Year 3 plan — Australian Curriculum: Science

Implementation year: School name:

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| Identify curriculum | Year level description  (highlighted aspects indicate differences from the previous year level) | 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.  Over Years 3 to 6, students develop their understanding of a range of [systems](http://www.australiancurriculum.edu.au/Glossary?a=S&t=systems) operating at different time and geographic scales. In Year 3, students observe heat and its effects on solids and liquids and begin to develop an understanding of energy flows through simple [systems](http://www.australiancurriculum.edu.au/Glossary?a=S&t=systems). In observing day and night, they develop an appreciation of regular and predictable cycles. Students order their observations by grouping and [classifying](http://www.australiancurriculum.edu.au/Glossary?a=S&t=classifying); in [classifying](http://www.australiancurriculum.edu.au/Glossary?a=S&t=classifying) things as living or non-living they begin to recognise that [classifications](http://www.australiancurriculum.edu.au/Glossary?a=S&t=classifications) are not always easy to define or apply. They begin to quantify their observations to enable comparison, and learn more sophisticated ways of identifying and representing [relationships](http://www.australiancurriculum.edu.au/Glossary?a=S&t=relationships), including the use of [tables](http://www.australiancurriculum.edu.au/Glossary?a=S&t=tables) and [graphs](http://www.australiancurriculum.edu.au/Glossary?a=S&t=graphs) to identify [trends](http://www.australiancurriculum.edu.au/Glossary?a=S&t=trends). They use their understanding of [relationships](http://www.australiancurriculum.edu.au/Glossary?a=S&t=relationships) between components of simple [systems](http://www.australiancurriculum.edu.au/Glossary?a=S&t=systems) to make predictions. | | | | | | | | |
| Achievement standard | By the end of Year 3, students use their understanding of the movement of the Earth, [materials](http://www.australiancurriculum.edu.au/Glossary?a=S&t=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](http://www.australiancurriculum.edu.au/Glossary?a=S&t=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](http://www.australiancurriculum.edu.au/Glossary?a=S&t=investigations). They make formal measurements and follow procedures to collect and present observations in a way that helps to answer the [investigation](http://www.australiancurriculum.edu.au/Glossary?a=S&t=investigation) questions. Students suggest possible reasons for their findings. They describe how safety and fairness were considered in their [investigations](http://www.australiancurriculum.edu.au/Glossary?a=S&t=investigations). They use diagrams and other representations to communicate their ideas. | | | | | | | | |
| Source: Australian Curriculum, Assessment and Reporting Authority (ACARA), *Australian Curriculum v3.0: Science for Foundation–10* <www.australiancurriculum.edu.au/Science/Curriculum/F-10>. | | | | | | | | |
| Teaching and learning | Term overview | Term 1 | | Term 2 | | Term 3 | | Term 4 | | |
| Is it living?  During this term students make predictions and describe patterns and relationships as they investigate living and non-living things.  Students will:   * recognise the characteristics of living things * distinguish living things from non-living things * appreciate the difference between  non-living things and things that were once living * sort living and non-living things based on observable characteristics * identify questions in familiar contexts that can be investigated scientifically * make predictions and compare results with predictions * record and present observations in tables and column graphs * represent and communicate ideas using labelled diagrams and simple reports * understand the effects of their actions on living things * research Aboriginal and Torres Strait Islander peoples’ knowledge of the local natural environment, such as the characteristics of plants and animals. | | Spinning Earth  During this term students recognise that observation is an important part of exploring and investigating the things and places around us.  Students will:   * investigate the position of the Earth and sun in the solar system and recognise the sun as a source of light * model the relative sizes of the Earth, sun and moon * appreciate that the Earth rotates once each day and that the sun does not move * explore the relationship between the Earth and sun and how this gives day and night across the world * work in groups to plan and safely carry out simple investigations * make and record observations and measurements in tables and column graphs * compare results with predictions, suggesting possible reasons for findings * represent and communicate ideas using labelled diagrams, models and simple reports * research how knowledge of astronomy has been used by some Aboriginal and Torres Strait Islander peoples. | | Exemplar unit: Hot stuff  During this term students investigate how Science knowledge helps people to understand the effects of their actions.  Students will:   * describe ways that heat is produced * identify changes that occur in everyday situations due to heating * explore how heat is transferred through solids and liquids * identify questions in familiar contexts that can be investigated scientifically and predict what might happen * work in groups to plan and discuss things that might happen during an investigation * work in groups, with teacher guidance, to safely carry out simple investigations * make and then record observations and measurements in tables and column graphs * identify and describe patterns from column graphs and relate to everyday experiences * reflect on the investigation * appreciate the need for a fair test * represent and communicate ideas using labelled diagrams, procedures, cut-away diagrams, models and/or simple reports * understand how science knowledge can impact on everyday situations and decisions. | | What’s the matter?  During this term students explore the observable characteristics of liquids and solids as they make predictions and describe patterns and relationships. They understand why particular materials are chosen by product designers as insulators.  Students will:   * revise (from Term 3) how heat is transferred through solids and liquids * investigate how solids and liquids change when temperature increases and decreases * investigate the best materials to be used as insulators * identify questions in familiar contexts that can be investigated scientifically and predict what might happen * work in groups to plan and discuss things that might happen during an investigation * suggest ways to plan and conduct safe and fair investigations about the characteristics of liquids and solids * work in groups, with teacher guidance, to safely carry out simple investigations * make and then record observations and measurements in tables and column graphs * identify patterns from column graphs * reflect on the investigation and appreciate the need for a fair test * represent and communicate ideas using labelled diagrams, models and simple reports. | | |
| **Teaching and learning** | Aboriginal and Torres Strait Islander perspectives | Science provides opportunities for students to strengthen their appreciation and understanding of Aboriginal peoples and Torres Strait Islander peoples and their living cultures. Specific content and skills within relevant sections of the curriculum can be drawn upon to encourage engagement with:   * Aboriginal and Torres Strait Islander frameworks of knowing and ways of learning * Indigenous contexts in which Aboriginal and Torres Strait Islander peoples live * Aboriginal peoples’ and Torres Strait Islander peoples’ contributions to Australian society and cultures.   Science provides opportunities to explore aspects of Australian Indigenous knowing with connection to, and guidance from, the communities who own them. Using a respectful inquiry approach, students have the opportunity to explore non-Indigenous science interpretations of Aboriginal and Torres Strait Islander lifestyles including knowledge of natural phenomena; native flora and fauna; and land, water and waste management. Using an inquiry approach enables students to learn science in contexts that are valued by Aboriginal and Torres Strait Islander students, their peers and communities, acknowledging their values and approaches to learning. | | | | | | | | |
| General capabilities and cross‑curriculum priorities | Opportunities to engage with:  Description: gc_literacy Description: gc_numeracy Description: gc_ict Description: gc_critical Description: gc_ethical Description: gc_personal_social  cc_sust | | Opportunities to engage with:  Description: gc_literacy Description: gc_numeracy Description: gc_ict Description: gc_critical Description: gc_ethical Description: gc_personal_social  cc_sust | | Opportunities to engage with:  Description: gc_literacy Description: gc_numeracy Description: gc_ict Description: gc_critical Description: gc_ethical Description: gc_personal_social  cc_sust | | Opportunities to engage with:  Description: gc_literacy Description: gc_numeracy Description: gc_ict Description: gc_critical Description: gc_ethical Description: gc_personal_social  cc_sust | | |
| Key to general capabilities and cross-curriculum priorities | Description: Description: gc_literacy Literacy  Description: Description: gc_numeracy Numeracy  Description: Description: gc_ict ICT capability  Description: Description: gc_critical Critical and creative thinking  Description: Description: gc_ethical Ethical behaviour  Description: Description: gc_personal_social Personal and social capability  Description: Description: gc_intercultural Intercultural understanding   Aboriginal and Torres Strait Islander histories and cultures  Description: cc_asia Asia and Australia’s engagement with Asia  Description: cc_sust Sustainability | | | | | | | | |
| Develop assessment | Assessment  For advice and guidelines on assessment, see: [www.qsa.qld.edu.au](http://www.qsa.qld.edu.au) | A folio is a targeted selection of evidence of student learning and includes a range of responses to a variety of assessment techniques. A folio is used to make an overall on-balance judgment about student achievement and progress at appropriate points and informs the reporting process. | | | | | | | | |
| Term 1 | | Term 2 | | Term 3 | | Term 4 | | |
| Week | Assessment instrument | Week | Assessment instrument | Week | Assessment instrument | Week | Assessment instrument | |
| 1 | Supervised assessment: Short response (Written)  Identify current knowledge with a diagnostic tool at the beginning of the unit and use formatively to consolidate and build upon prior knowledge. | 2–10 | Collection of work (Written)   * science journal entries * predictions * observations * labelled diagrams * graphs and tables * simple explanations * simple reports | 2–10 | Collection of work (Written)   * science journal entries * predictions * observations * labelled diagrams * graphs and tables * simple explanations * simple reports | 2–10 | | Collection of work (Written)   * science journal entries * predictions * observations * labelled diagrams * graphs and tables * simple explanations * simple reports |
| 2–10 | Collection of work (Written)   * science journal entries * predictions * observations * labelled diagrams * graphs and tables * simple explanations * simple reports | 5–7 | Experimental investigation: Model design and explanation (Multimodal)  Construct a sundial and investigate how it works and how the shadows it forms change throughout the day.  The assessment package *Measuring shadows* in the QSA Assessment Bank could be used as assessment in this unit. | 6–10 | Experimental investigation:  Scientific report (Written)  Plan and conduct an investigation to answer the question: Does the size of a piece of food affect how quickly it cooks? | 6–8 | | Experimental investigation:  Scientific report (Written)  Plan and conduct an investigation to answer the question: How can I slow down the process of a solid becoming a liquid? |
| 4–5 | Research: Report (Written)  Complete a checklist of the characteristics of living things found in the outdoor school environment. Determine if the things located during the audit were living or  non-living. | 9 | | Supervised assessment: Short responses (Written)  Heat transfer and the resulting changes in states of matter are displayed in a concept cartoon.  Choose and justify the best explanation for the scenario. |
| Make judgments and use feedback | Moderation | Teachers develop tasks and plan units.  Teachers co-mark tasks to ensure consistency of judgments. | | Teachers develop tasks and plan units.  Teachers choose A–E samples of student work that link to the standards to calibrate before marking tasks. They moderate to ensure consistency of judgments.  Teachers select representative folios and meet to ensure consistency of judgments before marking tasks. | | Teachers develop tasks and plan units.  Teachers moderate to ensure consistency of judgments. | | Teachers develop tasks and plan units.  Teachers select representative folios and meet to ensure consistency of judgments before marking tasks. | | |

Year 3 Science: review for balance and coverage of content descriptions

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| Science Understanding | 1 | 2 | 3 | 4 |
| Biological sciences | | | | |
| Living things can be grouped on the basis of observable features and can be distinguished from non-living things [(ACSSU044)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSSU044) | ✓ |  |  |  |
| Chemical sciences | | | | |
| A change of state between solid and liquid can be caused by adding or removing heat [(ACSSU046)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSSU046) |  |  |  | ✓ |
| Earth and space sciences | | | | |
| Earth’s rotation on its axis causes regular changes, including night and day [(ACSSU048)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSSU048) |  | ✓ |  |  |
| Physical sciences | | | | |
| Heat can be produced in many ways and can move from one object to another [(ACSSU049)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSSU049) |  |  | ✓ | ✓ |

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| Science as a Human Endeavour | 1 | 2 | 3 | 4 |
| Nature and development of science | | | | |
| Science involves making predictions and describing patterns and relationships [(ACSHE050)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSHE050) | ✓ | ✓ | ✓ | ✓ |
| **Use and influence of science** | | | | |
| Science knowledge helps people to understand the effect of their actions [(ACSHE051)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSHE051) | ✓ | ✓ | ✓ | ✓ |

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| Science Inquiry Skills | 1 | 2 | 3 | 4 |
| 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)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS053) | ✓ | ✓ | ✓ | ✓ |
| Planning and conducting | | | | |
| Suggest ways to plan and conduct investigations to find answers to questions [(ACSIS054)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS054) |  | ✓ | ✓ | ✓ |
| Safely use appropriate materials, tools or equipment to make and record observations, using formal measurements and digital technologies as appropriate [(ACSIS055)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/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)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS057) | ✓ | ✓ | ✓ | ✓ |
| Compare results with predictions, suggesting possible reasons for findings [(ACSIS215)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS215) | ✓ | ✓ | ✓ | ✓ |
| Evaluating | | | | |
| Reflect on the investigation, including whether a test was fair or not [(ACSIS058)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS058) |  |  | ✓ | ✓ |
| Communicating | | | | |
| Represent and communicate ideas and findings in a variety of ways such as diagrams, physical representations and simple reports [(ACSIS060)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS060) | ✓ | ✓ | ✓ | ✓ |

Source: Australian Curriculum, Assessment and Reporting Authority (ACARA), *Australian Curriculum v3.0: Science for Foundation–10* <www.australiancurriculum.edu.au/Science/Curriculum/F-10>.