

# Geography - Biodiversity and Species

Written by Adriana Sardoni



**Number of lessons:** Four

**Year level(s):** Year 8 Geography

Australian Cross-Curriculum Priority:  
Sustainability

**Australian Curriculum content descriptions:**

Human causes and effects of landscape degradation ([ACHGK051](#))

Management and planning of Australia's urban future ([ACHGK059](#))

Represent data in a range of appropriate forms, for example, climate graphs, compound column graphs, population pyramids, tables, field sketches and annotated diagrams, with and without the use of digital and spatial technologies ([ACHGS057](#))

Present findings, arguments and ideas in a range of communication forms selected to suit a particular audience and purpose; using geographical terminology and digital technologies as appropriate ([ACHGS061](#))

**Achievement standard:**

This sequence of lessons can fit in to either of

the two Year 8 Geography units: Landforms and Landscapes and Changing Nations. Classes investigating [ACHGK051](#) could identify species in a particular geographical area, as a way of identifying human causes and effects of landscape degradation. [ACHGK059](#) could be addressed through this sequence of lessons by examining species which are positive/negative indicators of environmental health and/or those that can be introduced (such as native plants) to provide habitat for native wildlife, including bees.

**Achievement Standard – Year 8 Geography**

By the end of Year 8, students explain geographical processes that influence the characteristics of places and explain how places are perceived and valued differently. They explain interconnections within environments and between people and places and explain how they change places and environments. They compare alternative strategies to a geographical challenge, taking into account environmental, economic and social factors.

Students identify geographically significant

questions from observations to frame an inquiry. They evaluate a range of primary and secondary sources to locate useful and reliable information and data. They select record and represent data and the location and distribution of geographical phenomena in a range of appropriate digital and non-digital forms, including maps at different scales that conform to cartographic conventions. They analyse geographical maps, data and other information to propose explanations

for spatial distributions, patterns, trends and relationships, and draw reasoned conclusions. Students present findings, arguments and ideas using relevant geographical terminology and digital technologies in a range of appropriate communication forms. They propose action in response to a geographical challenge, taking account of environmental, economic and social factors, and predict the outcomes of their proposal.

## Lesson 1- What is biodiversity and what are species?

---

### Context

This is the first in a sequence of four lessons. This lesson provides the foundational knowledge and understanding required by students to meaningfully participate in the remainder of the lessons.

In this lesson, students will discover the answer to the questions:

- What is biodiversity?
- What are species?

### Materials and equipment

Information from the Australian Museum's website: <https://australianmuseum.net.au/what-is-biodiversity> (electronically or hard copy)

Information from the State of the Environment Report – Importance of Biodiversity: <https://soe.environment.gov.au/theme/biodiversity/topic/2016/importance-biodiversity>

Flower template worksheet (Appendix 1)

Pens

### Safety Advice

No Safety issues

### Objectives

To answer the questions:

- What is biodiversity?
- What are species?

## Introduction

What is a species?

YouTube: What makes a species a species? <https://www.youtube.com/watch?v=dnfaiJJnzdE>

## Core

Define 'biodiversity'. This definition is from the Australian Museum's website: "Biodiversity is the variety of all living things; the different plants, animals and micro-organisms, the genetic information they contain and the ecosystems they form. Biodiversity is usually explored at three levels - genetic diversity, species diversity and ecosystem diversity. These three levels work together to create the complexity of life on Earth."

1. Using the jigsaw approach, split students into small groups and provide each group with information on one of the levels of biodiversity (genetic diversity, species diversity and ecosystem diversity) from the Australian Museum's website: <https://australianmuseum.net.au/what-is-biodiversity>
2. In their groups, students read about their topic and find definitions for any new terminology.
3. Students then share their definitions and the key information on their group's topic with students from other groups who had the other two topics.
4. Before reading the remaining information from the Australian Museum website (<https://australianmuseum.net.au/what-is-biodiversity>), in small groups, or, as a class, brainstorm reasons why Australia has a high number of endemic species.
5. As a class, read and discuss the remaining information from the Australian Museum website (<https://australianmuseum.net.au/what-is-biodiversity>) on Biodiversity in Australia, Gondwana and Conserving Biodiversity.
6. Students access the website <https://soe.environment.gov.au/theme/biodiversity/topic/2016/importance-biodiversity> and complete the flower template with the 5 core values that humans place on biodiversity.

## Conclusion

Exit ticket: students write what biodiversity is in their own words, and TWO reasons why it is important.

## Resources

**Digital:** Computers, if accessing information electronically

**Worksheet:** Flower template (Appendix 1)

**Useful links:**

Australian Museum's website: <https://australianmuseum.net.au/what-is-biodiversity>

5 core values that humans place on biodiversity: <https://soe.environment.gov.au/theme/biodiversity/topic/2016/importance-biodiversity>

Extension/Early Finish Activity: Feed the Dingo game: <https://www.pbslearningmedia.org/resource/plum14.sci.life.feedingo/feed-the-dingo-an-ecosystem-game/>

# Lesson 2 and 3 (Double)- What species can we find around the school?

---

## Context

After learning what species are and the importance of biodiversity in the previous lesson, students will now discover the species of plant and animal that are present within their school grounds.

## Materials and equipment

iPads (one per group of 4-5 students)  
PictureThis app (free from the App store – set search settings to 'iPhone only')  
WiFi connection  
Clipboards  
Plant recording sheet (Appendix 2)  
Animal recording sheet (Appendix 3)  
Pens  
Sports markers/cones  
Post-it notes

## Safety advice

This lesson is completed around the school grounds – ensure students are supervised at all times. Before the lesson, divide the school grounds up into smaller sections, using the sports markers/cones. This will ensure that students do not wander off and are supervised at all times. Students must be wearing hats and sunscreen and carrying a water bottle. Students need to understand that they are not to touch the plants or animals and may only take photograph

## Objectives

To identify and record the many species of plants and animals that can be found on the school grounds

## Introduction

- Recap previous lesson on what a species is, what biodiversity is and why it is important.
- Make predictions of how many species of plants and how many species of animals students expect to find around the school today.

## Core

1. Arrange students into groups of 4-5. Give each group an iPad, clipboard, animal recording sheet, plant recording sheet and pen.
2. Show students how to use the PictureThis app (it is very simple – just take a photo of the plant, and it will identify it!) and how to record plant information on the plant recording sheet.

3. Explain to students that there isn't a similar app for identifying animals (there could be by the time you are using this!), so they will need to use the iPad's camera to take photos of any animals and try to identify them with their prior knowledge. Any animals that the group cannot identify can be identified by the class/teacher later on.
4. Take class out to the first marked off section of the school grounds and give them 5-10 minutes to collect data on as many plants and animals as possible.
5. Move with class throughout school grounds until all sections have been covered.
6. Return to classroom and collate plant and animal data in an excel spreadsheet (if students do not have their own devices/are not in a computer lab, the teacher may need to do this). If required, use photographs to identify any animal species that were not identified in the field (The Atlas of Living Australia website may be helpful here: <https://www.ala.org.au/>)
7. Share and collate images of animals, and sort them into categories. Each group uses an appropriate program on the iPads/other devices if available to create a poster for each category of animal identified in the field (e.g. birds).
8. Collect all clipboards, recording sheets and iPads.
9. Revisit predictions made at the start of the lesson – were they close? Are there some species around the school that were not identified today?

## Conclusion

- Students are to complete this reflective activity individually:
  - Give each student a post-it note and ask them to write one thing they learned today.
  - Give each student a post-it note of a different colour and ask them to write any questions they have, following today's lesson.
- Collect the post-it notes and display them in a wall of the classroom, under an appropriate heading. Address students' questions in the following lesson.

## Resources

### Digital:

- iPads
- PictureThis App
- Microsoft Excel
- Software/program appropriate for making a poster with images and text

### Worksheets:

- Plant recording sheet (Appendix 2)
- Animal recording sheet (Appendix 3)

### Useful links:

- The Atlas of Living Australia: <https://www.ala.org.au/> (this can be helpful for identifying animals)

# Lesson 4: How can we represent the data collected in our school Bush Blitz?

---

## Context

In the previous lesson, students completed their own Bush Blitz in the school grounds, identifying and recording plants and animals.

In this lesson, they will represent the data visually (e.g. pie charts, column graphs) using digital technologies.

## Materials and equipment

Computers – 1 per student  
Microsoft Excel  
Data collected in previous lesson

## Safety advice

No safety issues

## Objectives

To represent data collected in the school Bush Blitz using Microsoft Excel.

## Introduction

Discuss the Bush Blitz activity completed in the previous lesson. Read out some of the 'one thing I learned' post-its, and answer some of the questions submitted at the end of last lesson.

## Core

1. Students open the collated plant data collected last lesson in Microsoft Excel
2. As a class, decide which plant data to represent visually (e.g. Plant Type, Family, etc.) and discuss which type of chart would be the most appropriate for this.
3. Show students how to manipulate the data in Excel to create the desired chart. Ensure it complies with geographic conventions.
4. Repeat this activity with different plant data and different types of charts.
5. Repeat steps 2-4, using the animal data.
6. Discuss any limitations of the data.

Display the charts in the classroom with the posters from the previous lesson.

## Conclusion

Students provide feedback on the activity, either through a survey (could be created in Microsoft Forms) or by writing feedback (to prompting questions) on sheets of paper.

Teachers then can use this feedback to evaluate the success of the activity and modify (if required) it for future use.

## Resources

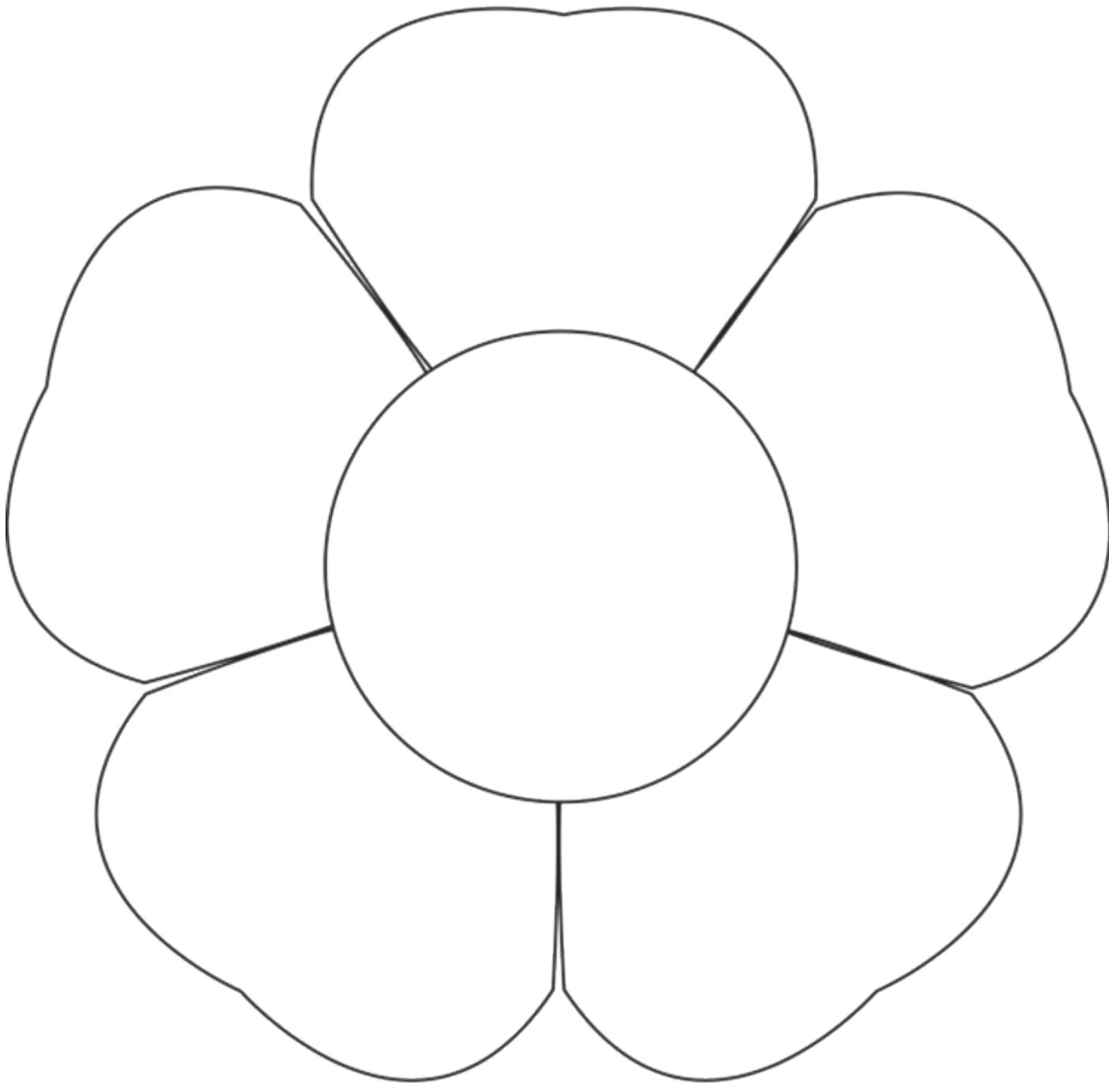
Digital

- Computers (1:1)
- Microsoft Excel

Appendix 1.

## Flower Template

Put the topic in the centre of the flower, and related ideas in the petals.





Appendix 2.

Group Name: \_\_\_\_\_ Group members: \_\_\_\_\_  
School: \_\_\_\_\_ Teacher: \_\_\_\_\_ Date: \_\_\_\_\_

### Plant Recording Sheet

Common Name	Latin Name	Genus	Family	Plant Type

Appendix 3.

Group Name: \_\_\_\_\_ Date: \_\_\_\_\_

Group members: \_\_\_\_\_

School: \_\_\_\_\_ Teacher: \_\_\_\_\_

### Animal Recording Sheet

Name of Animal	Type of Animal (Land mammal, fish, reptile, bird, amphibian, spider, insect)

