Habitat investigations

Year 1

Learning area: Science

Science Understanding (sub-strand):   
Biological sciences

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Habitat investigations — Year 1

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# Unit overview

| Unit title | Habitat investigations |
| --- | --- |
| Learning Area | Science |
| Science Understanding  (sub-strand) | Biological sciences |
| Year level | 1 |
| Duration | Approximately 10 weeks (10 lessons)\*  *\*based on 1 lesson of Science per week for Year 1 (50 minutes per lesson). More time will be required for excursions to habitats beyond the school grounds.* |
| Unit description | In this unit, students will explore one or more habitats within their local environment. They will identify external features of different plants and animals and how their needs are met in the habitats they live in. Students will identify and describe changes to local habitats as a result of human activity and suggest how science helps people care for their local habitats. |

# Teacher information

## Safety and risk management

You will need to identify safety issues and conduct your own curriculum activity risk assessments for all activities and excursions in this unit.

For advice and documents refer to the Department of Education and Training Curriculum Activity Risk Assessment Guidelines: <http://education.qld.gov.au/health/safety/hazards/curriculum-activities.html>

The actual risk level for activities in this unit will vary according to the specific circumstances of the activity and your school and classroom context. You must consider all specific circumstances when you complete a risk assessment. Examples of considerations include, but are not limited to:

* Is the activity occurring within or outside school grounds, e.g. an excursion?
* How will students be supervised during the activity?
* What will students do during the activity?
* Are there any special student considerations, e.g. medical, behavioural or special needs?
* What hazards do you need to take into account, e.g. potential for insect stings, hazardous substances, tools or equipment?

## Unit details

The Great Barrier Reef Marine Park Authority (GBRMPA) Habitat investigations unit is a Year 1 Science unit of work. The content descriptions for this unit are from the Australian Curriculum: Science (Version 7.4 dated 30th March 2015 <http://www.australiancurriculum.edu.au>).

The unit follows the inquiry-based 5Es approach to teaching science. The inquiry questions that underpin the unit are:

* What things are in our school and local habitats?
* What similarities and differences are there between habitats?
* What are the features and needs of plants?
* What are the features and needs of animals?
* How can habitats be affected by people?
* What can we do to care for habitats?

## Time allocation

The unit is based on one lesson of science per week for Year 1 students. Each lesson is approximately 50 minutes long, with some lessons being shorter and others requiring more time to allow further depth of study or time for excursions.

The overall unit, or the individual lessons, can be extended or shortened to cater for individual classes as deemed necessary by the class teacher.

## Unit aims

The lessons in this unit are structured to build students’ knowledge of habitats to reach the final goal of being able to identify a range of the features and needs of different habitats, including plants and animals within the habitat, and identify how to care for those habitats.

Healthy habitats are vital to the health of larger ecosystems which have a direct impact on the Great Barrier Reef. For more information on habitats and the Great Barrier Reef, see the section ‘Habitat background information’ and also <http://www.gbrmpa.gov.au>. Teaching students about habitats will build their environmental knowledge and encourage their understanding of sustainability and stewardship.

## Key threats to the Reef

GBRMPA encourages teachers, students and communities to follow the main aim of Reef Guardians – to be custodians of their local ecosystems and stewards of the Reef. In the Great Barrier Reef Outlook Report 2014, the key threats to the Reef are identified as climate change; land-based run-off; coastal development; and other direct impacts such as unsustainable fishing activities and marine debris. (See [http://www.gbrmpa.gov.au](http://www.gbrmpa.gov.au/) for more information on the Outlook Report 2014).

In this unit, students will explore human impacts to local habitats, such as littering. Students can be guided to see the connection between this and threats to marine habitats and the Great Barrier Reef such as the impact of marine debris.

## Stewardship

The Reef Guardian Schools Program encourages responsible use and protection of the Great Barrier Reef ecosystems. Schools are encouraged to take ownership of conservation activities and on-ground projects that involve students, teachers and their local communities. These environmental actions foster a greater appreciation and understanding of the Great Barrier Reef and empower students to become lifelong stewards.

The following are examples of stewardship activities that relate to the learning experiences of this unit:

* Connect with local wildlife or conservation rangers near to you that can visit and discuss impacts of human behaviour on local habitats. For instance, a Queensland Parks and Wildlife Services (QPWS) ranger for marine habitats may be able to discuss how the disposal of fishing line and rubbish affects marine life.
* Have students discuss one or two actions they could implement as an individual, school or family that would benefit a local habitat.

Citizen science participation

Citizen science is scientific research conducted by non-professionals – in this case by students, teachers and communities. Schools can participate in the collection and submission of scientific data to local management authorities including GBRMPA, local councils and local Natural Resource Management agencies where the data can be used to inform sustainable ecosystem management decisions.

Specific examples of citizen science participation are provided in the lesson plans of this unit which are found in the section ‘Teaching sequence’.

## Building partnerships

Delivery of this unit can be enhanced by building partnerships within the school and wider community. Partner organisations could include the following:

* local council
* Local Marine Advisory Committee (LMAC)
* your nearest natural resource management (NRM) organisation and conservation groups
* other schools
* guest speakers from local catchment groups to discuss the habitats they work within
* local birdwatching groups
* local fauna groups e.g. Koala Care or Hands on Wildlife

Background information – habitats

### What is a habitat?

A habitat is where an organism lives and has all its survival needs met. It is where an animal can find food, shelter and enough water for survival. It is where plants have the right amount of sunlight, water and nutrients to grow. A healthy habitat is a place where plants and animals live harmoniously together without overpopulation, or depletion of water or food resources.

### Types of habitats

Every habitat is different depending on the organism being considered. An ant’s habitat is going to be much smaller than the habitat for a bird that may fly long distances from its nest to find food. However, the two habitats may overlap and have common elements that make up an ecosystem. They may also be dependent on each other for survival.

### Importance of healthy habitats

Healthy habitats lead to healthy ecosystems. An ecosystem is a community of plants and animals that live, feed and interact together in a specific area.

The Millennium Assessment Report (<http://www.millenniumassessment.org/en/index.html>) uses the definition *"An ecosystem is a dynamic complex of plant, animal and microorganism communities and the non-living environment interacting as a functional unit."* Within an ecosystem are multiple habitats for specific organisms. An ecosystem may be large, such as a rainforest, a reef, or even the ocean with all its interconnecting elements. Or it may be smaller, such as a lake or a small island. For an ecosystem to be healthy, habitats within the ecosystem need to be healthy.

Useful websites

Great Barrier Reef Marine Park Authority:  
<http://www.gbrmpa.gov.au>

ReefVid - video footage of the Great Barrier Reef:  
<http://www.reefvid.org/>

Department of the Environment:  
<http://www.environment.gov.au>

EcoKids:  
<http://www.ecokids.ca>

WetlandInfo:  
<http://wetlandinfo.ehp.qld.gov.au/wetlands/>

The Biology Corner:  
<http://www.biologycorner.com>

YouTube (animations to show plants growing, celery experiment, life cycles):  
<http://www.youtube.com>

Switch Zoo Animal Games:  
<http://www.switcheroozoo.com>

BBC Life Series Episode 9: Plants:  
<http://www.bbc.co.uk/programmes/b00p90d6>

## Useful books

*I’m the biggest thing in the Ocean*, Kevin Sherry (also see YouTube clip)

*Sea Shore*, Cathie Felstead

*One Hungry Spider*, Jeannie Baker

*Where the rainforest meets the sea*, Jeannie Baker

*The Hunt*, Narelle Oliver

*The Emperor’s Egg*, Martin Jenkins

*Yakkin the swamp tortoise: Book 1 – The most dangerous year*, Guundie and Gerald Kuchling

*Yakkin the swamp tortoise: Book 2 – Survial*, Guundie and Gerald Kuchling

*How do I know it's an ant? A book about animals*, Eleanor Stodart

*One less fish*, Kim Michelle Toft and Allan Sheather

*Aranea: A story about a spider*, Jenny Wagner

# Curriculum intent

## Australian Curriculum: Science

## Year 1 Level Description

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.

From Foundation to Year 2, students learn that observations can be organised to reveal patterns, and that these patterns can be used to make predictions about phenomena. In Year 1, students infer simple cause-and-effect relationships from their observations and experiences, and begin to link events and phenomena with observable effects. They observe changes that can be large or small and happen quickly or slowly. They explore the properties of familiar objects and phenomena, identifying similarities and differences. Students begin to value counting as a means of comparing observations, and are introduced to ways of organising their observations.

Content descriptions

This unit provides opportunities for students to engage in the following Australian Curriculum Content descriptions:

| Science Understanding (SU) | Science as a Human Endeavour (SHE) | Science Inquiry Skills (SIS) |
| --- | --- | --- |
| Biological sciences   * Living things have a variety of external features [(ACSSU017)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSSU017) * Living things live in different places where their needs are met [(ACSSU211)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSSU211) | Nature and development of science   * Science involves asking questions about, and describing changes in, objects and events [(ACSHE021)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSHE021)   Use and influence of science   * People use science in their daily lives, including when caring for their environment and living things [(ACSHE022)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSHE022) | Questioning and predicting   * Respond to and pose questions, and make predictions about familiar objects and events [(ACSIS024)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSIS024)   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 [(ACSIS025)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSIS025) * Use informal measurements in the collection and recording of observations, with the assistance of digital technologies as appropriate [(ACSIS026)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSIS026)   Processing and analysing data and information   * Use a range of methods to sort information, including drawings and provided tables [(ACSIS027)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSIS027) * Through discussion, compare observations with predictions [(ACSIS212)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSIS212)   Evaluating   * Compare observations with those of others [(ACSIS213)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSIS213)   Communicating   * Represent and communicate observations and ideas in a variety of ways such as oral and written language, drawing and role play [(ACSIS029)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSIS029) |

## Year 1 achievement standard

By the end of Year 1, students describe objects and events that they encounter in their everyday lives, and the effects of interacting with materials and objects. They identify a range of habitats. They describe changes to things in their local environment and suggest how science helps people care for environments.

Students make predictions, and investigate everyday phenomena. They follow instructions to record and sort their observations and share their observations with others.

General capabilities

This unit provides opportunities to address the following organising elements of the general capabilities:

| Literacy   * Comprehending texts through listening, reading and viewing * Composing texts through speaking, writing and creating * Text knowledge * Grammar knowledge * Word knowledge * Visual knowledge. | ICT capability   * Managing and operating ICT |
| --- | --- |
| Numeracy   * Estimating and calculating with whole numbers * Recognising and using patterns and relationships | Critical and creative thinking   * Inquiring – identifying, exploring and organising information and ideas * Generating ideas, possibilities and actions * Reflecting on thinking and processes |
| Personal and social competence   * Self-awareness * Self-management * Social awareness * Social management | Ethical understanding   * Reasoning in decision making and actions * Exploring values, rights and responsibilities |
| Intercultural understanding   * Recognising culture and developing respect * Interacting and empathising with others | |

## Cross-curriculum priorities

This unit provides opportunities for students to address aspects of the following cross-curriculum priorities:

| Sustainability  Students will:   * consider the link between the health of a habitat and the survival of living things that live there * suggest actions that can be taken to improve and sustain the health of a habitat. |
| --- |

## Relevant prior curriculum

Students require prior experience from Prep/Foundation Year with:

### Science Understanding

#### Biological sciences

* Living things have basic needs, including food and water [(ACSSU002)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSSU002)

### Science as a Human Endeavour

#### Nature and development of science

* Science involves exploring and observing the world using the *senses* [(ACSHE013)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSHE013)

Curriculum working towards

The teaching and learning in this unit works towards the following in Year 2:

### Science Understanding

#### Biological sciences

* Living things grow, change and have offspring similar to themselves [(ACSSU030)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSSU030)

### Science as a Human Endeavour

#### 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)

# Feedback

Supportive learning environment

| Differentiation  Consider the individual needs of your students – including gifted and talented, ESL and students requiring additional support.  For information, refer to the Australian Curriculum, Assessment and Reporting Authority (ACARA) web pages on student diversity:  <http://www.australiancurriculum.edu.au/studentdiversity/student-diversity-advice>  Further information for Queensland state schools can be found as part of the P-12 curriculum, assessment and reporting framework and associated resources:  <http://education.qld.gov.au/curriculum/framework/p-12/> | Feedback to students  Teachers:   * plan opportunities for conversations to provide ongoing feedback (spoken and written) and encouragement to students on their strengths and areas for improvement. * reflect on and review learning opportunities to individualise learning experiences required. * provide multiple opportunities for students to experience, practise and improve knowledge, processes and skills.   Students:   * identify what they can do well and what they need to improve. * provide feedback to a peer on interaction skills and suggest some strategies for improvement (written and spoken feedback). |
| --- | --- |
| Reflection on the unit plan  At the conclusion of the unit, teachers can reflect on it for future planning by answering 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? | |

# Assessment

Assessment is the purposeful, systematic and ongoing collection of information as evidence for use in making judgements about student learning and to support improving student learning.

Monitoring student learning

Student learning should be monitored throughout the unit. Each lesson in this unit provides opportunities for monitoring learning and for gathering evidence of student progress. For examples of ways to monitor learning, refer to each of the lesson plans under the section ‘Teaching sequence’.

## Assessing student learning

| Summative assessment task: | Habitats – report (Lessons 8–10) |
| --- | --- |
| Description: | Students will prepare a report on a new habitat. The report will include a description of the habitat and a labelled diagram of the external features of a plant and animal that lives there. In the report, students will identify a problem in the habitat and suggest ways to improve and care for the habitat. |
| This assessment task provides opportunities to gather evidence of student learning in: | Science Understanding Biological sciences  * Living things have a variety of external features[(ACSSU017)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSSU017) * Living things live in different places where their needs are met [(ACSSU211)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSSU211)   Science as a Human Endeavour Nature and development of science  * Science involves asking questions about, and describing changes in, objects and events [(ACSHE021)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSHE021)  Use and influence of science  * People use science in their daily lives, including when caring for their environment and living things [(ACSHE022)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSHE022)   Science Inquiry Skills Communicating  * Represent and communicate observations and ideas in a variety of ways such as oral and written language, drawing and role play [(ACSIS029)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSIS029) |

**See Resource section: Resource 7 for the Student task sheet and the Guide for making judgements for the assessment task: Habitats – report.**

# Sequencing teaching and learning

A suggested learning sequence for this unit is summarised below. For detailed information for each lesson in this sequence, go to the section ‘Teaching Sequence’.

| Inquiry phase | Lesson | Purpose |
| --- | --- | --- |
| Engage | **Lesson 1:** My favourite place | To capture interest and discover what students think they know about habitats. |
| Explore | **Lesson 2 and 3:** What things are in our local habitats? | To explore and observe habitats around the school or local community. |
| Explain | **Lesson 4:** What similarities and differences are there between habitats? | To make a display of local habitats and identify features, similarities and differences. |
| **Lesson 5:** What are the features and needs of plants? | To explore the external features of plants and set up a seedling investigation about the needs of plants. |
| **Lesson 6:** What are the features and needs of animals? | To explore the external features of different animals and identify their needs in the habitats they live in. |
| Elaborate | **Lesson 7:** How are our local habitats affected by people and what can we do to care for this habitat? | To identify how human activity results in positive and negative changes to local habitats and discuss ways to improve negative changes. |
| **OPTIONAL**  **Lesson:** How can changes in the weather affect habitats? | To use cause-and-effect charts to identify the effect of changes in weather and the seasons on habitats. |
| Evaluate | **Lessons 8-10:** Reflections and assessment task | To review and reflect on learning and introduce and complete the assessment task. |

**TOTAL: 10 Lessons *(50 minutes each)***

# Making judgements

## Achievement standard

In this unit, assessment of student learning aligns to the following components of the Year 1 achievement standard.

By the end of Year 1, students describe objects and events that they encounter in their everyday lives, and the effects of interacting with materials and objects. They identify a range of habitats. They describe changes to things in their local environment and suggest how science helps people care for environments.

Students make predictions and investigate everyday phenomena. They follow instructions to record and sort their observations and share their observations with others.

## Guide for making judgements

**See Resource section: Resource 7 for the Student task sheet and the Guide for making judgements for the assessment task: Habitats – report.**

# Teaching sequence

Engage

Explore

Explain

Elaborate

Evaluate

**Lesson 1:** My favourite place

**Duration:** 50 minutes

**Lesson objectives**Students will:

identify and communicate what they already know about habitats

Suggested learning sequence

**Introduction** – Book reading

1. Choose a fiction or non-fiction book with students relating to a habitat. The book must have a clear connection to one or more animals in their natural habitat/s. Discuss the book with students. The following general questions could help guide the discussion:

* What is the book about?
* What is it teaching us?
* What animals and plants did you see in the book?
* Did you learn anything new from reading this book?

**Activity –** My favourite place

1. Discuss with students their favourite place outside. Why is it their favourite place? Give examples of what is meant by a place outside – a creek, a park, the beach, a tree in their backyard. The following questions could help guide the discussion:

* Where is a place outside that you love to go and play?
* Tell me about your favourite place – what sort of trees and animals are there?
* Is it noisy or quiet?
* Do other people go there? Who?
* How did you find out about your favourite place?
* Why is it your favourite place?

1. Ask students to write about and/or draw a picture of their favourite outside place. The written part could be done with sentence starters such as the following (read and show students an example first):

My favourite outside place is……..

At my favourite outside place there are………

I like my favourite outside place because……..

1. Display student work.
2. Begin a class KWL chart to record student observations of what students already know (K) and want to know (W) about different habitats (places) and plants and animals in those habitats.
3. You may wish to start a word wall with students to continuously add to throughout the unit. (See *Resource 1 – Word bank* for examples of vocabulary for this unit).This should be displayed in a place where students can always add to it each lesson. It may be done in alphabetical order or on moveable cards so that students can interact with the words and sort them into categories as they progress throughout the unit.
4. You may wish to start a science journal. The science journal could be done as a whole class activity where the teacher records in a large display book the students’ learning and reflections about what they have learnt, or the science journals could be done individually. (See *Resource 2 – Student reflections* for examples of sentence starters you can use to guide student reflections in this unit).

 Science Journal

A science journal is a record of observations, experiences and reflections. It contains a series of dated, chronological entries. It may include written text, drawings, labelled diagrams, photographs, tables and graphs. The science journal can be used as a part of the student assessment.

Opportunities to monitor student learning

**Diagnostic assessment opportunities:**

Observe students’ responses during the lesson to determine their awareness of the environment.

Resources

Printable resource

*Resource 1 – Word bank*

*Resource 2 – Student reflections*

Other resources

Have a variety of books relating to different animal habitats, both fiction and non-fiction, available for students to view and read.

KWL display chart

Engage

Explore

Explain

Elaborate

Evaluate

**Lessons 2 and 3:** What things are in our local habitats?

**Duration:** 1 hour 40 minutes

**Lesson objectives**Students will:

investigate and recognise features of habitats around the school and/or local community.

Suggested learning sequence

**Introduction –** Preparation

1. The aim of these two lessons is to expose students to as many different habitats as possible and gather images that will be used in a class display (lesson 4) and explored in future lessons. Depending on time available and opportunities, these two lessons may involve:

* a photographic exploration of habitats within the school grounds
* a photographic exploration of a local habitat such as a rainforest, creek, rocky shore, mangrove etc.
* a visit from a local environmental officer e.g. for the local catchment group providing information and images of a local habitat they look after
* class research about local or other habitats e.g. on the Great Barrier Reef (See *‘Useful web links’* for a poster of the Great Barrier Reef).

*See the steps below for photographic explorations e.g. in the school grounds.*

**Example sequence –** Photographing habitats

1. Review the same book as in Lesson 1. Discuss with the students that the home of the animal is its habitat. The animal’s habitat is where it has shelter, food and water provided. These are the animal’s needs. In the discussion ask the students to identify one or more animals from the book and describe the animal’s habitat by stating where the animal finds food, shelter and water.
2. Ask the students where animal habitats are around the school (e.g. garden beds, trees, lawn, sandpit, vegetable patch, underneath buildings).
3. Discuss what animals might be found around the school grounds and where they might live.
4. Write students’ ideas down and plan together what should be photographed and by whom. If the school has multiple cameras available, students could be split into groups to photograph particular parts of the school.

**Note:** If technology is not available to take and print photos, have the students each draw/sketch a habitat within the school.

1. Photograph or sketch each of the habitats discussed. Take multiple photos or sketches of each habitat from different distances and at different angles. For example, if it is a certain shrub or tree, take photos or sketch the leaves, branches, roots, surrounding area and animals seen in the habitat.
2. Discuss and summarise with students what they observed and photographed or sketched around the school.
3. When returning to the classroom, print photos if required to have them ready for lesson 4.

Opportunities to monitor student learning

**Formative assessment opportunities:**

Observe students’ current detailed knowledge of the features of plants and animals to plan detail of future lessons.

Resources

Useful web links

Great Barrier Reef Outlook Report 2014

Access the report at: <http://elibrary.gbrmpa.gov.au/jspui/handle/11017/2855>

A visual of the Great Barrier Reef habitat can be found on:

* Page 4 – 5: The remarkable Great Barrier Reef

A larger version of this image is also available at the website:<http://www.gbrmpa.gov.au/about-the-reef/facts-about-the-great-barrier-reef>

At this website, select the PDF link on the right called *‘OR2014 – The remarkable Great Barrier Reef’*

Other resources

Same book read in Lesson 1 about a habitat

Cameras

Engage

Explore

Explain

Elaborate

Evaluate

**Lesson 4:** What similarities and differences are there between habitats?

**Duration:** 50 minutes

**Lesson objectives**Students will:

understand what a habitat is

compare the features of various habitats and identify similarities and differences.

Suggested learning sequence

**Introduction –** Review photos/sketches

1. As a class, examine the photos or sketches from the previous lessons. Add new words to the word wall about what students can see in the photos (See *Resource 1 – Word bank* for examples of vocabulary for the unit).

**Activity –** Create a habitats display

1. Sort the photos/sketches into each habitat photographed, name each habitat and create a display with the photos/sketches.
2. Discuss and write onto the display the main features of each habitat e.g. plants, animals, buildings, soil, rubbish and toys (what can be seen in the photos/sketches or what the students know exists in those specific habitats).
3. Discuss what is the same and different about the habitats they have explored. Draw students’ attention to the habitat similarities. Each habitat has some sort of plant and these plants themselves have many similarities.
4. Discuss what is natural and artificial, living and non-living in each habitat.
5. Record in the display, students’ responses to similarities and differences.
6. Discuss with students what they think would be a good way to describe a habitat.
7. Write down their ideas and descriptions. Decide together on one final definition for habitat and display it above the habitats display.
8. Write/draw in science journals students’ learnings and reflections. (See *Resource 2 – Student reflections* for examples of sentence starters you can use to guide student reflections).

Opportunities to monitor student learning

**Formative assessment opportunities:**

Put students’ names or initials next to their responses in the display to record their developing knowledge.

Resources

Printable resources

*Resource 1 – Word bank*

*Resource 2 – Student reflections*

Other resources

Photos of habitats around the school or local area taken in Lessons 2 and 3. Use student sketches if photos were not able to be taken

Paper, cardboard, sticky tape or display board to create habitat displays

Engage

Explore

Explain

Elaborate

Evaluate

**Lesson 5:** What are the features and needs of plants?

**Duration:** 50 minutes

**Lesson objectives**Students will:

examine and record the external features of plants and discuss the purpose of these features

conduct an investigation into the needs of plants.

Suggested learning sequence

**Introduction –** what are the features of plants?

1. Put different pot plants around the room. Look at photographs or sketches from lesson 2 of any parts of plants. Ask students to describe what they know about the common features of plants e.g. stem/trunk, leaves, roots, shoots, flower.
2. Explain to students the rules for drawing a scientific drawing i.e.

a clear title

use a sharp pencil

labels and label lines horizontal

use a ruler for label lines

do not use arrows for label lines

try not to cross label lines

1. Have students carefully observe then draw a labelled drawing of their plant.
2. When complete, have students compare their observations and diagrams with others. What similarities and differences do they see?
3. Discuss the purpose for each of these common plant features in terms of the needs of plants e.g. roots obtaining water.

**Activity –** Seedling investigation class set-up

1. Explain to the students that you are going run a class experiment to investigate the needs of plants.
2. Step through the procedural text for the seedling investigation with the students (see *Resource 3 – Procedural text – Seedling investigation).* To save time, have the four set-ups ready to show the students.
3. Discuss with students one thing that is being changed, what is being measured (e.g. growth) and what is being kept the same in set-ups 2, 3 and 4. Note that set-up 1 is called a control and is used as a comparison.
4. Create and display a large class POE chart that is big enough to record regular growth observations as photos or sketches (see *Resource 4 - POE chart* as an example).
5. Use the class POE chart (See *Resource 4 - POE chart*) to generate a class discussion about what students predict will happen to the seedlings in the different situations. Record class predictions in the chart.
6. Add new words to the word wall (See *Resource 1 – Word bank* for examples of vocabulary).
7. Write/draw in science journal reflections and observations. (See *Resource 2 – Student reflections* for examples of sentence starters you can use to guide student reflections).

**Seedling Investigation** – suggested observations through the unit

Monitor the growth of the seedlings throughout the remainder of this unit.

Rotate students to water plants regularly (except for the no water set-up).

Have students take a photo of each set-up every two or three days from exactly the same position to record growth.

Print photos every week or so and add to the class POE chart and display them in chronological order.

Regularly ask students to discuss these observations and relate this to the needs of plants e.g.

How well are the plants growing?

Are some growing better than others?

Why do you think that?

**NOTE:** photos could also be used to create a stop motion animation showing the growth of the seedlings.

Optional activity – Celery Experiment

*This activity could be set up to run alongside lesson 4.Line drawing - taking notes*

* As a class, read the procedural text for the celery experiment *(See Resource 5 - Procedural text – Celery experiment)*.
* Discuss with students what they predict will happen, what they may observe and how this might explain the needs of plants.
* Set up the experiment and record observations the following day.
* Discuss what the observations tell us about the purpose of some of the features of a plant and the needs of plants.

Opportunities to monitor student learning

**Formative assessment opportunities:**

Record/observe students’ prior knowledge of plant survival needs and life cycle.

Resources

Useful web links

BBC Life Series Episode 9: Woodland time lapse  
<http://www.bbc.co.uk/programmes/p005m44b>

**Hint:** Access and pre-load video clips before the lesson so that you can play them immediately for students when required.

Printable resources

*Resource 1 – Word bank*

*Resource 2 – Student reflections*

*Resource 3 – Procedural text - Seedling Investigation.*

*Resource 4 – POE chart*

*(Optional) Resource 5 – Procedural text – Celery experiment*

Other resources

Pot plants

Equipment as listed in *Resource 3 – Procedural text - Seedling Investigation*

(optional) Equipment as listed in *Resource 4 – Procedural text – celery experiment*

Engage

Explore

Explain

Elaborate

Evaluate

**Lesson 6:** What are the features and needs of animals?

**Duration:** 50 minutes

**Lesson objectives**Students will:

recognise that different animals live in different habitats e.g. land and water

recognise external features of different animals and the purpose of these features

understand the needs of animals and how they are provided by the habitats they live in.

Suggested learning sequence

**Introduction –** Class discussionon animal features

1. Review the habitat displays from Lesson 4. Choose three to four local animals that can be discussed. Select and find photographs of two to three additional animals from a range of land and water-based habitats e.g. fish, turtle, kangaroo or lizard. See *‘Useful web links’* for animal photographs.
2. Create a class table listing all the animals you are going to discuss. Decide as a class the habitat each animal lives in and write that down.

| **Animal name** | **Habitat animal is found in** | **External features** | **How the animal moves** | **What the animal eats** |
| --- | --- | --- | --- | --- |
| Worm | Dirt, compost heap | Skin, mouth | Wiggles | It eats dirt |
|  |  |  |  |  |

1. Display a photograph of the first animal. As a class, discuss its main external features and list these in the table. Alternatively you could stick an image of the animal to the table and label the features.
2. Identify how the animal moves and eats and add this information to the table. Discuss how the features of this animal help it to move and eat in the habitat it lives in. Discuss the needs of this animal i.e. shelter, food and water and how they are provided by its habitat. The following general questions could help guide this discussion:

* What is this feature called?
* What do you think the job of this feature is? What does it do?
* Can you think of other animals you know of with a similar feature?
* What does this animal eat?
* How does this animal move?
* How does this feature help the animal move?
* How does this feature help the animal eat?
* What does this animal need to live and survive?
* How are these needs provided by the habitat it lives in?

1. Continue the class discussion with a new animal. Ask students to compare features. For example:

* how is this feature similar to other animals? How is it different?

**Activity** – Describe your animal

1. Group students and provide them with a picture of a new animal and the habitat they live in that you have listed in the table. Ask students to observe the animal and as a group, decide on and label its features and think about how it moves and eats.
2. When ready, have each group share their ideas in turn about their animal and complete the table together. Ask the class to compare features to other animals. Ask the class to think about how each animal has its need met in the habitat it lives in. For example,

* how is this feature similar to other animals? How is it different?
* What does this animal need to live and survive?
* How are these needs provided by the habitat it lives in?

1. Identify the gaps in the table that cannot be filled by current student knowledge e.g. the name of certain features or what an animal eats. These gaps could be researched during class time or set as homework.
2. Remember to also take time to observe the seedlings from Lesson 5. Take a few minutes with students to reflect on what is happening to the plants.

* How well are the plants growing?
* Are some growing better than others? Why?
* What do you think are the needs of plants?

1. Add new words to the word wall. (See *Resource 1 – Word bank* for examples of vocabulary).
2. Write/draw observations and reflections in the science journal. (See *Resource 2 – Student reflections* for examples of sentence starters you can use to guide student reflections).

**Optional/additional activity –** Create an animal

1. Explain to students that they are going to make up and create their own animal as a labelled drawing. Students decide and label the external features of their animal and think about the habitat this animal would live in.
2. Have students draw their animal and label its features. Students can give the animal a name. Guide students to think about:

* the purpose of these external features e.g. how they help the animal eat and move in its habitat
* the needs of this animal e.g. water, food and shelter and how they are provided by the habitat it lives in.

1. Have students share their animal and its external features and explain the purpose of these features. Ask students to describe what are the needs of this animal and how they are provided by the habitat e.g. water, food and shelter.
2. Display the animal drawings/labelled images.

Alternative optional activity – Create digital animals

* Visit the website<http://www.switcheroozoo.com/zoo.htm> with students and demonstrate how they can create their own animals.
* Discuss with students the different body parts and external features available to create animals.
* Students then create their own Switcheroozoo animal, explain its external features and describe a habitat suitable for the created animal.
* The animals can be printed out and displayed with the students’ explanation of external features and habitat.

Opportunities to monitor student learning

**Formative assessment opportunities:**

Observe students’ ability to make connections and draw on current knowledge.

**Optional activity – Create animals:** The animals that students create and their descriptions of features and habitat can be used to observe if students are making connections between the features of animals and their purpose and how the habitat provides for its needs.

**Optional activity – Create digital animals:** Students’ explanation of their Switcheroozoo animal can be used to assess their understanding of living things.

Resources

Useful web links

Photographs of animals – a-z animals: <http://a-z-animals.com/animals/pictures/>

Optional activity – creating digital animals with Switcheroozoo:  
<http://www.switcheroozoo.com/zoo.htm>

Printable resources

*Resource 1 – Word bank*

*Resource 2 – Student reflections*

Other resources

Habitat displays from lesson 4

Additional photographs/images of local or other animals

Engage

Explore

Explain

Elaborate

Evaluate

**Lesson 7:** How is our school habitat affected by people and what can we do to care for this habitat?

**Duration:** 50 minutes

**Lesson objectives**Students will:

understand that human activity can result in positive and negative changes to a school habitat

identify and describe ways to improve negative changes and care for a habitat.

Suggested learning sequence

**Introduction** – Human impacts

1. Look back at photos of school habitats taken in Lessons 2 and 3 (or if need be, take a walk around school grounds to observe), to identify and discuss any ways that humans have impacted on those habitats. Examples of impacts include:

pollution

littering

tree clearing

creation of garden beds

planting more trees

raking of leaves

pathways being created

mowing lawns

buildings being constructed.

**Activity –** Positive and negative impacts

1. Write each of the impacts identified onto sticky notes so they can be sorted into positive and negative.
2. On a large chart, have two columns – positive and negative. As a class, discuss each impact and sort into these two columns. This will take some discussion as students will need to draw logical conclusions.
3. Discuss how some negative changes to habitats can mean that living things e.g. plants and animals in that habitat, no longer have their needs met. You can use some of the animals in Lesson 6 as examples.
4. Choose one of the human impacts you have listed to demonstrate with students how to complete a cause-and-effect chart. *(See Resource 6 – Cause-and-effect chart)*. Show how students could use both drawing and writing to fill in the chart.
5. Individually or in pairs, have students create their own cause-and-effect charts using a different impact from the list. Alternatively, students could use different examples e.g. from habitats in their local community or their own home.
6. Ask students/pairs to share their cause-and-effect chart with the class.
7. As a class, look again at the negative column. Discuss and write down ways to improve some of the negatives.
8. Ask students to propose ways to care for this habitat and maintain it as a healthy habitat. Link student ideas to how these changes allow the needs of plants and animals to be met.

Students will need to think of ways to improve negative impacts for their final assessment piece.

1. Remember to also take time to observe the seedlings from Lesson 5. Take a few minutes with students to reflect on what is happening to the plants.

* How well are the plants growing?
* Are some growing better than others? Why do you think that?

1. Add new words to the word wall. (See *Resource 1 – Word bank* for examples of vocabulary).
2. Write/draw observations and reflections in science journal. (See *Resource 2 – Student reflections* for examples of sentence starters you can use to guide student reflections).

Citizen Science participation

Students could investigate human impact and other events that affect marine habitats such as: Beach erosion/sea level rise, tides, litter, weeds, turtle nests, destruction of dunes and cyclone events.

Opportunities to monitor student learning

**Formative assessment opportunities:**

Use students’ cause-and- effect charts to assess their ability to describe changes to objects.

Record/observe students’ responses when discussing ways to improve the negative impacts to assess their use of science knowledge to care for the environment.

Resources

Printable resources

*Resource 1 – Word bank*

*Resource 2 – Student reflections*

*Resource 6 – Cause-and- effect chart*

Other resources

Photos of school habitats taken in Lessons 2 and 3

Sticky notes to write down impacts

Large sheet of paper for positive and negative chart

Engage

Explore

Explain

Elaborate

Evaluate

**OPTIONAL Lesson:** How can changes in the weather affect habitats?

**Duration:** 50 minutes

**Lesson objectives**Students will:

understand how changes in weather and the seasons can affect habitats and the needs of living things in the habitat.

Suggested learning sequence

Introduction – Seasons

1. Discuss with students the seasons they experience in their local environment.
2. Make a retrieval chart outlining what changes in the weather and in the local environment take place each season. If visual stimulus is available of seasons in the local environment, this will be useful to show the students to help generate discussion.

**Activity –** cause-and-effect charts

1. Choose a local habitat the students know. Discuss with students how they think seasons and local weather patterns will affect that habitat.
2. From the discussions, generate a cause-and-effect chart *(see Resource 6 – Cause-and-effect chart).* For example, if the event is lots of rain, or even a flood, what happens to a specific animal and its home if the rain fills the home with water or washes it away?
3. Discuss two or three scenarios and fill in the cause-and-effect charts with the students.
4. Students then create their own cause-and-effect charts, individually or in pairs. They can use the retrieval chart of information about changes in the weather and the seasons to help them. Students could use both drawing and writing to fill in the charts.
5. Students share their cause-and-effect charts and display them.
6. Write/draw observations and reflections in science journal. (See *Resource 2 – Student reflections* for examples of sentence starters you can use to guide student reflections).

Opportunities to monitor student learning

**Formative assessment opportunities:**

Use students’ cause-and- effect charts to assess their ability to describe changes to habitats.

Resources

Printable resources

*Resource 1 – Word bank*

*Resource 2 – Student reflections*

*Resource 6 – Cause-and-effect chart*

Other resources

Large sheets of paper for retrieval chart

Visual stimulus of local seasons and weather patterns

Engage

Explore

Explain

Elaborate

Evaluate

**Lessons 8 - 10:** Reflections and assessment task

**Duration:** 2 hours 30 minutes

Suggested learning sequence

**Introduction (Lesson 8) –** reflections and task introduction

1. If you started a KWL chart, this would be a good time to reflect and record what has been learned.
2. Remember to also take time to observe and complete the seedling investigation from Lesson 5. Take a few minutes with students to reflect on what is happening to the plants and reinforce the needs of plants. Complete the **explain** section to the class POE chart *(See Resource 4 – POE chart).*

* How well are the plants growing?
* Are some growing better than others? Why?
* What are the needs of plants?

1. Explain to the students that they are going to begin their final assessment report. Present them with the task sheet *(See Resource sheet 7– Student task sheet and Guide for making judgements).*
2. Read through the task sheet and Guide for making judgements together and identify all the requirements of the task.
3. To be successful in the assessment task, students need to choose a local habitat that shows evidence of change e.g. habitats impacted by humans. Help students choose their habitat or provide options. (Use examples of changes in Lesson 7 as a guide).
4. Discuss available resources (identify all the work done throughout the unit that will help the students complete the task).
5. Set out a plan for time management and resource management.

**Activity (Lessons 9 - 10)** – Prepare report

1. Allow students time to research and prepare their report.
2. Students may need scaffolding for the different parts of the report, depending on the needs of the class.

Opportunities to monitor student learning

**Summative assessment opportunities:**

Student reports can be used to assess their knowledge and understanding of science, science as a human endeavour and science inquiry skills.

Resources

Printable resources

*Resource 4 – POE chart*

*Resource 7 – Student task sheet and Guide for making judgements*

Resources

Resource 1 – Word bank

| Habitat | Shelter | Food | Survive |
| --- | --- | --- | --- |
| Needs | Root | Shoot | Stem |
| Trunk | Leaf | Flower | Branch |
| Seed | External | Features | Similarity |
| Difference | Cause | Effect | Human impact |
| Predict | Positive | Negative | Living |
| Growth | Pollution | Littering | Healthy habitat |

Resource 2 – Student reflections

Consider displaying sentence starters or questions such as below in the classroom. Alternatively, they could be turned into laminated thought bubbles that are passed to students directly. Students could choose two or three thoughts to complete in their journal then share their responses with the class.

| End of lesson reflections | | | Guiding students to reflect on their own thinking | | |
| --- | --- | --- | --- | --- | --- |
| Today I discovered….  I want to know more about…  Something new I found out was…  I am excited about…  Something I am finding interesting is…  The most challenging thing was… | | I am most proud of….  I feel confident about …  I am enjoying ……because …  I am confused by…  Today I asked…  A question I have is… | I am starting to think differently about…  I got stuck when …..and I got back on track by …  I figured out that …..  I solved a problem by …  I first thought……but then I realised that …. | This idea is useful for….  Some things I didn’t understand are…To help me understand better I will….  Before I didn’t know ….Now I realise/know….. | |
| Reflecting on stewardship and taking action | | | End of unit reflections – *where I was and where I am now* | | |
| This information can make a difference by…  It is important to know about this because…  Something I will now do as a result of my learning is …  Something I want to do next is…. | Something I will now help others understand is …  I can make a difference by …  An action I/we can take is…  If we don’t …… the consequences could be …  It is important to …because…. | | 1. I used to think… 2. Now I know… 3. This causes me to (re)think/ wonder… | | * **Revisit** your first journal entry, what do you understand now that you didn’t back then? * **Review** your work so far. What has been the biggest discovery/learning/challenge? * **Reconsider** your initial ideas. Have your ideas changed? If so how? |
| 1. I didn’t know how to… 2. Now I can… 3. In the future I will… | |

Resource 3 – Procedural Text – Seedling Investigation

| Aim |
| --- |
| To find out what plants need to grow |
| Equipment |
| * Seeds (e.g. sunflower seeds, water melon seeds, bean seeds) * Soil * Four glass jars * Cotton wool or kitchen towel * Water |
| Procedure |
| 1. Line drawing - take a photoLabel four glass jars with ‘1 - control’, ‘2 - no water’, ‘3 - no soil’ and ‘4 - no light’. 2. For the ‘1 - control’ glass jar, add soil to half way, three seeds buried to the same depth, and put it on a window ledge. Water the seeds with a set amount of water at regular intervals e.g. twice a week. 3. For the ‘2 - no water’ glass jar, add soil to half way, three seeds buried to the same depth, and put it on the same window ledge. Do not water. 4. For the ‘3 - no soil’ glass jar, add cotton wool or scrunched up kitchen towel to half way, three seeds buried to the same depth, and put it on the same window ledge. Water the seeds with a set amount of water at regular intervals e.g. twice a week. 5. For the ‘4 - no light’ glass jar, add soil to half way, three seeds buried to the same depth, and put the jar in a dark cupboard. Water the seeds with a set amount of water at regular intervals e.g. twice a week. 6. Record growth and other observations for the four set-ups at regular intervals e.g. by taking photos. |

Resource 4 – POE chart

A large POE chart such as the one below can be displayed in class for the seedling investigation.

| Set up | Predict | Observe  [photos/notes/sketches] | Explain |
| --- | --- | --- | --- |
| Control | We predict that….  Because … |  | What happened?  Why? |
| No water | We predict that….  Because … |  | What happened?  Why? |
| No soil | We predict that….  Because … |  | What happened?  Why? |
| No light | We predict that….  Because … |  | What happened?  Why? |

Resource 5 – Procedural Text – Celery experiment

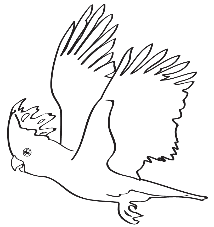
| Aim |
| --- |
| To find out about the needs of plants (water) |
| Equipment |
| * Two celery stalks (with leaves still on is best) * Food colouring (red or blue) * Two containers e.g. glasses, jars or measuring jugs * Water |
| Procedure |
| 1. Line illustration - record observationsFill each container half way with water. 2. Add some drops of red or blue food colouring to the water in one of the two containers. 3. Put one stalk of celery into each container. 4. Put the containers with celery stalks in them in sunlight e.g. a window ledge. 5. Leave them for 24 hours. 6. The next day record observations. You can cut the celery stem to show the insides. |

Resource 6 – Cause-and-effect chart

| CAUSE |
| --- |
| What was the event? Remember to identify the habitat. |

| EFFECT |
| --- |
| What happens to the habitat and the needs of living things in the habitat because of this event |

Resource 7 – Student task sheet and Guide for making judgements

Year 1 Habitats – report

### Line illustration - habitatYour job:

Prepare a report on a local habitat

### In your report you will need to include:

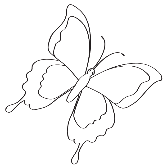
the name and a description of your local habitat. You can include a sketch or photograph

a labelled diagram of the external features of a plant that lives in the habitat

a labelled diagram of the external features of an animal that lives in the habitat

a cause-and-effect diagram of one or two changes in the habitat that shows how the habitat and the needs of living things in the habitat are affected

suggestions of ways that people can care for and improve the health of the habitat so that the needs of living things are not affected.

Your teacher will help you research and prepare your report.

### Hints for your report:

Choose a habitat with help from your teacher that you are interested in.

It might be a place you visit on weekends, or a place in your own backyard.



|  |  |
| --- | --- |
| Year 1 Science: Habitats — report | Name: |

**Purpose:** To identify a local habitat and describe the external features of a plant and animal that live there. To describe changes to things in this habitat. To use science knowledge about the needs of living things to suggest ways to improve this habitat.

Explains how relationships with other living things and the [environment](http://www.australiancurriculum.edu.au/glossary/popup?a=S&t=Environment) assist or hinder its survival

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Science Understanding | | Science as a Human Endeavour | | Science Inquiry Skills | |  |
| Biological sciences | | Use and influence of science | | Communicating | |
| Identifies a habitat and describes the external features of a plant and animal that live there. | | Describes changes to things in a habitat. Uses science knowledge about the needs of living things to suggest ways to improve this habitat. | | Share observations using written language and drawings. | |  |
|  | Explains how the habitat provides for the needs of the living things that live there |  | Describes clearly and explains changes to the habitat and ways to help prevent future harm |  | Clearly represents observations using drawings and uses relevant scientific language throughout | A |
| * Describes a habitat and the external features of a plant and animal that lives there, with links to scientific knowledge | * Describes changes and suggestions for improvements with links to scientific knowledge | * Represents observations using drawings and uses scientific language throughout | B |
| * Identifies a habitat and describes the external features of a plant and animal that live there | * Describes changes to things in a habitat. Use science knowledge about the needs of living things to suggest ways to improve this habitat | * Shares observations using written language and drawings | C |
| * With guidance, identifies a habitat and describes the external features of a plant and animal that live there | * With guidance, identifies a change to things in a habitat and suggestions to improve the habitat | * With guidance, shares observations | D |
| * With direct assistance, selects a habitat | * With direct assistance, selects a change to things in a habitat and suggestions to improve the habitat | * With direct assistance, shares observations | E |
| Teacher feedback: | | | | | | |