigations may involve modelling the solar system or simulating lunar phases, fostering critical thinking and problem-solving abilities. Additionally, pupils enhance their research skills by exploring current space missions and astronomical discoveries, encouraging curiosity and a deeper appreciation for the field of astronomy.	Days, months, years and seasons guide for KS3 Physics pupils - BBC Bitesize Phases of the Moon - BBC Bitesize Science, secondary, Year 7 - Lesson listing Oak National Academy
Assessments	Standardised assessments: Topic Summary Check Lists – Pupils use these to review progress and self-reflect on content taught Mid Unit Assessment – An extended project task on the theme of space exploration End of Unit Test – Formal, in class assessment on content covered in the unit		