



SCIENCE - YEAR 9

Chemistry: Earth

Within this module students will learn there is only a certain quantity of any resource on Earth, the extraction processes of certain elements and the importance of recycling. We will also consider how carbon is recycled through natural processes in the atmosphere, ecosystems, oceans and the Earth's crust, including processes such as photosynthesis and respiration.

Biology: Genes

Students will learn all about what makes them who they are, examining DNA and how it is arranged into genes on chromosomes. They will be able to explain why offspring are not identical to but share some characteristics with both parents. In addition, we will look the Darwin's theory of evolution, natural selection, factors that affect extinction and the importance of biodiversity.

Physics: Energy

We will examine the differences between energy and temperature and consider the processes of thermal energy transfer by conduction, convection and radiation and the factors that affect each process. Linking to energy transfers we will define work as energy transferred when a force moves an object and look at simple machines like levers and pulleys which can make work easier by reducing the force needed.

Physics: Waves

In our final topic of Key Stage 3 we will study the transfer of energy through waves, the key characteristics of transverse and longitudinal types and how their properties relate to the amount of energy transferred. We will also look at the features and properties of the electromagnetic radiation, recognising that visible light is just one section of this spectrum.

Post Easter GCSE Preparation

Chemistry

Within the first module of GCSE chemistry, you will study the foundations on which all your GCSE chemistry is built. You will investigate the structure of the atom, looking at which particles make up an atom and how they are arranged. You will also look at how the structure of the atom is linked to its position on the periodic table and how the current model of the atom has developed over time with the evidence to support what we now use.

Post Easter GCSE Preparation

Biology

Cells are the basic unit of all forms of life. In this initial section we explore how structural differences between types of cells enables them to perform specific functions within the organism. These differences in cells are controlled by genes in the nucleus. For an organism to grow, cells must divide by mitosis producing two new identical cells. If cells are isolated at an early stage of growth before they have become too specialised, they can retain their ability to grow into a range of different types of cells. This phenomenon has led to the development of the new branch of medicine known as stem cell technology.

Post Easter GCSE Preparation

We will discuss the 8 energy stores, pathways and the principle of the conservation of energy. We will then consider how to calculate the efficiency of a system or device and the idea of energy dissipation to explain why devices are never 100% efficient and how efficiency can be improved. The course then moves onto the application of essential GCSE energy formulae, techniques for rearranging, prefixes and standard units for measurements.

