



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

Biosecurity champions

Teacher guide – Year 2





Learning areas and Australian Curriculum content

Design and Technologies

Explore how plants and animals are grown for food, clothing and shelter ([AC9TDE2K03](#)).

Humanities and Social Sciences

How places can be spatially represented in geographical divisions from local to regional to state/territory, and how people and places are interconnected across those scales ([AC9HS2K03](#)).

The interconnections of First Nations Australians to a local Country/Place ([AC9HS2K04](#)).

Develop questions about objects, people, places and events in the past and present ([AC9HS2S01](#)).

Collect, sort and record information and data from observations and from provided sources, including unscaled timelines and labelled maps or models ([AC9HS2S02](#)).

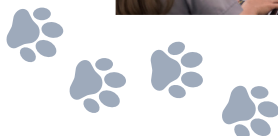
Interpret information and data from observations and provided sources, including the comparison of objects from the past and present ([AC9HS2S03](#)).

Draw conclusions and make proposals ([AC9HS2S05](#)).

Science

Describe how people use science in their daily lives, including using patterns to make scientific predictions ([AC9S2H01](#)).





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Lesson objective

Students will explore the roles of biosecurity measures through discussions and hands-on activities, using scenarios to understand how biosecurity helps to protect Australia’s environment and economy. They will participate in a simulation game that demonstrates the spread of diseases, highlighting the importance of preventive actions during international events. Students will engage in mapping exercises to learn about global biosecurity threats and discuss Australia’s geographical advantages and biosecurity practices that protect the country.

Lesson overview

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

Activity 2 – International illness simulation (60 mins)

Activity 3 – Biosecurity worldwide watch (30 to 40 mins)



Success criteria

1. Understand biosecurity concepts

I can explain what biosecurity is and describe why it is important for protecting people, plants and animals in Australia from diseases and pests.

2. Identify how diseases spread

I can identify and describe how diseases spread using examples from the international illness simulation activity.

3. Participate in simulation activities

I can participate actively in a simulation game to demonstrate the spread of diseases and describe how preventive actions can stop their spread during international events like the Olympics.

4. Use maps to understand biosecurity

I can describe how Australia's geographic features help protect the country from biosecurity threats. I can use mapping tools to measure the distance from my local area to locations around the world.

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 – International illness simulation

1. [How Germs Spread | Explaining the Science for Kids \(2:04\)](#)
2. Rulers
3. **Worksheet 2a – Measuring microbes**
4. **Worksheet 2b – Character cards** (printed and cut out)
5. Glitter
6. **Worksheet 2c – International illness**



Activity 3 – Biosecurity worldwide watch



1. World map
2. **Worksheet 3a – Biosecurity worldwide watch**
3. **Worksheet 3b – Biosecurity mapping challenge**
4. Rulers and coloured pencils
5. Computer/digital device access
6. [Google Earth](#)
7. [Google Maps](#)
8. [Xylella and exotic vectors](#)



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 this scene?
 - 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 detector dogs do at ports, 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 – International illness simulation

Students will engage in a simulation game that illustrates disease transmission, emphasising the rapid spread of infections without preventive actions. This activity will use visual aids and interactive elements to engage and clarify the concept.

1. View the [How Germs Spread | Explaining the Science for Kids](#) (2:04) video to learn about the spread of germs and their impact on our health. Explain that germs such as viruses and bacteria are microorganisms that are too small for the naked eye to see. Even the smallest things we can see are still bigger than most microorganisms, which is why it can be hard to know if they are present in our bodies or objects around us. If we are carrying a virus or bacteria on or in our bodies that we cannot see, they can quickly spread from one person to another when we touch the same objects or each other, transferring the microorganism.
2. Distribute rulers to each student and review how to read them, specifically focusing on the millimetre marks.
3. Project **Worksheet 2a – Measuring microbes**. Read the information as a class to learn about the size of microbes.
4. Prepare the classroom by arranging chairs in a layout resembling aeroplane seating in the centre of the room and placing a table and two chairs at the back of the classroom to represent Australia's passport control.
5. Explain that students will now act out a role-play to learn how quickly viruses and bacteria can spread, especially in crowded places like airports and aeroplanes, and how this can impact Australian biosecurity during international events such as the Olympics. Glitter will be used throughout the role-play to provide a visual representation of a virus that is currently not found in Australia but has been spreading throughout the country where the athletes are from. After being 'infected', each student will infect two additional students (by shaking hands, high-fiving or passing objects) until all students are infected with the virus.
6. Distribute a character card from **Worksheet 2b – Character cards** and a copy of **Worksheet 2c – International illness** to each student. Read the questions on Worksheet 2c as a class.
7. Set a timer, then narrate the scenario below, assisting students and directing them throughout the role-play.

Narrator: 'Seven international athletes are gathered at the airport, brimming with excitement as they prepare to depart for a major sporting event in Australia.'

(Instruct the seven students with athlete cards to gather at the front of the classroom. Put a generous amount of glitter on the hands of the student with 'Athlete One' on their character card. [Ensure fingers and palms are completely covered]).

Narrator: 'As they meet at the boarding gate for their flight, there's a buzz of shared excitement. Athlete one feels a little unwell but assumes they are nervous about the upcoming events rather than ill. Unaware they are carrying a contagious virus that has not yet reached Australia, athlete one enthusiastically greets two teammates with high fives and handshakes, sharing their excitement and, unknowingly, their germs. Each of the now infected athletes greets two of their other teammates, and the virus continues to spread as everyone on the team shakes hands or high-fives each other.'

(After being 'infected', all athletes should shake hands or high five with two additional athletes until they are all infected. Students who have not yet passed the virus to two people will do so when boarding the plane.)



Narrator: ‘After their joyful greetings, the team boards their flight to Australia and sits close together. They greet the flight attendants as they board. Two athletes even high five the flight attendants as they wish them good luck.’

(Flight attendants should stand at the front of the arranged seats, pretending to check tickets as the athletes and passengers line up and make their way to sit in the arranged chairs. The two athletes who have not yet passed the virus to two additional people will do so by high fiving the flight attendants as they enter the plane.)

Narrator: ‘During the flight, the flight attendants, busy serving food and drinks, unknowingly pass the virus onto some passengers as they give them their meals.’

(Flight attendants mime passing out food by walking down the aisle of the plane, each touching hands with two passengers as they do so.)

Narrator: ‘As the flight goes on, the now infected passengers chat and share snacks, unaware they are also sharing germs. While filling out their Incoming Passenger Cards, some passengers also share pens, which now carry the virus as they are passed from one person to another.’

(Passengers mime passing objects such as snacks and pens as each infected passenger spreads the virus to two additional passengers.)

Narrator: ‘Upon landing in Australia, the entire plane’s passengers are welcomed by airport staff. The Border Force officers handle passports, interacting with different passengers and athletes from the flight while handling their passports and other documents.’

(Students stand and move out of the arranged seats, forming a line in front of the table and two chairs at the back of the classroom representing Australia’s passport control. Passengers and athletes each mime passing their passports to the Border Force officers. Students who have not yet infected two students will do so by touching hands with the border control officers as they pretend to provide them with their passports and Incoming Passenger Cards.)

[End of scenario.]

8. After acting out the scenario, stop the timer and encourage students to observe how quickly the virus spread. Pose the questions:
 - a. How long did it take for the virus to spread?
 - b. What were some ways the germs were passed from one person to another?
 - c. Why is it important to stop the spread of new viruses and bacteria entering Australia?
 - d. What would happen when the athletes and passengers leave the airport?
 - e. What might happen to the sporting event if this virus continues to spread?
 - f. What are some ways the spread of the virus could be slowed down or stopped?
 - g. If the virus reached Australia, what might the government, scientists, communities and businesses do to help stop the spread?


Suggested answers page 10 

9. Optional: extend the discussion to compare the scenario with the spread of plant and animal diseases.
10. Students record their answers to complete Worksheet 2c.



Activity 3 – Biosecurity worldwide watch

Students will learn about pests and diseases that are significant biosecurity threats to Australia's agricultural industries. Through an interactive mapping task, students will learn about Australia's interconnectedness to other countries and the role of biosecurity in a globally connected world.

1. Display a world map in a central area. Using a coloured marker, locate and label Australia as a class.
2. Facilitate a discussion about Australia's geographical features that help protect our country from many of the world's most damaging plant and animal pests and diseases. Explain that Australia is an island, which means it is surrounded by water. This barrier makes it harder for pests and diseases to enter the country. The location of Australia, and our strict biosecurity practices, help to keep our country free of many pests and diseases that could cause serious harm to our agricultural industries.
3. Distribute a copy of **Worksheet 3a – Biosecurity worldwide watch** to students and allocate them into mixed-ability groups of three or four. Designate one of the three pests or diseases featured on the worksheet (foot-and-mouth disease, citrus canker and Khapra beetle) for each group to read about during this task.
4. Groups read about their allocated pest or disease, highlighting key information about its characteristics and impacts.
5. Reconvene as a class and select one group to share what they have learned about each pest and disease. As a class, read the remaining information on the worksheet to learn how Australia manages biosecurity threats.
6. Model, using **Google Earth** to demonstrate how to measure the total number of kilometres from Jakarta, Indonesia, to the town or suburb where your school is located. Follow the steps on **Worksheet 3b – Biosecurity mapping challenge**.
7. Record the total number of kilometres in a central area and model drawing a path on the world map to show this distance. Discuss this distance with students in relative terms (for example, this is the same distance as X numbers of laps around the school oval, etc.). As a class, estimate the duration of this distance via different modes of transport (for example, air travel, by boat, driving, walking, etc.). Use **Google Maps** to calculate the duration of time each would take to travel.
8. In their groups, students follow the instructions to find and record the distances from New Delhi, India and Dili, Timor-Leste, to where they live, recording their responses on **Worksheet 3b – Biosecurity mapping challenge**.
9. Conclude this activity by visiting the **Xylella and exotic vectors** webpage and scrolling down the page to view the Keep It Out video about Xylella.
10. Encourage students to share some of the ways Australia's government, biosecurity officers and community members can help prevent biosecurity threats from pests and diseases from entering our country and harming Australia's agricultural industries. **Suggested answers page 11** 



Answers

Activity 1 – Pests, diseases and biosecurity

3. 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. stink
2. biosecurity
3. luggage
4. pests; diseases
5. Indigenous; Country
6. penalty
7. dogs

Activity 2 – International illness simulation

8. Suggested answers could include:
- a. Answers will vary depending on class size.
 - b. Handshakes, high fives, sharing snacks, sharing pens, passing food and drinks, handling passports, etc.
 - c. New viruses and bacteria can seriously impact Australia's people, plants and animals. This can lead to disruption to food and fibre production, damage to native species, harm to ecosystems and health impacts for society.
 - d. The spread of the virus would continue within Australia, making more and more people sick. Vulnerable members of society may be particularly susceptible to the virus, which would cause serious health implications and strain our healthcare system.
 - e. The events could be cancelled or dramatically altered to control (reduce) the spread, athletes who fall ill may be unable to compete, spectators may not be allowed to attend the events in person to reduce the risk of transmission, etc.
 - f. Implementing quarantine measures for those currently infected by the virus, public health messaging about good hygiene practices to manage the virus and reduce the risk of it spreading, wearing masks in public places, etc.
 - g. **Governments:** might implement rules such as isolation for infected people or lockdown measures to reduce the spread.
Scientists: might research the virus to learn how it spreads and how it can be treated.
Communities: might adopt preventative measures such as wearing masks in public places, practising social distancing and spreading awareness with community education campaigns.
Businesses: might check staff temperatures (to detect someone who may be unwell) to reduce the risk of exposing others, implement workplace social distancing measures, adopt working-from-home policies, etc.



➤ **Activity 3 – Biosecurity worldwide watch**

9. Suggested answers could include:

Declaring plant and food materials when entering Australia, following Australia's import requirements for plant materials, thoroughly cleaning shoes and clothes worn abroad, etc.



References

Activity 1

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

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

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Activity 2

Cincinnati Children's 2014, [How germs spread: explaining the science for kids \[YouTube\]](#), Cincinnati Children's, United States, accessed 21 August 2024.

Telethon Kids Institute (n.d.), [Lesson summary](#), Telethon Kids Institute, accessed 1 May 2024.

Activity 3

DAFF 2022, [Khapra beetle \(*Trogoderma granarium*\)](#), Department of Agriculture, Fisheries and Forestry, accessed 21 August 2024.

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Google 2024, [Google Earth](#), Google, accessed 21 August 2024.

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Other resources

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

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

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

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

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

DAFF 2024b, [*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.

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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.



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