Prep 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 |
| --- | --- | --- |
| Our School | Our living world | One term |

| Unit outline |
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| Children generate and investigate ideas about living things. Children use the senses to investigate and gather information in order to explore and develop understanding about the basic needs of all living things.Learning opportunities in this unit are collaboratively developed between children and adults. Learning values and develops the wide range of experiences children contribute and build on from their home and community lives. Learning is embedded within the five contexts for learning in the *Early Years Curriculum Guidelines* and uses intentional teaching practices to make learning explicit, challenge children to consider new ideas, test current thinking, and develop deeper understanding.Questions which shape the inquiry include: * What do living things need?
* Do living things need different things in different situations?
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| Identify curriculum |
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| 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 have basic needs, including food and water [(ACSSU002)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSSU002)
 | Nature and development of science* Science involves exploring and observing the world using the senses [(ACSHE013)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSHE013)
 | Questioning and predicting* Respond to questions about familiar objects and events [(ACSIS014)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS014)

Planning and conducting* Explore and make observations by using the [senses](http://www.australiancurriculum.edu.au/Glossary?a=S&t=senses) [(ACSIS011)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS011)

Processing and analysing data and information* Engage in discussions about observations and use methods such as drawing to represent ideas [(ACSIS233)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS233)

Communicating* Share observations and ideas [(ACSIS012)](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACSIS012)
 | Description: gc_literacy Literacy* Explore and develop literacy skills embedded in teaching and learning within science, e.g. purposes of texts, text types (spoken and written), making meaning and comprehending texts

Description: gc_critical Critical and creative thinking* Apply critical thinking when reasoning and evaluating what constitutes the needs of a living thing

Description: gc_personal_social Personal and social capability* Explore personal and social competence in relation to the responsibilities of meeting the needs of living things, e.g. pets

Description: cc_sust Sustainability* Develop an awareness of the needs of living things and begin to explore and investigate how the environment supports life
* Begin to explore connections between our actions in daily life and their impact on the environment
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| Identify curriculum |
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| Achievement standard |
| By the end of the Foundation year, students describe the [properties](http://www.australiancurriculum.edu.au/Glossary?a=S&t=properties) and behaviour of familiar objects. They suggest how the [environment](http://www.australiancurriculum.edu.au/Glossary?a=S&t=environment) affects them and other living things. Students share observations of familiar objects and events. |
| Relevant prior curriculum | Curriculum working towards |
| In the Queensland kindergarten learning guidelineLearning and development area: ConnectednessA kindergarten child who is connected with and contributes to their world: * shows increasing respect for environments.

Significant learnings:* caring for and respecting environments
* ways to investigate and understand natural and built environments
* exploring interactions between people and environments.
 | In the Australian Curriculum: Science at Year 1Science UnderstandingBiological sciences* Living things have a variety of external features.
* Living things live in different places where their needs are met.

Science as a Human EndeavourNature and development of science* Science involves asking questions about, and describing changes in, objects and events.

Science Inquiry SkillsQuestioning and predicting* Respond to and pose questions, and make predictions about [familiar](http://www.australiancurriculum.edu.au/Glossary?a=S&t=familiar) objects and events.

Communicating* Represent and communicate observations and ideas in a variety of ways such as oral and written language, drawing and role play.
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| Identify curriculum |
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| Bridging content |
| Both the **Australian Curriculum: Science** and the **Year 1 Learning Statements** focus on observable changes in the sky and on Earth.In the Early Years Curriculum GuidelinesUsing the five contexts for learning and the eight guiding principles of practice, teachers create teaching and learning opportunities that may include:* thinking and enquiring by generating and investigating ideas about what a living thing is
* developing shared understandings about what a living thing is
* investigating, categorising and comparing living things
* exploring, identifying and recording basic needs of living things such as warmth, food and water, through a variety of activities that build on children’s own experiences, e.g. observing pets at home and recording observations about their needs
* using multiple senses in observing, exploring and identifying the needs of living things.
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| Links to other learning areas |
| In the Australian Curriculum: Mathematics at Foundation* Answer yes/no questions to collect information.

In the Australian Curriculum: English at Foundation* [Listen](http://www.australiancurriculum.edu.au/Glossary?a=E&t=Listen) to and respond orally to [texts](http://www.australiancurriculum.edu.au/Glossary?a=E&t=texts) and to the communication of others in informal and structured classroom situations.
* Use [comprehension strategies](http://www.australiancurriculum.edu.au/Glossary?a=E&t=comprehension+strategies) to understand and discuss [texts](http://www.australiancurriculum.edu.au/Glossary?a=E&t=texts) listened to, viewed or [read](http://www.australiancurriculum.edu.au/Glossary?a=E&t=read) independently.
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| 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 the behaviour of living things using scientific knowledge
* use of scientific knowledge to explain familiar situations

**Skills*** relevant responses to questions about familiar objects and events
* collection of 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.Prep 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 (Multimodal)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, understanding, 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/or others’ thinking
* class or group discussion about ideas.

Suggested conditions:* supervised/open.
 | Throughout the term |
| **Experimental investigation: Recorded observations (Multimodal)** Children communicate their observations and ideas during or following each lesson. The teacher provides ongoing feedback as children answer the question: What are the needs of living things?Entries include:* observation records from guided investigations
* reflection about learning
* mind maps about living things and their needs
* labelled diagrams showing their ideas about the needs of living things.

Suggested conditions:* supervised/open.
 | Throughout the term |

| 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* Pose the question: What do living things need?
* Read a suitable text to stimulate discussion.
* Pose questions and suggest scenarios to initiate discussion, e.g. What happened to my plant? Why am I thirsty? Why do I get hungry?
* Draw attention to daily routines that are essential and discuss why, e.g. eating lunch.

Explore* Pose the question: What happened to my plant?
* Gather children’s responses about what they know about the needs of a plant.
* Record responses.
* Pose the question: Do you think you can observe another plant and this time give it what you think it needs to stay alive?
* Establish the framework for the investigation and talk about the senses that children will use to observe.
* Record the aim of the investigation using drawings of the wilted plant and establish an observation record of the new plant to record how it responds when given what children have predicted it needs to stay alive.
* Observe using the senses. What do children see, hear, touch and smell as they observe the plant and tend to its needs?
* Present and discuss observations in pairs.
* Pose the question: What else is a living thing and what do they need?
* Read and view a range of literary and non-literary (including digital) texts connected to this question.
* Pose the question: Is a ( … ) a living thing?. Collaboratively create a mind map of responses using the senses, e.g. What do we see that shows us a ( … ) is living? What do we see, hear, feel, smell?
* Use a range of information sources to find the answer to: What does a ( … ) need to stay alive?
* Use the senses to draw a mind map about another living thing in the science journal.
* Answer the inquiry question by identifying through drawings or labels what that living thing needs to stay alive.

Explain* Facilitate the opportunity for children to explain the needs of living things, e.g. playing in a pet shop, veterinary surgery, doctors surgery.
* Use focused questions to prompt children to identify needs.
* Talk about, explain and describe new understanding to the class in prompted reflective responses.
* Focus on how a healthy system works and discuss and describe the needs of living things in a healthy system.
* Play a *Pass the bag* game with a variety of representations of living things, e.g. miniature animals, pictures of people. Each child draws out an item and identifies it as human, animal or plant.
* Collaboratively develop and play a bingo game with pictures of living things and create a set of statements. Players cover particular squares according to the living thing that corresponds to that statement, e.g. I need sunlight to grow. I can live outside.
* Play *Who Am I?* Children ask questions about the needs of a living thing, e.g. Do you live inside or outside? Do you eat ( … )?
* Discuss how we meet our basic needs daily in our regular routines, e.g. lunchtime.

Elaborate* Discuss, read about and describe how we meet our basic needs every day. Discuss “What would happen if…?” and “When do you …?” scenarios.

Evaluate* Invite a guest speaker to discuss the basic needs of the animals in their care, e.g. RSPCA, local vet, wildlife carers, Department of Employment, Economic Development and Innovation (DEEDI), animal breeder, pet store owner.
* Prepare some questions about animals’ needs and wants to ask the guest speaker.
 | Section 6 of the *Disability Standards for Education* (The Standards for Curriculum Development, Accreditation and Delivery) states 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
* interactive websites to explore living things

Print* worksheets
* word wall

Equipment* paper, crayons, pencils
* plants
* bingo game
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| Use feedback |
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| Ways to monitor learning and assessment | Science journal activities enable teachers to monitor learning about science knowledge, skills and processes. They can use this to:* determine future directions for planning teaching and learning for each child
* develop feedback and reflection skills using the science journal that enables a child to:
* receive descriptive feedback about their observation
* verbalise one direction forward within knowledge, skills or processes
* reflect on their learning journey.

Social moderation would occur between Prep teachers about the development of Science Understanding, Science as Human Endeavour and Science Inquiry Skills as they complete assessment and more formally in Year level meetings and moderation days. |
| Feedback to students | Develop feedback and reflection skills using the science journal that enables a child to:* receive descriptive feedback about their observation
* verbalise one direction forward within knowledge, skills or processes
* reflect on their learning journey.
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| 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?
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