



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

Biosecurity champions

Student activities – Year 5



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?

Australia conducts careful screening of cargo and mail arriving from overseas to detect and intercept potential pest and disease threats.

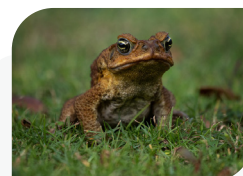
Read and highlight the key points in the following information text

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

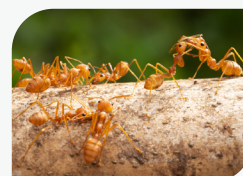
What is a pest?

A pest is an unwanted living thing that causes problems for plants, animals and people. They could be insects, rodents or weeds that bother us or harm things we care about, like our pets, food and clothing materials. Pests can also spread diseases from one place to another.

- For example, in Australia, cane toads are pests because they poison animals that try to eat them. There are no specific predators or diseases that control cane toads, and they are spreading across Australia.
- An example of a pest that does not live in Australia is the brown marmorated stink bug. If it came here, it could quickly become a big problem for farmers and households because it eats over 300 types of plants and isn't easy to control with chemicals like pesticides. It also likes to hide in houses in cold weather, and, as its name suggest, it smells really bad, too.



Cane toad



Imported red fire ant



Brown marmorated stink bug

Image: © Department of Agriculture, Fisheries and Forestry

What is a disease?

A disease causes a living thing, such as a plant or animal, not to function properly and become unwell. Diseases are caused by bacteria, fungi or viruses.

We call these **pathogens**.

- Citrus canker, which is not present in Australia, affects citrus trees, making their leaves and fruit bumpy and ruining the harvest.
- Another example of a disease that Australia does not have is *Xylella fastidiosa* (pronounced zy-LEL-lah fas-tid-ee-OH-sah), a bacteria that causes a disease that kills many species of plants, including many of the crops that we rely on for food and fibre (for example, 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 spread quickly through their movement. For example, insects may fly, crawl or hop from one place to another, spreading diseases as they go. People can also accidentally help pathogens spread when they travel, bringing plants or produce (fruit and vegetables), dirty shoes or sports equipment like golf clubs back from other countries to Australia. Pests and diseases can also hitch rides on vehicles, ships, aeroplanes or cargo containers on a boat, hiding in or on fruits, vegetables, grains, wood or soil, and travelling long distances to new areas. That’s why it’s essential to declare these items when travelling or sending goods to Australia so biosecurity officers can check for any biosecurity risks.



Dirt on shoes can carry pests and diseases



Fruit and vegetables can carry pests and diseases

Image: © Department of Agriculture, Fisheries and Forestry

How do we use the knowledge about how pests and diseases spread to protect Australia?

These threats can impact our industries, the environment, and the health of plants, animals and people. If we know how pests and diseases can get into our country, then we can put measures in place to keep them out and stop them from spreading if they do. This is known as biosecurity and it involves measures to prevent the entry and spread of pests and diseases.

Biosecurity involves careful inspection of luggage, mail, cargo and imported goods, checking for any high-risk or prohibited items such as seeds, plants, wood, meat, fruit and vegetables. Biosecurity detector dogs and technology such as X-ray machines are used to detect biosecurity risks that may contain pests and diseases.

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.



Animal products such as meat can carry pests and diseases



Spot the robot dog



Things made from wood can carry pests and diseases

Images: © Department of Agriculture, Fisheries and Forestry

Why should you care about biosecurity?

Australia has many unique plants and animals that we want to keep safe. Introduced pests or diseases can disrupt the environment, leading to habitat destruction and biodiversity loss.

Pests and diseases could devastate crops and livestock used to produce food and fibre. They could damage and reduce the amount of food available to eat and threaten farmers' livelihoods, affecting people's jobs and the economy.

Some pests and diseases pose risks to human health. For example, mosquitoes can transmit diseases like dengue fever and malaria.

- 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.

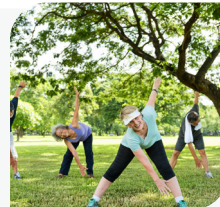


Images: © Kat Allia



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

- 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.



Image: © 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 protect Australian borders from biosecurity risks.
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 Australia's biosecurity, including governments, farmers, travellers and members of the public.



Activity 2: worksheet 2a

Managing a biosecurity incident

Role-play activity



Instructions

- Allocate students to each role.
- Perform the role-play.
- Read the discussion topics as a group and consider the views about the scenario.
- Read the role-play extension activities and complete one/all of the activities.

Setting

A meeting room where important stakeholders have been convened urgently after an infestation of Red Imported Fire Ants (RIFA) was discovered in a popular local park.

Red Imported Fire Ants are an invasive species and can impact our environment, including agriculture, and restrict everyday activities such as barbeques, picnics and sporting activities. They inflict painful stings on people, pets and livestock and cause damage to ecological and agricultural systems.

Characters

- Government official (meeting chair)
- Biosecurity officer
- Producer
- Scientist
- Local council member



Role-play script

Government official: ‘Welcome, everyone to the local control centre. We’re here to address the recent discovery of Red Imported Fire Ants in our area. This is a serious threat – we must all work together to respond quickly. Let’s start with introductions and initial thoughts.’

Biosecurity officer: ‘Hi, everyone. The ants have been detected at multiple locations around the park. They threaten local agricultural production and our environment and could also impact people and pets with painful stings. We need to coordinate our efforts to handle this crisis quickly. We have established a control area within a 5-kilometre radius of the infested sites. This means movement restrictions will apply to high-risk material to stop further spread. My team is also setting up a surveillance and treatment program to eradicate the pest.’

Producer: ‘I am very worried about my crops, farm and how this will impact my animals if the ants spread. I will keep a look out for this invasive ant and report any suspected sightings. If I do see anything, I will contact the Exotic Plant Pest Hotline.’

Scientist: ‘I’ve studied the characteristics of these exotic invasive ants. They can spread quickly and cause much damage. Immediate action is crucial, and we must monitor the situation closely to prevent further outbreaks. The ants are an environmental pest native to South America. They have spread to the United States, China, Taiwan, Japan, the Philippines and some parts of Australia. Keep a look out. They are copper brown in colour, with a darker abdomen. They measure 2–6mm in length and are highly aggressive. A single fire ant nest can contain many different sized ants.’

Local council member: ‘Oh goodness, there is certainly a lot of worry in the community about this. I think that timely, accurate and consistent updates would help our containment, control and eradication efforts. Maybe we could use an awareness campaign, social media, and local media to keep everyone informed. Does anyone have any good ideas of where to display posters and materials or how to spread the word quickly?’
(waits for response).

Government official: ‘Excellent suggestions, everyone. I can see we are all concerned about this threat. Let’s put these actions into motion immediately. We’ll schedule a training session for all staff and volunteers. We will also maintain our rigorous inspection protocols at the borders to ensure the highest level of biosecurity.’

Scientist: ‘Thanks everyone, I will work with the biosecurity officers to analyse the effectiveness of our eradication methods. This will help us change our strategies if we need to.’

Biosecurity officer: ‘I’ll make sure all the rules are followed in the control areas. This includes treatment and surveillance.’

Local council member: ‘Thank you for acting so quickly. I’ll organise a virtual meeting for community members to ask questions and receive updates, which will help maintain public trust and cooperation and make sure people feel safe and can help out where we need them. Do you think there is anything else the community should be doing to help at the moment?’ (waits for response).

Government official: ‘These are all excellent points. Each of you has an important role in both the immediate response and long-term management. Let’s commit to these tasks and ensure we are proactive in our designated areas. Let’s reconvene next week to review our progress and adjust our strategies as necessary.’

Discussion topics and extension activities

Discussion topics

1. Do you think that any important characters were missing from the role-play? If yes, who were they? Why do you think they should have been at the meeting?
2. What role would you like to be in real life? Why would you select this role?
3. Is it likely that this scenario could happen in Australia? Explain why you think this.

Role-play extension activities



Consider the views of a person organising a fun run in the local park and their concerns about the impact of the ants on their event.

Create a script for this new character and insert it into the role-play.



If you were in charge of designing a new technology that reduces Australia's biosecurity threats, what would it be?

Create a short script for this character that could be included in a role-play.



What other Australian biosecurity threats are you aware of in Australia?

Create three new settings for role-play scripts about these threats.

🕒 Activity 2: worksheet 2b

Design a biosecurity awareness campaign

Educating your school about biosecurity

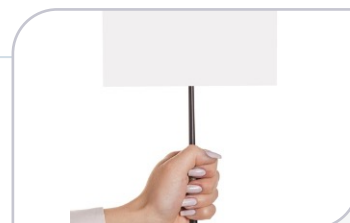


Instructions

- The Australian biosecurity team needs your help!
- Your task is to design an awareness campaign to educate Australian primary school students about biosecurity risks from overseas.
- These risks could include hitchhiker pests, exotic diseases and what not to buy from overseas that can put Australia at risk.
- Your campaign will need to help people understand why biosecurity is so important and the impacts that these threats could have on Australia.

Your campaign should include:

A **slogan** to educate Australian students about the meaning and importance of biosecurity.



An engaging **bumper sticker** for a car/vehicle to support your biosecurity message.



A 'billboard on wheels' **transit advertising design** targeting primary school students. The design will be used on a school commuter bus to promote biosecurity awareness.



A short **rap, poem or song** encouraging students to learn about ways to decrease the risk of overseas biosecurity threats in Australia.



A new piece of **merchandise** to hand out to students that will encourage them to learn about Australian biosecurity.





Slogan

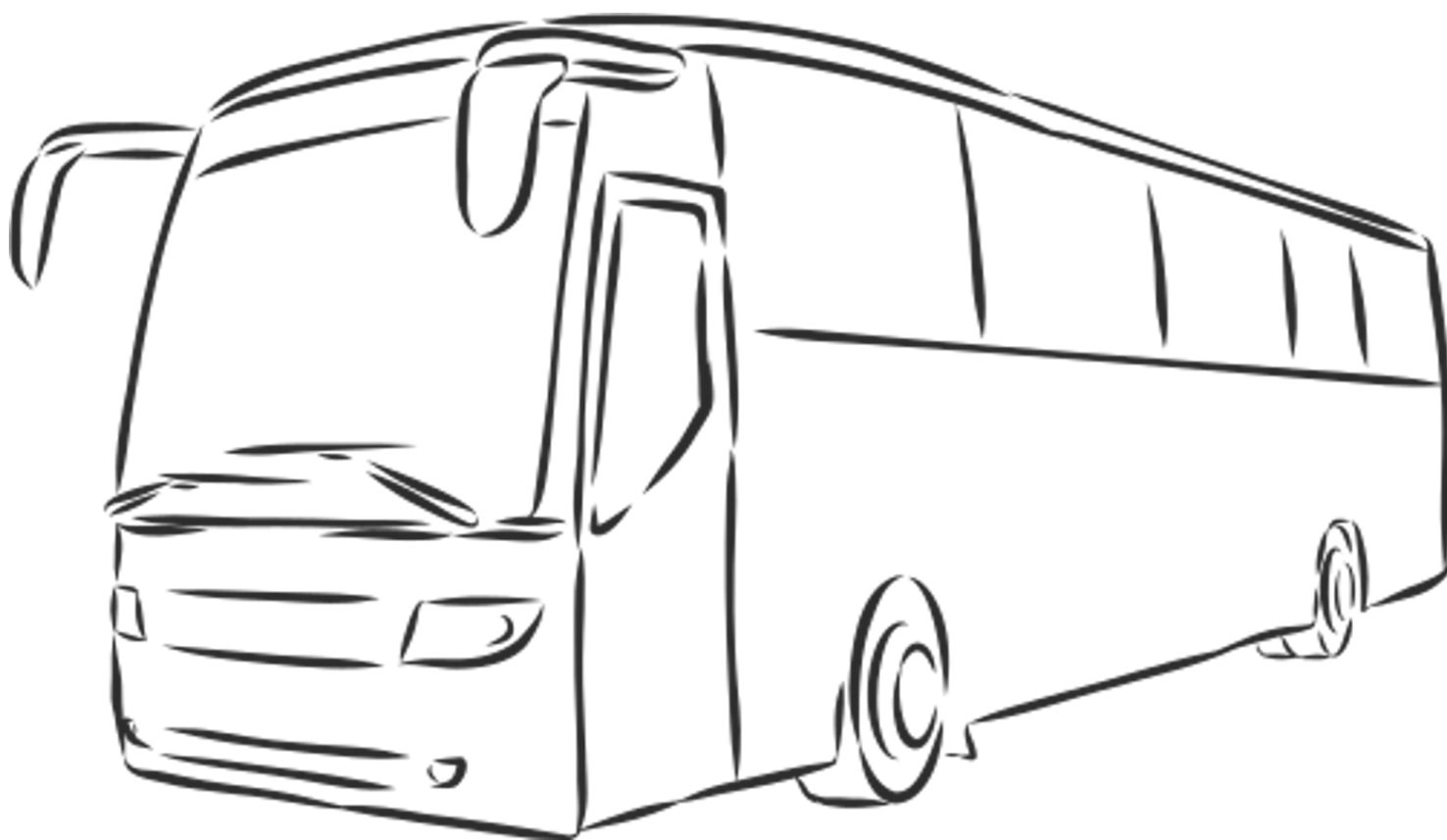
- A **slogan** to educate Australian students about the meaning and importance of biosecurity.

Bumper sticker

- An engaging **bumper sticker** for a car/vehicle to support your biosecurity message.

Billboard on wheels

- A 'billboard on wheels' **transit advertising design** targeting primary school students. The design will be used on a school commuter bus to promote biosecurity awareness.





Rap, poem or song

- A short **rap, poem or song** encouraging students to learn about ways to decrease the risk of biosecurity threats entering Australia.



New merchandise

- A new piece of **merchandise** to hand out to students that will encourage them to learn about Australian biosecurity.



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.



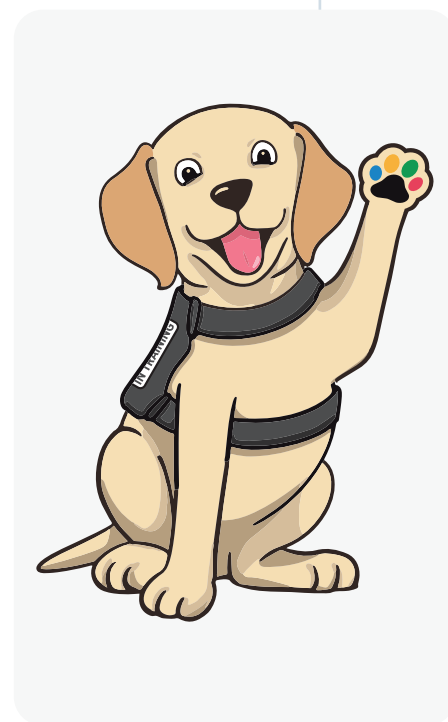
Event 4 Problem-solving puzzle

Engage in a series of diverse challenges that demand strategic thinking and effective communication.



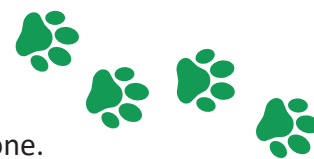
Event 5 Research raid

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: What action can tourists take to protect Australian ecosystems?

- a) Only visit ecosystems that are already well-known and popular.
- b) Carry their own food and water at all times to avoid using local resources.
- c) Respect wildlife and their habitats by observing rules and guidelines.
- d) Avoid all activities that might spread pathogens.

Question 4: Which biosecurity measure helps to detect and manage pests at Australian borders?

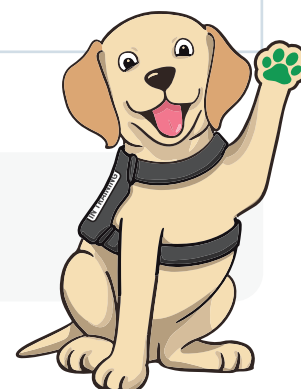
- a) Using robotic detection at all entry points to Australia.
- b) Using biosecurity detector dogs trained to detect specific biosecurity risks.
- c) Making it mandatory to have a two-week isolation time for all visitors to Australia.
- d) Installing ultraviolet scanners to sterilise all incoming products.

Question 5: 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 during the event.

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:

Visualise water sports gear being brought into the country introducing non-native species to our waters.

What are two ways these invaders might impact our marine ecosystems and local fishing industries?

Obstacle 5:

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.

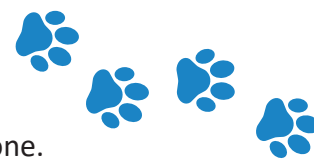


Don’t forget to stamp your black paw print and keep competing until your group has all five!





Event 3: True or false trivia



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

Question 1:

Urban pest management is an important concern for cities hosting large public events, and strategies are needed to ensure venues remain pest-free.

True or false?

Question 2:

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

True or false?

Question 3:

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 4:

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 5:

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:

Imagine discovering an invasive plant spreading in a local park right before an international event.

What are two things that should happen to stop this plant from spreading?

Problem 2:

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 3:

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 4:

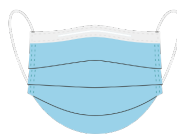
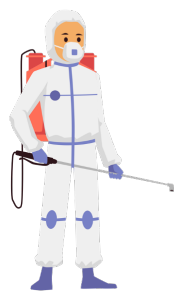
Fishers report spotting an unfamiliar marine species near an international water sports area.

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

Problem 5:

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?

Task 3:

Research the brown marmorated stink bug and create a scale 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:

Research how the cane toad was introduced to Australia. Find out its scientific name (don't forget to write it in italics), when it was introduced, why it was introduced and what impacts it has had on the environment.

Use the Cane Toad fact sheet for help.

www.agriculture.gov.au/sites/default/files/documents/cane-toad-fs.pdf

Task 5:

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!





Worksheet 3b

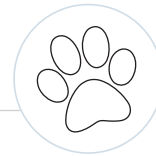
Biosecurity challenge answer sheet



Event 1: Rapid response multiple choice quiz

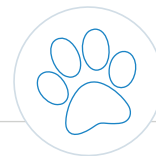
- Question 1: _____
- Question 2: _____
- Question 3: _____
- Question 4: _____
- Question 5: _____

Event 2: Teamwork trek



- Obstacle 1: _____
- _____
- _____
- Obstacle 2: _____
- _____
- _____
- Obstacle 3: _____
- _____
- _____
- Obstacle 4: _____
- _____
- _____
- Obstacle 5: _____
- _____
- _____

Event 3: True or false trivia



- Question 1: _____
- Question 2: _____
- Question 3: _____
- Question 4: _____
- Question 5: _____



Event 4: Problem-solving puzzle



Problem 1: _____

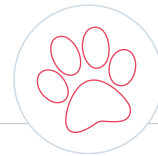
Problem 2: _____

Problem 3: _____

Problem 4: _____

Problem 5: _____

Event 5: Research raid



Task 1: _____

Task 2: _____

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

Task 4: _____

Task 5: _____



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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.



Australian Government
Department of Agriculture,
Fisheries and Forestry

