Bishop Milner CATHOLIC COLLEGE

Year 13 LONG-TERM SEQUENCE for Physics

The AQA A Level Physics specifications are a stepping stone to future study, which provides a foundation for study at universities, or a Science related career, or for Physics or laying the groundwork for further study in science or engineering. The specification builds on the GCSE Combined and Triple courses taught at KS4. The linear course is assessed at the end of Year 13 and is made up of 3 papers. There is an emphasis on practical skills which are assess throughout the course and endorsed at the end.

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
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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. Making use of https://www.physicsandmathstutor.com to practice exam papers.