Science

Pre-primary Year Syllabus

The science content includes the three strands of *Science Understanding, Science Inquiry Skills* and *Science as a Human Endeavour*. 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/learning programs are decisions to be made by the teacher.

Read full description ›

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<td>Science involves exploring and observing the world using the senses (ACSHE013)</td>
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<td>Engage in discussions about observations and use methods such as drawing to represent ideas (ACSIS233)</td>
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### EARTH AND SPACE SCIENCES

Daily and seasonal changes in our environment, including the weather, affect everyday life *(ACSSU004)*

- **Literacy**
- **Critical and creative thinking**

### PHYSICAL SCIENCES

The way objects move depends on a variety of factors, including their size and shape *(ACSSU005)*

- **Literacy**
- **Numeracy**
- **Critical and creative thinking**

### Science Achievement Standard

By the end of the Pre-primary year, students describe the properties and behaviour of familiar objects. They suggest how the environment affects them and other living things.

Students share observations of familiar objects and events.

**Judging Standards**

### Year 1 Syllabus

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/learning programs are decisions to be made by the teacher.

**Read full description ›**
### Science Understanding

#### BIOLOGICAL SCIENCES

Living things have a variety of external features ([ACSSU017](#)).
- **Literacy**
- **Critical and creative thinking**

Living things live in different places where their needs are met ([ACSSU211](#)).
- **Literacy**
- **Critical and creative thinking**

#### CHEMICAL SCIENCES

Everyday materials can be physically changed in a variety of ways ([ACSSU018](#)).
- **Literacy**
- **Critical and creative thinking**

#### EARTH AND SPACE SCIENCES

Observable changes occur in the sky and landscape ([ACSSU019](#)).
- **Literacy**
- **Critical and creative thinking**

#### PHYSICAL SCIENCES

Light and sound are produced by a range of sources and can be sensed ([ACSSU020](#)).
- **Literacy**
- **Critical and creative thinking**

### Science as a Human Endeavour

#### NATURE AND DEVELOPMENT OF SCIENCE

Science involves asking questions about, and describing changes in, objects and events ([ACSHE021](#)).
- **Literacy**
- **Critical and creative thinking**

#### USE AND INFLUENCE OF SCIENCE

People use science in their daily lives, including when caring for their environment and living things ([ACSHE022](#)).
- **Literacy**
- **Critical and creative thinking**
- **Personal and social capability**

### Science Inquiry Skills

#### QUESTIONING AND PREDICTING

Respond to and pose questions, and make predictions about familiar objects and events ([ACSIS024](#)).
- **Critical and creative thinking**
- **Personal and social capability**

#### PLANNING AND CONDUCTING

Participate in different types of guided investigations to explore and answer questions, such as manipulating materials, testing ideas, and accessing information sources ([ACSIS025](#)).
- **Critical and creative thinking**
- **Personal and social capability**

Use informal measurements in the collection and recording of observations, with the assistance of digital technologies as appropriate ([ACSIS026](#)).
- **Numeracy**
- **Critical and creative thinking**

#### PROCESSING AND ANALYSING DATA AND INFORMATION

Use a range of methods to sort information, including drawings and provided tables ([ACSIS027](#)).

Through discussion, compare observations with predictions ([ACSIS212](#)).

#### EVALUATING
Compare observations with those of others (ACSIS213)

COMMUNICATING

Represent and communicate observations and ideas in a variety of ways such as oral and written language, drawing and role play (ACSIS029)

Science Achievement Standard

By the end of Year 1, students describe objects and events that they encounter in their everyday lives, and the effects of interacting with materials and objects. They identify a range of habitats. They describe changes to things in their local environment and suggest how science helps people care for environments.

Students make predictions, and investigate everyday phenomena. They follow instructions to record and sort their observations and share their observations with others.

Judging Standards

Year 2 Syllabus

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 Standards 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/learning programs are decisions to be made by the teacher.

Read full description ›
offspring similar to themselves

Science involves asking questions about, and describing changes in, objects and events (ACSHE034)

USE AND INFLUENCE OF SCIENCE

People use science in their daily lives, including when caring for their environment and living things (ACSHE035)

EARTH AND SPACE SCIENCES

Earth’s resources, including water, are used in a variety of ways (ACSSU032)

PHYSICAL SCIENCES

A push or a pull affects how an object moves or changes shape (ACSSU033)

make predictions about familiar objects and events (ACSIS037)

PLANNING AND CONDUCTING

Participate in different types of guided investigations to explore and answer questions, such as manipulating materials, testing ideas, and accessing information sources (ACSIS038)

Use informal measurements in the collection and recording of observations, with the assistance of digital technologies as appropriate (ACSIS039)

PROCESSING AND ANALYSING DATA AND INFORMATION

Use a range of methods to sort information, including drawings and provided tables (ACSIS040)

Through discussion, compare observations with predictions (ACSIS214)

EVALUATING

Compare observations with those of others (ACSIS041)

COMMUNICATING
Science Achievement Standard

By the end of Year 2, students describe changes to objects, materials and living things. They identify that certain materials and resources have different uses and describe examples of where science is used in people’s daily lives.

Students pose questions about their experiences and predict outcomes of investigations. They use informal measurements to make and compare observations. They follow instructions to record and represent their observations and communicate their ideas to others.

Judging Standards

Year 3 Syllabus

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/learning programs are decisions to be made by the teacher.

Read full description ›

Science Understanding

BILOGICAL SCIENCES

Living things can be grouped on the basis of observable features and can be distinguished from non-living things (ACSSU044)

Science as a Human Endeavour

NATURE AND DEVELOPMENT OF SCIENCE

Science involves making predictions and describing patterns and relationships (ACSHE050)

USE AND INFLUENCE OF SCIENCE

Science Inquiry Skills

QUESTIONING AND PREDICTING

With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (ACSIS053)
Science knowledge helps people to understand the effect of their actions (ACSHE051)

**PLANNING AND CONDUCTING**

Suggest ways to plan and conduct investigations to find answers to questions (ACSIS054)

Safely use appropriate materials, tools or equipment to make and record observations, using formal measurements and digital technologies as appropriate (ACSIS055)

**PROCESSING AND ANALYSING DATA AND INFORMATION**

Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends (ACSIS057)

Compare results with predictions, suggesting possible reasons for findings (ACSIS215)

**EVALUATING**

Reflect on the investigation, including whether a test was fair or not (ACSIS058)

**COMMUNICATING**

Represent and communicate ideas and findings in a variety of ways such as diagrams, physical representations and simple reports (ACSIS060)

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Science Achievement Standard
By the end of Year 3, students use their understanding of the movement of the Earth, materials and the behaviour of heat to suggest explanations for everyday observations. They describe features common to living things. They describe how they can use science investigations to respond to questions and identify where people use science knowledge in their lives.

Students use their experiences to pose questions and predict the outcomes of investigations. They make formal measurements and follow procedures to collect and present observations in a way that helps to answer the investigation questions. Students suggest possible reasons for their findings. They describe how safety and fairness were considered in their investigations. They use diagrams and other representations to communicate their ideas.

Judging Standards

Year 4 Syllabus

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/learning programs are decisions to be made by the teacher.

Read full description »

Science Understanding

BIOLOGICAL SCIENCES

Living things have life cycles

(ACSSU072)

- Literacy
- Critical and creative thinking

Living things, including plants and animals, depend on each other and the environment to survive

(ACSSU073)

- Literacy
- Critical and creative thinking

Science as a Human Endeavour

NATURE AND DEVELOPMENT OF SCIENCE

Science involves making predictions and describing patterns and relationships (ACSHE061)

USE AND INFLUENCE OF SCIENCE

Science knowledge helps people to understand the effect of their actions (ACSHE062)

Science Inquiry Skills

QUESTIONING AND PREDICTING

With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (ACSIS064)

PLANNING AND CONDUCTING

Suggest ways to plan and conduct investigations to find answers to questions (ACSIS065)

Personal and social capability

Safely use appropriate materials, tools or equipment to make and...
CHEMICAL SCIENCES

Natural and processed materials have a range of physical properties; these properties can influence their use (ACSSU074)

- Literacy
- Critical and creative thinking

EARTH AND SPACE SCIENCES

Earth’s surface changes over time as a result of natural processes and human activity (ACSSU075)

- Literacy
- Critical and creative thinking

PHYSICAL SCIENCES

Forces can be exerted by one object on another through direct contact or from a distance (ACSSU076)

- Literacy
- Critical and creative thinking

Science Achievement Standard

By the end of Year 4, students apply the observable properties of materials to explain how objects and materials can be used. They use contact and non-contact forces to describe interactions between objects. They discuss how natural and human processes cause changes to the Earth’s surface. They describe relationships that assist the survival of living things and sequence key stages in the life cycle of a plant or animal. They identify when science is used to ask questions and make predictions. They describe situations where science understanding can influence their own and others’ actions.

Students follow instructions to identify investigable questions about familiar contexts and predict likely outcomes from record observations, using formal measurements and digital technologies as appropriate (ACSIS066)

PROCESSING AND ANALYSING DATA AND INFORMATION

Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends (ACSIS068)

Compare results with predictions, suggesting possible reasons for findings (ACSIS216)

EVALUATING

Reflect on the investigation; including whether a test was fair or not (ACSIS069)

COMMUNICATING

Represent and communicate ideas and findings in a variety of ways such as diagrams, physical representations and simple reports (ACSIS071)
investigations. They discuss ways to conduct investigations and safely use equipment to make and record observations. They use provided tables and simple column graphs to organise their data and identify patterns in data. Students suggest explanations for observations and compare their findings with their predictions. They suggest reasons why their methods were fair or not. They complete simple reports to communicate their methods and findings.

Judging Standards

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**Year 5 Syllabus**

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/learning programs are decisions to be made by the teacher.

Read full description »

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**Science Understanding**

**BIOLOGICAL SCIENCES**

Living things have structural features and adaptations that help them to survive in their environment *(ACSSU043)*

- Literacy
- Critical and creative thinking

**CHEMICAL SCIENCES**

Solids, liquids and gases have different observable properties and behave in different ways *(ACSSU077)*

- Literacy
- Critical and creative thinking

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**Science as a Human Endeavour**

**NATURE AND DEVELOPMENT OF SCIENCE**

Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena *(ACSHE081)*

- Literacy
- Critical and creative thinking

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**Science Inquiry Skills**

**QUESTIONING AND PREDICTING**

With guidance, pose questions to clarify practical problems or inform a scientific investigation, and predict what the findings of an investigation might be *(ACSIS231)*

**PLANNING AND CONDUCTING**

With guidance, plan appropriate investigation methods to answer questions or solve problems *(ACSIS086)*

Decide which variable should be changed and measured in fair tests and accurately observe, measure and record data, using digital investigations.
EARTH AND SPACE SCIENCES

The Earth is part of a system of planets orbiting around a star (the sun) (ACSSU078)

- Literacy
- Critical and creative thinking

PHYSICAL SCIENCES

Light from a source forms shadows and can be absorbed, reflected and refracted (ACSSU080)

- Literacy
- Numeracy
- Critical and creative thinking

USE AND INFLUENCE OF SCIENCE

Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives (ACSHE083)

Scientific knowledge is used to inform personal and community decisions (ACSHE217)

- Critical and creative thinking
- Personal and social capability

PROCESSING AND ANALYSING DATA AND INFORMATION

Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data using digital technologies as appropriate (ACSIS090)

- Critical and creative thinking
- Information and Communication Technology (ICT) capability

Compare data with predictions and use as evidence in developing explanations (ACSIS218)

EVALUATING

Suggest improvements to the methods used to investigate a question or solve a problem (ACSIS091)

COMMUNICATING

Communicate ideas, explanations and processes in a variety of ways, including multi-modal texts (ACSIS093)
Science Achievement Standard

By the end of Year 5, students classify substances according to their observable properties and behaviours. They explain everyday phenomena associated with the transfer of light. They describe the key features of our solar system. They analyse how the form of living things enables them to function in their environments. Students discuss how scientific developments have affected people's lives and how science knowledge develops from many people's contributions.

Students follow instructions to pose questions for investigation, predict what might happen when variables are changed, and plan investigation methods. They use equipment in ways that are safe and improve the accuracy of their observations. Students construct tables and graphs to organise data and identify patterns. They use patterns in their data to suggest explanations and refer to data when they report findings. They describe ways to improve the fairness of their methods and communicate their ideas, methods and findings using a range of text types.

Judging Standards

Year 6 Syllabus

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/learning programs are decisions to be made by the teacher.

Read full description »

Science Understanding

**BIOLOGICAL SCIENCES**

The growth and survival of living things are affected by the physical conditions of their environment

(ACSSU094)

- Literacy
- Critical and creative thinking

**CHEMICAL SCIENCES**

Science as a Human Endeavour

**NATURE AND DEVELOPMENT OF SCIENCE**

Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena

(ACSHE098)

- Literacy
- Critical and creative thinking

Science Inquiry Skills

**QUESTIONING AND PREDICTING**

With guidance, pose questions to clarify practical problems or inform a scientific investigation, and predict what the findings of an investigation might be

(ACSIS232)

**PLANNING AND CONDUCTING**

With guidance, plan appropriate
Changes to materials can be reversible, such as melting, freezing, evaporating; or irreversible, such as burning and rusting (ACSSU095)

EARTH AND SPACE SCIENCES

Sudden geological changes or extreme weather conditions can affect Earth’s surface (ACSSU096)

PHYSICAL SCIENCES

Electrical circuits provide a means of transferring and transforming electricity (ACSSU097)

Energy from a variety of sources can be used to generate electricity (ACSSU219)

Important contributions to the advancement of science have been made by people from a range of cultures (ACSHE099)

USE AND INFLUENCE OF SCIENCE

Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples’ lives (ACSHE100)

Scientific knowledge is used to inform personal and community decisions (ACSHE220)

Energy from a variety of sources can be used to generate electricity (ACSSU219)

Decide which variable should be changed and measured in fair tests and accurately observe, measure and record data, using digital technologies as appropriate (ACSI104)

Use equipment and materials safely, identifying potential risks (ACSI105)

PROCESSING AND ANALYSING DATA AND INFORMATION

Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data using digital technologies as appropriate (ACSI107)

Compare data with predictions and use as evidence in developing explanations (ACSI221)

EVALUATING

Suggest improvements to the methods used to investigate a question or solve a problem (ACSI108)
COMMUNICATING

Communicate ideas, explanations and processes in a variety of ways, including multi-modal texts

(ACSIS110)

Science Achievement Standard

By the end of Year 6, students compare and classify different types of observable changes to materials. They analyse requirements for the transfer of electricity and describe how energy can be transformed from one form to another to generate electricity. They explain how natural events cause rapid change to the Earth’s surface. They describe and predict the effect of environmental changes on individual living things. Students explain how scientific knowledge is used in decision making and identify contributions to the development of science by people from a range of cultures.

Students follow procedures to develop investigable questions and design investigations into simple cause-and-effect relationships. They identify variables to be changed and measured and describe potential safety risks when planning methods. They collect, organise and interpret their data, identifying where improvements to their methods or research could improve the data. They describe and analyse relationships in data using graphic representations and construct multi-modal texts to communicate ideas, methods and findings.

Judging Standards

Year 7 Syllabus

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 Standards 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/learning programs are decisions to be made by the teacher.

Read full description »
There are differences within and between groups of organisms; classification helps organise this diversity (ACSSU111)

Literacy

Critical and creative thinking

Interactions between organisms can be described in terms of food chains and food webs; human activity can affect these interactions (ACSSU112)

Literacy

Critical and creative thinking

CHEMICAL SCIENCES

Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques (ACSSU113)

Literacy

Critical and creative thinking

EARTH AND SPACE SCIENCES

Predictable phenomena on Earth, including seasons and eclipses, are caused by the relative positions of the sun, Earth and the moon (ACSSU115)

Literacy

Critical and creative thinking

NATURE AND DEVELOPMENT OF SCIENCE

Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people’s understanding of the world (ACSHE119)

Literacy

Critical and creative thinking

USE AND INFLUENCE OF SCIENCE

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations (ACSHE120)

Literacy

Critical and creative thinking

Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge (ACSIS124)

Literacy

Critical and creative thinking

Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge (ACSIS124)

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 (ACSIS125)

Literacy

Critical and creative thinking

INQUIRY AND THINKING

In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task (ACSIS126)

Literacy

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, including using digital technologies as appropriate (ACSIS129)

Literacy

Critical and creative thinking

Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge (ACSIS124)

Ethical understanding

Science understanding influences the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management (ACSHE121)

Literacy

Critical and creative thinking

Ethical understanding

Science understanding influences the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management (ACSHE121)
renewable (ACSSU116)

Water is an important resource that cycles through the environment (ACSSU222)

PHYSICAL SCIENCES

Change to an object’s motion is caused by unbalanced forces acting on the object (ACSSU117)

Earth’s gravity pulls objects towards the centre of the Earth (ACSSU118)

People use understanding and skills from across the disciplines of science in their occupations (ACSHE224)

Summarise data, from students’ own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions (ACSIS130)

EVALUATING

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method (ACSIS131)

Use scientific knowledge and findings from investigations to evaluate claims (ACSIS132)

COMMUNICATING

Communicate ideas, findings and solutions to problems using scientific
Science Achievement Standard

By the end of Year 7, students describe techniques to separate pure substances from mixtures. They represent and predict the effects of unbalanced forces, including Earth’s gravity, on motion. They explain how the relative positions of the Earth, sun and moon affect phenomena on Earth. They analyse how the sustainable use of resources depends on the way they are formed and cycle through Earth systems. They predict the effect of environmental changes on feeding relationships and classify and organise diverse organisms based on observable differences. Students describe situations where scientific knowledge from different science disciplines has been used to solve a real-world problem. They explain how the solution was viewed by, and impacted on, different groups in society.

Students identify questions that can be investigated scientifically. They plan fair experimental methods, identifying variables to be changed and measured. They select equipment that improves fairness and accuracy and describe how they considered safety. Students draw on evidence to support their conclusions. They summarise data from different sources, describe trends and refer to the quality of their data when suggesting improvements to their methods. They communicate their ideas, methods and findings using scientific language and appropriate representations.

Judging Standards

Year 8 Syllabus

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 Science as a Human Endeavour strand can provide relevant contexts in which science can be taught. The order and detail in which the content descriptions are organised into teaching/learning programs are decisions to be made by the teacher.

Read full description ›
Science Understanding

BIOLOGICAL SCIENCES

Cells are the basic units of living things and have specialised structures and functions (ACSSU149)

- Literacy
- Critical and creative thinking

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

- Literacy
- Critical and creative thinking

CHEMICAL SCIENCES

The properties of the different states of matter can be explained in terms of the motion and arrangement of particles (ACSSU151)

- Literacy
- Critical and creative thinking

Differences between elements, compounds and mixtures can be described at a particle level (ACSSU152)

- Literacy
- Critical and creative thinking

Chemical change involves substances reacting to form new substances (ACCSU153)

- Literacy
- Critical and creative thinking

Science as a Human Endeavour

NATURE AND DEVELOPMENT OF SCIENCE

Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people’s understanding of the world (ACSHE134)

- Literacy
- Critical and creative thinking

USE AND INFLUENCE OF SCIENCE

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations (ACSHE135)

- Literacy
- Critical and creative thinking
- Ethical understanding

Science Inquiry Skills

QUESTING 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
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task (ACSIS141)

- Literacy
- 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, including using digital technologies
substances (ACSSU225)

Critical and creative thinking

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)

Critical and creative thinking

People use understanding and skills from across the disciplines of science in their occupations (ACSH136)

Literacy

Critical and creative thinking

PHYSICAL SCIENCES

Energy appears in different forms including movement (kinetic energy), heat and potential energy, and causes change within systems (ACSSU155)

Literacy

Critical and creative thinking

Terrestrial resource management (ACSH227)

Literacy

Critical and creative thinking

People use understanding and skills from across the disciplines of science in their occupations (ACSH136)

Literacy

Critical and creative thinking

EVALUATING

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method (ACSI146)

Literacy

Numeracy

Critical and creative thinking

Use scientific knowledge and findings from investigations to evaluate claims (ACSI234)

Literacy

Critical and creative thinking

COMMUNICATING
Science Achievement Standard

By the end of Year 8, students compare physical and chemical changes and use the particle model to explain and predict the properties and behaviours of substances. They identify different forms of energy and describe how energy transfers and transformations cause change in simple systems. They compare processes of rock formation, including the time scales involved. They analyse the relationship between structure and function at cell, organ and body system levels. Students examine the different science knowledge used in occupations. They explain how evidence has led to an improved understanding of a scientific idea and describe situations in which scientists collaborated to generate solutions to contemporary problems.

Students identify and construct questions and problems that they can investigate scientifically. They consider safety and ethics when planning investigations, including designing field or experimental methods. They identify variables to be changed, measured and controlled. Students construct representations of their data to reveal and analyse patterns and trends, and use these when justifying their conclusions. They explain how modifications to methods could improve the quality of their data and apply their own scientific knowledge and investigation findings to evaluate claims made by others. They use appropriate language and representations to communicate science ideas, methods and findings in a range of text types.

Judging Standards

Year 9 Syllabus

The Science Inquiry Skills and the 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 Standards 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/learning programs are decisions to be made by the
Multi-cellular organisms rely on coordinated and interdependent internal systems to respond to changes to their environment (ACSSU175)

Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems (ACSSU176)

All matter is made of atoms which are composed of protons, neutrons and electrons; natural radioactivity arises from the decay of nuclei in atoms (ACSSU177)

Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or

Scientific understanding, including models and theories, are contestable and are refined over time through a process of review by the scientific community (ACSH157)

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries (ACSH158)

People can use scientific knowledge to evaluate whether they should accept claims, explanations or predictions (ACSH160)

Advances in science and emerging sciences and technologies can significantly affect people’s lives,
Chemical reactions, including combustion and the reactions of acids, are important in both non-living and living systems and involve energy transfer (ACSSU178).

The theory of plate tectonics explains global patterns of geological activity and continental movement (ACSSU180).

Energy transfer through different mediums can be explained using wave and particle models (ACSSU182).

The values and needs of contemporary society can influence the focus of scientific research (ACSHE228).

Use knowledge of scientific concepts to draw conclusions that are consistent with evidence (ACSIS170).

Critically analyse the validity of information in secondary sources and evaluate the approaches used to solve problems (ACSIS172).

Communicate scientific ideas and
Science Achievement Standard

By the end of Year 9, students explain chemical processes and natural radioactivity in terms of atoms and energy transfers and describe examples of important chemical reactions. They describe models of energy transfer and apply these to explain phenomena. They explain global features and events in terms of geological processes and timescales. They analyse how biological systems function and respond to external changes with reference to interdependencies, energy transfers and flows of matter. They describe social and technological factors that have influenced scientific developments and predict how future applications of science and technology may affect people’s lives.

Students design questions that can be investigated using a range of inquiry skills. They design methods that include the control and accurate measurement of variables and systematic collection of data and describe how they considered ethics and safety. They analyse trends in data, identify relationships between variables and reveal inconsistencies in results. They analyse their methods and the quality of their data, and explain specific actions to improve the quality of their evidence. They evaluate others’ methods and explanations from a scientific perspective and use appropriate language and representations when communicating their findings and ideas to specific audiences.

Judging Standards

Year 10 Syllabus

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 should be taught in an integrated way.

Read full description ›
Science Understanding

**BIOLOGICAL SCIENCES**

The transmission of heritable characteristics from one generation to the next involves DNA and genes (ACSSU184).

- Literacy
- Critical and creative thinking

The theory of evolution by natural selection explains the diversity of living things and is supported by a range of scientific evidence (ACSSU185).

- Literacy
- Critical and creative thinking

**CHEMICAL SCIENCES**

The atomic structure and properties of elements are used to organise them in the Periodic Table (ACSSU186).

- Literacy
- Critical and creative thinking

Different types of chemical reactions are used to produce a range of products and can occur at different rates (ACSSU187).

- Literacy
- Numeracy
- Critical and creative thinking

**EARTH AND SPACE SCIENCES**

**Science as a Human Endeavour**

**NATURE AND DEVELOPMENT OF SCIENCE**

Scientific understanding, including models and theories, are contestable and are refined over time through a process of review by the scientific community (ACSHE191).

- Literacy
- Critical and creative thinking

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries (ACSHE192).

- Literacy
- Critical and creative thinking

**USE AND INFLUENCE OF SCIENCE**

People can use scientific knowledge to evaluate whether they should accept claims, explanations or predictions (ACSHE194).

- Literacy
- Critical and creative thinking

Advances in science and emerging sciences and technologies can significantly affect people’s lives, including generating new career opportunities (ACSHE195).

- Literacy
- Critical and creative thinking

**Science Inquiry Skills**

**QUESTIONING AND PREDICTING**

Formulate questions or hypotheses that can be investigated scientifically (ACSIS198).

- Literacy
- Critical and creative thinking

**PLANNING AND CONDUCTING**

Plan, select and use appropriate investigation methods, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods (ACSIS199).

- Literacy
- Critical and creative thinking

- Ethical understanding

Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data (ACSIS200).

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability

**PROCESSING AND ANALYSING DATA AND INFORMATION**

Analyse patterns and trends in data, including describing relationships between variables and identifying
The universe contains features including galaxies, stars and solar systems and the Big Bang theory can be used to explain the origin of the universe (ACSSU188).

Global systems, including the carbon cycle, rely on interactions involving the biosphere, lithosphere, hydrosphere and atmosphere (ACSSU189).

**Physical Sciences**

Energy conservation in a system can be explained by describing energy transfers and transformations (ACSSU190).

The motion of objects can be described and predicted using the laws of physics (ACSSU229).

The values and needs of contemporary society can influence the focus of scientific research (ACSHE230).

Use knowledge of scientific concepts to draw conclusions that are consistent with evidence (ACSIS204).

**Evaluating**

Evaluate conclusions, including identifying sources of uncertainty and possible alternative explanations, and describe specific ways to improve the quality of the data (ACSIS205).

Critically analyse the validity of information in secondary sources and evaluate the approaches used to solve problems (ACSIS206).

**Communicating**

Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language,
Science Achievement Standard

By the end of Year 10, students analyse how the periodic table organises elements and use it to make predictions about the properties of elements. They explain how chemical reactions are used to produce particular products and how different factors influence the rate of reactions. They explain the concept of energy conservation and represent energy transfer and transformation within systems. They apply relationships between force, mass and acceleration to predict changes in the motion of objects. Students describe and analyse interactions and cycles within and between Earth’s spheres. They evaluate the evidence for scientific theories that explain the origin of the universe and the diversity of life on Earth. They explain the processes that underpin heredity and evolution. Students analyse how the models and theories they use have developed over time and discuss the factors that prompted their review.

Students develop questions and hypotheses and independently design and improve appropriate methods of investigation, including field work and laboratory experimentation. They explain how they have considered reliability, safety, fairness and ethical actions in their methods and identify where digital technologies can be used to enhance the quality of data. When analysing data, selecting evidence and developing and justifying conclusions, they identify alternative explanations for findings and explain any sources of uncertainty. Students evaluate the validity and reliability of claims made in secondary sources with reference to currently held scientific views, the quality of the methodology and the evidence cited. They construct evidence-based arguments and select appropriate representations and text types to communicate science ideas for specific purposes.

Judging Standards