BRILLIANT BEES

A seven week literature based program for year 3

Developed by the Southern Forests SEED Program, 2015

Southern Forests SEED Program

Sowing the seeds for future growth

Acknowledgements

The materials and ideas in this resource are the work of author, Heidi Tempra. The Southern Forests SEED Program is extremely grateful and her efforts are to be highly commended.

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The SEED Program is based within the Shire of Manjimup and aims to raise the profile of careers in agriculture as a valid career pathway by increasing young people's exposure to the field of agriculture, through learning and enabling opportunities to explore the industry and connect with those living and working in agriculture.

This series of primary and middle school resources allows teachers to use the agricultural industry as a subject area to address cross curricula learning in the classroom. The Southern Forests SEED Program is grateful for the support it has received from the local agriculture industry, linking in with educational programs and hosting excursions to their farms and businesses.

The Southern Forests SEED Program would like to acknowledge the terrific amount of support St Joseph's School in Pemberton have provided by piloting these programs, allowing teachers and students to provide candid feedback so that these programs can be refined for other schools' benefit.

The Southern Forests SEED Program would also like to acknowledge ongoing support and collaboration with the Department of Agriculture and Food and schools in the Shire of Manjimup.

Photographs in this package are supplied courtesy of Craig Kinder Photography and the Southern Forests Food Council.

Contents

Welcome

...to the brilliant world of bees! Did you know that there are over 20,000 species of bees in the world? Did you know that they are being decimated by the dreaded varroa mite around the world? Did you know that the 'waggle dance' is an integral part of the bees' ability to communicate? If not… then this package is for you!

Bees quite often get a bad rap, known only for their ability to reduce grown men to tears when stung. However, this tiny insect plays a vital part in the world's ecosystem in ensuring we continue to have food to eat due to their amazing pollination skills.

This document is a thematic based program with a literature focus. Its aim is to educate children about the many facets of bees, from the importance of pollination right through to how "colony collapse disorder" is affecting our current day bees. It is a seven week program (this time frame allows for flexibility when planning and knowing how schools can be very busy places with interruptions to the term) that focuses on reading comprehension, spelling, writing and grammar.

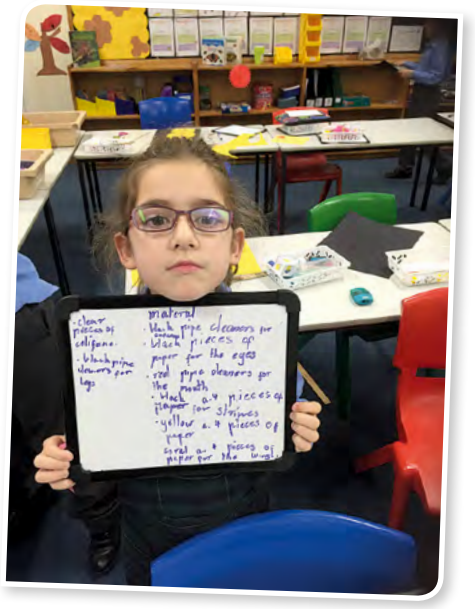
All lessons are based on fiction texts, using a variety of text formats. The lessons are clearly linked to the Australian Curriculum to show the outcomes that are being covered in each lesson.

This program is aimed to be relevant and user friendly, It also includes extras such as; useful websites, other texts and supplementary facts for those children who have a passion and knowledge for bees!

Heidi Tempra
B.Arts(Pri), B.Edu(RE), M.Edu(SLN), M.Ed(ECE)

How to use this Program

Flexibility is the key to any primary classroom and it is for this reason that the program is aimed to run for eight weeks. This is allowing for the interruptions that can happen during a term that can often eat into a teacher's day. It also allows for any lessons to be 'caught up' if some of the activities have not been finished in the allocated time frame.



I believe that a **springboard** in the program always motivates the children to want to find out more about the topic. I normally would suggest a trip to a local orchard to discuss with the grower the importance of bees to their produce, however, with a large number of children being allergic to bees this may not be an option for you. Inviting a local orchardist to school or a hobby beekeeper would be ideal if you have one in your area. They are easily found in the internet for your area. Alternatively there are number of YouTube videos on bees that can be used as an introduction.

This program covers **all English areas** with continuity between the texts and lessons. For example, one of the texts used for reading may also be used for a grammar or writing lesson. This is to ensure children's decoding skills and familiarity with the text enhances whatever activity they may be completing at that time.

It is very important that children be able **to discuss** what information they are learning at that time. Conclusions of lessons is vital for children to verbally recap the new information and this can also lead to further questions and investigations for later lessons.

All lessons work on the basis of **explicit instruction** of how to complete them. The children must be taught how to complete the activities if they are not already familiar with them.

The **Australian Curriculum** page of this document provides all the relevant links for you to assist you with your planning.

Suggested Texts and Websites

The following list has been compiled to supplement and support the activities contained in this package.

These sites were current and running at the time of this package being written.

This list is not exhaustive; there are literally hundreds of websites dedicated to bees!

Wonderful Websites

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www.kids.sandiegozoo.org/animals/insects/bee

http://mentalfloss.com/article/53691/13-fascinating-facts-about-bees

www.todayifoundout.com/index-php/2010/12/10-amazzzzing-bee-facts-infographic

www.aussiebee.com.au

www.buzzaboutbees.net

http://www.ngkids.co.uk/animals/Honey-Bees

www.pestworldforkids.org

SUGGESTED TEXTS

The following texts are not suitable for young children in their entirety; however, components of them are very helpful for the teacher to increase their own knowledge of bees.

The videos have been watched and are deemed suitable for most year grades.

NON FICTION

Why Do Bees Buzz? by E Evans and C Butler

Keeping Bees by P Gregory and C Waring

Backyard Bees by D Purdie

Honey Bees - Close Up by C Hope

Oxford Wild Reads Bees by R Dawson

VIDEO

More Than Honey by Antidote films (Years 5 & 6)

Honey Bees - Natural History
www.youtube.com/user/backyardbugs

How It's Made: Honey
www.youtube.com/watch?v=iT6IQx26eHk

www.sciencekids.co.nz/videos/animals/bees

http://splash.abc.net.au/home#!/media/86020/where-does-honey-come-from

Additional Resources

OTHER PROGRAMS TO LINK WITH:

- Stephanie Alexander Kitchen Gardens
  http://www.kitchengardenfoundation.org.au/?utm_source=googleads&utm_medium=website&utm_campaign=brand&gclid=COLujunO0scCFYiVvQodddwNgA
- Your local Community Garden
- From Paddock to Plate
  http://www.frompaddocktoplate.com.au/
- Bugwise - Australian Museum
  http://australianmuseum.net.au/bugwise
- Junior Landcare
  http://www.juniorlandcare.com.au/

Excursions

Due to the risk of bee sting allergies and anaphylactic shock, it is too dangerous to see bees in action in their natural environment, but why not try:

- Visit to a museum
- Visit an apiarist society
- Visit a bee supply shop
- Visit a university or Department of Agriculture entomology laboratory.

Incursions

- Have a beekeeper talk to the class and demonstrate their specialist equipment
- Have an entomologist or honeybee researcher visit the class and talk about their research and the importance of bees
  http://www.ciber.science.uwa.edu.au/
- Have an apiarist talk to the class about the different (plant) sources of honey and the different properties - do some tasting.
- Have a cook/chef visit the class and make some food with honey.

Australian Curriculum Outcomes

SUBJECT KEY

Reading
Writing
Speaking and Listening

LESSON	OUTCOMES	GENERAL CAPABILITIES
Word Work	ACELA 1485 ACELA 1484 ACELY 1684	Literacy Critical and Creative Thinking
Numbers about Honey Bees Verbs and Adverbs	ACELY 1679 ACELY 1680 ACELA 1482 ACELA 1484	Literacy Critical and Creative Thinking Personal and Social Capability
Amazing Facts about Honeybees Bee Presentation	ACELY 1679 ACELY 1680 ACELA 1477 ACELY 1676 ACELY 1792 ACELY 1677	Literacy Critical and Creative Thinking Personal and Social Capability
Ten Facts about Honeybees Editing Skills	ACELY 1679 ACELY 1680 ACELY 1683	Literacy Critical and Creative Thinking Personal and Social Capability
What are Native Bees? Cinquain	ACELY 1679 ACELY 1680 ACELT 1600	Literacy Critical and Creative Thinking Personal and Social Capability
How Honey is Made Looking at Paragraphs	ACELY 1679 ACELY 1680 ACELA 1479	Literacy Critical and Creative Thinking Intercultural Understanding
Where does honey come from? Contractions	ACELY 1679 ACELY 1680 ACELA 1484 ACELA 1478 ACELA 1480	Literacy Critical and Creative Thinking Personal and Social Capability
Bee Colony Collapse Persuasive Writing	ACELY 1679 ACELY 1680 ACELA 1478 ACELA 1479 ACELA 1484	Literacy Critical and Creative Thinking Personal and Social Capability
Varroa Mite Report Writing	ACELY 1679 ACELY 1680 ACELA 1478 ACELA 1682 ACELY 1683	Literacy Critical and Creative Thinking

LITERACY

WORD WORK

Use the FLASHCARDS in this pack as the focus of your spelling words for this program. A great way to start each day is with; I say, we say, you say. The teacher holds up the flashcard and says the word, repeat but this time with the students joining in, and then the children say the word on their own.

Everyday use one of the Word Work activities to reinforce the words.

EXTENSION: The more able children can be given more words to do then the suggested number. They can also be given some of the more challenging words.

REMEDIATION: Limit the number of words they have to work with and choose the words that have common blends and less than two syllables.

- **WORD of the day sheet:** Children complete the sheet following the instructions as written.
- **BUILD IT:** Children make the word out of unifix cubes.
- **RAINBOW words:** Write the words/letters in different colours five times.
- **SNAP:** Photocopy theme words and laminate so there are two copies of every word. Children play snap.
- **PYRAMID words:** Build a pyramid using the letters of the words.

- **ABC order:** write the words in alphabetical order.

Name:_____ Date:_____

Word Work

1 Write six words from the wall.

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

2 Use two words in a sentence.

a) _____

_____

b) _____

_____

3 Illustrate one of your sentences.

beehive

guards

queen

honeycomb

pollen

nectar

honey

drone

habitat

swarm

colony

pollination

blossom

conservation

ecosystem

larvae

flowers

unique

vital

environment

flight

navigate

insect

sting

Name:_____ Date:_____

Choose your own Adventure! (Well, strategy)

Use

Silly

letters

Fill a screen (laptop, ipad) with your theme words

Pollination, queen, drone, pollination, queen, drone, pollination, queen, drone, pollination, queen, drone, pollination, queen, drone, pollination, queen, drone, pollination, queen, drone, pollination, queen, drone, pollination, queen

Draw your word as a picture

Find the smaller words in the big words

Write the consonants in lower case and the vowels in upper case

hOnEycOmb

Draw word boxes to fit your word

Numbers about Honeybees

1 Bees are the only insect in the world that make food people can eat.

2 Honey contains all of the substances needed to sustain life; including water, minerals and vitamins.

3 Many plants rely on insects like bees in order to be pollinated; which is why they provide nectar to say thanks.

4 A colony of bees can contain between 20,000 and 60,000 bees, but only one queen bee.

5 A bee's wings beat 190 times a second, that's 11,400 times a minute!

6 Worker bees, who are all female, are the only ones who will attack you, and only if they feel threatened.

7 Each colony smells different to bees, this is so they can tell where they live.

8 It would take 1,100 bees to make 1kg of honey and they would have to visit 4 million flowers.

9 The queen bee will lay around 1,500 eggs a day.

10 Bees have two separate stomachs; one for food and another just for nectar.

11 Honey has natural preservatives so that it won't go bad.

12 A third of all plants we eat have been pollinated by bees.

13 Bees have been around for more than 30 million years.

14 Bees communicate by smells called 'pheromones' and by performing special 'dances'.

Name:_____ Date:_____

Information Location

Topic

Main idea

Facts

New words

Most interesting thing I learned

Questions I still have

Verbs and Adverbs

Remember a **VERB** is a **DOING WORD** and an **ADVERB** describes that **VERB.**

For example: The bee's wings were **beating** **rapidly.**

The word rapidly describes how the wings were beating.

Using the text "Numbers About Honeybees", circle all the verbs in green and the adverbs in red. Hint: some of the points may not contain any adverbs - could you add some in? Just find the verb and then think how you could describe that verb!

Amazing Facts about Honeybees

Honeybees buzzing from flower to flower signal the beginning of spring. They are seen as a wonder of nature and loathed as a nuisance in equal measure. People with allergies worldwide avoid the airborne insects with passion, while scientists breed and study them for their remarkable abilities. Whatever your reaction, there is a lot about these little buzzers that isn't readily apparent from simple observation in the wild.

CANNIBALISM

Bee diets are pretty straightforward - pollen for the larvae, nectar for the drones and workers, and when supplies get low? Cannibalism. Honeybees are known to eat their hive mates and larvae when times get tough. However, bees also turn on their own because of the presence of diploid or false males.

UNDERTAKERS AND BOUNCERS

Bee colonies are remarkable. The workers take on a variety of roles. When bees die within the colony, workers collect the dead bodies and act like undertakers, removing the corpses from the hive. These workers of the hive also act as security, ejecting the sick and any excess males during times of famine.

They learn to identify sick bees by smell and promptly remove them from the nest. Dead bees are carried outside, away from the honey and larvae. Entire groups of bees spend their days cleaning the hive and keeping it neat. And in line with this neat-freak culture, bees do not defecate in their hive - instead they do so in mid-flight.

AMAZING SENSES

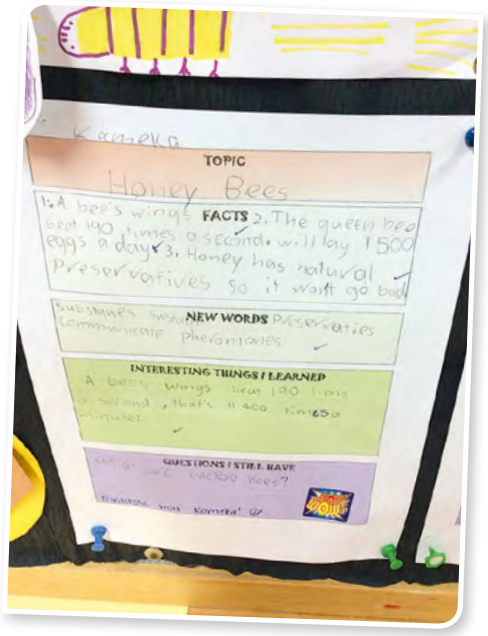
Bees have an incredibly developed set of senses to aid in their daily routines. The honeybee can perceive the difference between images in one 300th of a second, whereas humans are limited to differences in one 50th of a second. Their powers of scent perception are also very finely tuned. Obviously bees are attracted to certain kinds of flowers in order to assist pollination.

Continued over.

Amazing Facts about Honeybees

HONEYBEES CAN'T SEE RED

Honeybees have five eyes. You would think that this would enable them to see with a greater level of clarity than other animals, but that isn't the case - or not exactly. Bees have two large eyes on the sides of their heads and three additional, simpler eyes in the center of their heads to help with flight navigation. However, bees see very few colours.



FACIAL RECOGNITION

If you've ever felt as if a bee was targeting you, chasing you specifically, chances are you were right - honeybees have been shown to recognize individual faces.

VISUAL LEARNING

One might think that since the only purpose of the worker bee is to make honey, it would be an inborn trait. Not so. Honeybees have no idea how to make honey when they are born. They have to be taught by the veteran bees in the wild. Studies have found that bees learn from watching their more experienced bees. New bees will watch which flowers the others are flocking to and follow their lead. However, the younger bees must learn quickly, because the older bees' wings are literally wearing out from all that flight time. As they age over the few weeks of their life, they are slowly cycled back into hive duty in order to preserve their wings for emergency use.

MATH SKILLS

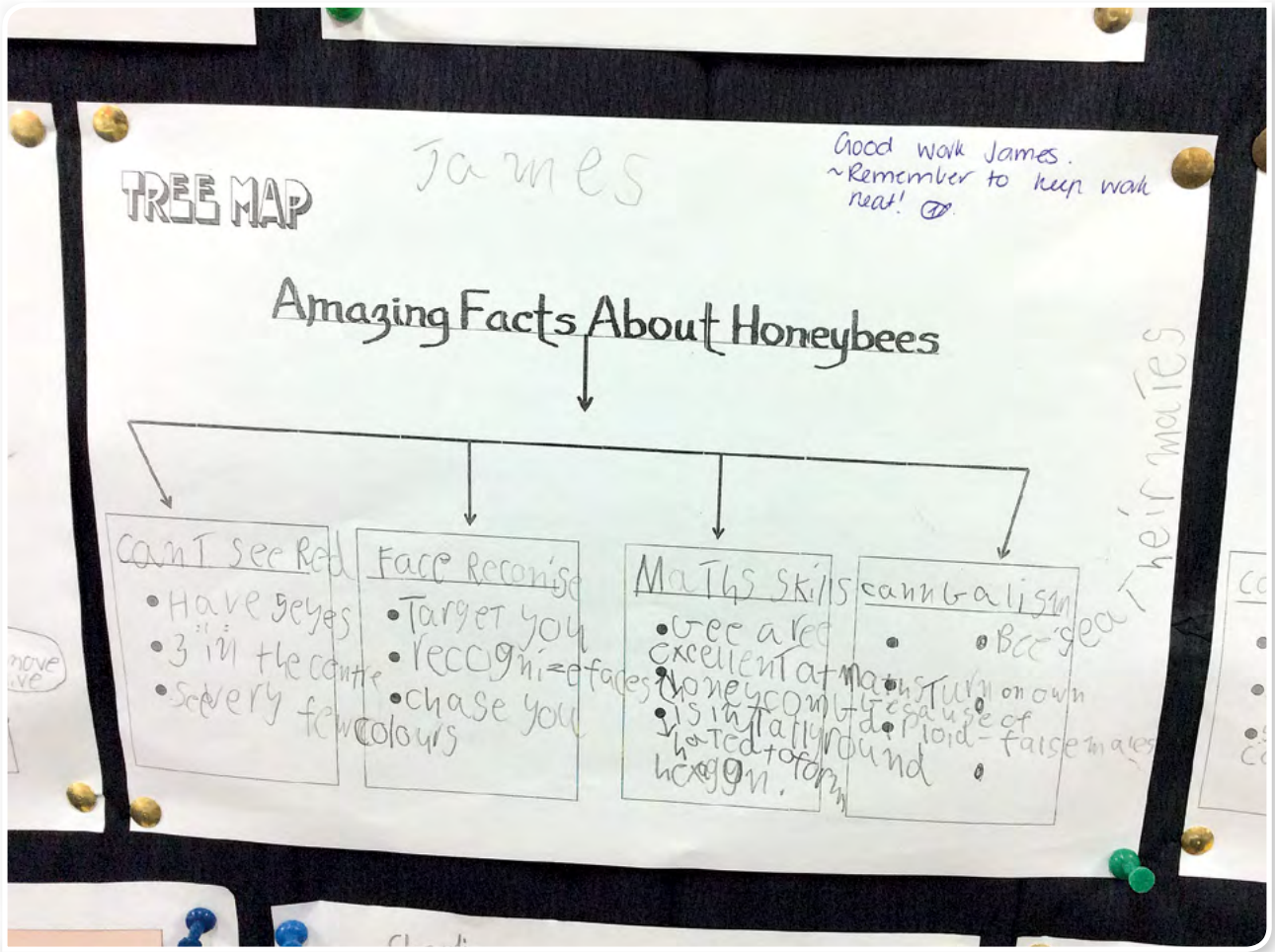
Anyone who has seen a honeycomb might immediately infer that honeybees are excellent mathematicians. In fact, great minds often looked over the level of brilliance with which these tiny creatures could achieve such exact angles as those found in the hexagonal pattern of honeycombs. In fact, it has been found that wild honeycombs are initially round - the shape of the bee's body - and are then heated during formation, which causes the walls to melt and form the most natural structural shape for their orientation, which is a hexagon.

Bees are Amazing

You have been asked by the local Beekeepers' Association to present a talk to the local community about how fascinating bees are. Some of the people in the community think that all bees do is fly around and sting people because they have nothing better to do!

Using the text, "Amazing Facts about Honeybees", find the information you will present. It does not have to be a long presentation but it needs to be interesting! You may use props, images and pictures to assist you with your presentation.

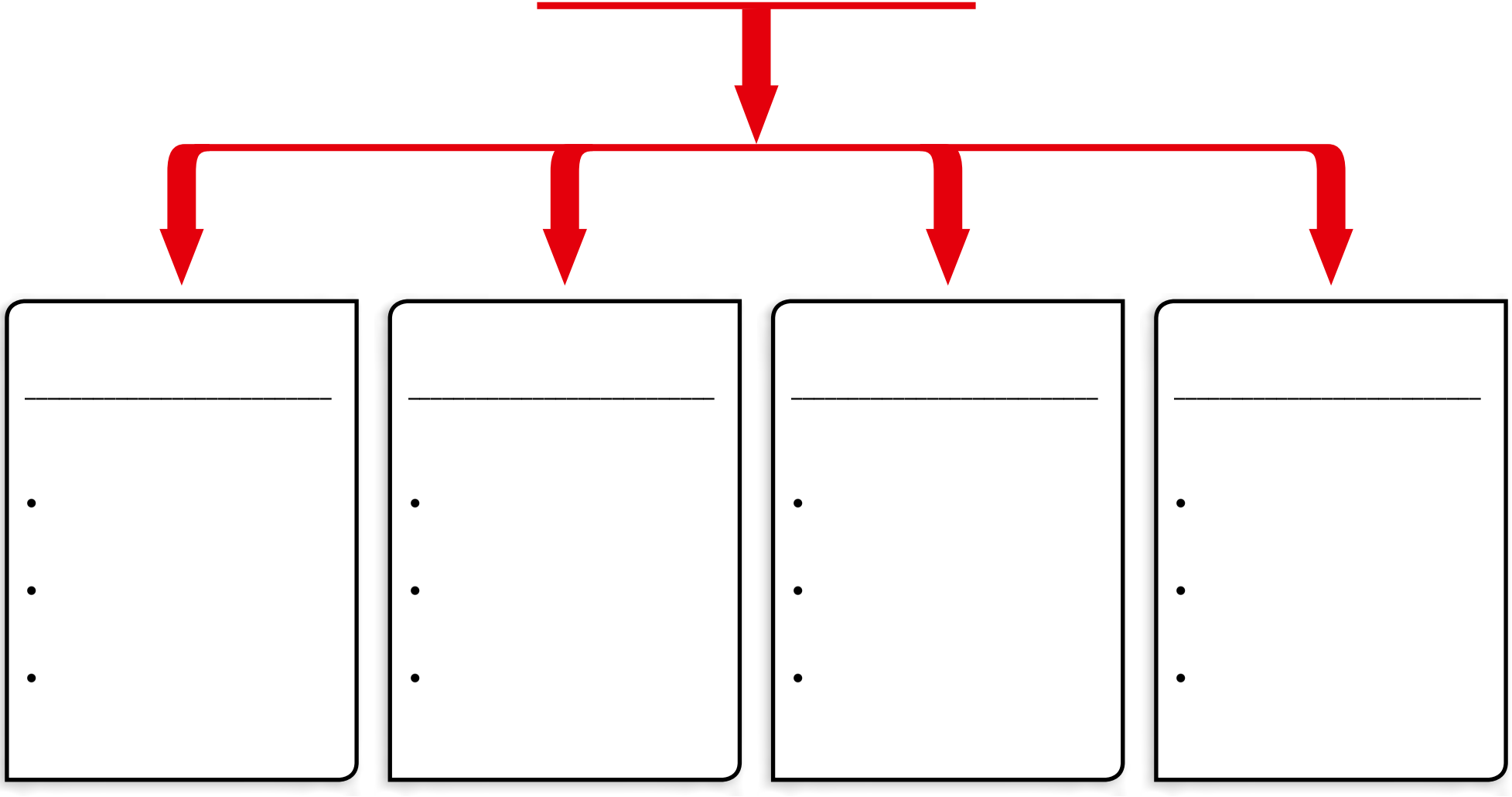
Your aim is to inform the audience of adults that bees are not only interesting, but that they are also very clever.



Name:_____ Date:_____

Tree Map

Amazing Facts about Honeybees



Ten Facts about Honeybees

1 Honey bees are super important pollinators for fruits, flowers and vegetables. This means they help other plants grow. Bees transfer pollen between the male and female parts, allowing plants to grow seeds and fruit.

2 Honey bees live in hives (colonies). The members of the hive are divided into three types;

Queen: One queen runs the whole hive. Her job is to lay the eggs that will spawn the hive's next generation of bees. The queen also produces chemicals that guide the behaviour of the other bees.

Workers: these are all female and their roles are to forage for food (pollen and nectar from flowers), build and protect the hive, clean and circulate air by beating their wings. Workers are the only bees most people ever see flying around outside the hive.

Drones: These are the male bees, and their purpose is to mate with the new queen. Several hundred live in each hive during the spring and summer. But come winter, when the hive goes into survival mode, the drones are kicked out!

3 What are these buzzing bees most famous for? Delicious honey! But did you know they produce 2-3 times more honey than they need, so we get to enjoy the tasty treat too!

4 If the Queen bee dies, workers will create a new queen bee by selecting a young larvae (the newly hatched baby insects) and feeding it special food called 'royal jelly'. This enables the larvae to develop into a fertile queen.

5 Honey bees are great flyers. They fly at a speed of around 25km an hour and beat their wings 200 times per second.

6 Each bee has 170 odorant receptors, which means they have one serious sense of smell! They use this to communicate within the hive and to recognise different types of flowers when looking for food.

7 The average worker bee lives for just five to six weeks. During this time, she'll produce around a twelfth of a teaspoon of honey.

8 The Queen can live up to five years. She is busiest in the summer months, when she can lay up to 2, 500 eggs a day!

9 Honey bees are also brilliant dancers! To share information about the best food sources, they perform their 'waggle dance'. When the worker returns to the hive, it moves in a figure of eight and waggles its body to indicate the direction of the food source.

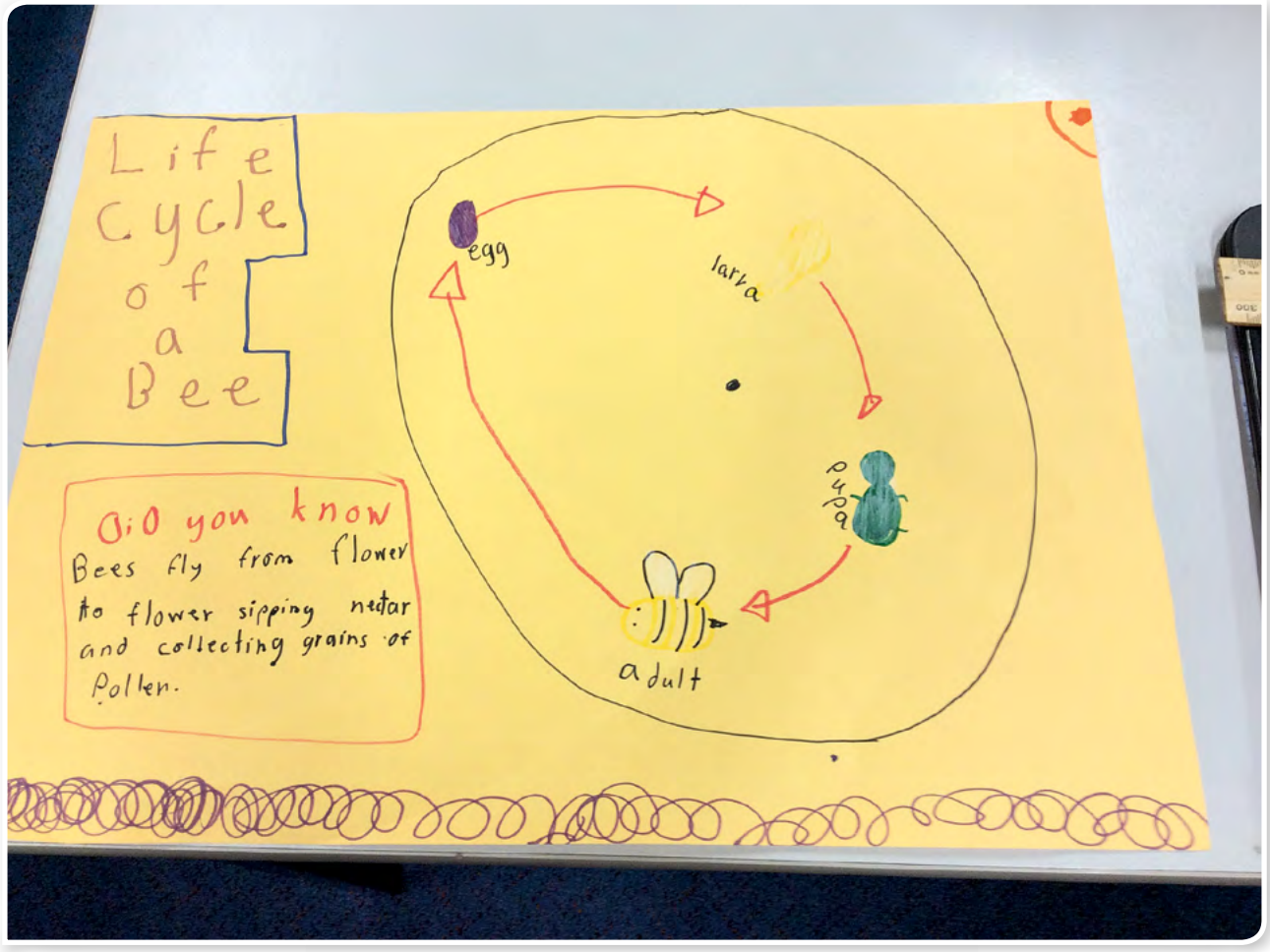
10 Sadly, over the last 15 years, colonies of bees have been disappearing, and the reason remains unknown. Referred to as 'colony collapse disorder', billions of honey bees across the world are leaving their hives, never to return.

Editing Skills

The ability to edit written work is essential to make sure that work contains no mistakes and that it makes sense to read.

The following sheet has been based on the text "Ten Facts about Honeybees". It contains spelling, punctuation and grammar mistakes. Circle the mistakes you find and write the correction on the line above it.

When you have finished, compare it to the original text and see how many mistakes you found!



Name:_____ Date:_____

Ten Facts about Honeybees - Editing sheet

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Three Level Guide

LITERAL (The answer is in the text)

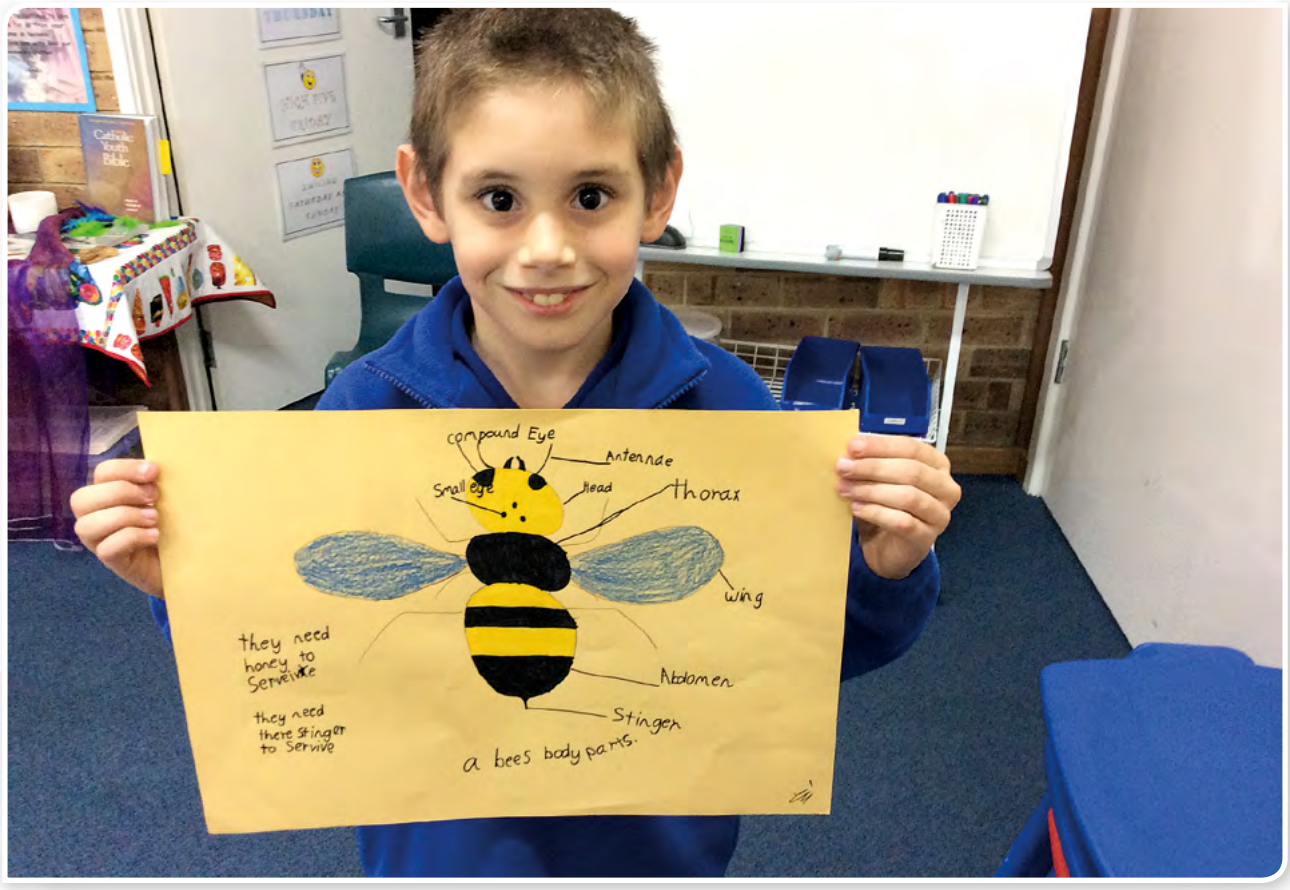
1. How long does the average worker bee live for?
2. List three types of members that live in hives.
3. What is the name of the special food that is fed to the young larvae?

INFERENTIAL (The clues are in the text)

1. What would happen if the bees were unable to transfer pollen between flowers?
2. Why does the hive need to select a new queen straight away?
3. What would happen if the bees were unable to perform the 'waggle dance"?

EVALUATIVE (What do you think about what the author has written?)

1. Do you think the author has a great admiration for bees? Justify your answer.
2. Do you think the author thinks that the colony collapse disorder is a concern? Justify your answer.



Three Level Guide - Answers

LITERAL (The answer is in the text)

1 How long does the average worker bee live for? 5-6 weeks

2 List three types of members that live in hives. Queen, worker, drone

3 What is the name of the special food that is fed to the young larvae? Royal Jelly

INFERENTIAL (The clues are in the text)

1 What would happen if the bees were unable to transfer pollen between flowers?
Pollination would not be able to occur. Fruits, flowers and vegetables would not grow

2 Why does the hive need to select a new queen straight away?
The Queen is the leader of the hive, larvae needs to be laid, she guides the behaviour of the other bees, she is very important to the success of the hive

3 What would happen if the bees were unable to perform the 'waggle dance"?
They would not be able to share information about where the best flowers (food sources) are

EVALUATIVE (What do you think about what the author has written?)

1 Do you think the author has a great admiration for bees? Justify your answer.
Yes due to the vast knowledge they have, sense of 'respect' in the article

2 Do you think the author thinks that the colony collapse disorder is a concern? Justify your answer.
Yes, by the choice of the words the author has used

What are Native Bees?

There are over 1,500 species of 'true blue' Australian native bees.

Commercial honey bees are not native to Australia. They were introduced from Europe in about 1822.

Australian native bees can be black, yellow, red, metallic green or even black with blue polka dots! They can be fat and furry or sleek and shiny.

Australia's smallest bee is less than 2mm long.

Australia's largest native bee is the Great Carpenter Bee of the tropical north and northern NSW. It is up to 24 mm long.

Most Australian bees are solitary bees which raise their young in burrows in the ground or in tiny hollows in timber.

Australia also has 10 species of social native bees which do not sting.

Stingless bee honey is a delicious bush food and stingless bees can be good crop pollinators. So stingless beekeeping is becoming increasingly popular.

Native bees are also very important pollinators of Australia's unique wildflowers and are a vital part of our Australian bushland.

Australian Blue Banded Bee
Photo: http://amazingbees.com.au/australian-native-bees.html

Source: www.aussiebee.com.au

Name:_____ Date:_____

Reading Non Fiction

TITLE of the article: _____

SOURCE of the article: _____

Three facts I would share with someone interested in bees

1 _____

_____

2 _____

_____

3 _____

_____

Summary of the article

_____

_____

_____

_____

_____

_____

_____

_____

_____

Cinquain

A CINQUAIN POEM IS A FIVE LINE POEM.

Line 1: a one word title

Line 2: a two word phrase that describes your title.

Line 3: a three word phrase that describes an action relating to your title.

Line 4: a four word phrase that describes a feeling relating to your topic.

Line 5: one word that refers back to your title.

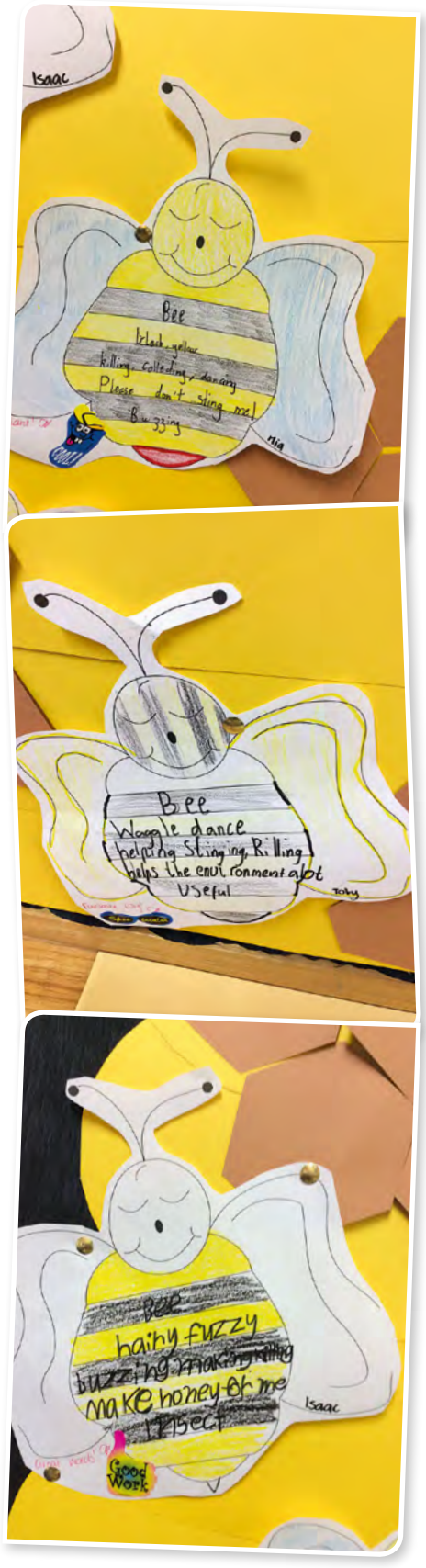
Bee

Australian, native

buzzing, flying, pollinating

Hope they don't sting

Healthy!



How Honey is Made

We all know that honey comes from bees, but how do these little creatures manage to make something so tasty?

During the Spring and Summer months, worker bees over three weeks old fly all around the area near their hive. While they are flying they look for two things; water and nectar. Nectar is a sweet, watery liquid produced by plants in their flowers. The plants do this to attract insects like bees to help them in pollination.

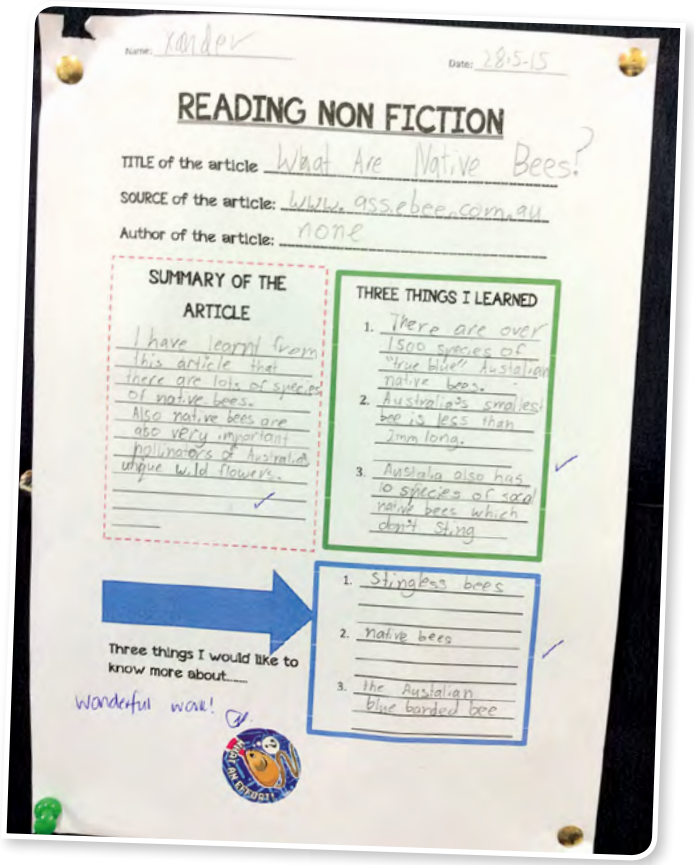
When they find a plant with some nice pollen, they suck it up through a special tube called a proboscis and carry it in their special stomach used only for nectar. They will then visit hundreds more flowers, sometimes carrying as much as half their own body weight in nectar!

CHEMICAL REACTION

While the nectar is in the bee's special stomach it mixes with enzymes that begin turning it into honey. The bee then returns to the hive and passes the nectar on to the other worker bees who then pass it on to others in turn; just like a game of honey pass the parcel! The honey is then stored in small compartments made out of beeswax. But, at this point the nectar mixture is still too wet and runny so more worker bees fan it with their wings so that it becomes the right consistency. When they have made the honey just to the right consistency, they seal the compartment with more beeswax so that it will keep for winter, or for the beekeeper to collect.

TASTY

The bees that have found a really good place to get their nectar let other bees know where it is by doing a little dance. This way the other bees can fly straight to this place and make honey. In order to make just 500g of honey it takes a team of 10,000 bees who have to visit two million flowers! All honey tastes slightly different because of the amounts of different flowers used to make it.



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How Honey is Made

HEALTHY

As well as being very tasty, honey has lots of properties that make it really good for you and sometimes it can be used to help you feel better when you are unwell.

Have some honey on hot toast in the morning to give you a long lasting energy boost to wake you up.

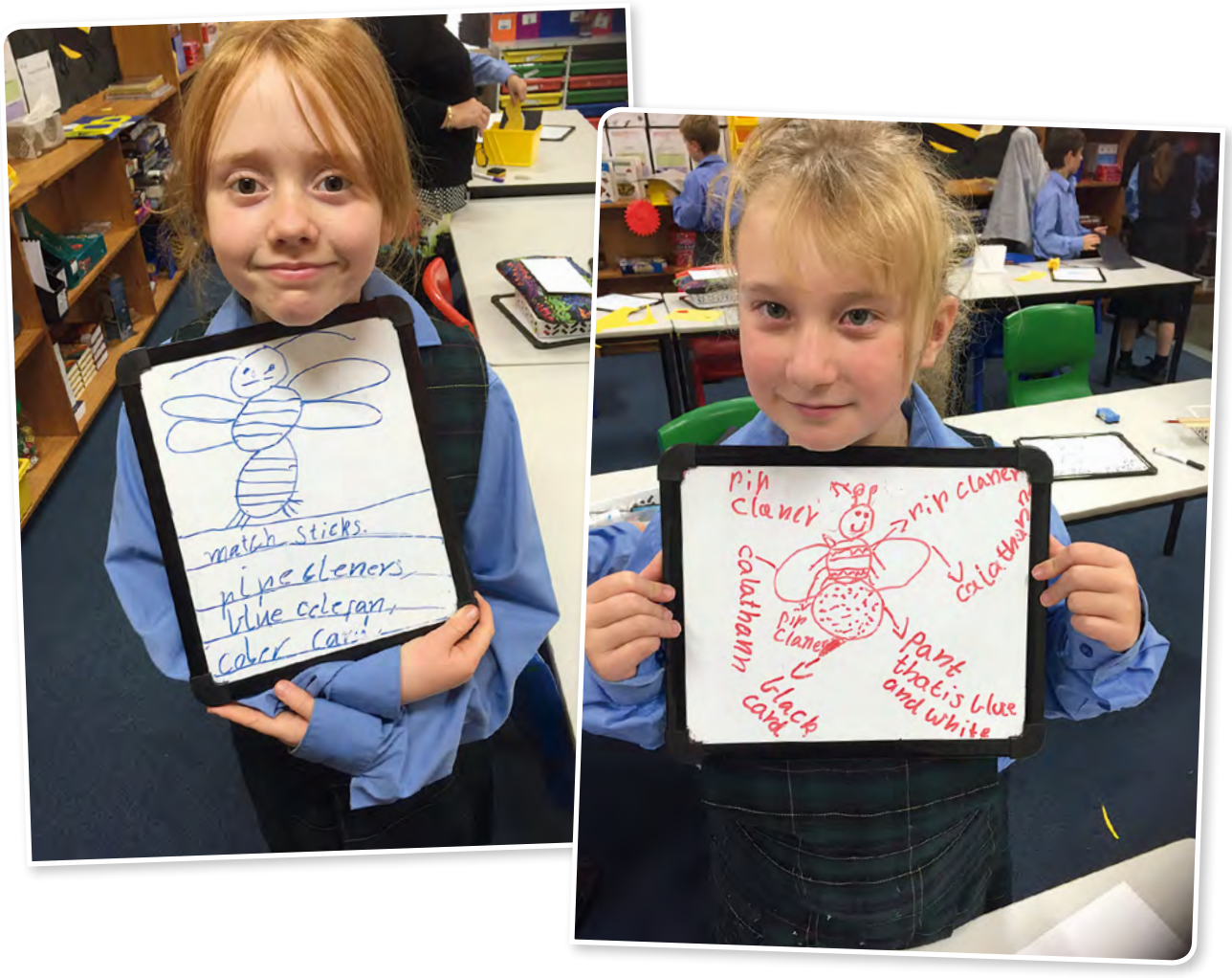
Having some honey on your cereal every morning can help protect you from nasty infections that you might come into contact with during the day.

Mix some honey, lemon and a pinch of salt to gargle to help soothe and protect a sore throat.

BEAUTY

Not only can honey make you feel better, it can make you look better as well. Some face creams contain honey because it both moisturises and cleanses the skin.

It can also be used before washing your hair to keep it moisturised and shiny, some people even think it can help prevent hair loss.



Name:_____ Date:_____

True/False

HOW HONEY IS MADE

Read the following statements. Circle if the statement is true or false.

1 The nectar mixes with enzymes in the bee's stomach to begin turning it into honey T/F

2 Bees can carry their full body weight in nectar. T/F

3 Honey is the worst thing to eat when you are feeling tired and needing a boost of energy. T/F

4 Nectar is a sweet, watery liquid produced by bees. T/F

5 Beeswax is vitally important in keeping the honey. T/F

6 All honey tastes the same. T/F

7 Bees are very important in the pollination process. T/F

8 Bees' wings are used just for flying. T/F

9 Bees let other bees know where to find a good place to get the nectar from by doing a dance. T/F

10 Bees work extremely hard to make the honey for us to eat and use in our everyday lives. T/F

Create two statements for a classmate that they have to state as true or false from the text.

1 _____

_____

2 _____

_____

HOW HONEY IS MADE

ANSWER SHEET. The correct answers are marked as red.

1	The nectar mixes with enzymes in the bee's stomach to begin turning it into honey	T/F
2	Bees can carry their full body weight in nectar.	T/F
3	Honey is the worst thing to eat when you are feeling tired and needing a boost of energy.	T/F
4	Nectar is a sweet, watery liquid produced by bees.	T/F
5	Beeswax is vitally important in keeping the honey.	T/F
6	All honey tastes the same.	T/F
7	Bees are very important in the pollination process.	T/F
8	Bees' wings are used just for flying.	T/F
9	Bees let other bees know where to find a good place to get the nectar from by doing a dance.	T/F
10	Bees work extremely hard to make the honey for us to eat and use in our everyday lives.	T/F

Name:_____ Date:_____

Looking at Paragraphs

PARAGRAPHS

1 What is a paragraph?

2 How do I structure a paragraph?

3 How do I know when to start a new paragraph?

Reread the text "How honey is made". Take note of how the author has structured the paragraphs. All of the information in that paragraph relates to that topic/idea.

LET'S TRY SOME OF OUR OWN.

Topic: Bees are very interesting insects.

Supporting detail: They are found all over the world

Supporting detail: They are very hard workers.

Supporting detail: They all have set roles in the hive

Closing Sentence: Bees are very complex animals.

FILL IN THE FOLLOWING

Topic: Honey has many uses

Supporting detail: _____

Supporting detail: _____

Supporting detail: _____

Closing sentence: _____

Where does Honey come from?

http://splash.abc.net.au/home#!/media/86020/where-does-honey-come-from

This activity is all set out on the above webpage. Click on the tab "for the teacher" under the video clip and it has excellent questions for pre/during and post viewing that will assist the children with their comprehension of the viewing lesson.

Name:_____ Date:_____

Confusing Contractions

A contraction is a word that is made up of two or more words that are connected together. One or more letters are removed from the words when they are connected. An apostrophe is added in the location where letters are removed.

For example: Do not = don't

The following sentences require you to connect the two words that are underlined and write in the contraction on the line after the words.

1 I do not _____ think the bee will sting you.

2 Is not _____ honey the yummiest thing you have ever eaten?

3 I think you will _____ have to collect the honey yourself.

4 He will _____ laugh when he sees the bee dance.

5 I would _____ like to keep bees one day.

The following sentences contain the contraction - you will need to expand it to show the two words that have been connected.

1 You shouldn't _____ go near a beehive.

2 Doesn't _____ he know that honey comes from bees?

3 I haven't _____ got any honey for my sore throat.

4 I think they've _____ got some honeycomb to go in the chocolate.

5 Where's _____ Mum put the beeswax candles?

Write two sentences for your partner containing one contraction per sentence. See if your partner can identify the contractions and what the two words are in the contraction.

1 _____

_____

2 _____

_____

Australian Scientists may have solved the Mystery of Bee Colony Collapse

February 10, 2015
Nicky Phillips
Science Editor

It's the bee version of a mystery thriller. Hives full of healthy honey bees suddenly empty. Inside, beekeepers the world over would find abandoned young and a queen but no worker bee corpses.

At first apiarists worried a new disease was infecting their colonies. Evidence would later show bees were stressed out - by pesticides, pests and poor food quality - but not even that could explain the rapid collapse of colonies.

Now an Australian-led team has discovered how multiple stressors trigger a series of events that can quickly lead to a total breakdown of bee society.

Scientists observe bee societies: An Australian native bee visits a flower. They have not been affected by colony collapse disorder.
Photo: David Porter

Continued over.

Australian Scientists may have solved the Mystery of Bee Colony Collapse

"It's very rapid," said research leader Andrew Barron.

"Your colony goes from having lots of bees to no bees in a few weeks. There's no obvious pathogen and there's no corpses left in the hive," said Dr Barron, from Macquarie University.

Known as colony collapse disorder, it has affected about 30 per cent of honey bee colonies in Europe and North America each year over the past decade. Australian honey bee colonies, which play a significant role in crop production, worth about $5 billion a year, have so far been unaffected.

"When you get a colony failing like that, you're not just seeing the death of individuals but the absolute collapse of a whole society," he said.

Andrew Barron: "Lots of bees to no bees in a few weeks". Photo: Wolter Peeters

Rather than focus on the stress chemical exposure, pests and pathogens had on individual bees, Dr Barron and his team wondered what impact chronic stress was having on bees highly sophisticated hierarchical communities.

It is well known that honey bees delay leaving their hive to forage until later in adulthood. Foraging for nectar and pollen is hard work, and bees frequently die from exhaustion or getting lost.

But if external stressors such as pests or pesticides kill too many forager bees at once, it triggers a rapid maturation of the next generation and prompts them to leave the nest before they are ready.

"Bees who start to forage when they've been adults for less than two weeks are just not good at it. They take longer, and they complete fewer trips." When Dr Barron and his team placed tiny radio trackers on young forager bees they discovered they also died earlier.

When the team entered this information into a model they found these premature deaths triggered a vicious cycle, whereby subsequent generations of inefficient foragers could not return enough resources to keep the colony going, leading to its collapse.

"Our model suggests bees are very good at buffering against stress, but there's a tipping point and then you see this rapid transition into complete societal failure," Dr Barron said.

Dr Barron said their findings, which have been published in the Proceedings of the National Academy of Sciences journal, are the first to propose an explanation for the unusually rapid collapse of bee colonies.

Name:_____ Date:_____

Interesting Words Chart

WORD	PARAGRAPH	WHAT I THINK IT MEANS	WHAT IT ACTUALLY MEANS
Eg. Mystery	1	fun	Something that is difficult or impossible to understand or explain

Letter to the Editor

After reading "Australian scientists may have solved the mystery of bee colony collapse" you feel quite strongly that more should be done to help this cause. You would like the government to donate more money into research to help scientists find out what more they can do to stop colony collapse disorder.

Use the following framework to help you write the letter. Remember to use POWERFUL words to convince the readers to agree with you.

RESEARCH CONFIRMS VARROA MITE BAD NEWS FOR AUSSIE BEES

25 June 2012

The worst fears of Australia's honeybee industry have been realised, with new research confirming that Australian honeybees are highly susceptible to a pest that hasn't yet reached our shores but will potentially devastate the honeybees when it does.

A research project carried out jointly by the University of Sydney's School of Biological Sciences and the Agricultural Research Service of the United States Department of Agriculture evaluated seven lines of Australian bees and found that none had any resistance to the Varroa mite.

"The research confirms that an incursion of this pest would have catastrophic effects on bee populations and those industries that rely on them for pollination," Ben Oldroyd, a professor in behavioural genetics at the University of Sydney, said.

"If the Australian honeybee industry and honeybee dependent crops are to have any chance of minimising the impact of Varroa when it arrives then it is critical that Varroa-resistant honeybees are bred for the Australian environment, and urgently."

Varroa-infested bees being collected for the study.

The exotic Varroa mite (Varroa descructor) is present in all beekeeping countries worldwide, except Australia. The size of a sesame seed, Varroa mites attach themselves to bees and suck their blood, leaving them more susceptible to disease. Where Varroa is present it devastates beehives and requires intensive treatment with miticides to control it.

Major crops, such as almond, apple, avocado, blueberry and cucumber rely heavily on bees for pollination.

Source: The University of Sydney

Continued over.

News

The research project, funded by the Australian Rural Industries Research and Development Corporation, compared the responses of Australian honeybees to a Varroa infestation with the responses of US-Italian honeybees, known to be susceptible to the mite. It also compared the Australian bees' response to that of two other types of honeybee known for their resistance to Varroa.

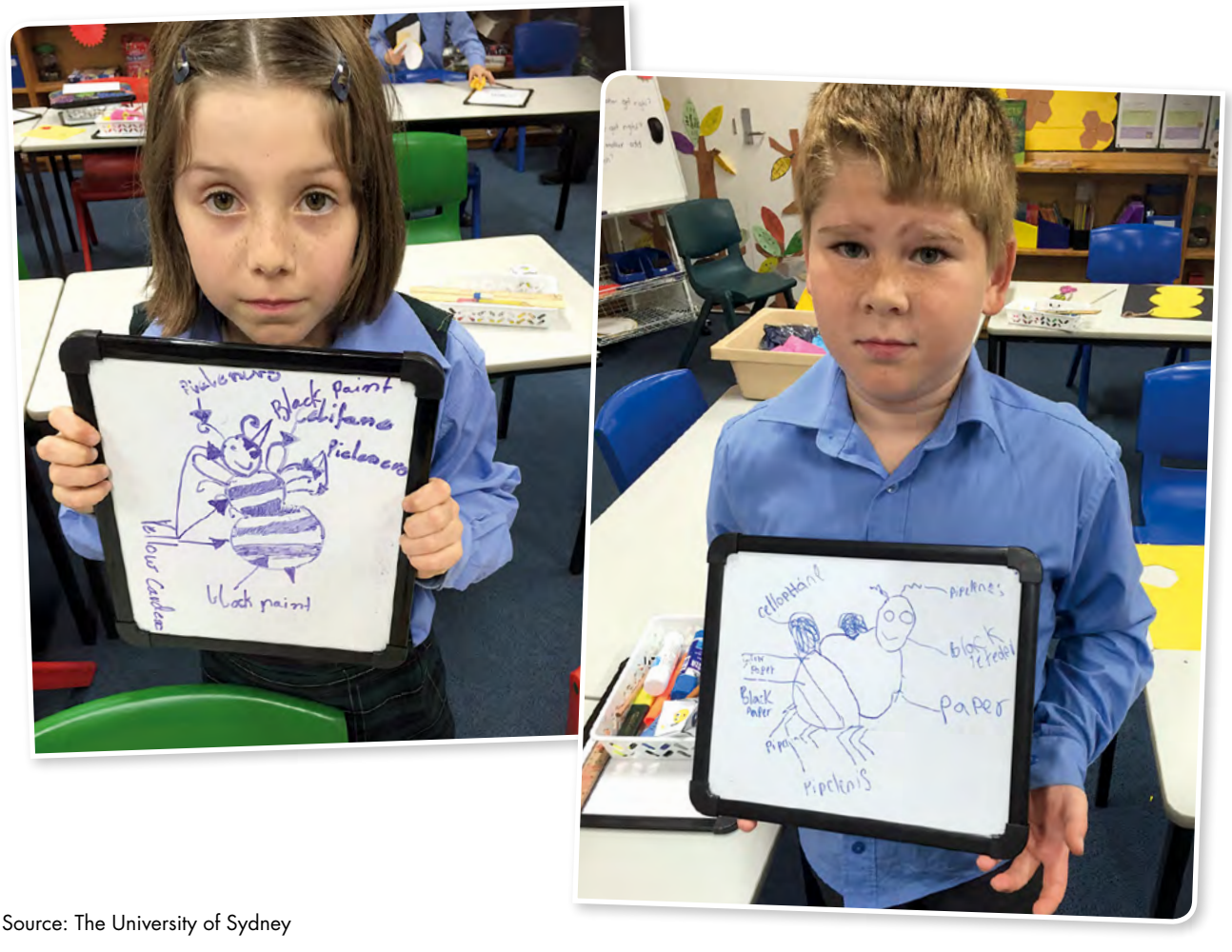
After only four months of exposure to the Varroa mite 44 percent of all the Australian honeybee lines had died. This compared to a 4 percent mortality rate over the same period for the most resistant Russian honeybee, which isn't found in Australia.

"This research provides a clearer picture on the potential impacts of a Varroa incursion in Australia," Professor Oldroyd said.

"It is largely accepted that Varroa will eventually reach Australia and the findings from our research give us an indication of just how severe an impact this pest will have on our honeybee populations.

"Because Australian honeybees have never been exposed to Varroa the chances of them being susceptible are much greater.

"The only positive side to this research is that there are breeds of bees that do have a considerable resistance to Varroa but these bees aren't currently found in Australia," Professor Oldroyd said.



Source: The University of Sydney

Name:_____ Date:_____

Varroa Mite - Cloze Activity

Read the text "Research confirms Varroa mite Bad news for Aussie bees". Using the text, fill in the missing words.

The worst fears of Australia's honeybee industry have been realised, with new research confirming that Australian honeybees are highly _____ to a pest that hasn't yet reached our shores but will potentially devastate the honeybees when it does.

A research project carried out jointly by the University of Sydney's School of Biological Sciences and the Agricultural Research Service of the United States Department of Agriculture evaluated _____ lines of Australian bees and found that none had any resistance to the Varroa mite.

"The research confirms that an incursion of this pest would have catastrophic effects on bee populations and those industries that rely on them for _____," Ben Oldroyd, a professor in behavioural genetics at the University of Sydney, said.

"If the Australian honeybee industry and honeybee dependent _____ are to have any chance of minimising the impact of Varroa when it arrives then it is critical that Varroa-resistant honeybees are bred for the Australian _____, and urgently."

The exotic Varroa mite (Varroa descructor) is present in all beekeeping countries worldwide, except _____. The size of a _____ seed, Varroa mites attach themselves to bees and suck their _____, leaving them more susceptible to disease. Where Varroa is present it devastates beehives and requires intensive treatment with _____ to control it.

Major crops, such as almond, apple, avocado, blueberry and _____ rely heavily on bees for pollination.

The research project, funded by the Australian Rural Industries Research and Development Corporation, compared the responses of Australian honeybees to a Varroa infestation with the responses of US-Italian honeybees, known to be susceptible to the mite. It also compared the Australian bees' response to that of two other types of honeybee known for their _____ to Varroa.

Continued over.

Name:_____ Date:_____

Varroa Mite - Cloze Activity

After only four months of exposure to the Varroa mite 44 percent of all the Australian honeybee lines had _____. This compared to a 4 percent mortality rate over the same period for the most resistant Russian honeybee, which isn't found in Australia.

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"Because Australian _____ have never been exposed to Varroa the chances of them being susceptible are much greater.

"The only positive side to this research is that there are breeds of bees that do have a considerable _____ to Varroa but these bees aren't currently found in Australia," Professor Oldroyd said.

Choose three of the words that were missing from the text (and wrote them in correctly) and give their definitions below.

1 _____

_____

2 _____

_____

3 _____

_____

Report Writing

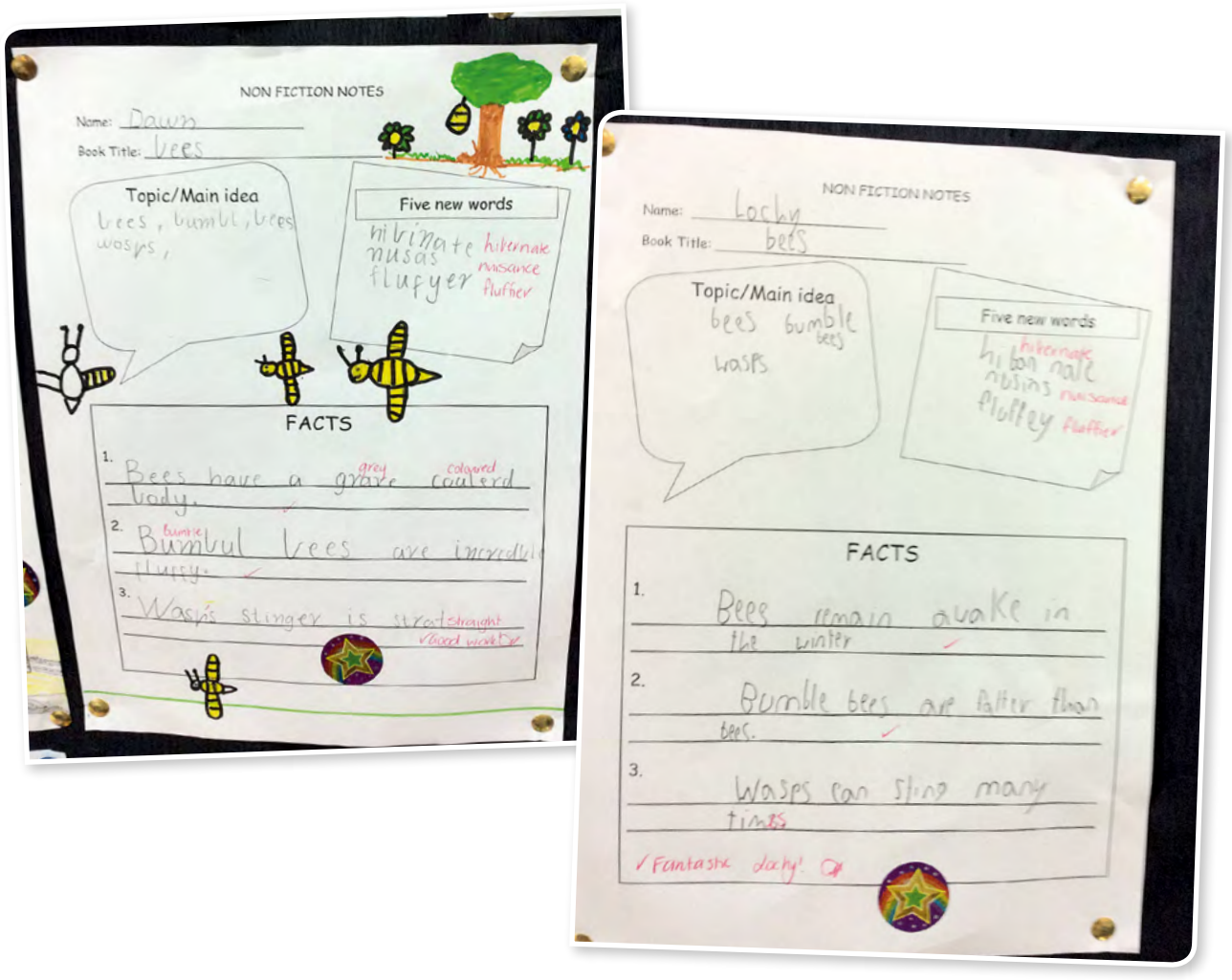
After reading "Research confirms Varroa mite is bad news for Aussie bees", you might have noticed that the language used and the setting out is very formal. This is because it is a report that was written for a University. This means that appropriate language and formats must be used. You cannot use informal language or slang when writing a report.

Your activity is to write a report (obviously not to a university level) that you will deliver to your Principal informing them of some of the interesting facts and details that you have discovered while learning about bees.

The following questions may be helpful when planning your report.

- Purpose - What do I want my writing to do/achieve? eg give clear information
- Audience - Who am I writing to? eg teacher, other students, the principal
- Identity/Stance - Who am I writing as? eg a zoologist, a researcher, a student
- Attitude - How do I want/need to make them feel? eg informed and confident in my expertise/knowledge.

Use the framework to assist you.



Name:_____ Date:_____

Report Writing Framework

Title _____

Topic sentence _____

_____

_____

Fact 1 _____

_____

_____

Fact 2 _____

_____

_____

Fact 3 _____

_____

_____

Concluding sentence_____

_____

_____