Australian Government

Department of Agriculture, Fisheries and Forestry

Biosecurity champions

Student activities – Year 4

JUNIOR BIOSECURITY OFFICER

Activity 1: worksheet 1a – stimulus images

At the airport

1

2

3

Images: © Department of Agriculture, Fisheries and Forestry

Activity 1: worksheet 1b – fact sheet

Pests, diseases and biosecurity

Did you know?

We all have a role to play in protecting Australia's biosecurity. Travellers entering Australia must declare certain items, such as food, plants and animal products.

Read the following information text.

Australia is free from many of the world's most damaging plant and animal pests and diseases. Pests and diseases not native to Australia could damage our environment, destroy our food production and change our way of life. Australia's biosecurity system helps protect us from these pests and diseases.

What is a pest?

A pest is an unwanted living thing that can damage plants, animals or people, and spread diseases.

- Australia has a number of pests, such as cane toads that poison animals that try to eat them.
- Australia is trying to keep out other pests like the brown marmorated stink bug. If it came to Australia, it could quickly become a big problem for farmers because it eats hundreds of different types of plants and isn't easy to kill. It smells really bad too!

Cane toad

Brown marmorated stink bug

Image: © Department of Agriculture, Fisheries and Forestry

What is a disease?

A disease causes a living thing to become unwell. Diseases are caused by bacteria, fungi or viruses, which we call pathogens.

- Citrus canker is a disease that affects citrus trees, making their leaves and fruit bumpy and ruining them. It is not present in Australia.
- Australia is trying to keep out other diseases, such as *Xylella fastidiosa* (pronounced zy-LEL-lah fas-tid-ee-OH-sah). *Xylella fastidiosa* kills many species of plants, grapes and pears. There is no cure.

Citrus canker

Xylella fastidiosa infected leaves

Image: © John Hartman, University of Kentucky, bugwood.org

How do pests and diseases spread?

Pests can walk, fly, crawl or hop from one place to another, spreading diseases. People can also accidentally help pests and diseases spread when they travel, bringing food and other items like seeds, wood and dirt from other countries back to Australia. These things might have tiny pests and diseases hidden in them.

Pests and diseases can also hitch a ride on vehicles, ships, aeroplanes or in shipping containers on a boat.

1. Things made from wood can carry pests and disease

2. Dirt on shoes can carry pests and disease

3. Animal products such as meat can carry pests and disease

4. Fruit and vegetables can carry pests and disease

Images: 1, 3 and 4: © Department of Agriculture, Fisheries and Forestry

How can we protect Australia?

If we know how pests and diseases can enter our country, we can take measures to keep them out and stop them from spreading if they do.

This is known as biosecurity, and it involves following rules and strategies to prevent the entry and spread of pests and diseases.

Biosecurity involves careful inspection of:

- luggage
- mail
- cargo
- imported goods

checking for any items such as seeds, plants, wood, meat, fruit and vegetables that might contain pests and diseases that Australia is trying to keep out.

Biosecurity detector dogs and technology such as X-ray machines are used to detect many items that may contain pests and diseases. Biosecurity officers can then inspect these items for unwanted pests and diseases.

Images: Department of Agriculture, Fisheries and Forestry

Spot the robot dog

3D X-ray

Images: © Department of Agriculture, Fisheries and Forestry

Why should you care about biosecurity?

Some items brought into Australia need to be declared on an Incoming Passenger Card if entering Australia by plane or ship. At the airport, you may have seen special biosecurity bins available to dispose of food and other risk items.

Biosecurity officers may need to inspect some of the things you bring with you. If any biosecurity risk items are found, they may need to be treated, exported from Australia or destroyed. There are penalties for those who do the wrong thing when travelling to Australia or when ordering goods online.

The Australian Government works with other countries to manage biosecurity risks before they arrive in Australia.

Why does Australia have biosecurity?

1. Protecting our **environment** and **native plants** and **animals** is important. Introduced pests or diseases can destroy habitats and reduce biodiversity.

Image: © Department of Agriculture, Fisheries and Forestry

Image: © Matt Dunn

2. Protecting our **crops** and **livestock** that produce food and fibre is important.

3. It is important to protect **jobs** and our **economy**.

Images: © Kat Allia

4. It is important to protect **human health**. Some pests and diseases can affect humans and make them sick.

5. It is important to protect **our way of life.**

Who is in charge of biosecurity?

The Department of Agriculture, Fisheries and Forestry (DAFF) manages the threat of biosecurity risks to Australia. State and territory governments also play a part.

Many others, including Indigenous rangers, also play a crucial role in protecting and taking care of Country. They help to take care of Country by managing feral animals, weeds, and fire and keeping a Top Watch! across northern Australia for pests and signs of diseases.

In fact, we all have a role to play in Australia's biosecurity. Governments, farmers, travellers and members of the public – YOU.

Images: © Department of Agriculture, Fisheries and Forestry

Activity 1: worksheet 1c – sentences

Pests, diseases and biosecurity

Using the pests, diseases and biosecurity fact sheet, fill in the blank spaces or answer the questions by recording responses in the spaces provided.

1. Biosecurity involves measures to prevent the _____ and _____ of pests and diseases into Australia.

2. Name the pest that smells awful and we DON'T want to enter Australia.

   _____

3. Indigenous rangers' knowledge of _____ enables them to keep a Top Watch! across northern Australia for pests and signs of diseases.

4. Who is in charge of biosecurity in Australia? _____

5. What is the name given to disease-causing organisms? _____

6. What are five key aspects safeguarded by having strict biosecurity measures in Australia?

   1. _____
   2. _____
   3. _____
   4. _____
   5. _____

7. Why should all people care about biosecurity?

   _____

   _____

8. What should be done if you have some food in your bag when flying to Australia after an overseas holiday?

   _____

   _____

9. We all have a _____ to play in protecting Australia's biosecurity, including government agencies, industry and members of the public.

Activity 2: worksheet 2a

Farm manager

Biosecurity action cards

Whether you own a large or small farm, you are responsible for keeping your property free from pests and diseases. Good biosecurity practices can help prevent pests and diseases on your farm and stop them from spreading to neighbouring properties.

You can secure your farm against pests, diseases and weeds by:

- monitoring animals or plant materials that enter the property, as well as sources of water, feed and fertiliser
- controlling feral animals, plant pests and weeds
- managing the movement of people, vehicles and equipment
- implementing good on-farm hygiene practices
- training staff and keeping accurate records of purchases, sales and movements

Have a biosecurity plan in place

- If you own a farm, it is important to have a biosecurity plan in place to protect your property from the entry and spread of pests, diseases and weeds.
- Good biosecurity plans are important to protect your farm from pests and diseases.
- A biosecurity plan is a document (or range of documents) that outlines all of the biosecurity activities farm owners work through to reduce the risks of pest and disease entry or spread.

(Adapted from Department of Agriculture, Fisheries and Forestry, 2023)

Bananas are protected from Panama disease by plastic bags

Olive trees being cut down due to *Xylella fastidiosa*

Leaf 'scorched' from *Xylella fastidiosa*

Scenario introduction

A harmful bacteria (that Australia is currently free from) is posing a serious threat to our farms. It can affect chickens, cattle and pigs and make them very sick. Australia has many biosecurity measures to help prevent the bacteria from entering our country.

Your task is to help manage a farm and keep the animals safe by learning about biosecurity and following the actions on the cards to prepare yourself and your farm against this threat.

To be biosecurity-ready, complete the 8 cards in order by reading the information and performing the 'Action' statements. Record your answers on the template cards.

Sample card: Introduction

Biosecurity refers to the measures and actions taken to protect people, animals and plants from harmful pests and diseases.

Action: *Prepare yourself and your farm management checklist. Record two ways you will prepare for the disease. Tick the introduction box and answer the question on the template card.*

Sample template card 1: Introduction

Record two ways you will prepare your farm for the threat of a bacterial disease.

Sample answers

– Giving all the animals vaccinations.

– Cleaning/sterilising all the equipment that is used on the animals.

Biosecurity action cards

Cut out the 8 action cards and share them with your group. Read the information and then act on the statements in the correct order to prepare yourself and your farm for a biosecurity threat.

Card 1: Biosecurity training

All farm managers must understand biosecurity. You need to attend a training session to learn about harmful bacteria and the meaning of biosecurity.

Action: ***Tick the 'attending the biosecurity training' box and complete the question on the template card.***

Card 2: Check fencing and borders

Strong fences keep some types of sick animals from wandering onto farms. Check that all the fences and borders on your farm are secure and fix any gaps.

Action: ***Tick the 'checking fencing and borders' box and complete the question on the template card.***

Card 3: Animal health records

Make sure all health records for the chickens, cattle and pigs are up to date. Include the number of animals, breeds, ages, vaccinations, etc.

Action: ***Pretend to update a health record book, tick the 'animal health records' box and complete the question on the template card.***

Card 4: Quarantine area setup

How would you set up a quarantine area in case any animals start to show signs of sickness? Think about the possibility of separating your healthy animals.

Action: ***Record how long you think animals arriving from overseas have to stay in quarantine before being able to come into Australia. Tick the 'quarantine setup' box and complete the question on the template card.***

Card 5: Learning to identify key symptoms

Early detection can prevent the spread of diseases on a farm. Learn how to spot the key symptoms of the disease.

Action: ***Talk about why it might be more difficult for farmers on larger farms to spot symptoms, such as coughing or lumps in their animals, than those on smaller farms. Tick the 'learning symptoms' box and complete the question on the template card.***

Card 6: Collaboration with an expert

It is time to consult with a biosecurity expert to make sure your farm's strategies are up to date with best practice biosecurity measures.

Action: ***Prepare for the meeting by listing two questions you would ask about protecting your farm from the bacterial threat on the answer card and tick the 'collaboration with an expert' box.***

Card 7: Emergency plan review

Prepared farms need an emergency plan in case an outbreak occurs.

Action: ***Discuss what information an emergency plan would contain for a disease threat. Record two ideas on the card template and then tick the 'emergency plan' review box.***

Card 8: Collaborating with others

Biosecurity is not just a concern of a single farm—the community needs to work together to improve everyone's understanding and share plans.

Action: ***Host a meeting with other people to discuss what each farm is doing to protect its animals. Record one point another person talked about on the template card and tick the 'collaborating with others' box.***

Activity 2: worksheet 2b

Farm manager

Biosecurity template cards

Fill in the information for each action card to create a farm management biosecurity action plan. Tick each circle as you complete the action card and question.

Template card 1: Biosecurity training

Write down the meaning of 'biosecurity'.

Template card 2: Check fencing and borders

List two pest animals that might still be able to get over your fences and bring the bacteria onto the farm.

Template card 3: Animal health records

Research and record (approximately) how many cattle, sheep and pigs live in Australia.

Template card 4: Quarantine area setup

Research how long animals arriving from overseas have to stay in quarantine before being able to come into Australia.

Template card 5: Learning to identify key symptoms

Why might it be more difficult for farmers on larger farms to spot symptoms in their animals than those on smaller farms?

Template card 6: Collaboration with an expert

List two questions you would ask an expert about protecting your farm from the bacterial threat.

Template card 7: Emergency plan review

Record two things an emergency plan for a bacterial outbreak would contain.

Template card 8: Collaborating with others

Record one idea another person shared with you about managing or preparing their farm for a biosecurity threat.

Activity 2: worksheet 2c

Farm manager

Biosecurity bookmarks

Using the information from Activity 1 and 2, create three bookmarks that educate people about Australian biosecurity.

Record your information. Cut out each bookmark and laminate when completed.

Australian biosecurity

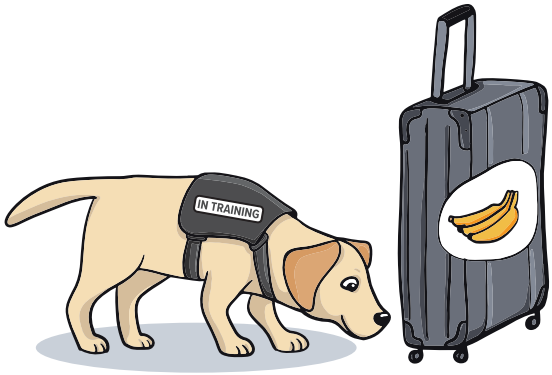
Australian biosecurity

Australian biosecurity

Images: © Department of Agriculture, Fisheries and Forestry

Activity 3: worksheet 3a

Biosecurity challenge



Calling all biosecurity champions across Australia!

Prepare yourselves for the biosecurity challenge, an extraordinary quest in which you'll play detectives, scientists and guardians of our nation. This exciting competition is designed to demonstrate your problem-solving skills and commitment to protecting our precious environment.

As Australian biosecurity experts, you'll join forces in a mission to defend Australia from unseen threats. These threats loom especially large during international gatherings (like the Olympic Games and World Cup events), which can inadvertently introduce harmful stowaways that jeopardise our plants, animals and ecosystems.

Should you choose to accept this mission, you'll collaborate to solve pressing biosecurity challenges. Each successful solution earns your team a coveted colour paw stamp from Frankie the biosecurity detector dog, symbolising your progress and prowess. Strive to complete all five challenges to rise as the ultimate biosecurity champions.

Let the biosecurity challenge begin!

Event 1 Rapid response multiple choice quiz

Quick-fire questions will 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.

Event 1: Rapid response multiple choice quiz

In your groups, answer the questions. Tick the circles as you complete each one.

Question 1: What is a common method to prevent invasive plants and animals from entering Australia?

a) Mandatory inspections for all incoming passengers.
b) Inspection of mail, luggage and cargo at airports and ports that arrive from overseas.
c) A complete ban on all international travel and mail, luggage and cargo.
d) Seasonal closing of borders to certain countries.

Question 2: How are diseases prevented from spreading to Australian livestock from other countries?

a) By treating all livestock with medicines regularly.
b) Through pre-arrival health screenings and quarantine for imported animals.
c) Vaccinating every animal in Australia against all known diseases.
d) Only allowing native Australian animals to be farmed.

Question 3: Which biosecurity measure helps to detect and manage pests at Australian borders?

a) Using robotic detection at all entry points to Australia.
b) Using biosecurity detector dogs trained to detect specific biosecurity risks.
c) Making it mandatory to have a two-week isolation time for all visitors to Australia.
d) Installing ultraviolet scanners to sterilise all incoming products.

Question 4: What is the definition of a pest?

a) An unwanted organism that causes problems for plants, animals or people, such as insects, rodents or weeds that harm our pets, food and clothing materials.
b) An unwanted insect that helps in pollination and controlling harmful bugs.
c) A type of plant used in medicine and food preparation for health benefits.
d) An unwanted organism that causes problems to only plants and can harm our pets, food and clothing materials.

Don’t forget to stamp your green paw print and keep competing until your group has all five!

Event 2: Teamwork trek

In your groups, answer the questions. Tick the circles as you complete each one.

Obstacle 1:

Picture international guests arriving who unknowingly carry tiny insect pests in their luggage, threatening Australia's agriculture.

List three ways these pests could affect our food supply.

Obstacle 2:

Imagine that the event has just started, and a beautiful but unknown plant used for decoration starts spreading uncontrollably.

What two things could happen if this plant outcompetes Australia's native plants?

Obstacle 3:

Suppose a foreign animal disease threatens to enter Australia just before the event, putting our livestock at risk.

What three steps could we take to protect Australia and prevent an outbreak?

Obstacle 4:

Consider the increased number of international guests entering Australia during the time of international events.

Create a slogan such as: *'Play Safe, Stay Safe: Protect Our Australian Home!'* that encourages crowds to protect Australia's animals, people and environment when visiting.

Don't forget to stamp your black paw print and keep competing until your group has all five!

Event 3: True or false trivia

In your groups, answer the questions. Tick the circles as you complete each one.

Question 1:
A mosquito-borne virus once threatened a global sports event, leading to the need for precautionary measures.

True or false?

Question 2:
Biosecurity detector dogs can help detect hidden pests and diseases. They are an important biosecurity strategy used in Australia and, therefore, very important during international events.

True or false?

Question 3:
When Australia hosts an international sporting event, all international athletes' luggage must undergo a quarantine period to prevent the spread of pests and diseases.

True or false?

Question 4:
At every international event, a special team of biosecurity agents use laser technology to scan all plants and animals entering the country to prevent the spread of invasive species.

True or false?

Don't forget to stamp your blue paw print and keep competing until your group has all five!

Event 4: Problem-solving puzzle

In your groups, answer the questions. Tick the circles as you complete each one.

Problem 1:

You're returning to Australia from your first international holiday and are unsure if you can bring back a gift for your friend.

What are three things you should do in this situation and three things you should not do?

Problem 2:

A farm near an international event venue reports a sudden outbreak of animal disease.

What two things could Australians do to help protect other animals and prevent the spread of the disease?

Problem 3:

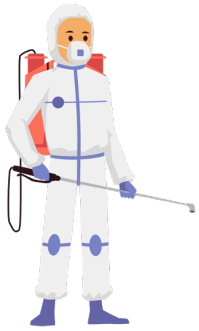
Fishermen report spotting an unfamiliar marine species near an international water sports area.

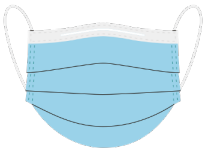
What two measures can be taken to ensure these species do not harm the local marine life?

Problem 4:

An international event venue is facing challenges with waste management, leading to unsanitary conditions.

Select two items from below and explain how they could be used to address this issue.





Don't forget to stamp your yellow paw print and keep competing until your group has all five!

Event 5: Research raid

In your groups, answer the questions. Tick the circles as you complete each one.

Task 1:

Australian biosecurity is especially important when hosting large international events, like the Olympic Games. Research the origin of the design of the five Olympic rings.

Find out who designed them, the date they were designed and what they represent.

Task 2:

Identify a pest or invasive plant species that has been introduced to Australia or threatens invasion from overseas.

What is its name, and what effect does/would it have on local ecosystems or agriculture?

Use the plant pests and diseases link for ideas.
www.agriculture.gov.au/biosecurity-trade/pests-diseases-weeds/plant

Task 3:

Research the brown marmorated stink bug and create a scaled model of the organism.

Use the brown marmorated stink bug link for help.
www.agriculture.gov.au/biosecurity-trade/pests-diseases-weeds/plant/brown-marmorated-stink-bug

Task 4:

Identify a pathogen (virus, bacteria, fungus) that has spread to Australia as a result of global travel that affects humans.

What is its name, and what effects does it have on human health?

Don't forget to stamp your red paw print and keep competing until your group has all five!

Activity 3: worksheet 3b

Biosecurity challenge answer sheet

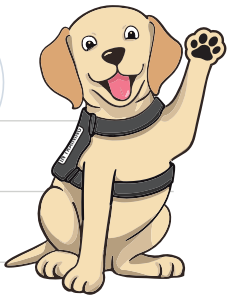
Event 1: Rapid response multiple choice quiz

Question 1: _____

Question 2: _____

Question 3: _____

Question 4: _____



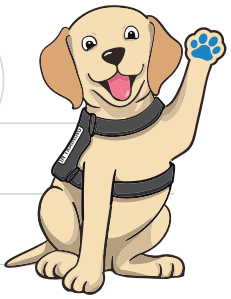
Event 2: Teamwork trek

Obstacle 1: _____

Obstacle 2: _____

Obstacle 3: _____

Obstacle 4: _____



Event 3: True or false trivia

Question 1: _____

Question 2: _____

Question 3: _____

Question 4: _____

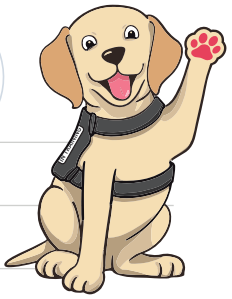
Event 4: Problem-solving puzzle

Problem 1:

Problem 2:

Problem 3:

Problem 4:



Event 5: Research raid

Task 1:

Task 2:

Task 3: Paste your model or a picture of your model in this space.

Task 4:

Cataloguing data

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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.

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Primary Industries Education Foundation Australia