AUSTRALIAN ACARA CONTENT OUTCOMES: SCIENCE F-10 VERSION 9.0

Year Level Outcome Descriptions

Foundation to Year 2

Foundation

- Recognise that objects can be composed of different materials and describe the observable properties of those materials. AC9SFU03
- Pose questions and make predictions based on experiences. AC9SFI01

Year 1

- Describe pushes and pulls in terms of strength and direction and predict the effect of these forces on objects' motion and shape. AC9S1U03

Year 2

- Recognise that materials can be changed physically without changing their material composition. AC9S2U03

Year 3 to Year 6

Year 3 & 4

- Investigate the observable properties of solids and liquids and how heat leads to a change of state. AC9S3U04
- Examine the properties of materials and consider how these influence their use. AC9S4U04

Year 5 & 6

- Explain properties of solids, liquids and gases by modelling the motion and arrangement of particles. AC9S5U04
- Compare reversible changes and irreversible changes (cooking, rusting). AC9S6U04

AUSTRALIAN ACARA CONTENT OUTCOMES: SCIENCE F-10 VERSION 9.0

Year 7

- use particle theory to describe the arrangement of particles in a substance, including the motion of and attraction between particles, and relate this to the properties of the substance AC9S7U05

Year 8

- classify matter as elements, compounds or mixtures and compare different representations of these, including 2-dimensional and 3-dimensional models, symbols for elements and formulas for molecules and compounds AC9S8U06
- compare physical and chemical changes and identify indicators of energy change in chemical reactions AC9S8U07

Year 7 & 8 (Skills)

- explain how new evidence or different perspectives can lead to changes in scientific knowledge AC9S7H01 AC9S8H01
- develop investigable questions, reasoned predictions and hypotheses to explore scientific models, identify patterns and test relationships AC9S7I01 AC9S8I01
- analyse data and information to describe patterns, trends and relationships and identify anomalies AC9S7I05 AC9S8I05
- construct evidence-based arguments to support conclusions or evaluate claims AC9S7I07 AC9S8I07

AUSTRALIAN ACARA CONTENT OUTCOMES: SCIENCE F-10 VERSION 9.0

Year 9 & 10

- model the rearrangement of atoms in chemical reactions using a range of representations, including word and simple balanced chemical equations, and use these to demonstrate the law of conservation of mass AC9S9U07
- explain how scientific knowledge is validated and refined, including the role of publication and peer review AC9S9H01 AC9S10H01
- develop investigable questions, reasoned predictions and hypotheses to test relationships and develop explanatory models AC9S9I01 AC9S10I01
- construct arguments based on analysis of a variety of evidence to support conclusions or evaluate claims AC9S9I07 AC9S10I07

NSW SCIENCE & TECHNOLOGY SYLLABUS CONTENT (CURRENT K-6)

Code Outcome Description

STe-4MW-ST

Identifies that objects are made of materials that have observable properties.

STe-5PW-ST

Observes the way objects move and relates changes in motion to push and pull forces.

ST1-6MW-S

Identifies that materials can be changed or combined.

ST1-7MW-T

Describes how the properties of materials determine their use.

ST1-9PW-ST

Investigates how forces and energy are used in products.

ST2-6MW-S

Describes how adding or removing heat causes a change of state.

ST2-9PW-ST

Describes how contact and non-contact forces affect an object's motion.

ST3-6MW-S

Explains the effect of heat on the properties and behaviour of materials.

SCIENCE AT HOME

CHEMISTRY

NSW SCIENCE & TECHNOLOGY SYLLABUS CONTENT (CURRENT K-6)

Code Outcome Description

ST3-7MW-T

Explains how the properties of materials determines their use for a range of purposes.

ST3-9PW-ST

Investigates the effects of increasing or decreasing the strength of a specific contact or non-contact force.

NSW SCIENCE AND TECHNOLOGY K-6 (IMPLEMENTATION FROM 2027)

Stage Outcome Description & Content

Early Stage 1

STE-SCI-01: Identifies and describes characteristics of living things, properties of materials, and movement.

Stage 1

ST1-SCI-01: Measures and describes changes in living things, materials, and movement.

- Pose questions and test the effects of forces on an object's movement.

Stage 2

ST2-SCI-01: Uses information to investigate the solar system and the effects of energy.

- Describe how heat affects particle movement and arrangement.
- Recognise heat transfer via conduction, convection, and radiation.

Stage 3

ST3-PQU-01: Poses questions to identify variables and conducts fair tests to gather data.

NSW SCIENCE 7–10 SYLLABUS (IMPLEMENTATION FROM 2026)

Stage Outcome Description & Content

Stage 4

- identifies questions and makes predictions to guide scientific investigations SC4-WS-02
- Identify questions and problems that can be investigated scientifically
- Make predictions based on scientific knowledge and observations
- explains how the properties of substances enable separation in a range of techniques

SC4-SOL-01

- Represent changes in the state of matter in terms of particle arrangement and movement
- Classify matter as pure substances, including elements and compounds, and impure substances, including mixtures
- explains how energy causes geological and chemical change SC4-CHG-01
- Undertake experiments to identify the indicators of physical and chemical changes
- Describe the initial and final changes observed in a chemical reaction

Stage 5

- asks questions or makes predictions using observations SCLS-WS-02
- Ask questions about familiar objects and events based on observations

VIC CURRICULUM F–10 VERSION 2.0

Level Outcome Descriptions

Primary

Foundation to Level 2

- Objects can be made of one or more materials; observable properties. VC2S2U04

Levels 3 & 4

- States of matter and heat energy state changes. VC2S4U04

Levels 5 & 6

- Particle modelling for solids, liquids, and gases. VC2S6U03
- Reversible vs Irreversible changes (cooking, rusting). VC2S6U04

Levels 7 and 8

- the particle and kinetic theories of matter can be used to describe the arrangement and motion of particles in a substance. VC2S8U05
- matter can be classified as pure substances such as elements and compounds or impure substances such as mixtures. VC2S8U06
- physical changes can be distinguished from chemical changes. VC2S8U08
- investigable questions, reasoned predictions and hypotheses can be developed. VC2S8I01

Levels 9 and 10

VIC CURRICULUM F–10 VERSION 2.0

Level Outcome Descriptions

Levels 9 and 10

- chemical reactions are described by the Law of Conservation of Mass and involve the rearrangement of atoms. VC2S10U08
- chemical reactions include synthesis, decomposition and displacement reactions. VC2S10U09
- the validity and reproducibility of investigation methods can be evaluated. VC2S10I06

INTERNATIONAL BACCALAUREATE (IB) FRAMEWORK: PYP & MYP

Programme Framework Links & Objective Descriptions

Primary Years Programme (PYP)

Transdisciplinary Themes & Skills:

- How the world works: Inquiry into the natural world and its laws; how humans use scientific principles.
- Materials (Strand): Inquiry into properties, behaviours, and uses of materials; physical and chemical changes.
- Inquiry Skills: Formulate questions; make predictions; conduct fair tests; record data; interpret findings.

Middle Years Programme (MYP)

Key Concepts & Assessment Objectives:

- Key Concepts: Change (chemical reactions), Relationships (particle interactions), Systems (matter and energy).
- Objective B: Inquiring and designing – Explain a problem; formulate a testable hypothesis; design scientific investigations.
- Objective C: Processing and evaluating – Present and process data; interpret results; evaluate validity of methods.

CAMBRIDGE INTERNATIONAL SCIENCE STANDARDS

Cambridge Primary (Stages 4–6)

- Describe the sub-division of matter into particles (using the particle model) and explain how this can be used to describe the properties of solids, liquids and gases. 6Ps.01
- Describe the difference between a reversible change and an irreversible change and identify some examples of each. 6Cp.01
- Describe how boiling and evaporation are different. 6Ps.03
- Identify variables that should be taken into account when planning a fair test. 4TWsp.01
- Make predictions based on scientific knowledge and understanding. 5TWsp.03

Cambridge Lower Secondary (Stages 7–9)

- Use the particle model to explain the properties of solids, liquids and gases, and to describe the changes of state (melting, freezing, boiling, evaporation, condensation, sublimation and deposition). 7Ps.01
- Describe the differences between elements, compounds and mixtures, including identifying examples of each. 8Cp.01
- Understand that a chemical reaction involves the rearrangement of atoms to form new substances. 9Cp.01
- Explain how a range of factors (including temperature, concentration and surface area) affect the rate of a chemical reaction. 9Cp.07
- Identify and evaluate the potential for human error in investigations. 8TWsc.05
- Explain how new evidence or different perspectives can lead to changes in scientific knowledge and understanding. 7TWsp.01