



Australian Government
**Department of Agriculture,
Fisheries and Forestry**

Biosecurity champions

Teacher guide – Year 3





Learning areas and Australian Curriculum content

Design and Technologies

Describe the ways of producing food and fibre **(AC9TDE4K03)**.

English

Understand that cooperation with others depends on shared understanding of social conventions, including turn-taking language, which vary according to the degree of formality **(AC9E3LA01)**.

Use interaction skills to contribute to conversations and discussions to share information and ideas **(AC9E3LY02)**.

Use comprehension strategies when listening and viewing to build literal and inferred meaning, and begin to evaluate texts by drawing on a growing knowledge of context, text structures and language features **(AC9E3LY05)**.

Plan, create, rehearse and deliver short oral and/or multimodal presentations to inform, express opinions or tell stories, using a clear structure, details to elaborate ideas, topic-specific and precise vocabulary, visual features, and appropriate tone, pace, pitch and volume **(AC9E3LY07)**.

Humanities and Social Sciences

The ways First Nations Australians in different parts of Australia are interconnected with Country/Place **(AC9HS3K04)**.

Who makes rules, why rules are important in the school and/or the local community, and the consequences of rules not being followed **(AC9HS3K06)**.

Why people participate within communities and how students can actively participate and contribute to communities **(AC9HS3K07)**.

Develop questions to guide investigations about people, events, places and issues **(AC9HS3S01)**.

Locate, collect and record information and data from a range of sources, including annotated timelines and maps **(AC9HS3S02)**.

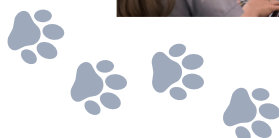
Draw conclusions based on analysis of information **(AC9HS3S05)**.

Propose actions or responses to an issue or challenge that consider possible effects of actions **(AC9HS3S06)**.

Science

Consider how people use scientific explanations to meet a need or solve a problem **(AC9S3H02)**.





Contents

Australian Curriculum content	2
Lesson objective	3
Lesson overview	3
Success criteria	4
Additional information	4
Resources and equipment	5
Lesson guide	6
Answers	10
References	14

Lesson objective

Students will gain an understanding of biosecurity and its importance in protecting Australia’s people, environment and resources. They will understand how pests and diseases impact humans, agriculture and ecosystems. They will learn about biosecurity threats and how various roles, such as biosecurity officers, scientists and government officials, protect the community from biosecurity threats. Students will work together and engage in a problem-solving competition that revolves around the scenario of hosting international events in Australia. They will collaborate in teams to identify potential biosecurity risks and develop effective risk plans, fostering skills in teamwork and creative problem-solving and encouraging them to apply their knowledge in practical, real-world scenarios.

Lesson overview

Activity 1 – Pests, diseases and biosecurity (20 to 30 mins)

Activity 2 – How do people protect Australia? (30 to 40 mins)

Activity 3 – Biosecurity challenge (60 mins)



Success criteria

1. Understand biosecurity and its impact

I can explain biosecurity, why it is important and how it helps protect Australia's environment, agriculture and population from pests and diseases.

2. Role-play biosecurity stakeholders

I can assume the role of a biosecurity stakeholder, such as a scientist or biosecurity officer, and demonstrate their responsibilities in protecting the community during the role-play activity.

3. Participate in the biosecurity challenge

I can actively participate in the biosecurity challenge, collaborating with peers to solve biosecurity-related problems and demonstrating an understanding of how biosecurity measures are essential during international events like the Olympics.

4. Propose solutions to biosecurity threats

I can work with a team to identify potential biosecurity risks associated with hosting international events and propose practical and effective risk management plans.

Additional information

Junior Biosecurity Officer certificate

Students colour a paw print on the [Junior Biosecurity Officer certificate](#) for each completed activity, visually tracking their learning journey with Frankie the biosecurity detector dog.

Take home challenge

Students become biosecurity champion 'graduates' by completing the [take home challenge](#). They can test their carer's knowledge by quizzing them on biosecurity trivia and interviewing them about their experiences with biosecurity rules and regulations.

Biosecurity poster (assessment)

The [biosecurity awareness campaign poster](#) for Year 2 to 5 invites students to create an educational poster on the importance of biosecurity, incorporating interactive elements like flaps, pop-ups and QR codes. This activity enhances understanding through creative engagement. A [marking rubric](#) is available for teachers.

Surveys and feedback

The [student survey](#) may be used for students to assess understanding pre- and post-lesson, while the [teacher survey](#), available online, gathers feedback from educators about student performance and resource value.

Resources and equipment



Activity 1 – Pests, diseases and biosecurity

1. **Worksheet 1a – Stimulus images: at the airport**
2. [Australia’s biosecurity – DAFF \(1:46\)](#)
3. [Our biosecurity detector dogs safeguarding Australia \(2:52\)](#)
4. **Worksheet 1b – Fact sheet: pests, diseases and biosecurity**
5. **Worksheet 1c – Sentences: pests, diseases and biosecurity**



Activity 2 – How do people protect Australia?

1. **Worksheet 2a – Stimulus**
2. [Become a biosecurity officer \(4:53\)](#)
3. [Country Handle with Care – Episode 6 Protecting Country \(10:12\)](#)
4. **Worksheet 2b – Role-play: how do people protect Australia?**
5. Optional: Dress-ups (shirt, trousers, business shirts, lab coat, glasses, clipboard, polo shirt, comfortable clothing, toy detector dog, casual dress and/or badges)



Activity 3 – Biosecurity challenge



1. [You can be a Biosecurity Champion too!](#)
2. [Travellers and Tourists \(3:25\)](#)
3. [Keep it out \(1:53\)](#)
4. **Worksheet 3a – Biosecurity challenge**
5. **Worksheet 3b – Biosecurity challenge answer sheet**
6. Timer, scissors, rulers, paper
7. Digital devices



Lesson guide

Activity 1 – Pests, diseases and biosecurity

Students will explore pests and diseases and how they spread. Through class discussions and interactive activities, students will understand how important biosecurity is to prevent the entry and spread of biosecurity threats in Australia and why these measures are crucial for safeguarding Australia's environment, plants and animals, human health, jobs, the economy and our way of life.

1. Project or distribute copies of **Worksheet 1a – Stimulus images: at the airport** to generate a discussion about what is happening in the image. Pose questions to students such as:
 - What do you think is happening in these scenes?
 - Who are the people in the uniform?
 - Why do you think this is happening?
 - When does this happen?
 - What might happen if these actions were not performed?
2. If suitable, encourage a class discussion about students' experiences with overseas travel and ask them if they have noticed what procedures are in place when they enter and exit Australia. Focus on biosecurity procedures (such as disposing of fruit in biosecurity bins, asking where they have travelled and declaring items such as food and wood products), rather than immigration. Promote a discussion on why Australia has these procedures in place to prevent the entry of pests and diseases and the threats they may pose if they were to enter the country.
3. Introduce the term biosecurity by writing 'Biosecurity' in a central area, leaving a space between 'bio' and 'security'. Encourage a class discussion to define the two and then the entire word. Record student responses. **Answers page 10** 
4. View the video **Australia's biosecurity – DAFF** (1:46) to learn about Australia's biosecurity systems and how important it is to be protected from pests and diseases.
5. Optional: view the video **Our biosecurity detector dogs safeguarding Australia** (2:52) to learn about the work biosecurity detector dogs do at seaports, airports and mail centres to detect biosecurity risks.
6. Distribute **Worksheet 1b – Fact sheet: pests, diseases and biosecurity**. Students read the information either individually, in small groups or as a class. Then, they use the information to complete the sentences on **Worksheet 1c – Sentences: pests, diseases and biosecurity**.
7. Project the worksheet answers and discuss student responses. **Answers page 10** 




Activity 2 – How do people protect Australia?

Students will deepen their understanding of biosecurity and its importance through an interactive role-play in which they assume the roles of key stakeholders involved in biosecurity. They will participate in the scenario of various people speaking at a school's careers day.

1. Project **Worksheet 2a – Stimulus**. Ask students to think about the questions for one minute. After this time, students turn and talk to the person next to them to share their ideas with each other. Select individuals to share their thoughts with the rest of the class.
2. Visit [Become a biosecurity officer](#) and watch the video under [Why biosecurity is important](#) (4:53). Then watch the video [Country Handle with Care – Episode 6 Protecting Country](#) (10:12) to introduce the concept of stakeholders in Australian biosecurity.
3. Distribute **Worksheet 2b – Role-play: how do people protect Australia?** to explore different perspectives and responsibilities in managing biosecurity threats. Read the instructions and questions on page one together, and then complete the activity using the scripted role-play on the worksheet. At points in the role-play, students will ask the participants questions. Assist in coordinating and responding to the answers students provide.
4. Either divide students into small groups and allocate them roles as:
 - Chairperson
 - Government official
 - Scientist
 - Member of the general public
 - Biosecurity officer
 - Biosecurity detector dog handler

Alternatively, nominate six students to perform the role-play in front of the class. Students act out the roles of the biosecurity stakeholders for the provided scenario.

5. After the role-play has been completed, ask pairs to complete the turn and talk questions (sharing their ideas with the class) and then as a group, consider the class questions and share ideas and experiences. **Suggested answers page 10** 



Activity 3 – Biosecurity challenge

Students will participate in the biosecurity challenge, a collaborative activity centred on the importance of biosecurity in the context of hosting international events. This group challenge combines competitive elements with scenarios requiring teamwork, problem-solving and an understanding of the importance of protecting Australia’s people and environment. Each event is designed to accommodate various learning styles, fostering a sense of achievement and responsibility among participants. Depending on the literacy and comprehension skills of the class, teachers may choose to access this activity (Activity 3 – Biosecurity challenge) from either the Year 3, 4 or 5 resources. Complexity of the biosecurity challenge varies according to year level.

1. As a class, view the video content from the website [You can be a Biosecurity Champion too!](#) Go to the video presented by Catrina Rowntree, [Travellers and Tourists \(3:25\)](#) and [Xylella and exotic vectors \(scroll to the Keep it out video focused on Xylella fastidiosa \(1:53\)\)](#) to introduce/remind students about the importance of tourists and travellers keeping Australia safe from exotic pests and diseases.
2. Allocate students into groups of two to five, considering literacy level and comprehension skills.
3. Determine the appropriate version (Year 3, 4 or 5), challenge type (A or B) and distribution option (i, ii or iii) for each class.

Version	Description
Year 3 Two–three questions per event	Recommended for years 3–4 classes with developing literacy and comprehension skills. Ideal for students who need guidance in research, group collaboration and recording responses.

Year 4 Four questions per event	Best suited for years 3–4 or classes with more developed literacy and comprehension skills. Designed for students capable of independent research and collaborative work.
---	---

Year 5 Five questions per event	Best suited for years 4–5 or classes with more developed literacy and comprehension skills. Designed for students capable of independent research and collaborative work.
---	---

Challenge type	Description
A Time challenge	Groups record start and finish times, competing with other groups to complete the challenge in the shortest time.
B Class challenge	The class works together, completing challenges to collect coloured paw prints as a unit.

Distribution option	Description
i One to five	Distribute the first event of the biosecurity challenge to each group. As students complete each event, a new event is collected until all five events have been completed.
ii Random	Assign each group a randomly selected event page. As students complete each event, a new event is collected until all five events have been completed.
iii All five	Provide each group with all five event pages. Groups complete all events in any order until all five events have been completed.



4. Project or distribute the introductory page of **Worksheet 3a – Biosecurity challenge** for students to observe. As a class, read the instructions detailing the different events that groups will complete:

Event 1 Rapid response multiple choice quiz. Quick-fire questions to kickstart your adventure, challenging your knowledge and speed.

Event 2 Teamwork trek. Work together to navigate through complex problems that test both your teamwork and biosecurity understanding.


Event 3 True or false trivia. Sharpen your accuracy with rapid true or false decisions that require keen judgement.

Event 4 Problem-solving puzzle. Engage in a series of diverse challenges that demand strategic thinking and effective communication.

Event 5 Research raid. Uncover essential information to improve our defences.

5. Answer any questions from students to ensure clarity and understanding of the tasks.
6. Distribute **Worksheet 3b – Biosecurity challenge answer sheet** to each group.

Note: ensure students have access to digital devices, paper and rulers to complete Event 5: Research raid.

7. Encourage students to collaborate and share ideas openly while solving the event questions presented on the worksheets. If groups are working on one event at a time (distribution option i or ii), they should return the completed questions to a central area and collect the next set of event questions until all events are complete. Ensure that the groups collect all five coloured paw prints.
8. At the end of the challenge, provide groups with examples of suggested responses, discuss any questions, and if applicable, recognise a winning group based on time (challenge type A) or performance and teamwork. **Answers page 12** 



Answers

Activity 1 – Pests, diseases and biosecurity

- b) Bio – means living, like a person, plant or animal.

Security – means to keep things safe.

Biosecurity is all about keeping living things (people, livestock, pets, animals, plants, and crops for food and fibre) safe from harmful pests and diseases. Biosecurity involves measures to prevent the entry and spread of pests and diseases into Australia.

Worksheet 1c – Sentences: pests, diseases and biosecurity

1. living thing
2. stink
3. biosecurity
4. luggage
5. pests; diseases
6. Government
7. Indigenous; Country
8. penalty
9. dogs

Activity 2 – How do people protect Australia?

Worksheet 2a – Stimulus

For a biosecurity scientist using a microscope, this piece of technology is important in several ways to help protect Australia.

Detection of pathogens: microscopes allow scientists to closely examine samples for the presence of pathogens, including bacteria, viruses and fungi. This early detection is key in preventing the spread of diseases that could impact public health, agriculture and local ecosystems.

Research and identification: by using a microscope, scientists can identify and differentiate between various microorganisms. This helps understand how they operate, their lifecycle and how they can be controlled or eradicated, which is essential for developing effective biosecurity measures.

Monitoring and surveillance: regular use of microscopes enables ongoing monitoring of disease agents in different environments, ensuring that any changes in their presence or behaviour are quickly noticed and can be acted upon swiftly to prevent outbreaks.

The person likely using this microscope in the context of biosecurity could be:

- A biosecurity officer: specialised in identifying and managing biological threats.
- A scientist or researcher: focused on studying pathogens that could threaten local agriculture or ecosystems.
- A government or health official: involved in ensuring the safety and health of the public and compliance with biosecurity regulations.



Worksheet 2b – Role-play: how do people protect Australia?

1. Answers will depend on individual student responses.
2. Answers will depend on individual student responses.
3. Answers could include:
 - Producer (meeting chair): ‘How do you plan and organise big meetings like this one to discuss plant problems?’
 - Government official: ‘What do you do to stop harmful threats from coming into our country?’
 - Scientist: ‘What tools do you use to find out if a threat is harmful to our environment?’
 - Biosecurity officer: ‘What’s a day in your job like when you find a harmful threat?’
 - Biosecurity detector dog handler: ‘What special training does your dog need to help find harmful things?’
 - Member of the general public: ‘What’s the best way I can help with Australia’s biosecurity?’
4. If these stakeholders did not work as a team, managing biosecurity threats would be less effective. Without collaboration, harmful plants, pests or diseases could spread more rapidly, leading to significant damage to local ecosystems, agriculture and public health. Coordination ensures that threats are addressed quickly and efficiently, preventing wider ecological and economic impacts.
5. It is likely becoming harder to keep threats out of Australia due to increased global travel and trade, which facilitates the movement of invasive species and pathogens. To find out if this is truly the case, you could look at recent data and reports from the Australian Government, especially the Department of Agriculture, Fisheries and Forestry, which monitors and manages biosecurity risks. Researching academic studies on biosecurity trends and speaking with experts in the field would also provide valuable insights.
6. Australia is free of many pests and diseases found in other countries largely due to its strict and comprehensive biosecurity measures. Its geographic isolation also helps as it is a natural barrier, reducing accidental introductions. Australia implements rigorous quarantine procedures and has robust laws that regulate the import of animals, plants and other goods, effectively minimising the entry and spread of foreign pests and diseases.



➤ Activity 3 – Biosecurity challenge

Event 1: Rapid response multiple choice quiz

Question 1: B

Question 2: B

Question 3: A

Event 2: Teamwork trek

Suggested answers could include:

Obstacle 1

Damaging crops

These pests might start eating the plants we grow for food, like vegetables and fruits. This means there would be less food for us to eat and for the stores to sell.

Spreading diseases

Just as people can catch colds from each other, plants can get sick too if they catch diseases from these pests. Unhealthy plants don't grow well, and that means they can't produce quality fruits or vegetables.

Costing farmers money

Farmers might have to spend a lot of money to fight these pests and diseases to save their crops. This could make the food more expensive for everyone to buy because the farmers need to cover their costs.

Obstacle 2

Checking animals carefully

Before any animals come into Australia, especially during big international events like the Olympics, we can have doctors for animals (called veterinarians) that check them carefully to make sure they are not sick. This can help stop sick animals from bringing diseases into the country.

Keeping sick animals alone

If any animals are found to be sick, we can keep them away from healthy animals. This is called quarantine. It helps stop the disease from spreading to other animals and making them sick too.

Teaching people to be careful

We can teach people who work with or near animals how to be extra careful not to spread pathogens. They can learn how to clean their hands and tools properly and how to spot signs of sickness in animals quickly.

Obstacle 3

Answers will vary for this activity.

Event 3: True or false trivia

Question 1: True

Question 2: True

Question 3: False

Event 4: Problem-solving puzzle

Problem 1

1. Should
2. Should
3. Should
4. Should not
5. Should not
6. Should not

Problem 2

Answers will vary but could include:

1. Gloves

Protect the hands of cleaning and maintenance staff, allowing them to handle waste and potentially contaminated items safely. This helps prevent the direct contact and transmission of pathogens, enhancing the safety and hygiene of the cleanup process.

2. Bin systems

Encourage attendees to dispose of their waste properly. Placing clearly labelled bins (recyclable, compostable, non-recyclable) throughout the venue facilitates waste segregation and reduces the likelihood of cross-contamination and overflow (potentially encouraging pests), keeping the venue cleaner and more sanitary.

3. Rubbish trucks

Essential for the efficient removal of accumulated waste from the venue. Regularly scheduled waste collection by these trucks ensures that waste does not build up at the venue, which could otherwise lead to unsanitary conditions and attract pests.

Event 5: Research raid

Task 1

Designer

Baron Pierre de Coubertin, who founded the modern Olympic Games, also designed the rings.

Representation

Each of the five interlocking rings is coloured differently (blue, yellow, black, green and red) on a white background. These colours were chosen because at least one colour appeared on the flag of every country in the world at that time. The interlocking nature of the rings symbolises the coming together of athletes from across the world to compete in the Olympic Games, promoting a spirit of global unity and friendship.

Task 2

Students model the organism, for example, by using a ruler to measure paper/playdough and creating a shield-shaped body for the brown marmorated stink bug model, ensuring it measures between 1.5 cm and 1.7 cm in length.

This organism is so small that it could easily find its way into Australia without special detection strategies.



Brown marmorated stink bug

Image: © Department of Agriculture, Fisheries and Forestry



References

➤ Activity 1

DAFF 2023, [*Australia's biosecurity*](#), Department of Agriculture, Fisheries and Forestry, Canberra, accessed 21 August 2024.

DAFF 2024, [*Be a Junior Biosecurity Officer*](#), Department of Agriculture, Fisheries and Forestry, Canberra, accessed 21 August 2024.

Department of Agriculture 2019, [*Our biosecurity detector dogs safeguarding Australia \[YouTube\]*](#), Canberra, accessed 21 August 2024.

➤ Activity 2

DAFF 2024, [*Become a biosecurity officer*](#), Department of Agriculture, Fisheries and Forestry, Canberra, accessed 21 August 2024.

Department of Agriculture and Water Resources 2019, [*Country Handle with Care – Episode 6 Protecting Country \[YouTube\]*](#), Canberra, accessed 21 August 2024.

➤ Activity 3

DAFF 2022, [*Brown marmorated stink bug*](#), Department of Agriculture, Fisheries and Forestry, Canberra, accessed 21 August 2024.

DAFF 2023, [*Xylella and exotic vectors*](#), Department of Agriculture, Fisheries and Forestry, Canberra, accessed 21 August 2024.

DAFF 2024a, [*Catriona Rowntree – Travellers and Tourists*](#), Department of Agriculture, Fisheries and Forestry, Canberra, accessed 21 August 2024.

DAFF 2024b, [*You can be a Biosecurity Champion too!*](#), Department of Agriculture, Fisheries and Forestry, Canberra, accessed 21 August 2024.



Other resources

DAFF 2023a, [*Biosecurity Innovation Program*](#), Department of Agriculture, Fisheries and Forestry, Canberra, accessed 21 August 2024.

DAFF 2023b, [*Biosecurity matters*](#), Department of Agriculture, Fisheries and Forestry, Canberra, accessed 21 August 2024.

DAFF 2023c, [*Country Handle with Care – Costa and dirtgirl Tackle Biosecurity*](#), Department of Agriculture, Fisheries and Forestry, Canberra, accessed 21 August 2024.

DAFF 2023d, [*Innovation Pilots Initiative*](#), Department of Agriculture, Fisheries and Forestry, accessed 21 August 2024.

DAFF 2023e, [*Pests, diseases and weeds*](#), Department of Agriculture, Fisheries and Forestry, Canberra, accessed 21 August 2024.

DAFF 2024, [*Sending or ordering goods online from outside Australia*](#), Department of Agriculture, Fisheries and Forestry, Canberra, accessed 21 August 2024.

Department of Agriculture and Water Resources 2017, [*Frontline – Indigenous Biosecurity Rangers \[YouTube\]*](#), Canberra, accessed 21 August 2024.

Department of Agriculture, Water and the Environment 2019, [*Australia's National Priority Plant Pests \(NPPP\) playing cards: Beastie the Bug and novel coronavirus 2019 version \[PDF 2040KB\]*](#), accessed 21 August 2024.



© Commonwealth of Australia 2024

Ownership of intellectual property rights

Unless otherwise noted, copyright (and any other intellectual property rights) in this publication is owned by the Commonwealth of Australia (referred to as the Commonwealth).

Creative Commons licence

All material in this publication is licensed under a [Creative Commons Attribution 4.0 International Licence](https://creativecommons.org/licenses/by/4.0/) except content supplied by third parties, logos and the Commonwealth Coat of Arms.



Cataloguing data

This publication (and any material sourced from it) should be attributed as: DAFF 2024, *Biosecurity champions: teacher guide – Year 3*, Department of Agriculture, Fisheries and Forestry, Canberra CC BY 4.0.

This publication is available at agriculture.gov.au/JBO.

Department of Agriculture, Fisheries and Forestry
GPO Box 858 Canberra ACT 2601
Telephone 1800 900 090
Web agriculture.gov.au

Disclaimer

The Australian Government acting through the Department of Agriculture, Fisheries and Forestry and Primary Industries Education Foundation Australia (PIEFA) have exercised due care and skill in preparing and compiling the information and data in this publication. Notwithstanding, the Department of Agriculture, Fisheries and Forestry and PIEFA, their employees and advisers disclaim all liability, including liability for negligence and for any loss, damage, injury, expense or cost incurred by any person as a result of accessing, using or relying on any of the information or data in this publication to the maximum extent permitted by law.

Schools and users of this resource are responsible for generating their own risk assessments and for their own compliance, procedures and reporting related to the use of animals, equipment and other materials for educational purposes.

Acknowledgements

This resource was produced by Primary Industries Education Foundation Australia (PIEFA) with funding from the Australian Government Department of Agriculture, Fisheries and Forestry. Primary Industries Education Foundation Australia's resources support and facilitate effective teaching and learning about Australia's food and food industries. PIEFA are grateful for the support of industry and member organisations for assisting in research efforts and providing industry-specific information and imagery to benefit the development and accuracy of this educational resource.

Acknowledgement of Country

We acknowledge the Traditional Custodians of Australia and their continuing connection to land and sea, waters, environment and community. We pay our respects to the Traditional Custodians of the lands we live and work on, their culture, and their Elders past and present.



Australian Government
Department of Agriculture,
Fisheries and Forestry

