Year 2 unit overview — Australian Curriculum: Science

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

| School name | Unit title | Duration of unit |
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| Our School | Good to grow | One term |

| Unit outline |
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| Children learn that observations can be organised to reveal patterns, and that these patterns can be used to make predictions about phenomena. They learn about how science is used in their daily lives, including caring for their environment and living things. Children learn about how Earth’s resources, including water, are used in a variety of ways. Children inquire about how living things grow, change and have offspring similar to themselves as they develop a community garden.  Questions that shape the inquiry include:   * What are the living things in our garden? * Which of Earth’s resources are needed in our garden? * How do Earth’s resources support life in our garden? * What is the relationship between living things in our garden? * How could I help the living things in our garden to continue to grow? * How could this garden help me? |

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| Identify curriculum | | | | |
| Content descriptions to be taught | | | | General capabilities and cross‑curriculum priorities |
| Science Understanding | Science as a Human Endeavour | Science Inquiry Skills | |
| Biological sciences   * Living things grow, change and have offspring similar to themselves [(ACSSU030)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSSU030)   Earth and space sciences   * Earth’s resources, including water, are used in a variety of ways [(ACSSU032)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSSU032) | Nature and development of science   * Science involves asking questions about, and describing changes in, objects and events [(ACSHE034)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSHE034)   Use and influence of science   * People use science in their daily lives, including when caring for their environment and living things [(ACSHE035)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSHE035) | Questioning and predicting   * Respond to and pose questions, and make predictions about familiar objects and events [(ACSIS037)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/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)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS038) * Use informal measurements in the collection and recording of observations, with the assistance of [digital technologies](http://www.australiancurriculum.edu.au/Glossary?a=S&t=digital+technologies) as appropriate [(ACSIS039)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS039)   Processing and analysing data and information   * Use a range of methods to sort information, including drawings and provided tables [(ACSIS040)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS040) * Through discussion, compare observations with predictions [(ACSIS214)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS214)   Evaluating   * Compare observations with those of others [(ACSIS041)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS041)   Communicating   * Represent and communicate observations and ideas in a variety of ways such as oral and written language, drawing and role play [(ACSIS042)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS042) | | Description: gc_literacy Literacy   * Record observations, labelling diagrams   Description: gc_numeracy Numeracy   * Interpret data   Description: gc_ict **ICT capability**   * Use digital photography * Use a range of digital resources   Description: Description: Description: gc_critical **Critical and creative thinking**   * Use thinking skills to complete group activities   Description: Description: gc_ethical Ethical behaviour   * Consider animal ethics when making observations in the school grounds   Description: gc_personal_social **Personal and social capability**   * Care for the garden and complete jobs   **Description: Description: gc_intercultural Intercultural understanding**   * Appreciate that environments differ around the world   Aboriginal and Torres Strait Islander histories and cultures   * Investigate seed germination and sustainability of plants   Description: cc_sustSustainability   * Explore connections between all living things |
| Achievement standard | | | | |
| By the end of Year 2, students describe changes to objects, [materials](http://www.australiancurriculum.edu.au/Glossary?a=S&t=materials) and living things. They identify that certain [materials](http://www.australiancurriculum.edu.au/Glossary?a=S&t=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](http://www.australiancurriculum.edu.au/Glossary?a=S&t=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. | | | | |
| Relevant prior curriculum | | | Curriculum working towards | |
| In the Australian Curriculum: Science at Year 1  Science Understanding  Biological sciences   * Living things have a variety of external features. * Living things live in different places where their needs are met.   Earth and space sciences   * Observable changes occur in the sky and landscape.   Science as Human Endeavour   * The content descriptions for Science as a Human Endeavour are the same for Year 1 and Year 2.   Science Inquiry Skills   * The content descriptions for Science Inquiry Skills are the same for Year 1 and Year 2. | | | In the Australian Curriculum: Science at Year 3  Science Understanding  Biological sciences   * Living things can be grouped on the basis of [observable](http://www.australiancurriculum.edu.au/Glossary?a=S&t=observable) features and can be distinguished from non-living things.   Earth and space sciences   * Earth’s rotation on its axis causes regular changes, including night and day.   Science as Human Endeavour  Nature and development of science   * Science involves making predictions and describing patterns and relationships.   Use and influence of science   * Science knowledge helps people to understand the effect of their actions.   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.   Planning and conducting   * Suggest ways to plan and conduct [investigations](http://www.australiancurriculum.edu.au/Glossary?a=S&t=investigations) to find answers to questions.   Processing and analysing data and information   * Use a range of methods including [tables](http://www.australiancurriculum.edu.au/Glossary?a=S&t=tables) and simple column [graphs](http://www.australiancurriculum.edu.au/Glossary?a=S&t=graphs) to represent [data](http://www.australiancurriculum.edu.au/Glossary?a=S&t=data) and to identify [patterns](http://www.australiancurriculum.edu.au/Glossary?a=S&t=patterns) and [trends](http://www.australiancurriculum.edu.au/Glossary?a=S&t=trends).   Evaluating   * [Reflect on](http://www.australiancurriculum.edu.au/Glossary?a=S&t=Reflect+on) the [investigation](http://www.australiancurriculum.edu.au/Glossary?a=S&t=investigation), including whether a test was fair or not.   Communicating   * Represent and communicate ideas and findings in a variety of ways such as diagrams, physical representations and simple [reports](http://www.australiancurriculum.edu.au/Glossary?a=S&t=reports). | |
| Bridging content | | | | |
| The **Year 1 Learning Statements** provide children with opportunities to engage with the following content.  Scientific inquiry  Children build knowledge, understanding and skills to:   * pose questions about the natural and physical world * plan and conduct investigations, collect data, record or report on observations * discuss and investigate phenomena related to living things, energy and its effect, the earth and observable environment, and the ways materials may or may not change * reflect on observations and discuss why things happen, and consider other points of view. | | | | |
| Links to other learning areas | | | | |
| **In the Australian Curriculum: Mathematics at Year 2**   * Create displays of [data](http://www.australiancurriculum.edu.au/Glossary?a=M&t=data) using lists, table and [picture graphs](http://www.australiancurriculum.edu.au/Glossary?a=M&t=picture+graphs) and interpret them.   **In the Australian Curriculum: English at Year 2**   * Construct [texts](http://www.australiancurriculum.edu.au/Glossary?a=E&t=texts) featuring print, visual and audio elements using software, including word processing programs. | | | | |

| Assessment | | Make judgments |
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| Describe the assessment | Assessment date | Teachers gather evidence to make judgments about the following characteristics of children’s work:  **Understanding**   * description and identification of interactions and changes involving living things using scientific knowledge * use of scientific knowledge to explain a situation * identification of the use of science in daily life   **Skills**   * collection and recording of observations in guided investigations * sort and compare observations * representation and communication of observations and ideas.   For further advice and guidelines on constructing guides to making judgments refer to the Learning area standard descriptors: [www.qsa.qld.edu.au](http://www.qsa.qld.edu.au) |
| Children are given opportunities to demonstrate their knowledge, skills and understanding through both formative and summative assessment. The assessment is collated in assessment folios and allows for ongoing feedback to children on their learning.  Year 2 teachers make decisions about the length of time required to complete the tasks and the conditions under which the assessment is to be conducted.  The teaching and learning experiences throughout the term provide opportunities for children to develop the understanding and skills required to complete these assessments. As children engage with these learning experiences, the teacher can provide feedback on specific skills.  **Collection of work (Written)**  Children explain their understanding and thinking as they participate in learning experiences. The teacher records observations of children and determines their individual needs for exploring and developing knowledge, skills and processes associated with this area of science.  The sequence of teaching and learning allows opportunities to gather evidence within:   * responding * one-to-one conferencing (discussion circles) where children discuss and explain * verbal reporting to the group on their own and others’ thinking * class or group discussion about ideas * drawing of concept maps.   Suggested conditions:   * open/supervised.   **Guided research (Multimodal)**  Stages of life of a plant or animal are presented on cards and need to be cut out and placed in the correct order of the life cycle. Add it to the science journal. This activity will be revisited following the teaching and learning sequence.  Children use their science journal as an aid and work in small groups to develop an oral response to directed questions. This could be conducted as a question-and-answer panel, role play or interview.  Suggested questions include:   * What living things did you observe in our garden? * Which of Earth’s resources are needed for the living things in our garden? * How do the living things in our garden use Earth’s resources? * What is the relationship between living things in our garden? * How could I help the living things in our garden continue to grow? * How could this garden help me?   Suggested conditions:   * open/supervised. | Throughout the term  During the Evaluate phase |

| Teaching and learning | Supportive learning environment | |
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| Teaching strategies and learning experiences | Adjustments for needs of learners | Resources |
| This unit overview has been developed using the 5E inquiry model for teaching and learning science. The 5E model follows a sequence of:   * Engage — begin with a lesson that captures children’s interest through an activity or question. * Explore — organise hands-on activities where children explore a concept or skill. * Explain — guide children to develop explanations for the experience after they have explored a concept or skill. * Elaborate — encourage children to apply what they have learnt to a new situation. * Evaluate — provide an opportunity for children to review and reflect on their learning.   Engage   * Locate an already-established garden to use in the “engage” phase of the unit.  It may be a: * school garden * class garden built in pots * indoor fish tank garden * online virtual garden * local farm. * Elicit children’s prior knowledge of living things and collaboratively create a concept map and question board which may be added to throughout the unit. * Use texts, photos and images to set the context for gardens (may include online texts). * Complete a life-stage jumble and add it the science journal. Teachers do not provide an explanation of life stages during the “engage” stage. Children revisit this activity following the teaching and learning sequence. * Tour the school garden with the children. * Ask children to think about how to care for a class garden. Create a list of jobs for caring for the class garden, e.g. Our garden needs …   Explore   * Answer the question: What are the living things in our garden? * Go on a field study to the garden and observe and record the variety of living things evident in the class garden. * Draw or take photographs of the living things in the garden. * Complete a class PROE (predict, reason, observe, explain) of the living things in the garden and add it to the science journal. * Plant fast-growing seeds (e.g. radishes, beans) in the garden (either school garden or in pots). * Predict which of Earth’s resources are needed to promote growth. * Measure and record the growth of a plant and graph results on a class graph. * Answer the question: How do living things in our garden continue to grow? * Visit the school garden regularly. * Discuss with children that scientists observe and record things to find out about them and document their investigations. * Question children about how they can observe and record how living things grow in the class garden and report their investigation findings to others. * Record ideas in the science journal. * Conduct a field study to explore other living things in the garden. * Ask children to provide ideas about considerations when looking for living things in the garden and discuss animal ethics. * Investigate the living things in the garden — use a shovel to turn over rocks, soil, mulch; look under leaves. * Identify the relationship between the living things in the garden. * Compare observations with those of others. * Read a range of texts to explore other living things in the garden, i.e. animals. * Extend children’s thinking by playing *And then what?*: Answer the questions: * What would happen if our garden was not watered? (The plants would die … and then what? The animals would have no food … and then what?) * What would happen if the garden got no sunlight? * What would happen if all of the animals in our garden died? * Review the concept map created in the “engage” phase. Establish and link the relationships between living things in the garden. * Discuss how the garden might help us and how our actions can impact on the living things in the garden. * Undertake bean seed germination as an in-class guided investigation. Introduce controlling variables, i.e. no sunlight, no water.   Explain   * Review the learning experiences, including the findings of the class bean seed germination. * Revisit the graph of the growth of the plant. Ask children to discuss what has contributed to the plant’s growth and why this is important. * Add any new ideas to the concept map. * Review the concept map to establish the relationships between living things. * Use a range of multimedia resources to explain the scientific concepts about how living things grow, change and have offspring similar to themselves.   Elaborate   * Complete an individual concept map on the relationships between the garden, Earth’s resources and themselves. * Work in groups to prepare for interviews   Evaluate   * Repeat the Life-stage jumble — cut and paste. | Section 6 of the *Disability Standards for Education* (The Standards for Curriculum Development, Accreditation and Delivery) state that education providers, including class teachers, must take reasonable steps to ensure a course/program is designed to allow any student to participate and experience success in learning.  The *Disability Standards for Education 2005* (Cwlth) is available from: <www.ag.gov.au> select Human rights and anti-discrimination > Disability standards for education. | Web   * websites for factsheets, interactive worksheets * websites for videos on building a garden or to help children visualise plants growing   Print   * worksheets * word wall * picture books to facilitate discussion, e.g. *Uno’s garden* * range of texts about gardens and insects * photographs of the class garden for the feedback interview   Equipment   * class garden, including an edible plant   Safety equipment   * sunhats, sunscreen * completed risk assessment, considering animal ethics |

| Use feedback | |
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| Ways to monitor learning and assessment | Teachers meet to collaboratively plan the teaching, learning and assessment to meet the needs of all learners in each unit.  Teachers create opportunities for discussion about levels of achievement to develop shared understandings, co-mark or cross-mark at key points to ensure consistency of judgments, and participate in moderating samples of student work at school or cluster level to reach consensus and consistency. |
| Feedback to students | Teachers strategically plan opportunities and ways to provide ongoing feedback (both written and informal) and encouragement to children/students on their strengths and areas for improvement.  Children reflect on and discuss with their teachers or peers what they can do well and what they need to improve.  Teachers reflect on and review learning opportunities to incorporate specific learning experiences and provide multiple opportunities for children to experience, practise and improve. |
| Reflection on the unit plan | At the conclusion of the unit, all teachers who have been involved in planning, teaching, learning and assessment come together to reflect on the successes and challenges of the unit. They come with their personal reflections through answers to the following questions:   * What worked well in this unit? * What was a stumbling block? * How would you refine it? * What trends and gaps in learning have you identified? * How will you build on these learning experiences next term and beyond? |