



This will give you a buzz

## About the Honey Industry

This project is an initiative of the Australian Horticultural Corporation and has been produced by National Curriculum Services.



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# To the Teacher

## About the Project

Australia ranks as one of the four leading honey exporting countries in the world. There are some 14,000 registered beekeepers in Australia with about 2,000 of these working commercially to produce 87 per cent of Australia's honey.

Australia produces and sells about 30,000 tonnes of honey each year (60% domestic consumption, 40% for export). 26,000 tonnes is officially recorded. The balance, sold at the farm gate, is not recorded. Most of Australia's honey comes from the various eucalypt plant species (gum trees).

The aim of the project is to outline to teachers and students information about the honey industry and the nutritional benefits of honey.

The project contains a series of student activity sheets which provide both content and tasks for students. Each student activity sheet is self-contained although there are a range of extension activities which can be completed outside the classroom.

The activity sheets are designed to be photocopied as required.

The material is aimed at students in upper primary school levels and relates to studies in the Health and Physical Education, Science and Studies of Society and the Environment Key Learning Areas.

The project equates to Level 4 of the Australian curriculum statements and profiles. This relates to the upper primary years although it is recognised that teachers will make decisions as to the most appropriate year levels for their local curriculum.

Students who participate in the activities will develop

- knowledge about the nature of the honey industry
- an appreciation of the nutritional benefits of honey
- an understanding about the significance of the honey industry to the economy
- research skills focusing on locating and presenting information
- cooperative partner and group work skills.

The learning outcomes attached to each Strand provide many possibilities for student activities. It is anticipated the activities will serve as a stimulus for the development of additional ideas at the school level.

The student activities link the main Strands.

## Teacher Guidelines

'This Will Give You A Buzz' is best seen as a unit within the SOSE curriculum. The content has been used to frame activities that facilitate learning outcomes within the strands of :

- Resources
- Place and Space
- Investigation and Communication
- Time, Continuity and Change
- Natural and Social Systems



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## Contents

The project contains the following student activity sheets:

Student Activity Sheet No.	Topic	Strand	Learning Outcomes
1	About honey – from the beginning	Time, Continuity and Change	Describes ways of life of people in the past
2	Why honey?	Natural and Social Systems	Examines the flow of a product
3	The busy bee	Natural and Social Systems	Compares features of natural systems
4	The hive – home and factory	Resources	Explains factors that affect resource use and development
5	They seek it here, they seek it there – the gathering	Place and Space	Focuses on association between natural and human features
6	The source	Place and Space	Focuses on association between natural and human
7	Making the honey – a process	Resources	Focuses on variation in resource use and development
8	Harvest time	Natural and Social Systems	Describe an example of a cycle within a natural system
9	Home and abroad	Natural and Social Systems	Discusses economic decisions made
10	Honey facts	Investigation and Communication	Explain factors that affect resources



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## Acknowledgments

This resource was an initiative of the Australian Horticultural Corporation. It was developed by National Curriculum Services, the project division of the Victorian Commercial Teachers' Association. The writers gratefully acknowledge the support of the many members of the industry who generously gave their time and assistance in the preparation of these curriculum materials.

Enquiries about the project should be directed to:

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For further information about the industry in general, bees and honey, the following associations and society welcome contact from teachers. Visits by school groups to beekeepers can be arranged through these organisations.

### NSW (COUNTRY)

Mr Fred Benecke  
Secretary  
New South Wales Apiarists' Association  
PO Box 290  
ST IVES NSW 2075  
Tel: (02) 487 2828 Fax: (02) 489 6123

### NSW (METROPOLITAN SOUTH AND WEST)

The Amateur Beekeepers' Association of NSW  
Bee Museum  
Tel: (02) 542 3251

### NSW (METROPOLITAN/NORTH AND EAST)

Mrs Sue Ellison  
North Shore Beekeepers' Association  
PO Box 986  
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### VICTORIA

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### SOUTH AUSTRALIA

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### QUEENSLAND

Mrs Paula Dewar  
Queensland Beekeepers' Association  
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Tel: (074) 635 633 Fax: (074) 635 619

### TASMANIA

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Secretary  
Tasmanian Beekeepers' Association  
38 James St  
ULVERSTONE TAS 7315  
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### WESTERN AUSTRALIA

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Honorary Secretary  
WA Apiarists' Society  
8 Dorward Court  
KARDINYA WA 6163  
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One

# About Honey

Since the earliest days honey has been a source of food and energy. From the first food-gatherers to the ancient civilizations of the Egyptians, Greeks and Romans – records show the value of the bees and their honey.



In pre-European Australia, a type of honey was a food for some Aborigines. This honey was produced by *trigona* bees, a species native to Northern Australia. These bees nest in hollow trees and produce a small amount of rich dark honey called *sugar bag* or *honey pot*. They are small (5mm) black social bees (belonging to a hive) and have no stings.

Honey sold in shops comes from *honeybees*. The honeybee (*Apis mellifera*) was introduced to Australia in 1822, soon after the homesick European settlers arrived. Honeybees quickly adapted to the Australian climate. Honeybees were needed to fertilise (pollinate) the European crops, which were established in the new land.

The honeybee is a most amazing insect. Its family (hive) consists of :

- workers
- drones
- a Queen Bee.

Bees collect nectar, pollen and water each day to take back to the hive so that future generations can live. The raw nectar comes from flowers. They mix this with secretions from their glands, thereby transforming it and after it is deposited in the comb, it ripens into honey.

Honey is primarily of vegetable origin. Its sugars are formed by a mixture of the sun, water and carbon dioxide in the air.

Bees produce:

- honey – to provide food reserves for the hive
- beeswax – to make honeycomb (traditionally used for candles and cosmetics),
- pollen – to nurture their young (which when dried and preserved is a valuable nutrient)
- propolis – to seal their hive from wind and rain (which can be used as an antiseptic)
- bee venom (which can be used to relieve arthritic and rheumatic pains).





One

# About Honey

## Activities

- 1 Why do you think the early European settlers were homesick? See if you can find copies of letters or drawings by early settlers about their new country and its difficulties and pleasures. If you have migrated to Australia or have friends who have done this find out what makes them feel 'homesick'. Check first with other members of your class for their comments.

Try writing a letter, as an early settler, to someone in the 'old country'.

- 2 With a partner identify and list other species – animal or insect – which you know have been introduced to Australia.
- 3 As a class, make a composite list and identify the country of origin of each animal/insect.
- 4 a) In pairs, investigate the animals and insects in the chart below and try to fill in the empty boxes:

Species	Animal	Insect	Native	Introduced
fox	✓			✓
dung beetle		✓		✓
mosquito				
rabbit				
wallaby				
magpie				
cat				

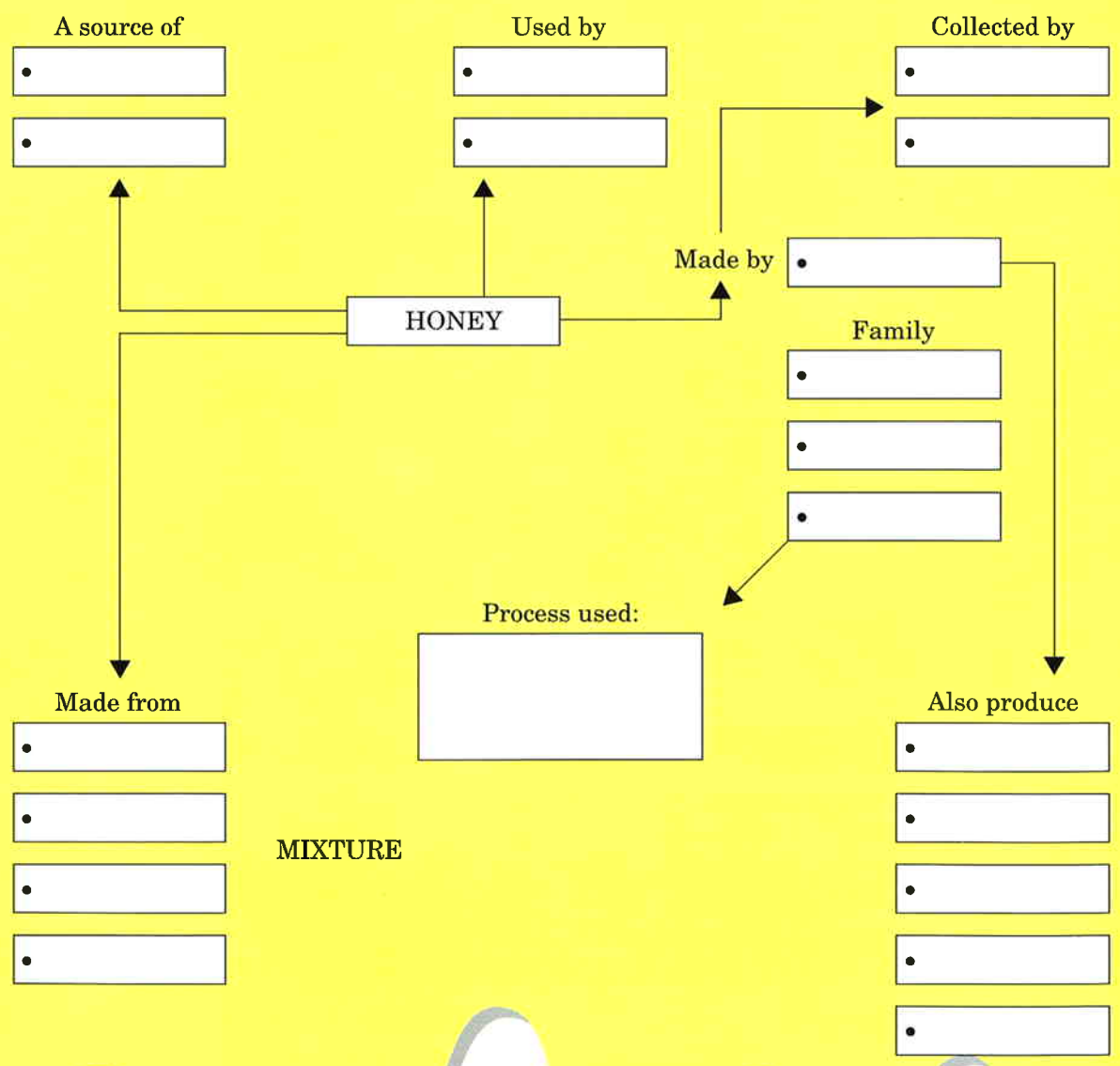


# About Honey

b) Transfer the introduced species to the next chart and complete it as well.

Species	Animal	Insect	Country of Origin	Habitat
fox	✓		Europe	sheltered areas
rabbit	✓		Europe	farmland
honey bee		✓	Europe	forests and farmland

c) With your partner, complete the Information Web below.







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## About Honey

d) If you were a honey bee, what would be the jobs you would have to do? List them in order from most to least important.

### Extension Activities

5 Reference is made to the Ancient Egyptians, Greeks and Romans and their use of honey. When did these civilizations exist? As a group prepare a timeline which clearly shows these civilizations.

6 The first imported bees to Australia came from England.

What regulations are there now to restrict the import of animals into Australia? Why is this?

7 Find out what foods were eaten by Aboriginal people before white settlers came here. See if you can discover what effects white people's foods have had on aboriginal health.







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# Why Honey?

Honey is a quick, safe and natural energy giver because its simple sugars are quickly absorbed into the blood stream. Honey contains many vitamins and minerals.

Honey is made up of :

- natural sugars 80% (mainly levulose, dextrose and glucose)
- moisture 17%
- mineral traces 3%.



There are many recipes which use honey for flavour – there are probably more than 100 different ways honey can add flavour to a food.

The bee's value however is not confined to making honey. Honeybees also help our fruit and vegetables grow. Without bees trees and flowers may not make fruit, nuts or seeds and there would be no honey. Bees, orchards and market gardens are an essential part of our food chain.

When the bee gathers *nectar* her body becomes dusted with *pollen*. As she moves from flower to flower the pollen passes from male to female stigma and cross-pollination (or fertilization) takes place which leads to new seeds and plant regeneration.

## Activities

1 With a partner, check in dictionaries, encyclopaedias and other references these terms:

- nectar
- pollen
- cross pollination

Find out how:

- Peas get into packets in super-markets
- Why you shouldn't eat potato plant leaves
- Why strawberries have that name

If you wanted to visit a market garden, what would you have to do? Are there any market gardens near you?