

# Science in the wild

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**Number of lessons:** 4

**Year Level(s):** Year 3

**Australian Curriculum content descriptions:**

**Science Understanding:**

## **Biological Sciences**

Living things can be grouped on the basis of observable features and can be distinguished from non-living things (ACSSU044 - Scootle).

## **Use of influence of science**

Science knowledge helps people to understand the effect of their actions (ACSHE051 - Scootle).

**Science as a Human Endeavour:**

## **Nature and development of science**

Science involves making predictions and describing patterns and relationships (ACSHE050 - Scootle).

## **Use of influence of science**

Science knowledge helps people to understand the effect of their actions (ACSHE051 - Scootle).

**Science Inquiry Skills:**

## **Questioning and predicting**

With guidance, identify questions in familiar contexts that can be investigated scientifically and make predictions based on prior knowledge (ACISIS053 - Scootle).

Consider the elements of fair tests and use formal measurements and digital technologies as appropriate, to make and record observations accurately (AC SIS055 - Scootle).

### Planning and conducting

With guidance, plan and conduct scientific investigations to find answers to questions, considering the safe use of appropriate materials and equipment (AC SIS054 - Scootle).

Consider the elements of fair tests and use formal measurements and digital technologies as appropriate, to make and record observations accurately (AC SIS055 - Scootle).

### Processing and analysing data and information

Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends (AC SIS057 - Scootle).

### Communicating

Represent and communicate observations, ideas and findings using formal and informal representations (AC SIS060 - Scootle).

### Achievement standard:

#### Year 3 Achievement Standards

By the end of Year 3, students use their understanding of the movement of Earth, materials, and the behaviour of heat to suggest explanations for everyday observations. They group living things based on observable features and distinguish them from non-living things. They describe how they can use science investigations to respond to questions. Students use their experiences to identify questions and make predictions about scientific investigations. They follow procedures to collect and record observations and suggest possible reasons for their findings, based on patterns in their data. They describe how safety and fairness were considered and they use diagrams and other representations to communicate their ideas.

## Lesson 1 – The Wildest Place

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### Context

In this lesson students reflect on the wildest place they have ever been. This will differ enormously. Some students will recount bush walks and camping trips, others will reflect on trips abroad with their families. For some students, the local park is the wildest place they have ever been. There is no right, or wrong response and the teacher will work to draw out common themes of the characteristics of wild places, before discussing why wild places are important to scientists.

### Materials and equipment

- Science journals or workbooks
- Coloured pencils
- Profile videos of 'wild scientists' like this one from Dr Erinn Fagan- Jeffries from the University of Adelaide [https://www.youtube.com/watch?v=IG-1TFf\\_bKk&t=4s](https://www.youtube.com/watch?v=IG-1TFf_bKk&t=4s).

### Safety Advice

Nil

### Objectives

- Elicit student's prior knowledge and questions to inform teaching and learning through the 'Science in the Wild' unit.

### Introduction

1. Start the lesson by asking students 'Where is the wildest place you've ever been?'
2. Choose a couple of volunteers to share. Follow up with the question 'What makes it wild?'
3. Highlight themes such as wild places are far away, have lots of nature, can be dangerous.
4. All students should now have an idea of what a wild place is and their own experience. Ask students to picture the wildest place they have ever been in their minds. What does it look like? Feel like? Smell like? Sound like?
5. Think-pair-share. Ask them to turn to the person next to them and share.
6. Ask a couple of students to share the wildest place their partner has ever been.

### Core

7. Instruct students to draw the wildest place they have ever been in their science journal or workbook.
8. Make the picture large and include details, colours and labels so that everyone looking at it will know why it's wild. Draw what you saw – not something you've imagined.

### Conclusion

9. Choose a couple of volunteers to share their drawings.
10. Focus on the themes of the wild places (remoteness, danger, animals and plants, uniqueness)
11. Ask 'Why do you think scientists work in wild places?'
12. Show the video of the '[wild scientist](#)'
13. Discuss why wild places are important to scientists.
14. Conclude with the question 'Are wild places important to you? Why?'

## Resources

### Digital:

Wild scientist:

Share Your Story ~ Erinn Fagan-Jeffries - [https://www.youtube.com/watch?v=IG-1Tff\\_bKk&t=4s](https://www.youtube.com/watch?v=IG-1Tff_bKk&t=4s)

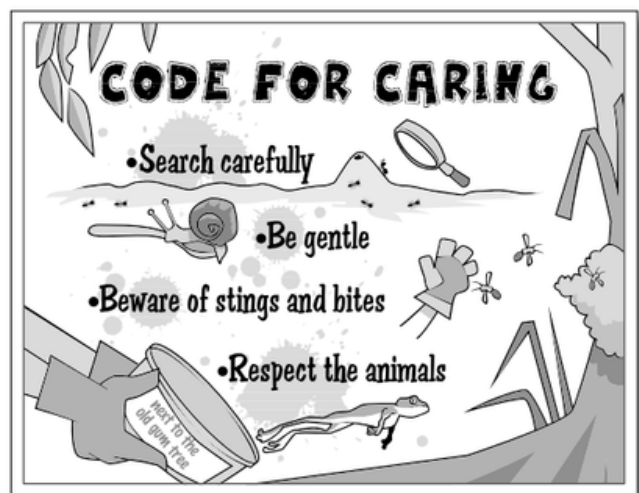
## Lesson 2 – Schoolyard Bush Blitz

### Context

In this lesson, students think about their school and local area as a wild place. They discuss whether it is a wild place now and whether it was ever a wild place, with acknowledgement to Traditional Owners. Students make predictions about the types of animals they may find in the schoolgrounds and then, using authentic equipment and methods, conduct a biodiversity survey to collect evidence.

### Materials and equipment

- Historical satellite imagery of school grounds (available from your local council)
- Specimen jars/vials
- Pooters ([or make your own](#))
- Tweezers
- Gloves
- Butterfly nets
- Trowels
- Labels
- iPads



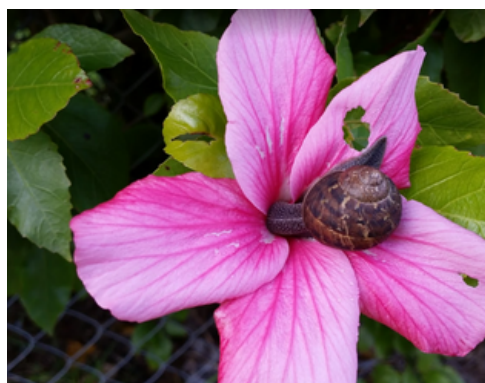
Code for Caring Poster from [Primary Connections: Feathers, fur or leaves](#).

### Safety Advice

- Students and teachers to wear hats, sunscreen and shoes when working outside.
- Students to wear gloves and mask if digging in soil.
- Brief students on precautions when working with mini-beasts – don't touch as they could bite or sting
- Introduce 'Code for Caring' (source: <https://www.primaryconnections.org.au/sites/default/files/unit-file-downloads/Feathers-fur-or-leaves.pdf>)

### Objectives

Students demonstrate their Science Inquiry Skills by carrying out the investigation safely and accurately recording results.



### Introduction

1. Recap previous lessons. Discuss that Dr Erinn Fagan-Jeffries works in wild places to discover new things. Introduce the idea that scientists need data to discover what it out there so humans can protect and conserve it or use it as a resource. We can't save what we don't know about.
2. Ask students: 'Is our school a wild place? Why/why not?'
3. Look at satellite imagery of the school grounds from 10, 20, 30 years ago (contact your local council if you cannot locate these images). Discuss changes.
4. Acknowledge your local traditional owners. If possible, have a local traditional owner visit your school and talk about the changes they have seen and the changes their ancestors have seen over the thousands of years they have been connected to the land.
5. Ask students whether we could find animals at our school. Have them predict the kinds of animals we might find and collate responses on the board or in a digital format. Highlight that we may not be able to find large animals like dingoes or wallabies, but scientists are often searching for mini beasts too.
6. Supplement the lesson with the Mini-Beast song by the Banditz.

### Core

7. Choose an area of the school grounds such as a native garden or veggie patch to conduct a biodiversity survey.
8. Provide students with a safety briefing and then head to the schoolyard site.

9. Choose two students to oversee data collation– recording all types of animals found. Students may use an iPad to make a photo record of observations.
10. Students may use equipment to dig in the dirt, beat branches of trees, sweep with butterfly nets, and look under rocks and through bushes.

### Conclusion

11. Back in the classroom, review the data collected.
12. To conclude, compare the results table with the list of predictions made before the survey.

### Resources

#### Digital:

How to make an Insect Pooter <https://www.youtube.com/watch?v=gQeV2eqq0cQ>  
Mini-beast song by the Banditz <https://www.youtube.com/watch?v=LoleelEPGJI>

#### Worksheet:

'Code for Caring' from [Primary Connections: Feathers, fur or leaves](#)

## Lesson 3 – Wild results

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### Context

In this lesson, students use a branching key to group the animals they have found in the school. They use this data to construct a column graph that will help communicate the data they have collected.

### Materials and equipment

- Branching key (like this one from Primary Connections)
- Graph paper with different levels of scaffolding for graph construction
- Pencils
- Rulers

### Safety Advice

Nil

### Objectives

- Students can use a branching key to group animals based on their observable features.
- Students can use the data collected to construct a simple column graph to share their results.

### Introduction

1. Introduce the idea of classification – scientists group living things to make it easier to study them.
2. Introduce the Branching Key and the idea that we are putting animals in 'groups' not 'species'.
3. Draw a copy of the Schoolyard Bush Blitz Results Table on the board and distribute a paper copy of the table to each student.
4. I try, we try, you try. Model the use of the branching key for an animal found in the survey, before asking for a couple of student volunteers to key animals. Model how to transfer this data into the Schoolyard Bush Blitz Results Table. Finally, ask the students to work with a partner to key the remaining animals from the collection data.
5. Review as a class and discuss any discrepancies.

Column graph Student Self-Assessment Checklist

### Core

6. Model how to display this data as a column graph to the class, referring to the Column graph Student Self-Assessment Checklist
7. Provide progressively scaffolded templates on graph paper to meet the diversity of student abilities.
8. Ask the students to construct their own column graph using the data from the survey and the Column graph Student Self-Assessment Checklist.

### Conclusion

9. Ask a couple of students to share their column graph with the class. Utilise the opportunity to provide feedback to the students and to the class.
10. Discuss the purpose of a column graph – to share data clearly.
11. Consider inviting another member of staff to come in so that students can share their results with them.

**Resources**

**Digital:**

**Worksheet:**

Branching Key from Primary Connections:

<https://www.primaryconnections.org.au/sites/default/files/unit-file-downloads/Feathers-fur-or-leaves.pdf>

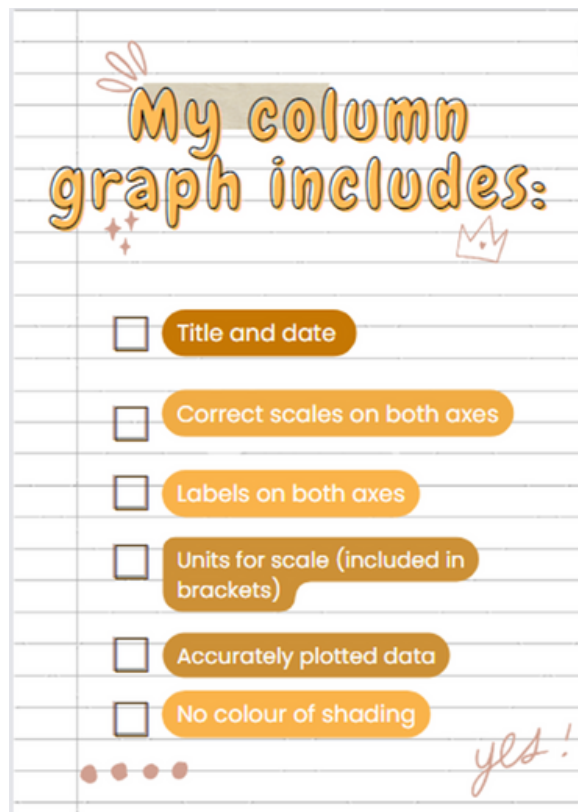
Column graph Student Self-Assessment Checklist

**Schoolyard Bush Blitz Results Table**

Animals that we found:

Type of animal	Number of animals
(e.g. Insect, Mollusc, Myriapod)	

Column graph Student Self-Assessment Checklist





## Lesson 4 – Wild futures

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### Context

In this lesson students relate their Bush Blitz results to the concept of biodiversity. Applying their evidence and what they have learned, the class creates a Biodiversity Action Plan and rallies the support of the school community.

### Materials and equipment

- Class Word Wall
- Column graph from previous lesson

### Safety Advice

Nil

### Objectives

Students demonstrate their science communication skills by using their evidence to support the idea of increasing the biodiversity in the school. Students learn that science knowledge helps people to understand the effect of their actions.

### Introduction

1. Review previous lessons.
2. Introduce the term 'Biodiversity' and ask students what they think it means.
3. Add the definition to the Word Wall or class science journal – biodiversity is all the different kinds of life you can find in an area. Not just animals, but plants, fungi and even micro-organisms that we can't see like bacteria.

### Core

4. Review the column graph from the last lesson. Discuss whether this graph indicates a biodiverse area. Discuss the limitations of the data (we were only looking for animals – not plants, fungi, or bacteria, we are still learning the collection methods, we only sampled a tiny area)

5. Discuss whether students think the biodiversity of the school will increase or decrease over time and why.
6. Discuss ways they could increase the biodiversity of the area.
7. If possible, organise a visit from a local Landcare Officer to offer expert advice on how to improve biodiversity.

### **Conclusion**

8. Collate ideas and make a 'Biodiversity Action Plan' for the school
9. Support student advocacy by sharing with the school through newsletters, assemblies and/or meetings with Principal, P&C, and school board.
10. Use the momentum to attract funding and volunteers to enact the plan.