



Intent

The year 7 curriculum has been designed to initially bridge the gap between being a primary school Scientist and becoming a secondary school Scientist. The topics taught cover equal amounts of Biology, Chemistry and Physics and are designed as a continuation from KS2. The idea is to build knowledge, begin to develop practical skills and equipment identification and introduce new concepts with an element of challenge.

Year 7 Science

Term 1 September to December

Bridging the Gap
7B1: Cells and Reproduction
7C1: Particle Theory
7P1: Energy

Term 2 January to Easter

7B2: Transport and exchange in animals
7C2: Elements and Compounds
7P2: Waves

Term 3 April to July

7B3: Ecology
7C3: The Periodic Table
7P3: Electricity

Knowledge

(facts, information, concepts and key terminology)

Cell structure, human reproduction, particle theory, separating mixtures techniques, types of energy and how they are transferred.

Circulatory and respiratory systems, elements, compounds and chemical reactions, light and sound as waves.

Interdependence between organisms, the organisation of the periodic table and patterns within it and comparing circuits in terms of design, current and voltage.

Understanding

(ability to connect and synthesise knowledge within a context)

Link the structure of a basic animal cell to the structure, function and adaptations of sperm and egg cells. Link particle theory and changes of state to methods of how to separate mixtures. Link forms of energy to how energy is transferred.

Link cells as basic building blocks to the structure and function of tissues, organs and organ systems. Link Particle theory to the definitions and behaviour of elements and compounds. Link the transfer of energy to the behaviour of waves using light and sound as examples.

Link adaptations of organisms to their habitat. Use the periodic table to find information about elements and make predictions about reactions. Understand that series and parallel circuits behave in different ways.

Skills

(successful application of knowledge and understanding to a specific task)

Identify and use suitable science equipment to carry out investigations, collect and process data. This includes; microscopes, Bunsen burners, filtration, crystallisation, distillation and chromatography. Some application of mathematical skills in energy related calculations also required.

Identify and use suitable science equipment to carry out investigations, collect and process data. This includes; investigating diffusion, investigating rusting and testing the behaviour of light in terms of reflection and refraction.

Identify and use suitable science equipment to carry out investigations, collect and process data. This includes the ability to build circuits, sample habitats using different techniques and carry out chemical reactions to test patterns.

Formal Assessments

(those done by all/vast majority of the cohort)

Progress questions and exam style practice in each unit.
 End of term assessment in December.

Progress questions and exam style practice in each unit.
 End of term assessment in March/April.

Progress questions and exam style practice in each unit.
 End of year assessment in June.

By the end of the year students on course for at least a grade 5 will...

- Be able to label the parts of a cell and identify the role of each part, as well as specialised cells and how these form tissues, organs and body systems.
- Understand how organisms interact in their habitats and the interdependence of all organisms.
- Recognise and use basic lab equipment safely (and some specialised) and identify pieces of equipment for specific tasks.
- Be able to recognise patterns in data and use these to form Scientific conclusions, as well as apply some mathematical analysis.
- Be able to describe particle theory of solids, liquids and gases, including change of state and link this to chemical reactions.
- Be able to describe how to separate a variety of mixtures.
- Be able to identify forms of energy and describe how energy is transferred, including sound and light waves, and electrical circuits.
- Be able to define atom, element, compound and molecule and utilise the periodic table to find information about elements.