

Year 11

Autumn term

Ecosystems and material cycles are explored in Biology and students will learn how living organisms may form populations of single species, communities of many species and ecosystems, interacting with each other, with the environment, and with humans in many different ways, as well as being able to explain and appreciate how the chemicals in an ecosystem are constantly cycling through the natural world. This topic will build on student knowledge of food chains and webs from KS3 and students will have the chance to carry out sampling methods within the school grounds to understand how scientists use techniques to estimate population sizes and measure the distribution of organisms so they can gauge the impact of human activity on our environment.

Biology then changes to focus largely on humans and how hormones control homeostatic mechanisms and fertility. Our body's internal and external environment is in a constant state of flux to ensure we feel 'normal'. Students will learn about how changes within our body help us survive an ever-changing environment. Students will build on their basic KS3 knowledge of the menstrual cycle and start to explain how hormones and negative feedback are involved in controlling human fertility. They will also explore the role of hormones in regulating blood glucose levels and metabolic rate as well as examining the effects of adrenaline on a variety of body systems.

In physics the topic of electrical circuits is introduced and students build on their KS3 knowledge of current, voltage and series and parallel circuits. Knowledge will now extend to include charge and resistance and students will gain an appreciation of the electrical safety features in their homes including the wiring of a three-pin plug. This learning is then extended further when the topics of magnetism, the motor effect and electromagnetic induction are introduced as physical processes that have hugely impacted our modern lifestyle by enabling us to control electricity. In addition to describing magnetic fields and effects, students will learn how a current is induced in a wire and then how this phenomena is used to produce electricity on a large scale in power stations.

Notes for 2021-22

The biology topic on hormones and homeostasis was covered in Year 10 so this gained time will be used to carry out some of the core practicals that were not able to take place last year. The planned practicals relate to the acids and bases topic primarily but the osmosis and Newton's second law activities will also be revisited.

Spring term

The final topic is exchange and transport in animals and builds on KS3 knowledge and understanding of the digestive and respiratory systems and also revisits the core biological ideas of diffusion and adaptations of animal cells. Students will gain an appreciation for the highly adapted tissues and organs within these systems and be able to explain how they enable living processes to be performed efficiently.

Physics finishes by exploring the particle model in more detail and considering how forces affect matter. The concepts of density, specific heat capacity and specific latent heat are investigated

through practical work as are the ways in which forces affect elastic substances and the energy transfers involved in stretching.

The final chemistry topics of the course are concerned with fuels and the atmosphere. Both topics have been met previously in KS3 but students will now be able to appreciate how there are many types of hydrocarbon fuels and evaluate which are most suitable for different purposes. The evolution of the Earth's atmosphere is also discussed as are the implications of our fossil fuel use on the future of our planet.

Notes for 2021-22

This term contains the same teaching as usual, although there may be time towards the end of the term to revisit some of the chemistry core practicals from earlier in the course.

Summer Term

GCSE Exam Preparation