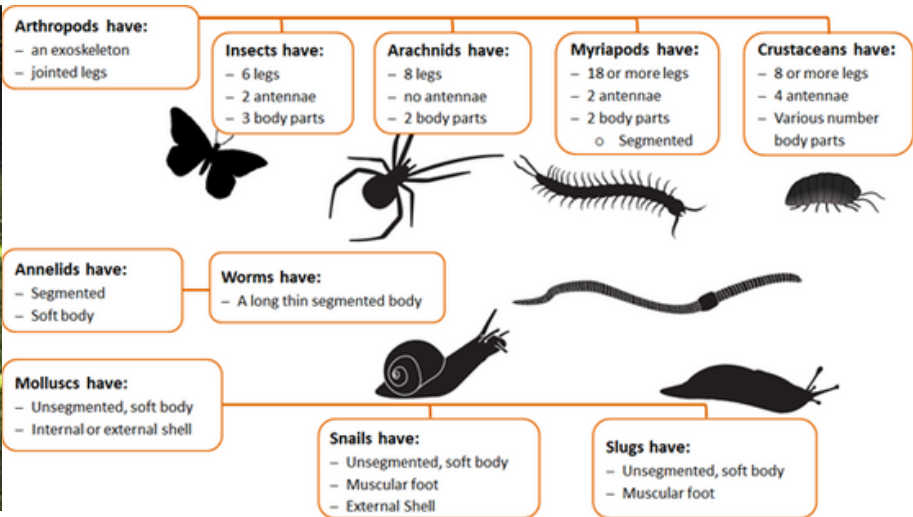


# Biodiversity in the Schoolyard – Quadrat sampling and schoolyard documentary

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**Number of lessons:** 4

**Year Level(s):** 4, 5, 6

**Australian Curriculum content descriptions:**

## Year 4:

Living things depend on each other and the environment to survive ([ACSSU073](#))

Science knowledge helps people to understand the effect of their actions ([ACSHE062](#))

With guidance, identify questions in familiar contexts that can be investigated scientifically and make predictions based on prior knowledge ([AC SIS064](#))

Represent and communicate observations, ideas and findings using formal and informal representations ([AC SIS07](#))

## Year 5:

Living things have structural features and adaptations that help them to survive in their environment ([ACSSU043](#))

Scientific knowledge is used to solve problems and inform personal and community decisions ([ACSHE083](#))

Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks ([AC SIS086](#))

Reflect on and suggest improvements to scientific investigations ([AC SIS091](#))

## Year 6:

The growth and survival of living things are affected by physical conditions of their environment ([ACSSU094](#))

Scientific knowledge is used to solve problems and inform personal and community decisions ([ACSHE100](#))

Compare data with predictions and use as evidence in developing explanations ([AC SIS221](#))

Reflect on and suggest improvements to scientific investigations ([AC SIS108](#))

### Context

Students use their prior knowledge to identify areas of higher biodiversity within their schoolground. They learn a common scientific surveying methodology, identify invertebrates and determine the number of different species present in this habitat. They create a short 2 minute documentary to showcase their learning and highlight schoolyard biodiversity. Sharing enables wider peer mentoring of newly learnt scientific, development of

videography and editorial skills as well the opportunity for deeper class questioning and analysis of methodology used. Students have the opportunity to showcase their learning and promote behavioral change in the school community. Increased knowledge is aimed to promote students to implement actions to promote, maintain and increase biodiversity in their school.

This sequence of lessons can be tailored for years 4, 5 and 6 by varying levels of inquiry and analysis in all stages of the lesson sequence.

### Materials and equipment

Pen, species identification resources, hoolerhoops , Ipads, data observation sheet, magnifying glass.

### Safety Advice

Discuss with students safe observation techniques, animal ethics.

## Lesson 1 – Biodiversity in our Schoolyard

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### Objectives

Students use prior knowledge to identify different habitats in the schoolyard, they are then given exposure to scientific methods and an explicit worked example.

### Introduction

Ask students to think about what animals they have observed in the schoolyard and where. Now show students a hooler hoop and ask them to imagine a place this size in the school where they have seen the most amount of different animals. As a class identify key

schoolyard environments e.g. vegetable garden, compost heap, a garden bed, a significant tree or bush area and key features of or in, each of these habitats e.g. dark, long grass, mulch, rocks, logs, light shade etc. Allow time for student discussion.

### Core

1. Arrange students in groups of 3 to 4. Explain to students that they will be working as a scientific and film crew for the following 4 lessons and at different times they will all be undertake different roles.
2. Display a birds-eye view on Google Maps of the schoolyard and have students discuss with their group which area or habitat they are going to investigate. After students have identified their site, choose a site to do a demonstration quadrat survey with students.
3. Watch the following video <https://www.youtube.com/watch?v=mkM6ikWvdkU>.
4. As a class do some practice quadrat sampling in a chosen location in the school. Do an example survey with students using hooler hoops then allow them to have a go.

### Conclusion

Once completed have a class discussion about the success of the quadrant method and any areas of the process to improve for next lesson. Display invertebrate guide to begin identification to a group level.

### Resources

#### Digital:

<https://australianmuseum.net.au/uploads/documents/9379/quick%20invertebrate%20guide.pdf>

#### Worksheet:

See bottom of Document for recording sheet

#### Useful links:

<http://australian.museum/learn/teachers/learning/bugwise/>

## Lesson 2 – Quadrat sampling

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### Objectives

For students to experience quadrat sampling in their chosen survey site. Student then use quick invertebrate guide or bugwise resource to group invertebrates and record on data sheet.

## Introduction

Refresh last lesson and the new survey skills we learnt.

Are students happy with the site they choose or do they think another area will have a greater diversity of animals?

Rewatch the video below so students understand what they will be doing in this lesson.

Start at minute 1:15

<https://www.youtube.com/watch?v=mkM6ikWvdkU>

## Core

1. Once locations have been identified, explain to students that each group will be doing a survey of their site using the 'quadrat' technique
2. Ask students to gather their materials
  - Hooler hoop
  - Id charts/museum guide
  - Observation sheet
  - Pencil
3. Student groups head to their chosen site and undertake survey ensuring they record their details on observation sheet
4. Use the Australian museum invertebrate guide for help with group/species identification

## Conclusion

Discuss total number of different groups/species each group found in their site. Use the following questions to start a class discussion: How they could share this information with the rest of the school? Did they notice any interesting behaviour from the animals? Why should they share this information? Are there any ways they could improve your method?

## Resources

### Digital:

<https://australianmuseum.net.au/uploads/documents/9379/quick%20invertebrate%20guide.pdf>

### Worksheet:

See bottom of document

### Useful links:

<http://australian.museum/learn/teachers/learning/bugwise/>

<https://www.australianenvironmentaleducation.com.au/education-resources/invertebrate-investigations/>

# Lesson 3 – Creating your documentary

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## Objective

For students to showcase invertebrate biodiversity in the schoolyard / the total number of different species present in their quadrat and share their observations by creating a short (2min) documentary.

## Introduction

Ask students to return to their groups and gather their observation sheet. Refresh types of species found and total number of different species observed.

## Core

Explain to students they will be creating a short documentary to showcase the animals they found in their survey site.

Watch these as 2 examples: Discuss aspects you like from the filming and areas to improve.

<https://www.youtube.com/watch?v=1adHtNGluhw>

<https://www.youtube.com/watch?v=8Ex2UsLdfSA>

Their documentary must follow these guidelines:

- No longer than 2 minutes
- Showcase total number of species they found in their site
- Contain footage of at least 3 different species
- Include the names of all group members

## 1. Filming

Students have 20 minutes to gather footage of animals in their chosen site. Use the tips and example footage to discuss best ways to film.

Tips for filming:

- Find a spot to sit and be still and wait for creatures to come into frame
- Steady camera in one place
- For small animals move your Ipad slowly in and out to focus in on the animal
- Have one person introduce site, number of species observed and anything interesting you noticed

## 2. Editing

Students have 15 minutes in class to edit their footage into a short showcase of life in their chosen site.

Tips for editing:

- Start with a clear introduction which includes names of group members, site, total number of species found.
- Use only clear footage where the viewer can clearly see the animal
- Include names of each animal
- Include any interesting behavior your group observed
- Include some quiet music

## Conclusion

Discuss with students that next lesson will be a celebration of their work and achievements and opportunity to learn from each other and refine their skills.

Possible discussion points: achievements and difficulties in the film making process

# Lesson 4 – Schoolyard Biodiversity Film festival

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## Objectives

Sharing enables wider peer mentoring of newly learnt scientific, videography and editorial skills as well the opportunity for deeper class questioning and analysis. Students have the opportunity to showcase their learning and promote behavioural change in the school community. Increased knowledge is aimed to promote students to implement actions to promote, maintain and increase biodiversity in their school.

## Materials and equipment

Tv screen/ airplay Screen for mirroring off I pads

## Introduction

Ask students to arrange themselves into their group and discuss 3 highlights and lowlights from this sequence of lessons. Share. Discuss any new information students learnt. Ask students how they think we could increase biodiversity in these sites?

**Core**

Students share their 2 minute documentary. Encourage a class culture of positive and constructive feedback. Students could vote on 1 movie to be shared at school assembly.

**Conclusion**

Where to now? What actions can each group to do promote biodiversity in the school? Why is biodiversity important?