

# **A Bug's Life**

**Kids to Farms**

**3 - 4 program**

**Teacher's Guide**



**NT FARMERS**

# Program overview



## Educating Kids about Agriculture

The Educating Kids about Agriculture program is funded by the Department of Agriculture, Fisheries & Forestry and aims to encourage young Australians to study and pursue a career in agriculture including taking primary school students and teachers to visit farms and other primary production worksites, both physically and virtually, using innovative activities to learn about where food and fibre comes from and the important role the industry plays in regional communities and to the economy.

These resources, created by PIEFA, align the Australian Curriculum for teachers to support excursions to food gardens, to teach students where food and fibre comes from, how it is processed into food and the opportunities available within the industry in their region, for the future.

## How to use this resource

The lessons outlined in this Teacher's Guide can be used to support an excursion to a community/school garden of your choice.

This resource includes:

- 3 - 4 Australian Curriculum (v9.0) links
- 2 x pre-excursion activities
- 2 x excursion activities
- 2 x post-excursion activities
- Worksheets and resources to support each activity



# Australian Curriculum



## Science

Year 3

### Science understanding

AC9S3U01

#### Biological sciences

Compare characteristics of living and non-living things and examine the differences between the life cycles of plants and animals

### Science as a human endeavour

AC9S3H02

#### Use and influence of science

Consider how people use scientific explanations to meet a need or solve a problem

## Science

Year 4

### Science understanding

AC9S4U01

#### Biological sciences

Explain the roles and interactions of consumers, producers and decomposers within a habitat and how food chains represent feeding relationships

### Science inquiry

AC9S4I02

#### Planning and conducting

Use provided scaffolds to plan and conduct investigations or test predictions, including identifying the elements of fair tests, and considering the safe use of materials and equipment

### Science inquiry

AC9S4I03

#### Planning and conducting

Follow procedures to make and record observations, including making formal measurements using familiar scaled instruments and using digital tools as appropriate

## Design & Technologies

Year 3 & 4

### Knowledge and understanding

AC9TDE4K03

#### Technologies context: Food and fibre production

Describe the ways of producing food and fibre

### Processes and production skills

AC9TDE4P02

#### Generating and designing

Generate and communicate design ideas and decisions using appropriate attributions, technical terms and graphical representation techniques, including using digital tools

### Processes and production skills

AC9TDE4P03

#### Producing and implementing

Select and use materials, components, tools, equipment and techniques to safely make designed solutions

# Pre-excursion activities



## Resources provided

- *Friend or Foe?* worksheet
- *Digging Deeper* worksheets

## Resources required

- Internet access for research tasks
- Digital device with internet access for watching videos

## Activity 1 What do we know about insects?

As a class, brainstorm and list the different types of insects that you know. Search online for the [Australian Museum's Quick Invertebrate Guide](#) to help you add to the list. Choose 4-5 insects from the list and search for an image of these species to look at in closer detail. Ask the students to identify the characteristics that all the insects have in common. Answers may include:

- They all have an exoskeleton (a skeleton on the outside of their body)
- They all have segmented bodies
- They have at least three pairs of legs (six in total), each of which is jointed.

## Activity 2 Beneficial vs pest insects

Invertebrates that pollinate plants and eat pests are commonly known as beneficial insects. Encouraging these insects into your garden can help improve the yield (amount of produce) of a fruit or vegetable plant. A pest insect species on the other hand, is a type of insect that eats or damages the food plants growing in your garden. Watch the video [A Bug's Life - BTN](#) to learn more about how agricultural industries around the world rely on beneficial bugs.

Ask students to examine the **Friend or Foe?** worksheet. Students should read the descriptions of each insect to help them determine whether they are a beneficial or pest insect species. Ask students to choose one beneficial insect species and one pest insect species to research in further detail. Their research should be guided by the questions provided on the **Digging Deeper** worksheets. Students can complete their research individually or in small groups.

Video URL: <https://www.abc.net.au/btn/classroom/a-bugs-life/10533090?jwsourc=cl>



# Excursion activities

## Resources provided

- *Garden Snapshot* worksheet
- *Bug Search* survey worksheets

## Resources required

- Clipboard and pencil per student
- White paper or fabric
- Kitchen sieve (fine holes)
- Paintbrushes
- Clear containers (glass or plastic)
- Gardening gloves or latex gloves (optional)
- Digital devices with ID app installed (optional)

## Activity 1 A Garden Snapshot

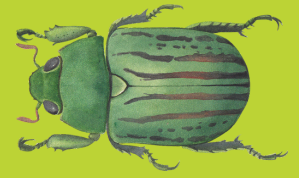
While visiting your community garden, allow your students to sit quietly and take some time to absorb their surroundings. They can record a 'snapshot' of the things they observe around them, using their different senses. The **Garden Snapshot** worksheet will guide them in making these observations.

## Activity 2 Bug Search

Invite your students to undertake a bug search to investigate which insects are living in your community garden. Different methods of undertaking the search include:

- Lie a piece of white paper or fabric underneath a plant growing in the garden. Gently shake the plant to see if any insects fall. Use a paintbrush to gently pick up the insect to transfer into a clear container for investigation. Repeat in various locations.
- Pick up a few handfuls of soil, leaf litter or garden mulch and place into the sieve (students may choose to wear gloves for this activity). Pick out any large pieces of plant matter. Gently sieve remaining organic matter to remove soil. Use a paintbrush to gently pick up any insects found into a clear container for investigation. Repeat in various locations.

# Excursion activities



## Activity 2 Bug Search (continued)

Ask your students to identify any insects that are found. You may choose to take printed copies of the [Australian Museum's Quick Invertebrate Guide](http://aries.mq.edu.au/projects/habitat-stepping-stones-3/Invertebrate-guide.pdf) to assist with identification. Alternatively, if digital devices are available, you may choose to use the free [Northern Territory Field Guide App](https://www.magnt.net.au/fieldguide) from the Australian Museum to help identify insects. Students can record their **Bug Search survey** results on the worksheets provided.

Australian Museum Quick Invertebrate Guide:

<http://aries.mq.edu.au/projects/habitat-stepping-stones-3/Invertebrate-guide.pdf>

Australian Museum Northern Territory Field Guide App:

<https://www.magnt.net.au/fieldguide>



# Post-excursion activities



## Resources provided

- Bug Hotel design ideas
- *Beneficial Bug Hotel* worksheet

## Resources required

- Internet access for research
- Bug hotel building materials and tools (optional)

## Activity 1 Design task

Ask students to share their Bug Search survey results. Create a class list of all the different types of insects that were identified in the community garden. How many were beneficial insects? How many were pest insects?

Present students with the following design task: Design a Beneficial Bug Hotel!

- Conduct research into what makes a good bug hotel.
- Use the Bug Hotel design ideas page to help you start your research.
- Try to use recycled items in your design. Draw and label your design on the Beneficial Bug Hotel worksheet.
- Include information about the types of materials you have used in your design.
- Explain how your hotel aims to attract insects and encourage them to stay.
- Think about the types of plants you would recommend planting around the hotel to attract beneficial insects.

## Optional extra Build your design

As a class, review the various Beneficial Bug Hotel designs created by the students. Choose one design that you would like to construct together as a class. Gather the recycled materials and tools required to complete the chosen design. Allocate construction roles and carefully supervise the use of equipment and tools. There may be parts of the construction process that are more suitable for teachers to perform, depending on your chosen design. When the Beneficial Bug Hotel is completed, consider taking it back to install in your community garden as a lasting contribution!