



YEAR 9 LEARNING JOURNEY INFORMATION

SCIENCE

Respiration Climate Plan a practical



Autumn term 1

Knowledge: I will learn how aerobic and anaerobic respiration release energy in living organisms and understand the difference between breathing and respiration. I will explore the carbon cycle, global warming and climate change, including the impact of human activities on the environment. Students also study the water cycle and learn how potable water is produced and wastewater is treated.

Skills: I will develop practical skills in collecting, presenting and analysing scientific data and learn to use tables.

Photosynthesis Earth's resources Radiation



Autumn term 2

Knowledge: I will learn how plants make food using light energy and why photosynthesis is important for life on Earth. I will learn about renewable and non-renewable resources and why sustainable use of resources is important. I will learn how energy is transferred by radiation, everyday uses of this and risks of radiation.

Skills: I will identify variables from photosynthesis investigation.

Biology Foundations



Spring term 1

Knowledge: I will learn that cells are the basic units of life and that different cell structures enable them to carry out specific functions. I will understand how genes in the nucleus control cell characteristics and how mitosis produces new identical cells for growth. I will also learn about stem cells, their ability to develop into different cell types, and their use in repairing damaged tissues and organs.

Skills: I will be able to identify and compare different cell types, explain mitosis, and evaluate the uses of stem cells in medicine.

Chemistry foundations



Spring term 2

Knowledge: I will learn that the periodic table organises all known elements and helps scientists understand their physical and chemical properties. I will explore how the periodic table developed over time as new scientific evidence became available. I will understand how the arrangement of elements in the modern periodic table is linked to atomic structure. I will learn how the arrangement of electrons in energy levels explains the properties of elements.

Skills: I will be able to interpret the periodic table, explain trends using atomic structure, and evaluate how scientific models have developed through evidence.

Physics foundations



Summer term 2

Knowledge: I will learn how the concept of energy was developed and how it helps explain physical, chemical and biological processes. I will understand how energy is transferred and stored in different systems. I will explore the use of fossil fuels, their environmental impact, and the need for sustainable energy solutions to address global warming.

Skills: I will be able to describe energy transfers, analyse the impact of different energy resources, and evaluate solutions to reduce energy use and environmental impacts.

Waves and magnets



Summer term 2

Knowledge: I will learn that waves transfer energy and information and are found in many natural and technological systems. I will understand the properties and applications of mechanical waves and electromagnetic waves, including their use in communication and imaging technologies. I will also learn how electricity and magnetism interact and how these principles are used in devices such as motors and generators.

Skills: I will be able to describe wave behaviour, explain electromagnetic effects, and apply their understanding to real-world technologies and engineering systems.