

Year 8 Syllabus

Year Level Description

The science inquiry skills and science as a human endeavour strands are described across a two-year band. In their planning, schools and teachers refer to the expectations outlined in the achievement standard and also to the content of the science understanding strand for the relevant year level to ensure that these two strands are addressed over the two-year period. The three strands of the curriculum are interrelated and their content is taught in an integrated way. The order and detail in which the content descriptions are organised into teaching and learning programs are decisions to be made by the teacher.

Incorporating the key ideas of science

Over Years 7 to 10, students develop their understanding of microscopic and atomic structures; how systems at a range of scales are shaped by flows of energy and matter and interactions due to forces, and develop the ability to quantify changes and relative amounts.

In Year 8, students are introduced to cells as microscopic structures that explain macroscopic properties of living systems. They link form and function at a cellular level and explore the organisation of body systems in terms of flows of matter between interdependent organs. Similarly, they explore changes in matter at a particle level, and distinguish between chemical and physical change. They begin to classify different forms of energy, and describe the role of energy in causing change in systems, including the role of heat and kinetic energy in the rock cycle. Students use experimentation to isolate relationships between components in systems and explain these relationships through increasingly complex representations. They make predictions and propose explanations, drawing on evidence to support their views while considering other points of view.

Science Understanding

BIOLOGICAL SCIENCES

Cells are the basic units of living things; they have specialised structures and functions ([ACSSU149](#))

Multi-cellular organisms contain systems of organs carrying out specialised functions that enable them to survive and reproduce ([ACSSU150](#))

CHEMICAL SCIENCES

Properties of the different states of matter can be explained in terms of the motion and arrangement of particles ([ACSSU151](#))

Differences between elements, compounds and mixtures can be

Science as a Human Endeavour

NATURE AND DEVELOPMENT OF SCIENCE

Scientific knowledge has changed peoples' understanding of the world and is refined as new evidence becomes available ([ACSHE134](#))

Science knowledge can develop through collaboration across the disciplines of science and the contributions of people from a range of cultures ([ACSHE226](#))

USE AND INFLUENCE OF SCIENCE


Solutions to contemporary issues that are found using science and

Science Inquiry Skills

QUESTIONING AND PREDICTING

Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge ([ACSIS139](#))

 Literacy

 Critical and creative thinking

PLANNING AND CONDUCTING

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed ([ACSIS140](#))

 Literacy

described at a particle level ([ACSSU152](#))

Chemical change involves substances reacting to form new substances ([ACSSU225](#))

EARTH AND SPACE SCIENCES

Sedimentary, igneous and metamorphic rocks contain minerals and are formed by processes that occur within Earth over a variety of timescales ([ACSSU153](#))

PHYSICAL SCIENCES


Energy appears in different forms, including movement (kinetic energy), heat and potential energy, and energy transformations and transfers cause change within systems ([ACSSU155](#))


technology, may impact on other areas of society and may involve ethical considerations ([ACSHE135](#))

 Ethical understanding

People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity ([ACSHE136](#))

 Ethical understanding

 Critical and creative thinking

 Personal and social capability

 Ethical understanding

Measure and control variables, select equipment appropriate to the task and collect data with accuracy ([ACSIS141](#))


 Numeracy


PROCESSING AND ANALYSING DATA AND INFORMATION

Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships in data using digital technologies as appropriate ([ACSIS144](#))

 Literacy

 Numeracy


 Information and
Communication
Technology (ICT)
capability

 Critical and creative
thinking

Summarise data, from
students' own
investigations and
secondary sources,
and use scientific
understanding to
identify relationships
and draw conclusions
based on evidence
[\(AC SIS145\)](#)

 Literacy

 Numeracy

 Critical and creative
thinking


EVALUATING

Reflect on scientific
investigations
including evaluating
the quality of the data
collected, and

identifying
improvements
[\(AC SIS146\)](#)


 Literacy

 Numeracy

 Critical and creative
thinking

Use scientific
knowledge and
findings from
investigations to
evaluate claims based
on evidence
[\(AC SIS234\)](#)

 Literacy

 Critical and creative
thinking

COMMUNICATING

Communicate ideas,
findings and evidence
based solutions to
problems using
scientific language,
and representations,
using digital
technologies as
appropriate

[\(AC SIS148\)](#)

☰ Literacy

✎ Information and

Communication

Technology (ICT)

capability

Year 8 Achievement Standard

Science Understanding

At Standard, students compare physical and chemical changes and use the particle model to explain and predict the properties and behaviours of the states of matter. They identify different forms of energy and describe how energy transfers and transformations cause change in simple systems. Students compare the different processes of rock formation. They describe the relationship between structure and function at cell, organ and body system levels.

Science as a Human Endeavour

Students explain how evidence has led to an improved understanding of a scientific idea and where science knowledge is used in various occupations.

Science Inquiry Skills

Students construct questions that they can investigate scientifically. They consider safety and ethics when planning investigations, including designing field or experimental methods. Students identify variables to be changed, measured and controlled. They construct representations of their

data to identify and analyse patterns and trends, and use these when justifying their conclusions. Students explain how modifications to methods could improve the quality of their data. They apply their scientific knowledge to evaluate claims made by others. Students use appropriate language and representations to communicate science ideas, methods and findings.

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