

**Spring 2**

Biology- Non-communicable diseases; Photosynthesis

Chemistry-Chemical changes;

Physics- Electricity in the home; Molecules & Matter

**Spring 1:**

Biology- Organ systems; Communicable diseases

Chemistry- Chemical calculations;

Physics-Electric circuits;

Year 11:

Completion of content by Spring 2. Embed exam technique.

Topic overview

In Biology, students distinguish between different types of disease and learn about immunity, vaccination and the discovery of drugs. They investigate and then describe photosynthesis in terms of equations. In Chemistry, students develop their understanding of the reactivity series and prepare salts from a range of metal compounds.

In Physics, students investigate concepts linked to internal energy and latent heat of substances.

Topic overview

In Biology, students learn about other organ systems. They describe pathogens that cause disease, and link symptoms, hygiene & treatments. In Chemistry, students apply knowledge of relative atomic & formula masses and moles to concentrations. In Physics, students investigate electric circuits. They determine resistence.

Topic overview

In Biology students learn about microscopy, cells and the cell cycle. In Chemistry, students develop their understanding of atoms as fundamental chemical building blocks and learn about the development of the periodic table. In Physics, students develop their understanding of energy and energy transfer.

KS4 GCSE

Combined

Science

**2-year curriculum map**

Topic overview

Students complete revision for the Paper 1 Mock examinations in December and Paper 2 Mock examinations in March. Following feedback and analysis, students tailor their revision to maximise their progress.

Topic overview

Intervention sessions to cover topics included on: Biology Paper 1, Biology Paper 2, Chemistry Paper 1, Chemistry Paper 2, Physics Paper 1, Physics Paper 2. Revision sessions to focus on all of the required practicals.

**Spring 1**

Biology- Adaptations, Interdependence & competition

Chemistry- Earth’s atmosphere; Earth’s resources

Physics-Electromagnetism

**Summer 2**

Biology- Nervous system

Chemistry-Rates & equilibrium

Physics-Motion

Topic overview

 In Biology, students learn about feeding relationships and materials cycling within an ecosystem. They outline factors that affect biodiversity and become familiar with biotechnological methods of food production.

Topic overview

In Biology, students measure the distribution of organisms and learn about the effects of biotic and abiotic factors on populations and understand the importance of communities. In Chemistry, students describe the history of the Earth’s atmosphere & consider Earth’s resources that are used. They apply knowledge of finite and renewable resources to reusing and recycling materials. In Physics, students reinforce their understanding of magnets and investigate magnetic fields.

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Topic overview

In Biology, students learn about natural selection & genetic engineering and how this is linked to evolution. They compare theories of evolution.

In Chemistry, students complete and describe chemical analyses of substances.

In Physics, students learn about mechanical and electromagnetic waves, measure waves and describe uses of the electromagnetic waves.

Topic overview

In Biology, learn about the endocrine system and explain the role of some hormones. Students study the role of DNA in inheritance and compare types of reproduction.

In Chemistry, students study hydrocarbons and their uses. In Physics, students formulate Newton’s 2nd Law of Motion, compare mass and weight and investigate momentum.

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Topic overview

In Biology, students learn about homeostasis and the structure & function of the nervous system. In Chemistry, students learn about factors that affect reaction rate and apply collision theory to explain observations. They use Le Chatelier’s principle. In Physics, students use equations and graphs to describe and investigate motion.

Topic overview

In Biology, students investigate and then describe respiration in terms of equations. In Chemistry, students learn about students learn about electrolysis and apply their understanding to the extraction of aluminium. They investigate energy transfers that occur during chemical reactions. In Physics, students learn about alpha, beta and gamma radiation and the development of the atomic model. They compare Newton’s Laws & use vectors, scalars the concept of balanced and unbalanced forces to determine the behaviour of objects.

Topic overview

In Biology, students learn about the principles of organisation within animals, from cell to organisms and develop their understanding of the digestive system. In Chemistry, students learn about bonding within substances. In Physics, students investigate thermal conductivity and specific heat capacity and examine different energy resources.

**Autumn 2**

Biology-Cell division; Organisation & digestive system;

Chemistry-Structure & bonding

Physics-Energy transfer by heating; Energy resources

**Autumn 1**

Biology-Cells

Chemistry-Atomic Structure; Periodic Table. Physics-Energy Conservation & Dissipation

**Summer 1**

Biology- Respiration

Chemistry-Electrolysis; Energy changes;

Physics-Radioactivity; Forces in balance