

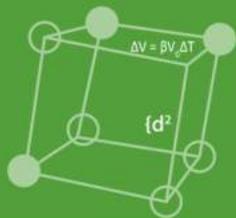
AUSTRALIAN ACARA CONTENT OUTCOMES: SCIENCE & MATHEMATICS

Level Outcome Description

Year 3 & 4

Mathematics

- estimate the quantity of objects in collections and make estimates when solving problems to determine the reasonableness of calculations AC9M3N05
- use mathematical modelling to solve practical problems involving additive and multiplicative situations including financial contexts; formulate problems using number sentences and choose calculation strategies, using digital tools where appropriate; interpret and communicate solutions in terms of the situation AC9M3N06
- identify which metric units are used to measure everyday items; use measurements of familiar items and known units to make estimates AC9M3M01
- measure and compare objects using familiar metric units of length, mass and capacity, and instruments with labelled markings AC9M3M02
- identify angles as measures of turn and compare angles with right angles in everyday situations AC9M3M05
- develop efficient strategies and use appropriate digital tools for solving problems involving addition and use mathematical modelling to solve practical problems involving additive and multiplicative situations including financial contexts; formulate the problems using number sentences and choose efficient calculation strategies, using digital tools where appropriate; interpret and communicate solutions in terms of the situation AC9M4N08
- interpret unmarked and partial units when measuring and comparing attributes of length, mass, capacity, duration and temperature, using scaled and digital instruments and appropriate units AC9M4M01



AUSTRALIAN ACARA CONTENT OUTCOMES: SCIENCE & MATHEMATICS

Level Outcome Description

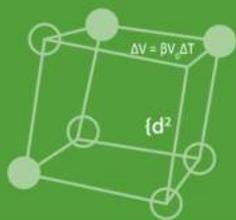
Year 3 & 4

Mathematics

- estimate and compare angles using angle names including acute, obtuse, straight angle, reflex and revolution, and recognise their relationship to a right angle
AC9M4M04
- recognise line and rotational symmetry of shapes and create symmetrical patterns and pictures, using dynamic geometric software where appropriate AC9M4SP03

Science

- examine how people use data to develop scientific explanations AC9S3H01, AC9S4H01
- consider how people use scientific explanations to meet a need or solve a problem AC9S3H02, AC9S4H02
- pose questions to explore observed patterns and relationships and make predictions based on observations AC9S3I01, AC9S4I01
- compare findings with those of others, consider if investigations were fair, identify questions for further investigation and draw conclusions AC9S3I05, AC9S4I05



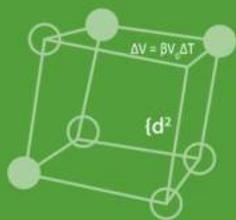
AUSTRALIAN ACARA CONTENT OUTCOMES: SCIENCE & MATHEMATICS

Level Outcome Description

Year 5 & 6

Mathematics

- solve problems involving multiplication of larger numbers by one- or two-digit numbers, choosing efficient calculation strategies and using digital tools where appropriate; check the reasonableness of answers AC9M5N06
- solve problems involving division, choosing efficient strategies and using digital tools where appropriate; interpret any remainder according to the context and express results as a whole number, decimal or fraction AC9M5N07
- use mathematical modelling to solve practical problems involving additive and multiplicative situations including financial contexts; formulate the problems, choosing operations and efficient calculation strategies, using digital tools where appropriate; interpret and communicate solutions in terms of the situation AC9M5N09
- find unknown values in numerical equations involving multiplication and division using the properties of numbers and operations AC9M5A02
- choose appropriate metric units when measuring the length, mass and capacity of objects; use smaller units or a combination of units to obtain a more accurate measure AC9M5M01
- estimate, construct and measure angles in degrees, using appropriate tools including a protractor, and relate these measures to angle names AC9M5M04
- approximate numerical solutions to problems involving rational numbers and percentages, including financial contexts, using appropriate estimation strategies AC9M6N08



AUSTRALIAN ACARA CONTENT OUTCOMES: SCIENCE & MATHEMATICS

Level Outcome Description

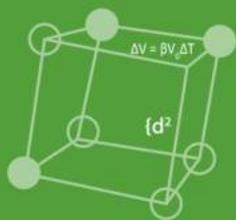
Year 5 & 6

Mathematics

- use mathematical modelling to solve practical problems involving natural and rational numbers and percentages, including in financial contexts; formulate the problems, choosing operations and efficient calculation strategies, and using digital tools where appropriate; interpret and communicate solutions in terms of the situation, justifying the choices made ACgM6N09
- convert between common metric units of length, mass and capacity; choose and use decimal representations of metric measurements relevant to the context of a problem ACgM6M01
- identify the relationships between angles on a straight line, angles at a point and vertically opposite angles; use these to determine unknown angles, communicating reasoning ACgM6M04
- recognise and use combinations of transformations to create tessellations and other geometric patterns, using dynamic geometric software where appropriate VC2M6SP03

Science

- investigate how scientific knowledge is used by individuals and communities to identify problems, consider responses and make decisions ACgS5H02, ACgS6H02
- pose investigable questions to identify patterns and test relationships and make reasoned predictions ACgS5I01, ACgS6I01
- compare methods and findings with those of others, recognise possible sources of error, pose questions for further investigation and select evidence to draw reasoned conclusions ACgS5I05, ACgS6I05



NSW SCIENCE & TECHNOLOGY SYLLABUS CONTENT

Code Outcome Description

ST2-9PW-ST

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

ST2-1WS-S

questions, plans and conducts scientific investigations, collects and summarises data and communicates using scientific representations

ST2-2DP-T

selects and uses materials, tools and equipment to develop solutions for a need or opportunity

ST2-3DP-T

defines problems, describes and follows algorithms to develop solutions

ST3-9PW-ST

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

ST3-1WS-S

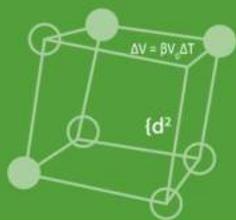
plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions

ST3-2DP-T

plans and uses materials, tools and equipment to develop solutions for a need or opportunity

ST3-3DP-T

defines problems, and designs, modifies and follows algorithms to develop solutions



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

Code Outcome Description

ST2-SCI-01

uses information to investigate the solar system and the effects of energy on living, physical and geological systems

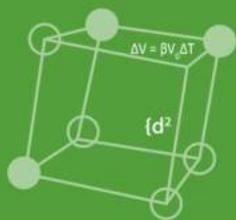
- Observe examples of matter that exist as a solid, which has a defined shape and volume; a liquid, which has a definite volume but not a definite shape; and a gas, which has neither a definite shape nor a definite volume
- Recognise that heat energy can be transferred from warmer to cooler objects by conduction, convection and radiation
- Recognise that temperature is a measure of hotness or coldness, measured using a thermometer and often expressed in degrees Celsius
- Pose questions and conduct fair tests to compare how different materials absorb or reflect heat energy

ST2-PQU-01

poses questions to create fair tests that investigate the effects of energy on living things and physical systems

ST3-PQU-01

poses questions to identify variables and conducts fair tests to gather data



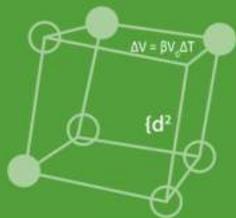
NSW SCIENCE 7–10 SYLLABUS (IMPLEMENTATION FROM 2026)

Stage Outcome Description

Stage 4

Science

- SC4-WS-02: identifies questions and makes predictions to guide scientific investigations
- SC4-WS-04: follows a planned procedure to undertake safe and valid investigations
- SC4-WS-05: uses a variety of ways to process and represent data
- SC4-WS-06: uses data to identify trends, patterns and relationships, and draw conclusions
- SC4-WS-07: identifies problem-solving strategies and proposes solutions
- SC4-FOR-01: describes the effects of forces in everyday contexts
- SC4-CHG-01: explains how energy causes geological and chemical change
- SC4-DA1-01: explains how data is used by scientists to model and predict scientific phenomena



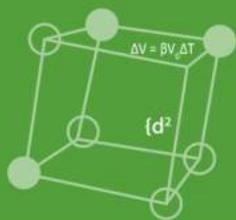
NSW SCIENCE 7–10 SYLLABUS (IMPLEMENTATION FROM 2026)

Stage Outcome Description

Stage 4

Mathematics (2022 Syllabus)

- solve problems involving the use of rates and ratios in real-life contexts, including speed and unit pricing MA4-RAT-C-01
- solve problems involving the area of a circle and composite shapes, using appropriate terminology and units MA4-ARE-C-01
- recognise and explain the relationship between the radius, diameter and circumference of a circle, and the value of pi MA4-ARE-C-01
- use mathematical modelling to solve problems involving percentages and decimals in financial contexts, including GST and discounts MA4-FRC-C-01
- apply the properties of angles on a straight line, at a point, and vertically opposite angles to find unknown angles MA4-ANG-C-01
- classify and use the properties of triangles and quadrilaterals to solve problems MA4-GEO-C-01



NSW SCIENCE 7–10 SYLLABUS (IMPLEMENTATION FROM 2026)

Stage Outcome Description

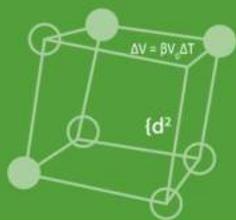
Stage 5

Science

- SC5-WS-01: selects and uses scientific tools and instruments for accurate observations
- SC5-WS-02: develops questions and hypotheses for scientific investigation
- SC5-WS-08: communicates scientific arguments with evidence, using scientific language and terminology
- SC5-DA2-01: assesses the use of scientific knowledge and data in evidence-based decisions
-

Mathematics (2022 Syllabus)

- solve problems involving compound interest and review the appropriateness of the mathematical model in financial decision-making MA5-FIN-C-01
- apply Pythagoras' theorem and trigonometry to solve 2D and 3D problems in right-angled triangles MA5-TRG-C-01
- calculate the surface area and volume of right prisms and cylinders to solve practical problems MA5-MEA-C-01
- use deductive reasoning to solve geometric problems and prove properties of triangles and quadrilaterals MA5-GEO-C-01
- identify and use the constant sine, cosine and tangent ratios for a given angle in right-angled triangles MA5-TRG-C-02
- solve problems involving direct and inverse proportion and evaluate the model MA5-RAT-C-01



VIC CURRICULUM F-10 VERSION 2.0

Level Outcome Description

Foundation to Level 2

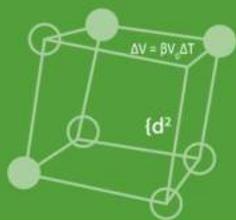
Science

- objects can be made of one or more different materials; these materials have observable properties. VC2S2U04
- materials can be combined in a variety of ways for particular purposes. VC2S2U05
- the way objects move depends on a variety of factors including their size, shape and material VC2S2U10
- pushes and pulls are forces that can change an object's movement or shape VC2S2U11
-

Mathematics

- represent practical situations involving addition, subtraction and quantification VC2MFN05
- identify and compare attributes of objects and events, including length, capacity, mass and duration VC2MFM01
- measure the length of shapes and objects using informal units VC2M1M02

recognise, compare and classify shapes, referencing the number of sides VC2M2SP01



VIC CURRICULUM F-10 VERSION 2.0

Level Outcome Description

Levels 3 & 4

Science

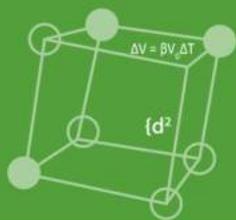
- forces, including frictional, gravitational, electrostatic and magnetic, can be exerted by one object on another. VC2S4U10
- scientific investigations to answer questions or test predictions can be planned and conducted. VC2S4I02

Mathematics

- use mathematical modelling to solve practical problems involving additive and multiplicative situations VC2M3N08
- identify angles as measures of turn and use right angles as a reference VC2M3M05
- use scaled and digital instruments to interpret unmarked and partial units to measure and compare VC2M4M01
- estimate and compare angles using angle names including acute, obtuse, straight angle, reflex and revolution VC2M4M04

$n\pi$ and the circumference, radius and diameter of a circle VC2M7M03

- solve problems involving the circumference and area of a circle using formulas VC2M8M03
- solve spatial problems, applying angle properties, scale, similarity, ratio, Pythagoras' theorem and trigonometry VC2M9M03



VIC CURRICULUM F-10 VERSION 2.0

Level Outcome Description

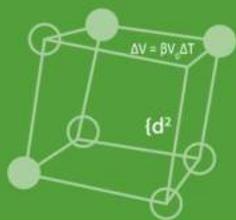
Levels 5 & 6

Science

- the observable properties of matter (solids, liquids and gases) can be explained by modelling. VC2S6U03
- changes to substances may be reversible or irreversible. VC2S6U04
- repeatable scientific investigations to answer questions can be planned and conducted. VC2S6I02
-

Mathematics

- estimate, construct and measure angles in degrees, using appropriate tools, including a protractor VC2M5M04
- describe and perform translations, reflections and rotations of shapes VC2M5SP03
- use mathematical modelling to solve practical problems involving rational numbers and percentages VC2M6N09
- identify the relationships between angles on a straight line, angles at a point and vertically opposite angles VC2M6M04



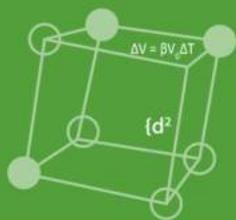
VIC CURRICULUM F-10 VERSION 2.0

Level Outcome Description

Levels 7 to 9

Mathematics

- use mathematical modelling to solve practical problems involving rational numbers and percentages VC2M7N10
- describe the relationship between π and the circumference, radius and diameter of a circle VC2M7M03
- solve problems involving the circumference and area of a circle using formulas VC2M8M03
- solve spatial problems, applying angle properties, scale, similarity, ratio, Pythagoras' theorem and trigonometry VC2M9M03



INTERNATIONAL BACCALAUREATE (IB) FRAMEWORK: PYP & MYP

Programme Framework Links & Objective Descriptions

Primary Years Programme (PYP)

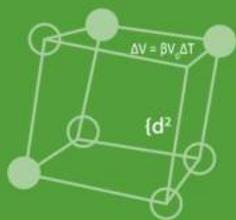
Transdisciplinary Themes & Skills

- How the world works: Inquiry into the natural world and its laws; interaction between physical/biological worlds.
- Mathematics: Using mathematical language and symbols to describe relationships; measuring and estimating to explore the physical world.
- Inquiry Skills: Formulating questions; making predictions; conducting fair tests; measuring with accuracy.

Middle Years Programme (MYP)

Key Concepts & Assessment Objectives

- Key Concepts: Relationships (connecting rates in Math to forces in Science); Systems (mathematical models and particulate matter); Change.
- Objective B: Inquiring and designing – Formulate testable hypotheses; design valid scientific/mathematical investigations.
- Objective C: Processing and evaluating – Process data using accurate tools (protractors, digital sensors); evaluate the validity of models and methods.



CAMBRIDGE INTERNATIONAL SCIENCE & MATHEMATICS STANDARDS

Stage/Level Exact Standard Descriptions (Word-for-Word)

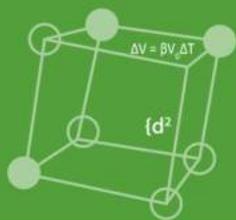
Cambridge Primary (Stages 4–6)

Mathematics

- Estimate, measure and compare lengths, masses and capacities using standard units. 4Mm.01
- Estimate and compare angles, and use a protractor to measure them. 5Gg.03
- Identify and describe the properties of 2D shapes, including their lines of symmetry and rotational symmetry. 4Gg.01
- Conduct an investigation to answer a question, choosing appropriate data collection methods. 6Ds.01

Science

- Describe the sub-division of matter into particles and explain how this can be used to describe the properties of solids, liquids and gases. 6Ps.01
- Plan and carry out fair tests, identifying variables to be changed, measured and kept the same. 6TW/sp.01
- Make predictions based on scientific knowledge and understanding. 5TW/sp.03



CAMBRIDGE INTERNATIONAL SCIENCE & MATHEMATICS STANDARDS

Stage/Level Exact Standard Descriptions (Word-for-Word)

Cambridge Lower Secondary (Stages 7–9)

Mathematics

- Solve problems involving rates and ratios in a variety of contexts. 8Ni.01
- Understand and use the relationship between the radius, diameter and circumference of a circle, including the number pi. 9Gg.01
- Use Pythagoras' theorem to solve problems involving right-angled triangles. 9Gg.05
- Apply trigonometric ratios (sine, cosine and tangent) to solve problems in right-angled triangles. 9Gg.06

Science

- Use the particle model to explain the properties of solids, liquids and gases. 7Ps.01
- Explain how new evidence or different perspectives can lead to changes in scientific knowledge and understanding. 7TW/sp.01
- Select and use appropriate equipment to make accurate measurements. 7TW/sc.03