

SCIENCE

YEAR 10

Biological Systems and Ecosystems

This unit explores the intricate workings of multicellular organisms and their environments. Students investigate how body systems coordinate to respond to external changes, examining the interdependence of respiratory, circulatory, digestive, nervous, and excretory systems. The unit then expands to ecosystems, studying the flow of energy and matter through food webs, and the complex interactions between organisms. Students analyse factors affecting population sizes and explore how ecosystems respond to events like bushfires and flooding.

Atomic Structure and Chemical Reactions

Students delve into the microscopic world of atoms, examining their structure and the phenomenon of natural radioactivity. They explore how atoms rearrange in chemical reactions, with a focus on conservation of mass. The unit covers important reactions including combustion and acid-base interactions, emphasizing energy transfer in both living and non-living systems. Students investigate exothermic and endothermic reactions, and compare processes like respiration and photosynthesis.

Earth's Dynamics: Plate Tectonics

This unit unravels the theory of plate tectonics and its role in shaping our planet. Students study the major tectonic plates, model sea-floor spreading, and relate plate movements to earthquakes and volcanic activity. They explore the transfer of heat energy within the Earth and its influence on plate movement. The unit also examines Australia's unique geological history in the context of plate tectonics.

Energy Transfer and Wave Theory

Students investigate energy transfer through various mediums using wave and particle models. They explore heat transfer via convection, conduction, and radiation, and examine factors affecting energy transfer in electric circuits. The unit covers the properties of waves, including sound and light, and their role in energy transfer. Students also consider practical applications, such as the use of electromagnetic radiation in communication technologies and medicine.

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Science Extension

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Skills

Students will gain the required skills to succeed in a senior science (Biology, Chemistry, Physics, Psychology)