Progression Model: Physics Year 10 Combined Foundation

Module Title: Atomic structure and waves	Module Title: Electromagnetic Spectrum and Forces and their interactions	Module Title: Motion of a body featuring Newton's Laws of motion
Learning Intent for this module: Students will learn about how over a century ago radioactivity was discovered and it has taken many nuclear physicist several decades to understand the structure of the atom, nuclear forces and stability. The lessons will allow the students to understand the journey of what it took to understand ionising radiation and how useful it can be. They will then move onto study the properties of waves in air, fluid and solids, so they can explain how their behaviours can move energy and information from place to place.

Atomic structure
Waves in air, fluids and solids | **Learning Intent for this module:** Students will learn how waves can be man-made and natural systems that carry both energy and information. They will take a walk through the phenomena that is the electromagnetic spectrum by taking the wave properties from module 1 to help describe the properties and uses of electromagnetic waves. Forces and their interactions students will study the effects of forces and the types of forces to explain how they affect everyday objects

Electromagnetic spectrum
Forces and their interactions | **Learning Intent for this Module:** Students will learn about how to describe motion of a body and how we use Newton's laws of motion to explain how objects move. We investigate how force interactions can cause certain motions and, in turn, cause other reaction forces. The lessons build on the knowledge forces to explain what affects how a vehicle stops.

Forces and motion
Newton's laws of motion
Forces and braking |
| **Key Content to be learned:** Students will learn about the ionising radiation in terms of atoms, stability and radioactive decay between them, this builds on y9 work about the atom studied in chemistry. Students in year 8 have studied light and sound waves, building on this will allow them to understand the properties of waves and how we can describe them. They will expand on their knowledge of atom to understand the limitation of scientific models and how new experimental data lead to new ideas about the atom. Applying their knowledge of theory waves will be able to plan and | **Key content to be learned:** Students will learn about how the properties of a wave will determine if it transmits energy and/or information. They will also learn the difference between different types of forces and their effects. They will expand their knowledge of the electromagnetic spectrum to understand the properties, uses and possible dangerous of each type. Applying their knowledge of forces and their interactions students will be able to resolve forces. | **Key Content to be learned:** Students will learn about the motion of objects describing them in terms of speed, velocity and acceleration. They will be able to represent this motion in distance time and velocity time graphs. This builds on their year 8 knowledge of forces and motion. Students will expand their knowledge to interpret to describe the motion of the body and use gradients to calculate velocity and accelerations Applying their knowledge of forces and motion students will be able to explain what happens to |

investigate to make observations about waves in air, fluids and solids.		a vehicle when it stops and the factors that affect the stopping distance.
Prior Knowledge Students should know that an atom is made up of sub-atomic particles, explain the difference between light and sound waves.	**Prior Knowledge** Student should be able to describe the properties of a wave and know the difference between transverse and longitudinal waves. Students should be able to describe a force.	**Prior Knowledge** Students should be able to describe a force as a push, pull or a twist. (Y8) Explain the effects of forces and whether a force is a contact or non-contact force
Key tasks for this module Atomic Structure Waves	**Key tasks for this module:** Electromagnetic spectrum Forces	**Key tasks for this module:** End of Year Exam Extended writing task