Bishop Milner CATHOLIC COLLEGE

# Year 10 LONG-TERM SEQUENCE for Triple Physics

**The curriculum for this stage of students' education has been designed to build upon their prior knowledge from year 9 GCSE Physics. This course provides a worthwhile background for all students, whether or not they intend to go on to study Physics beyond GCSE. The course enables students to acquire a body of scientific knowledge and develop an understanding of the ideas and applications of Physics e.g. Energy, Forces and Motion, Waves and the Electromagnetic Spectrum. This is set in the context of knowing and understanding a body of scientific facts. Students acquire an understanding and experience of the methods used in science and of the application of experimental techniques in everyday life.**

**HALF TERM 1:** Atomic Structure

**STUDENTS MUST KNOW:**

- The Discovery of the Nucleus. How can we establish the structure of an atom.
- Changes in the Nucleus. How can we identify changes to a nucleus.
- Activity and Half Life. To understand how long does a radioactive source remain active.
- Nuclear Radiation in Medicine. How can radioactivity can be used for medical treatment (T).
- Nuclear Fission and Fusion. To understand how a radioactive source and fusion can be used to generate electricity (T).
- Nuclear Issues. How much nuclear radiations affect the way we live (T).

**HOW THIS WILL BE ASSESSED:**
Students will be assessed by a progress test half way through the topic as well as an end of topic assessment.

**HALF TERM 2:** Energy

**STUDENTS MUST KNOW:**

- Changes in Energy Stores.
- Energy and Work.
- Kinetic and Gravitational Potential Energy.
- Energy Efficiency. To understand the factors affecting efficiency and how to calculate percentage efficiency.
- Energy and Power.
- Energy Transfer by Conduction.

**REQUIRED PRACTICAL 1** Investigation to determine the specific heat capacity of one or more materials.

**HOW THIS WILL BE ASSESSED:**
Students will be assessed by a progress test half way through the topic as well as an end of topic assessment.

**HALF TERM 3:** Energy Continued

**STUDENTS MUST KNOW:**

- Infrared Radiation. To understand what infrared radiation is and how it is detected (T).
- Heating and Insulation Buildings. (T).
- Energy Demands.
- Energy from Wind, Water, Sun and Earth.
- Energy and the Environment. To understand how non-renewable energy sources affect our environment the impact of renewables on global resources.

**HOW THIS WILL BE ASSESSED:**
Students will be assessed by a progress test half way through the topic as well as an end of topic assessment.

**HALF TERM 4:** Forces and Motion

**STUDENTS MUST KNOW:**

- .Vectors and Scalars.
- Forces between Objects.
- Moments at Work (T).
- Centre of Mass. How to determine the centre of mass.
- Resolution of Forces.
- Acceleration, Velocity and Distance Time Graphs.

**HOW THIS WILL BE ASSESSED:**
Students will be assessed by a progress test half way through the topic as well as an end of topic assessment.

**HALF TERM 4:** Forces and Motion Cont.

- **STUDENTS MUST KNOW:**
- Force and Acceleration.
- Acceleration Investigation. To investigate the acceleration of a system with a constant mass and varying mass.
- Braking Forces and Momentum. To understand the factors influencing the stopping distance of a car.
- Weight and Terminal Velocity. To describe the motion of a falling object in a fluid under the effect of gravity.
- Conservation of Momentum. (T).

**HOW THIS WILL BE ASSESSED:**
Students will be assessed by a progress test half way through the topic as well as an end of topic assessment.

**HALF TERM 6:** Forces and Motion Cont.

- **STUDENTS MUST KNOW:**
- Forces and Elasticity.
- Elasticity Investigation.
- Pressure and Surfaces/Liquids (T).
- Atmospheric Pressure(T).
- Upthrust and Flotation (T).

**REQUIRED PRACTICAL 7 –** Investigate the relationship between force and extension for a spring.
**REQUIRED PRACTICAL 8 –** Investigate the effect of varying the force on the acceleration of an object of constant mass and the effect of varying the mass of an object on the acceleration produced by a constant force appropriate measurements.

**HOW THIS WILL BE ASSESSED:**
Students will be assessed by a progress test half way through the topic as well as an end of topic assessment.

Bishop Milner
CATHOLIC COLLEGE

# Year 10 LONG-TERM SEQUENCE for Triple Physics

**Embedding this knowledge can be supported at home by reviewing class notes, guided learning wider reading, exam practice questions, independent research and study, completing set independent study tasks, watching in scientific documentaries and understanding current issues in the scientific world. In addition, use the AQA website, BBC Bitesize and GCSEPOD in conjunction with suitable revision guides.**