



The curriculum for this stage of students' education has been designed to build upon their prior knowledge of Working Scientifically including: using a range of scientific equipment, recording data and results, presenting findings and drawing conclusions, explaining, evaluating and communicating their methods and findings. Students will explore: Circular Motion, Oscillations, Nuclear Physics, Capacitance, Magnetic Fields, Thermal Physics, Electric Fields, Nuclear Energy, Electromagnetic Induction, Engineering Physics.

HALF TERM 1: Circular Motion, Oscillations, Nuclear Physics
STUDENTS MUST KNOW:

- Periodic motion: Understand circular motion, simple harmonic motion, SHM systems, forced vibrations and resonance.
- Nuclear Physics: Understand radioactivity in terms Rutherford scattering, types of radiation, radioactive decay, nuclear instability, nuclear radius.

HOW THIS WILL BE ASSESSED:
 Assessments will be completed at the end of each topic and one main assessment will occur during each term to assess progress.
 Required practicals are also an integral part of the course.

HALF TERM 2: Capacitance, Magnetic Fields, Thermal Physics
STUDENTS MUST KNOW:

- Capacitance: Understand how charge is stored in capacitors and how field equations can be applied to charges and energy stored.
- Magnetic Fields: Explain how magnetic fields behave and apply forces equations.
- Thermal Physics: Explain thermal energy ideal gases and molecular kinetic theory as well as mathematical functions.

HOW THIS WILL BE ASSESSED:
 Assessments will be completed at the end of each topic and one main assessment will occur during each term to assess progress.
 Required practicals are also an integral part of the course.

HALF TERM 3: Electric Fields, Nuclear Energy
STUDENTS MUST KNOW:

- Electric fields: Understand and apply the concepts of Coulombs law, electric field strength, electric potential and the mathematical requirements.
- Nuclear Energy: Explain mass and energy, induced fission and safety aspects.

HOW THIS WILL BE ASSESSED:
 Assessments will be completed at the end of each topic and one main assessment will occur during each term to assess progress.
 Required practicals are also an integral part of the course.

HALF TERM 4: Electromagnetic Induction, Engineering Physics
STUDENTS MUST KNOW:

- Electromagnetic induction: Understand Flux linkage, Faradays and Lenz's law., A.C and transformers.
- Engineering Physics A: Understand and apply AS topics to rotational dynamics – inertia, momentum, torque, acceleration, work and power.
- Engineering Physics B: Understand Thermodynamics and engines in terms of non-flow diagrams, engine cycles, second law and engines.

HOW THIS WILL BE ASSESSED:
 Assessments will be completed at the end of each topic and one main assessment will occur during each term to assess progress.
 Required practicals are also an integral part of the course.

HALF TERM 5:
Consolidation, Revision and Past Papers.

HALF TERM 6:

Embedding this knowledge can be supported at home by using the AQA website and typing in the key phrase for each lesson to consolidate learning that has taken place in class. Work is assessed at the end of each topic.