

Australian

Volume 1

Nature Study Guide



*A weekly observation of
Australian Wild life*



*Summer/
Autumn*



TAKING THE PLUNGE

Summer

“All I have seen teaches me to trust the Creator for all I have not seen.” ~ Ralph Waldo Emerson

Week One

Honeybees

Let's Get Started

Honeybees were introduced into Australia by early European settlers in 1822 for their honey. Some bees escaped and successfully established hives all over the country. They live in bushlands, forests and urban areas. Seeing a honeybee in your backyard through the summer months, foraging and pollinating flowers is a natural sight.

Worker bees collect nectar and pollen to feed their colony as well as make honey. They store nectar inside their “honey-stomachs” where it’s mixed with a special enzyme which begins to change the nectar into honey. When they return to the hive, the honey is dropped into the honeycomb.

Honeybees are social insects which live in colonies. Their colony consists of thousands of worker bees, drones and one queen. Worker bees serve the queen who never leaves the hive, except to mate, which she’ll do only once in her life span. The queen bee can lay up to two thousand eggs a day.

Drones do not have stingers like the female worker bees. Nor do they collect food. Their only purpose is to mate the queen bee.

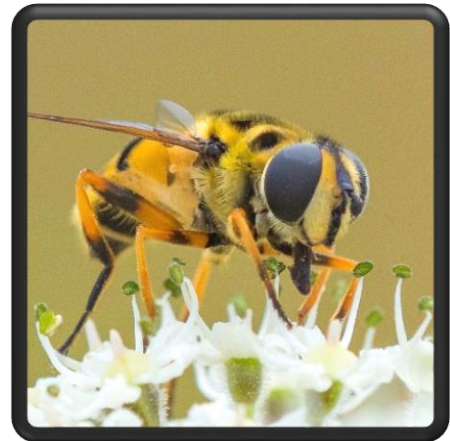


Image by Bart Somers

European Honeybee

Bees are classed as insects and as such they have:

- Head, thorax and abdomen.
- Six legs, three on either side of their thorax. 'Pollen baskets' are attached to the back hindlegs.
- An exoskeleton which is a hard skeleton on the outside of their body.

They also have:

- Three simple eyes at the top of the head which detects changes in light.
- Two compound eyes which contain thousands of tiny lenses. Bees can see in all directions at once. They can see ultraviolet rays which they use as a map to find their way. They can't see the colour red.
- An antenna which is used for touching and smelling.
- Two pairs of wings which are transparent. Bees wings can beat up to 250 times a second.

Bees have an important task of pollinating flowers, vegetables, fruits and crops during spring, summer and autumn. They do this by transferring pollen from the anther to the stigma in flowers. This enables flowers to reproduce by making seeds or fruits. If there were no bees or insects to pollinate plants, we'd experience a food shortage. Bees are important to our survival. God had us in mind when He created the complex bee on the fifth day of creation.

Further Exploring:

[The Wonderland of Nature by Nuri Mass](#), pg. 71-77

[Exploring Creation with Zoology 1](#) by Fulbright

- What Good are They, pg. 133
- Cold-blooded, pg. 134
- Exoskeleton, pg. 135
- Social Insects, pg. 163
- Honeybee, pg. 169
- Royal Food, pg. 171
- The Queen Bee, pg. 171
- Worker Bees, pg. 172
- Dancing Bees, pg. 173
- Making Honey, pg. 17

“Children should be encouraged to watch, patiently and quietly, until they learn something of the habits and history of a bee, ant, wasp, spider, hairy caterpillar, dragon-fly, and whatever larger growth comes in their way.”

~ Charlotte Mason

Related Internet Links

[Native Bees at Backyard Buddies](#)

[Queen Bee Laying Eggs](#)

[Bees Hatch](#)

[How do Bees Make Honey](#)

[Bee Waggle Dance](#)

Nature Ramble

Take a walk in your favourite nature spot and watch the bees work. Keep a safe distance while observing and don't aggravate them by swotting. Can you see the honey baskets filled with pollen on their hindlegs? Note what kind of bee it is. Is it a honey bee, native bee or solitary bee? Make a few rough sketches of your observations in your nature journal. Label the bees anatomy and make a note of what it was doing.

For those who have allergic reactions to bee stings: Please don't place yourself in harm's way. Researching bees from your living room is just as interesting.

Literature Jaunt

Fiction

[Little Bee](#) by Edward Gibbs

[Hummy and the Wax Castle](#) by Elizabeth Ernst

Non-Fiction

[Honeybees Closeup](#) by Charles Hope

[Grow with Me Bee](#) by Kate Riggs

[Insects](#) by Charlie Ogden

Poetry Picnic

[The Lily and the Bee](#) by Henry Lawson

A Scripture:

“Pleasant words are a honeycomb: sweet to the taste and health to the body.”
Proverbs 16:24 (NKJV)

A Hymn:

This is my Father’s World by Maltbie D. Babcock [lyrics](#) and [music](#).

Picture Study

[Common Thistle and Wild Bees by Edith Holden](#)

Digging Deeper

Young Students:

- Create a bee bath.
 - You will need a shallow dish.
 - Fill the dish with pebbles and fresh water.
 - Place it on a stand or a log in a shady protected spot.
- Make an egg carton bee.
 - Cut out one cup from an egg carton and paint it yellow.
 - Wrap black wool around the cup.
 - Glue on some eyes.
 - Make wings using construction paper and place it on the top of the carton under the wool.
- Draw a simple diagram of the anatomy of a bee.
- Sketch the lifecycle of a bee.
- Find out how you can revive an exhausted bee to help it return to its hive.
- Pretend you’re a bee by using an earbud to pollinate flowers by transferring pollen from the anther to stigma.

Older Students:

- You're living in the fascinating world of bees. Write a story of your adventures.
- Research a bee species and write a report about your findings. Alternatively, design a poster with the bee facts.
- Research flowers bees love to visit and plant a packet of seeds in your garden to make it bee friendly.
- [Make a bee hotel for your garden.](#)
- Investigate the 'Waggle Dance' and tell someone what it is.
- If a bee's wings beat 250 times a second. How many times would they beat in a minute? And in an hour?
- A queen bee lays up to 2,000 eggs a day. She has a lifespan of two years. How many eggs will she lay in a week, a month, a year and in two years?

Oldest Students:

- The honeycomb is a complex work of art. Research how intricate it is and sketch one in your journal. Alternatively, investigate how architects have used this design in their projects.
- Investigate the reason for bee numbers declining. Prepare a speech and share it with your family.
- Write a report with your ideas on how we can 'Save the Bees.'
- Investigate what 'Colony Collapse Disorder' is and narrate your findings.
- Design and create a bee using recycling materials. Hint: you could use wire and beads.
- Sketch the internal anatomy of a bee.