

# Varroa Mite

# **Focus Questions**

Discuss the BTN story as a class and record the main points of the discussion. Students will then respond to the following:

- 1. Varroa mite has been found in which state?
- 2. What impact does it have on honey bees?
- 3. What has been done to stop the spread of Varroa mite?
- 4. How much is the Australian honey industry worth?
  - a. \$7 million
  - b. \$17 million
  - c. \$70 million
- 5. Why is it important to protect bees?

# Activity: Class Discussion

Students will discuss the BTN Varroa Mite story in pairs and then share their thoughts with the class.

- What do you THINK about what you saw in this video?
- What does this video make you WONDER?
- What did you LEARN watching the the story?
- Think of three questions you have about the BTN story.



# Activity: Class Discussion

Discuss the BTN story as a class. Create a class mind map with BEES in the middle. Ask students to record what they know about bees. What

questions do they have? In small groups, ask students to brainstorm responses to the following questions and their share with the class:

- What do you know about bees?
- What are some threats to bees?
- Why is it important to protect bees?



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### **KEY LEARNING**

Students will investigate the biology of bee species in Australia and their role in food production.

### CURRICULUM

### Science – Year 4

Living things have life cycles. Living things depend on each other and the environment to survive.

### Science – Year 5

Living things have structural features and adaptations that help them to survive in their environment.

### Science – Year 6

The growth and survival of living things are affected by physical conditions of their environment.

# **Activity: Glossary**

Students will brainstorm a list of key words that relate to the BTN Varroa Mite story. Here are some words to get them started.

POLLEN	PARASITE	THREATS
BIOSECURITY	POLLINATION	HABITAT

### Activity: Bee research

The KWLH organiser provides students with a framework to explore their knowledge on the topic of bee species and consider what they would like to know and learn.

What do I <u>k</u> now?	What do I <u>w</u> ant to know?	What have I <b>learnt</b> ?	How will I find out?

### **Questions to research**

Students will collect and record information from a wide variety of sources. Students may develop their own question for inquiry or select one of the questions below.

- How are honey bees and native bees similar or different? Explore the taxonomy of bees and categorise the information you find using the classification system.
- What does a honey bee habitat look like? Study the habitat of honey bees and create a diorama of its habitat. Compare the habitat of a honey bee to native bees.
- If native bees don't produce honey, do we need them? Why are native bees important?
- How many native bees do we have in Australia? Choose one native bee species and find 3 interesting facts about the species.
- Why do honey bees love hexagons? Watch this TEDEd <u>video</u> to learn more.
- What are some threats to bees? Find out what bees need to survive.
- What is the life cycle of a bee? Use a diagram to help illustrate the different stages. Watch this ABC Education <u>video</u> to learn more.
- How do bees make honey? Use a storyboard to help explain the process of how honey bees make honey.
- What is the role of the queen bee, drone bee and worker bee? How do they interact? What is a robber bee? Create a comic to illustrate how a bee colony operates.
- What might happen if we don't look after bees? Make some predictions. Imagine that bees have tragically become extinct and then write a news article telling people why they have become extinct and how this will impact on people's lives.

# Activity: Species profile

Students will research and write a profile about the honey bee species. Students can use the animal profile worksheet at the end of this activity to record their findings. Encourage students to use a range of sources to find their information.

### Research

Students will research the honey bee species and create a profile. Students can use the Animal Profile at the end of this activity.

- Illustration or photo
- Scientific and common name
- Appearance
- Habitat
- How does it survive in its environment? What are some of its adaptations?
- Conservation Status
- Threats
- Unique features
- Interesting facts

### Share

- Share and compare your findings with your classmates.
- Present your research in an interesting way.
- Think of ways to raise awareness about bee species in Australia.

# Action

- What steps can you take to help protect bee species in Australia.
- Design a honey bee garden for your school. Include a map, a bee hotel, special features and make a list of the top 10 honey bee attracting plants.

Useful links for students' honey bee research:

- Honey Bee Australian Museum
- <u>Honey Bee</u> National Geographic Kids
- <u>10 Facts about Honey Bees</u> National Geographic Kids
- <u>Honey Bee</u> Britannica



# Activity: Biological illustration

Students will create their own biological illustration of a bee species. This activity encourages students to develop their observation skills and reinforce their understanding of biological concepts.

Explain to students that in their illustration they need to draw what they see (using photographs/videos that they find in books and on the internet). Students will need to think about size, shape, texture and patterns; and include as much detail as possible.

Students can use the following as a guide as they create their scientific drawing:

- Find photographs and/or videos of the animal to observe. What key structures and anatomy will you focus on in your drawings?
- Draw the animal to scale (include a ratio on the drawing).
- Include its scientific and common name.
- Add labels to show size, colour and texture. Include labels to show the bee's head, thorax and abdomen.

For more information about scientific drawing in the classroom, visit this website <u>Sketching for observation</u>. Consider sending your students' drawings into your local museum to display as an exhibition.



# Activity: Biodiversity

### Improve the biodiversity in your local environment

Students will work together to help and introduce a native bee species into their school yard. Ask them to consider the following:

- What kinds of animal species have you seen in your school yard? Can you see any bees, butterflies, or insects? Where will you look? What evidence is there to show bees live there? Explore your school yard and record what you discover.
- What type of habitat do bees need and what do they need to survive? Are there any bee-friendly gardens in your community you could visit to learn more? Identify any bee-friendly plants in your school yard. Are there places for bees to drink water and make their nests?
- What are some threats to bee species that are caused by humans? How can you reduce these threats in your school yard?
- What materials and tools will you need to build a bee-friendly habitat? Consider writing a guide or procedure manual explaining how to build the new habitat. You might want to build a bee hotel.
- Build the habitat as a class and present the habitat to your school community. Teach students in other classes about the new habitat and involve them in caring for the new habitat.
- Prepare a map of the habitat which highlights key features. Include information labels in the habitat (for example, QR codes next to key features in the habitat) for other students to learn more about the habitat and the biodiversity of your school yard. Include scientific information about the species. Include botanical names of any plants which are part of the habitat, when it was planted and some basic information.

# **Useful Websites**

- <u>World Bee Day</u> BTN
- Junior Beekeepers BTN
- <u>Bee Heroes</u> ABC Education
- <u>Bee Hotel</u> ABC Gardening Australia
- <u>Curious Kids: How do bees make honey?</u> The Conversation
- <u>Why bees are so important to the environment</u> SA Dept for Environment and Water
- What is varroa mite and how could it impact Australia's bee industry and food production? ABC News
- Honey Bee Australian Museum

ANIMAL P Scientific Name	PROFILE
APPEARANCE	Common Name
ADAPTATIONS	
HABITAT	Unique Features or Interesting Facts
THREATS	