

Invasive Ants Lesson plan

Who is it for? 7-11 year olds

How long will it take? About half a day

Outcomes Students will learn about the top five invasive ant pests, the problems they cause, where they come from and how they arrive in the country. They will also learn how to look for ants that may have crossed the border and what they and their community can do to help prevent them from getting in to the country. The activities involve scientific observation, numeracy and creative work.

What do you need?

- Computer or laptop with projector
- Printer
- Paper for posters
- Pencils or pens
- colouring materials (pencils, felt-tipped colouring pens, crayons, paint)
- cards and food for lures (a little peanut butter, sugar water, honey, fish etc.)

Objectives

At the end of this lesson students will know that, while ants are generally good for the environment, there are five invasive ant species in the Pacific which cause problems to people, agriculture and the natural environment.

The students will also learn where the ants came from and how they have travel through the Pacific. Using this knowledge the students should be encouraged to think of ways to stop the ants from entering their country and to design a poster to let their community know about one of the invaders.

Preparation guidelines

The lesson requires a computer and a projector. If these are not available, the slides may be printed for the students.

Print out the Icon Guide on page 6 for the students to compare with the icons on slide 6.

A whiteboard or blackboard would be useful to write students' ideas on for the brain storming session.

A sheet of A4 or A3 paper for each student along with coloured pencils, crayons or felt-tipped colouring pens to design the poster.

How to run the session

The session is broken into parts, described in the powerpoint presentation:

- 1) Slides 1-7: the worst five invasive ants in the Pacific
- 2) Slide 8: Activity: ant hunting!
- 3) Slides 9-14: Where ants come from and how they travel
- 4) Slide 15: Activity: attracting ants
- 5) Slide 17: Activity: stop the ants!
- 6) Slide 18: Activity: design a poster

Powerpoint slides

The worst five invasive ants in the Pacific

Slide 1: The whole lesson focuses on the 5 worst invasive ant species: what are the problems they cause, where do they come from

Slide 2: Defines what we mean by an invasive ant. It is worth emphasising that not all exotic ants (ants outside their home range) are invasive.

Slide 3: It is important that students understand that not all ants are a problem. Generally, ants are beneficial to the environment acting as decomposers and soil enrichers. Some ants (such as yellow crazy ants) are only a problem in large numbers.

Slide 4: Focus on the three main negative impacts invasive ants have:

- 1) Damage to agriculture and crops. Invasive ants don't directly damage crops, but they "farm" sap sucking insects such as aphids, scale insects and mealy bugs that do. These sap sucking insects directly damage the plants and spread plant diseases. The ants protect the sap sucking pests from predators, which allows the pests to increase their numbers. In return the ants collect the sugary honeydew that the sap suckers excrete.

The ants also make it difficult for stock animals such as pigs and chickens to eat or sleep and the ants may also kill and eat newly hatched chicks.

- 2) Damage to the environment. Ants are hungry predators. When they are in large numbers invasive ants kill other insects, birds, crabs, lizards and other animals. Some of these animals perform important actions for the whole ecosystem. For example, on Christmas Island crabs remove seedlings of understorey vegetation. When yellow crazy ants killed all the crabs, the understorey vegetation went wild. The large numbers of understorey plants shaded out all the canopy seedlings. This meant that there would be no new canopy trees to replace old ones that fell and that the entire ecosystem would change. As some birds and other animals depend on these canopy trees for food and shelter their numbers decline. This in turn affects the birds and other animals that preyed on them. So, ants killing the crabs had an effect on the entire ecosystem. Some Pacific ecosystems are not well understood, so it is uncertain what large scale effects invasive ants may have on them.
- 3) Invasive ants can cause humans great discomfort. Some species of ants bite, while others sting or spray acid when they are disturbed. In large numbers the ants make it difficult for people to eat, gather food, work or sleep as they crawl all over them day and night. Ask the students to share any stories they may have about ants in their homes, on their family's crops or that they might have seen in the bush.

Slide 5: This slide introduces the worst 5 invasive ants in the Pacific. Ask the class if they think there is anything different or unusual about the five ant species pictured (from just looking at them there isn't!).

Slide 6: Work with the class to use the icons next to each of the photographs to identify the problems caused by the different ant species. A key to the icons is provided at the end of this lesson plan.

As a point of interest, discuss with the class that some ants have workers of different sizes that perform different functions. Can the children guess what some of these functions might be? (e.g. defence, looking after young, keeping the nest clean and foraging for food).

Slide 7: Ants are “social insects”. This means that they divide egg production and other tasks such as foraging for food, tending young and defence between different castes. It is important to note that only queens lay eggs, and while they can fly for short distances they are not capable of making the flight between Pacific Island nations.

Activity: ant hunting!

Slide 8: This is an opportunity to go outside and look for ants. Ask the students to look for some ants. Follow them back to their nest. Dig up the nest and look for the different life stages (make sure the ants don’t sting or bite first though)!

Ask the students to count the number of different life stages and different types of adults (queens, workers, males).

Once back in the classroom talk about why there were so many more workers than other life stages and types of adults. They are called workers for a reason 😊

Where ants come from and how they travel

Slide 9: This slide shows where in the world the worst five ants originally came from. Stress to the class that these countries/regions are a long way from the Pacific and that the ants have to travel a long way to get to the Islands. How did they get so far from home?

Slide 10: Ask the class how ants travel. Explain that invasive ants are hitchhikers on goods and fresh produce transported by air and sea. It only takes one mated queen to start an invasion. She may be hiding in luggage, fresh produce or appliances. Whole nests can be hiding in pot plants, building materials and vehicles that are imported.

Slide 11: Work with the class to put together a list of places that ants are likely to arrive in your country (e.g. ports and airports) and what they might be found in. As ants don’t travel very far they are likely to make their new homes near the ports where they arrived. This is a good place to start looking for any that might have slipped through the border checks

Slides 12-14: There might only be a few ants present when they first arrive in a new place. Some ants are very small and hard to see. Ask the children to think of ways we might find the ants? Explain that attractive lures (meat, peanut butter or sugar used to attract the ants to one spot where they can be caught and identified) are the main way used to check for ants around ports, storage areas and airports.

Activity: attracting ants

Slide 15: This can be done in pairs or small groups. This would be best done before lunch and then the lures checked after lunch.

Make some lures. Do this by putting a fingernail sized blob of some sweet food (honey, jam or you can use a piece of toilet paper soaked in sugar solution) and some savoury food (oily fish, peanut butter, corned beef) on some pieces of card or in plastic cups. Use a range of different foods.

Make up around 30 lures – the more the better. Leave the lures in different places outside for 15-30 minutes in shaded spots around the school grounds.

Go back and check on the cards after an hour and see if any ants have come to get the food.

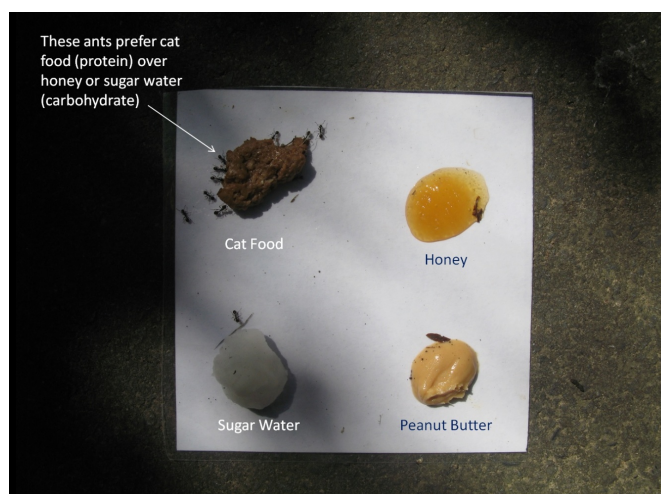
Get the children to count the number of ants on the different lures and write this down. Ask them to look closely at the ants to see if the ants all looked the same.

Use the following questions as the start of a discussion:

Which sort of food do they prefer?

Did it look like there were different ants on different types of food?

Why might different ants like different food?



Slide 16: Once back in the classroom tally up all the students ant counts on the white / black board. Depending on the student's mathematics stage, they could make up histograms or pie charts or other visual representations of the number of ants on the different lures, the number of different types of ants found etc.

Activity: Stop the Ants

Slide 17: Get the children to divide into small groups. Ask them to come up with ways to stop the ants from spreading through the Pacific or getting into your country.

Some key questions:

Do all countries have invasive ants? Not all countries in the Pacific have the same invasive ants present. Extra care should be taken when bringing goods in from countries that have invasive ants present that you do not.

Which items could ants be hiding in?

Ants are commonly found in

- fresh produce
- building supplies
- machinery
- vehicles
- soil around potted plants

How can the community help? If people know what to look for they can help to find the ants. Make people aware of the problem and ask them to report any sightings (or stings!)?

Activity: design a poster

Slide 18: Using the information the students have already learned they can get into groups of 2 or 3 and design a poster that either:

Tells people in the community what to look out for and who to call if they see the ant

Or

Tells travellers arriving in your country what might be hiding in their bags and what it might be hiding on.

Some key information to include:

- What the ant is called
- How big the ant is
- A drawing of the ant (what does it look like?)
- Why it is a pest (Does it bite, sting ruin crops, kill crabs steal food from your plate?)
- Where it is from (Has the visitor been to any of those countries?)
- How it travels
- Where it might be hiding
- Who you should call if you see one

These are available from the PIAT Media page (in Learning and Teaching → Community awareness → Media).

Younger children could colour in the PII invasive species poster.

Key to icons



Bites!



Sprays acid!



Stings!



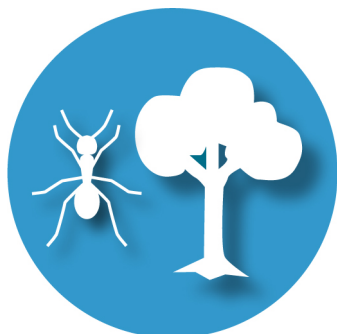
Harms crops



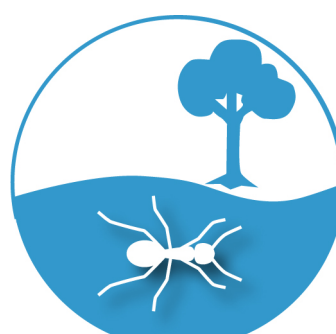
Harms people



Harms wildlife



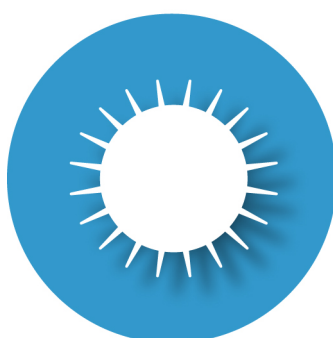
Lives in trees



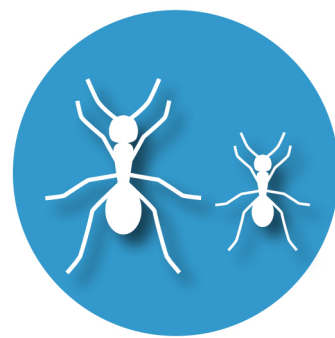
Lives on the ground



Active at night



Active by day

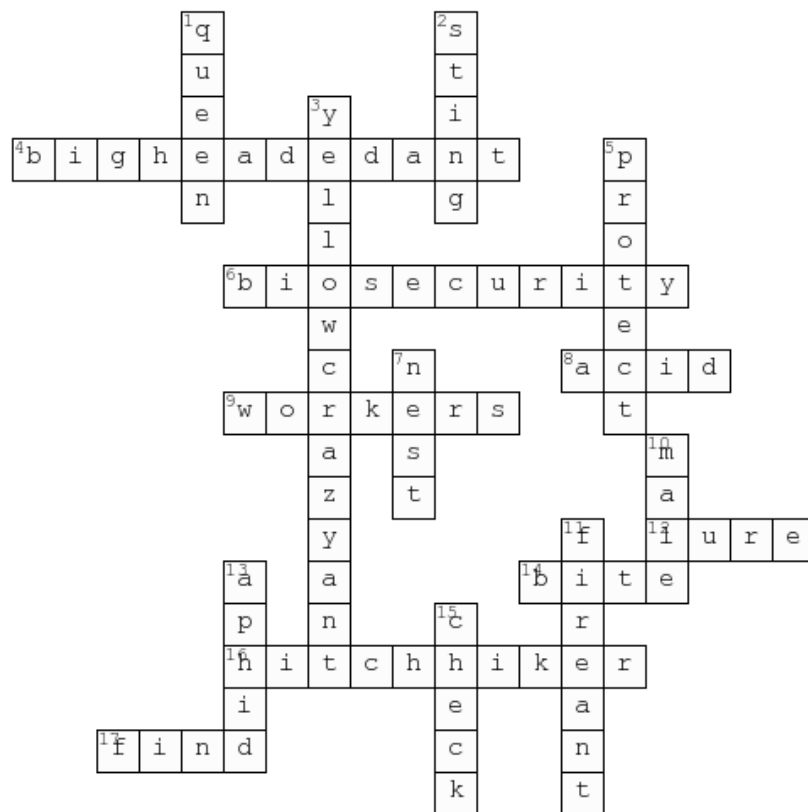


Different sizes

Solutions to Puzzles

Invasive ant crossword

Complete the crossword below



Created with TheTeachersCorner.net [Crossword Puzzle Generator](https://www.theteacherscorner.net/Crossword-Puzzle-Generator)

Across

4. African pest ant (clue: b__ h____ a__)
(**big headed ant**)
6. B__ s _____ protects people, plants and animals against harmful organisms (like invasive ants) (**biosecurity**)
8. Burning liquid sprayed by some ants (**acid**)
9. Ants that find food, protect the nest and take care of the young are called _____
(**workers**)
12. Meat or sugar used to attract and find ants
(**lure**)
14. Ants with strong jaws can give you a nasty _____ (**bite**)
16. An invader that hides and travels long distances in goods and machinery (clue: h____ h_____) (**hitchhiker**)
17. We use lures to _____ pest ants early (**find**)

Down

1. The ant that lays eggs is called the _____ (**queen**)
2. Fire ants have a painful _____ (**sting**)
3. A fast moving invasive ant (clue: y____ c____ a__) (**yellow crazy ant**)
5. We need to p _____ our community from invasive ants (**protect**)
7. Ants live together in a _____ (**nest**)
10. The winged ant that does not lay eggs is the _____ (**male**)
11. 'Little' and 'red imported' are two types of _____ (2 words) (**fire ant**)
13. Honeydew producing insect farmed by ants (clue: a____) (**aphid**)
15. You should always _____ your bags and goods before bringing them into the country (**check**)

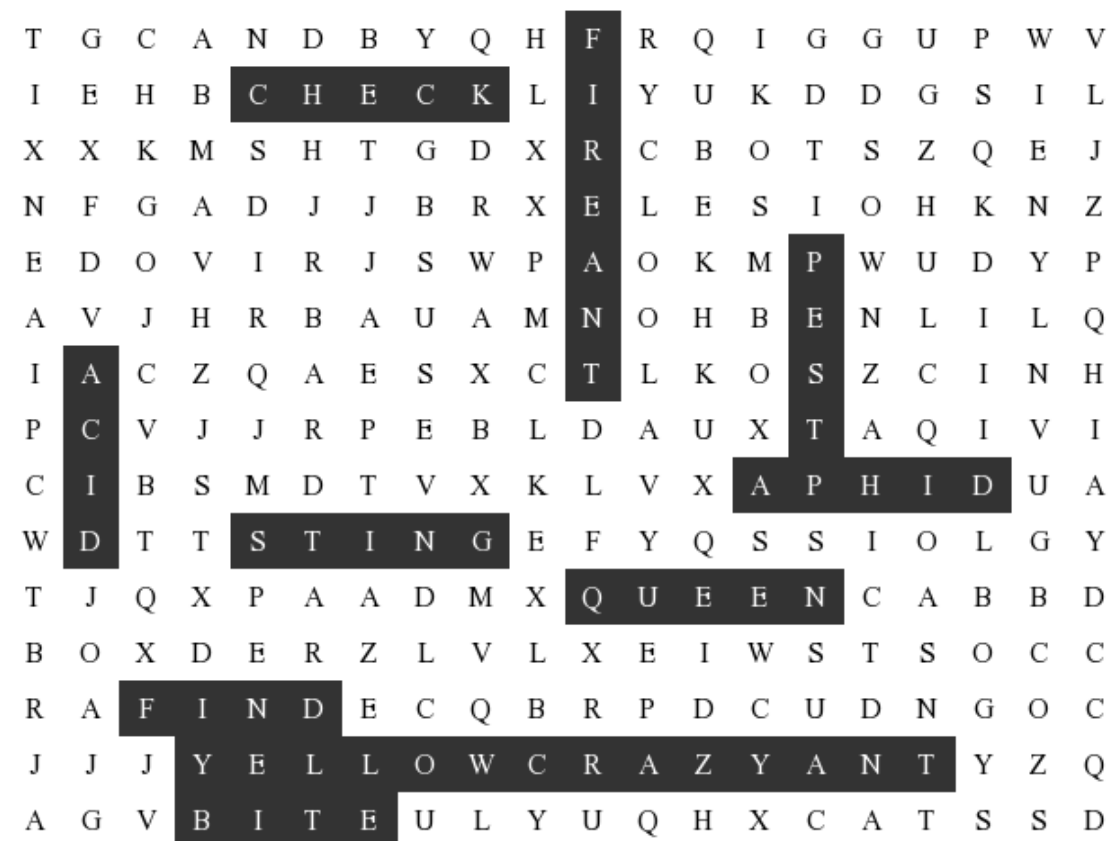
Created using software available at: <https://worksheets.theteacherscorner.net/make-your-own/crossword/>

Version for younger children

Created with TheTeachersCorner.net [Word Search Maker](https://www.theteacherscorner.net/WordSearchMaker/)

Invasive ant search

Find and circle the hidden words from the list below



ACID
APHID
STING
YELLOW CRAZY ANT

CHECK
PEST
BITE

FIND
FIRE ANT
QUEEN

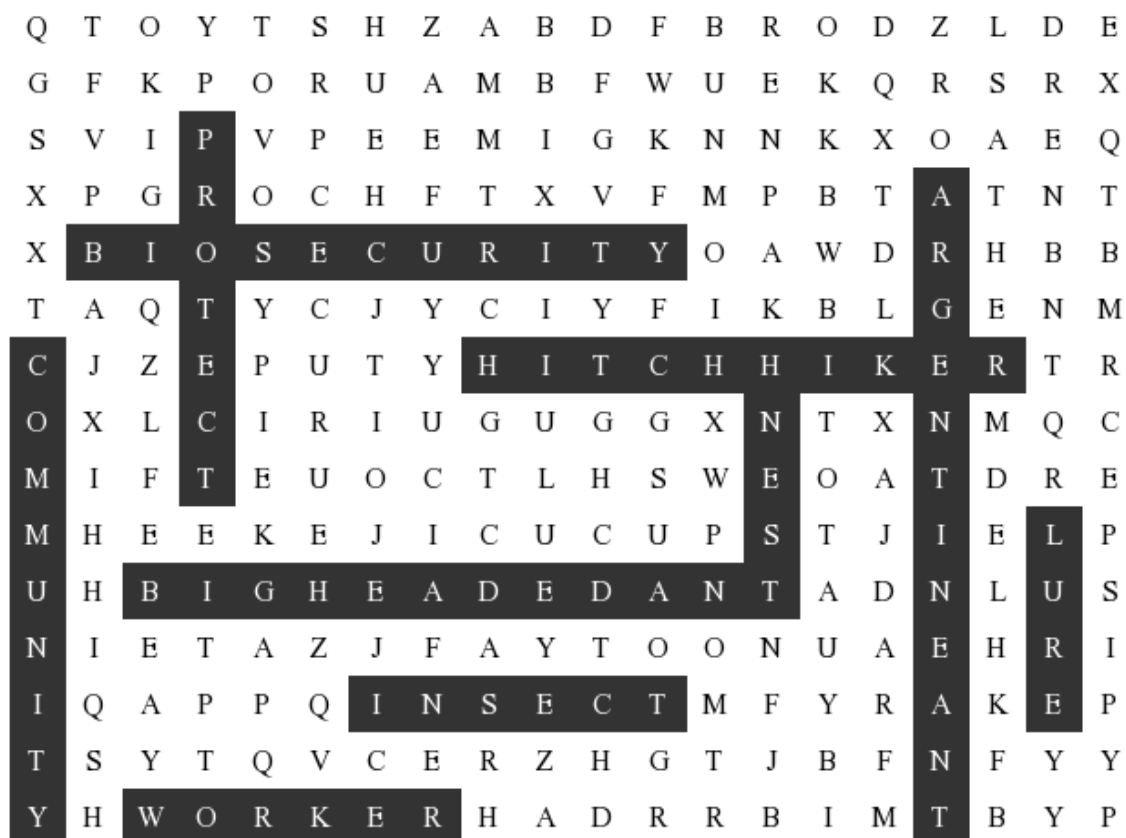
Created using software available at: <https://worksheets.theteacherscorner.net/make-your-own/word-search/>

Version for older children

Created with TheTeachersCorner.net [Word Search Maker](https://worksheets.theteacherscorner.net/make-your-own/word-search/)

Invasive ant search

Find and circle the hidden words from the list below



HITCHHIKER
ARGENTINE ANT
INSECT
WORKER

BIOSECURITY
COMMUNITY
LURE

BIG HEADED ANT
PROTECT
NEST

Created using software available at: <https://worksheets.theteacherscorner.net/make-your-own/word-search/>