

FIRE ANT RESOURCE PACK FOR PRIMARY SCHOOLS



RESOURCE SHEETS



Orienting activity

Impact of Fire Ants

The fire ant, originally from South America, is a serious exotic pest that was first reported in Australia in 2001.

It is listed as one of the 100 most invasive species in the world. It is dangerous and destructive. It has the potential to damage our outdoor lifestyle, our environment and our agricultural production.

The fire ant can inflict painful, sometimes fatal, stings to humans and animals. Fire ants will eat most parts of a plant, other insects and even larger animals. They can also prevent animals from getting to water. Early studies show their presence in south east Brisbane has already effected numbers of native lizards.

Fire ants can prevent people from enjoying an outdoor lifestyle and children from safely playing in their backyards. In the United States, fire ants have caused over 90 deaths, and thousands of people have been hospitalised with allergic reactions.

The estimated cost of fire ants to the Australian economy over the next 30 years, if not contained, is \$8.9 billion.



Picnics will be a fond memory if fire ants aren't eradicated. Photo: DPI&F



Spot the difference

Dear Mai-Lin

How are you? How's things in Singapore? Everything is fine here, it's still school hols which gets a bit boring sometimes but Mum let me go to the movies with my mates this morning - we had to take Ben (my little brother), which sucked but at least we got to go. We saw the Invincibles, which was pretty funny. It's a bit of a kids' movie really but I have to admit I liked it.

We got a new pool for Christmas. Mum and Dad made us promise to help look after it or we couldn't have it. We have to skim the leaves and stuff off the top, it's not that bad. Something really gross happened the other day though. I skimmed all the leaves off and then we jumped in for a swim (I invited Sarah and Aisha from school over and we had to watch Ben in the pool too). Anyway, we jumped in and we were splashing about and then all of a sudden Sarah just started screaming. You would think it was the Loch Ness Monster or something, honestly, such a drama queen. But then I saw what she was screaming about and I was nearly sick - there was a toad in the pool and she swam right into it, it touched her face! That is SSSSOOOOOOOOOO gross!

I just thought of something - do you know what a toad is? I don't know if you have them in Singapore! They are cane toads, they are like frogs but they don't jump as far, they can be really big, like, huge! They are all knobby and brown and just really gross. If you stand on one it feels disgusting and they get run over on the road and then they have all their insides out. It's vile. And they poison dogs. They don't belong in Australia, they come from South America or somewhere, they were brought here to control cane beetles (to eat them) but they got out of control and they are just rampaging all over Queensland. Yuck!

Anyway, that's enough exciting news from me, I have to help Ben get ready for bed now. He is such a pain! (but I love him but don't tell anyone I said so!).

Gotta go,

Lotsa Love,

Bethany



Spot the difference

Cane toads in Australia: an invasive species report

Cane toads are large amphibians. They were introduced to Australia from Hawaii in 1935 in a failed attempt to biologically control cane beetles.

Identification

Cane toads have dry, warty skin and are usually brown with paler bellies. Adult cane toads have poison glands on each shoulder. The average adult size is 10–15 cm long.

Habitats

Adult cane toads are active at night during the warm months of the year. When not active, they shelter in moist crevices and hollows, sometimes digging beneath logs and rocks.

Feeding

Cane toads can eat almost anything they can swallow, including scraps and pet food, but the bulk of their food is live insects. They can also eat small snakes and mammals.

Lifecycle

Cane toads breed from September to March, with thousands of eggs laid each time. Tadpoles hatch from the eggs and gradually metamorphose into toadlets that leave the water. They may mature and be able to reproduce within one year. They live for about five years.

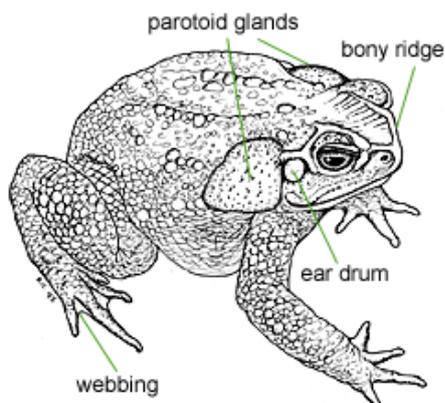
Predators

Young or adult cane toads may be eaten by certain spiders, crayfish, crocodiles, birds and rats. The poison glands in the toads' backs protect them from some predation. Some predators do not eat the whole toad but only the less poisonous parts.

Toxicity

Many native animals as well as domestic pets may be killed by eating or mouthing cane toads. Venom oozes from the glands or may be squirted. If exposed to venom, people may suffer intense pain and temporary blindness. First aid treatment includes washing with a lot of water.

Cane toads are classified as a pest in Australia as they are damaging to native fauna and can poison pets and injure humans.



Cane toad

From www.amonline.net.au



Spot the difference

Look at the report on cane toads and define the language features used: these are typical of reports

Text ⇒	Letter to a friend (recount)	Report
Features ↓		
Style	Informal	
Tense	Some past tense verbs, e.g. watched, invited Some timeless present tense, e.g. feels	
Vocabulary	Colloquial	
Illustrations	None	
Information	First hand, a bit vague, not very accurate	
Representation	Very negative	
Audience	A friend	

Information reports contain specialised vocabulary. Find the definitions for these words from the cane toad report:

Habitat _____
 Toxicity _____
 Fauna _____

Information reports use timeless present tense. How would these verbs be used in a report?

Sheltered _____
 was eating _____
 will ooze _____

Reports should be neutral about the subject but some words and phrases can have positive or negative impact, leading the reader to make a judgement. Choose three from the cane toad report and decide if they are positive, negative or neutral.

- _____ positive? negative? neutral?
- _____ positive? negative? neutral?
- _____ positive? negative? neutral?



Newspaper Vocabulary 1

Read the newspaper story below and underline any new words. Try to predict what they may mean, based on the rest of the sentence, then check your prediction using a dictionary. What's another word that the writer could have used instead?

Ant almost kills

A day in the garden took a dangerous turn for a Richlands mother of two last week when she had a life-threatening reaction to an ant sting.

Sarah Browne was weeding in her backyard on November 5th when dozens of tiny ants swarmed up her arms. She hardly noticed them at first but then they all started stinging at once, and kept on stinging. Mrs Browne tried to brush the ants off but felt her face and throat swelling and found she was having difficulty breathing. Mrs Browne could not raise her voice enough to call for help but was able to bang on the fence, attracting the attention of her neighbour who was hanging out washing.

The neighbour, Mrs Reed, looked over the fence to find Mrs Browne swollen and collapsed, struggling to breathe. Mrs Reed immediately called emergency services before going next door and attempting to make Mrs Browne comfortable while they waited for an ambulance.

A spokesperson for RBH stated that Mrs Browne had suffered anaphylactic shock, an allergic reaction to the fire ant stings.

"I didn't even know I was allergic to them," Mrs Browne said. "I'm not allergic to anything else so this came as quite a shock. I'm very grateful to Mrs Reed for calling the ambulance as I didn't know what was happening to me."

Doctors confirmed that if Mrs Browne had not received emergency medical assistance she could have died from her extreme allergic reaction to the stings.

It is thought that less than one per cent of the population is allergic to fire ants, but Officers from the Department for Primary Industries and Fisheries urge members of the public to be alert to the threat of fire ants, and report any suspect ants on 13 25 23.

Anaphylaxis: the facts

Anaphylaxis is a severe allergic reaction and is potentially life-threatening.

Anaphylaxis (anaphylactic shock) occurs after exposure to an allergen (foods like nuts, insect stings or some medicines), to which a person is already extremely sensitive. It results in potentially life-threatening symptoms, which include:

- Difficulty/noisy breathing
- Swelling of tongue; swelling/tightness in throat
- Difficulty in talking and/or hoarse voice
- Wheeze or persistent cough
- Loss of consciousness and/or collapse
- Pale and floppy (in young children)



Commas, clauses, contractions and more

1.
 - Highlight in red the commas that mark clauses
 - Highlight in blue the apostrophes that indicate contractions
 - Highlight in green the apostrophes that show ownership.

A woman from Brisbane, who was weeding in her garden at the time, was stung by fire ants on Thursday. Sarah Browne went into anaphylactic shock after being stung by the ants and was rushed to hospital. Anaphylactic shock is an allergic reaction some people have to stings from ants, bees and wasps, or eating things like nuts or shellfish, for example.

Mrs Browne didn't take much notice when the tiny ants ran up her arms, as it isn't unusual to encounter ants in the garden. But these ants aren't like other ants, as they attack in large numbers and are very aggressive. Native ants, such as green ants, sugar ants and strobe ants, don't attack people so readily. The fire ants ran up the woman's arm and stung her repeatedly

Mrs Browne's family weren't at home when she was attacked by the ants, so she was lucky her neighbour, Mrs Reed, came to her aid. Mrs Browne couldn't call for help as she was having difficulty breathing, but Mrs Reed heard her banging on the fence "I'm very grateful to Mrs Reed for calling the ambulance as I didn't know what was happening to me," Mrs Browne told reporters.

2. Correct the punctuation in the following sentences, with special attention to include all the missing commas and apostrophes:

- a. The doctors opinion was that Mrs Browne could have died from anaphylactic shock
- b. Fire ants arent like native ants which are less aggressive.
- c. The neighbours washing wasnt all hung out that day.
- d. If you think youve seen a fire ant you should tell your teacher or your parents or call the DPI&F.
- e. Wasp ant and bee stings can all cause allergic reactions but if youre not allergic theyre not likely to be life threatening.



Write a scientific report

A scientific report uses the same language features as other reports with impersonal, impartial observations, formal style, and technical vocabulary. However, because it reports on an actual investigation, past tense is used.

The structure is also slightly different to allow the writer to share with the reader what was done, why it was done, how it was done, and what conclusions may be drawn from it.

Look in the library or online for any journals that have reports written in this scientific format.

Use the headings below as a guide to write your report on your class investigation into ant baits.

Title

Abstract

A summary of the investigation.

Hypothesis

Explain why the experiment was done and what it was expected to show.

Equipment

List all of the equipment used in the investigation.

Procedure

Describe what was done in sequence — this section should be the bulk of your report.

Results

What did the investigation show? Do you have any figures to share with your readers? You can include any diagrams, tables or graphs here if they are relevant; don't forget to caption them and refer to them in your written text.

Conclusion

Was the hypothesis correct? Do you have any recommendations for further study or for application of your results?



Self-assessment: what have I learned in this unit?

Name _____

I am confident that...			
I can speak up in discussions and have ideas when we are brainstorming in class			
I know how fire ants can affect my life			
I know how to ask questions so I can find out more			
I know where to look for information			
I am happy to share information with my classmates			
I understand why some information is more important than other information			
I can see when someone wants to show that something is negative or positive			
I know the language features of a report			
I know how a report is structured			
I can write a report			
I know what to do when I come across a new word			
I can use commas to mark clauses			
I can use apostrophes in contractions			
I can use apostrophes to show ownership			
I can choose which information to put in when I'm writing a report			
I choose the right pictures to illustrate what I am writing about			
I check spellings of words I'm unsure of			
I take care with my handwriting and presentation			



Generic structure of a persuasive exposition

Persuasive expositions are usually written in this basic structure:

1. Title
2. Problem (or point of view)
3. Reason and supporting argument
4. Further reasons and supporting arguments
5. Conclusion or summary.

Use these headings to label the structure of this exposition:

Fire ants are a threat to our environment

by Ann Greenie

Fire ants can affect both plants and animals. They will eat the seeds and seedlings of many native plants. They will sting, kill and eat any animal that can't escape.

By making natural habitats unsafe, fire ants can also prevent wildlife from eating, drinking and nesting. Native insects may have difficulty finding enough food because the fire ants eat so much — including native insects!

Scientists have made studies of fire ant infested areas in South East Queensland. They counted animals and found that where there are fire ants, there are not as many native animals.

Fire ants have only been here for six to nine years and they're already making a difference. They are environmental vandals and our native plants and animals must be protected from them.



Exposition re-structuring

The different parts of this exposition have been mixed up — try to re-organise them in the correct order.

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Fire ants are a threat to our environment *by Ann Greenie*

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Treatment

The DPI&F treats fire ants by laying baits that the ants collect and take back to the nest to feed to the queen and the young.



Fire ant bait spreader. Photo DPI&F

- Bait is corn grit, soaked with soybean oil with less than 1% active chemical
- The chemicals in the bait break the ants' reproductive cycle, so no more ants are produced
- Low toxicity to animals and people
- Baits breakdown in a few hours in sunlight
- Very little bait is needed, only half a teaspoon per square metre



Life stages of a fire ant. Photo DPI&F



Making predictions – testing baits

Write the four baits you will be testing and circle the one you are responsible for:

Which bait do you think the ants will like best? _____

How will you know which one the ants will like best? How will you measure this?

Which bait do you think the ants will like least? _____

Can you predict how many ants will be on each bait? Go back to the top of this page and write your predictions next to each bait.

Where have you chosen to place your baits? _____

Describe the area — for example, sunny, damp, concrete, dirt, elevated...

Think about all the different areas where the baits will be placed. Which area do you think will have the most ants? Why?

How long do you think is a good time to leave the baits out? _____

In what way might your results be different if they were out for too short a time?

In what way might your results be different if they were out for too long?

What kind of ants do you think you will see on your bait? Why?



Time cards

1	2	3
4	5	6
7	8	9
10	11	12
a.m.	a.m.	p.m.
p.m.	00	15
30	45	00



Grid references — track the answers

	A	B	C	D	E	F	G	H	I	J
1	E	O	T	H	L	N	H	K	D	N
2	J	A	D	X	I	C	O	Y	S	I
3	W	P	F	K	G	U	R	M	V	F
4	Z	B	E	B	Q	L	C	J	G	A

Using the coordinates below each letter space, track down the missing letters on the grid above to find the missing words to complete these sentences.

Ants leave the nest to $\overline{C3}$ $\overline{G2}$ $\overline{G3}$ $\overline{B2}$ $\overline{I4}$ $\overline{A1}$ for food.

The $\overline{E4}$ $\overline{F3}$ $\overline{A1}$ $\overline{C4}$ $\overline{J1}$ and $\overline{D4}$ $\overline{G3}$ $\overline{G2}$ $\overline{B1}$ $\overline{C2}$ are fed by workers

Ants belong to the same family of $\overline{J2}$ $\overline{J1}$ $\overline{I2}$ $\overline{A1}$ $\overline{G4}$ $\overline{C1}$ $\overline{I2}$

as $\overline{B4}$ $\overline{C4}$ $\overline{A1}$ $\overline{I2}$ and $\overline{A3}$ $\overline{B2}$ $\overline{I2}$ $\overline{B3}$ $\overline{I2}$.



Clock angles

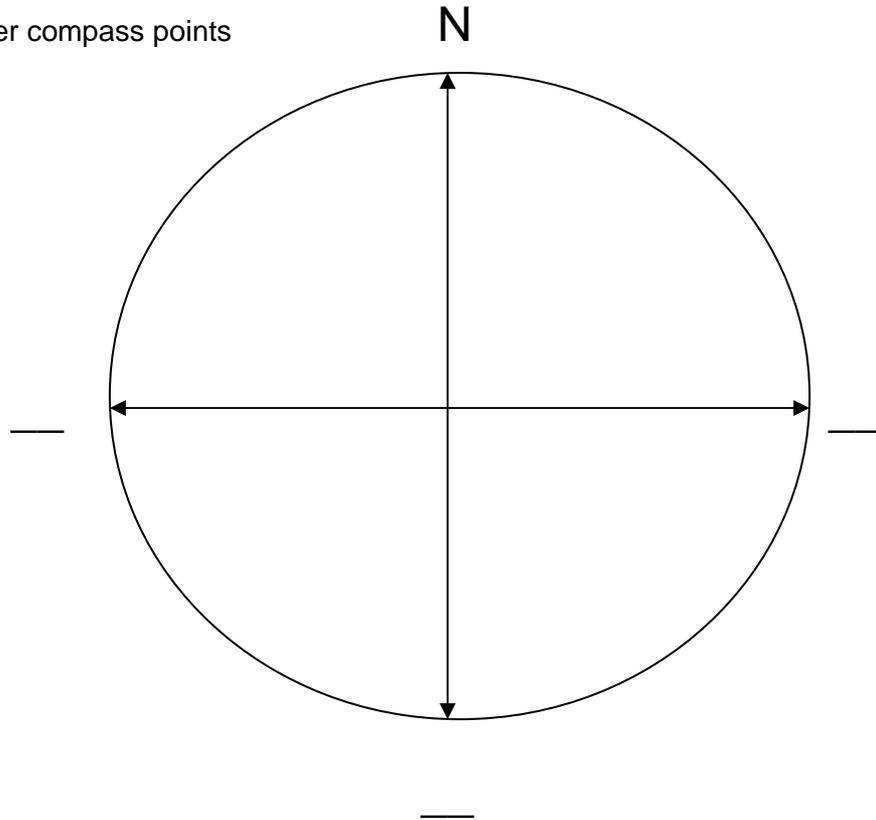
Using an analog clock, start at the time shown, move the hands as directed and give your answer as the time you finish with.

1) 12 noon Move hour hand 90° clockwise A: _____	2) 3:30pm Move hour hand 180° clockwise A: _____	3) 7:00pm Move hour hand 90° clockwise A: _____
4) 4:00pm Move minute hand 90° clockwise A: _____	5) 8:30pm Move minute hand 180° clockwise A: _____	6) 10:30pm Move minute hand 90° anticlockwise A: _____
7) 7:30am Move hour hand 180° anticlockwise A: _____	8) 11:00pm Move hour hand 90° anticlockwise A: _____	9) 2:30am Move hour hand 90° clockwise A: _____



Compass turns

1. Write in the other compass points



2. Answer using degrees

- If I face N and turn clockwise to face:
- S, then the amount of turn is _____
- E, then the amount of turn is _____
- W, then the amount of turn is _____

3. Answer using a compass point

- I face E and turn clockwise 90° to face _____
- I face S and turn clockwise 180° to face _____
- I face N and turn anticlockwise 90° to face _____
- I face W and turn clockwise 270° to face _____
- face N and turn anticlockwise 360° to face _____



LITTLE ANT,
BIG
PROBLEM



Fire ants on a pen. Photo DPI&F



Fire ants on a dollar coin. Photo DPI&F



Fire ants on a boot. Photo Texas A & M University, USA

Estimation

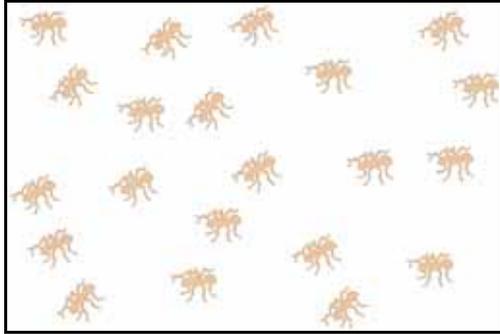


Look at the four sets of ants below. What do you think? Are they easy to count? Are they easy to estimate?

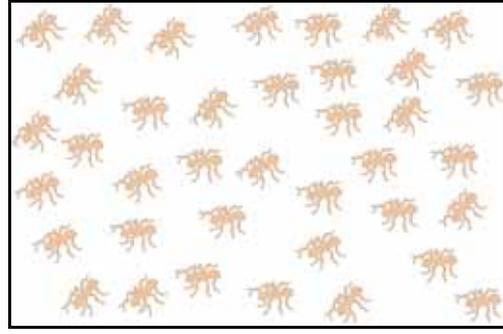
Which one do you think has the most ants? ____ Which one has the least? ____

Estimate how many are in each set, then use the grid method learned in class to count the ants. If you have time, you can check by counting each ant, marking them with your pencil so you don't lose track.

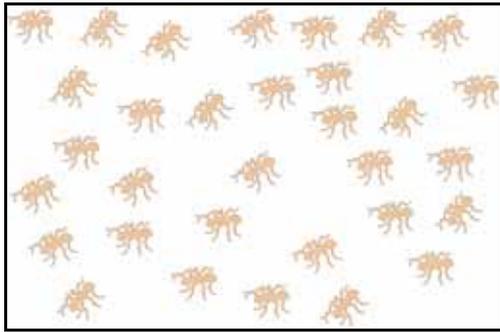
A



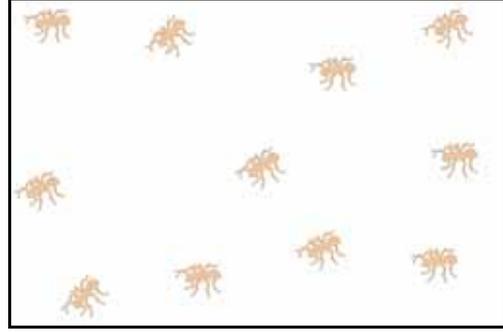
B



C



D



	A	B	C	D
Estimated number				
Grid method count				
Actual count				

Comparison

Enter the correct symbol in these equations < less than OR > greater than

A B
 A C
 B C

D A
 B D
 D C



Handling data — tables

How many ants were on your bait? How many on the other three baits on your plate? Draw a table, entering the type of foodstuff and how many ants were on it, or use the one below:

Bait	Number of ants

Which type of bait had the most ants? _____

Which had the least? _____

What is the difference between most and least? _____

Which bait do you think the ants like the best? _____

Now make a new table that has all of the results of the class, and answer the same questions.

Bait	Number of ants

Which type of bait had the most ants? _____

Which had the least? _____

Is this different from your own group's results? Yes/No

Why do you think that is?



Photocopiable sheet for optional pictograph

(one strip per pupil)





Fire ants in Australia: a brief history

The Fire Ant (*Solenopsis invicta* Buren) was discovered in Brisbane on 22 February 2001. The discovery was made in two separate places: Richlands, in south west Brisbane and the Port of Brisbane, which is north east of the city. This led to an emergency response that resulted in the implementation of the Fire Ant Eradication Program and the formation of the Fire Ant Control Centre (FACC). The FACC was originally set up by the Department for Primary Industries and Fisheries (DPI&F) in Wacol in south west Brisbane in April 2001 before moving to Oxley in August 2001. There are also depots in Wacol and Northgate.

The aim of the program is to eradicate fire ants from Australia through a schedule of baiting and surveillance. Surveillance — searching for ants — was first conducted in March 2001. The regional treatment program — also called baiting — began in September 2001.

It's difficult to say precisely how long fire ants have been in Australia. Scientific studies and the stories from people who have been affected by fire ants suggest they came here some time around 1995–1998. It appears that fire ants came to Australia on a shipping container from the United States, possibly Texas.

When we first became aware of fire ants, studies were conducted to find out how much of a problem they would be. A study of wildlife in 2002 showed that endangered animals would be put further at risk by the spread of fire ants. Another study looked at the situation in the United States. Fire ants first arrived there in the 1920s and have now become a major problem in a number of states, causing medical, social, environmental and agricultural damage. The fire ants first came in infested shipping most likely from Brazil or Paraguay.

The most recent countries to experience fire ant infestations are Taiwan, Hong Kong and China. Fire ants were found in these countries in February 2005.

The lesson from the U.S. is that fire ants can spread across vast areas if they are not stopped. Because of this, Queensland was declared a quarantine zone in May 2001. The areas in Brisbane that were badly infested with fire ants were declared Restricted Areas and Movement Controls were established in February 2002. Movement Controls help prevent the spread of fire ants by restricting the movement of materials in which fire ants like to make nests in (for example, soil, turf, mulch, baled hay).

The Fire Ant Eradication Program has progressed well to date, with a survey of infested properties in 2004 showing that treatment has been 99% successful. If the program continues according to plan, eradication should be achieved by June 2007.



Events and timing in history of the Fire Ant Control Program

(to use, cut into cards)

Fire ants arrive in the U.S.	Fire ants arrive in Australia	Movement Controls established in Restricted Areas	Fire Ant Control Centre established at Wacol
<i>Fire ants declared completely eradicated!</i>	Queensland declared a quarantine zone	Regional treatment program for fire ants begins	Fire ants discovered in Australia
Surveillance — looking for ants — starts	Fire Ant Control Centre moves to Oxley	Study made of effect of fire ants on Australian wildlife	Fire ants eradication 99% successful

1920s	2002	September 2001	February 2001
August 2001	2004	April 2001	June 2007
March 2001	May 2001	February 2002	1995–1998



What?
Who?
How?
When?
Why?
Where?





Places we value

Place I value	Why I value it	This value is:
<i>My backyard</i>	<i>For fun, somewhere to play, because it's mine...</i>	<i>Recreational/fun</i>