Teacher Notes

Themes

- Australian freshwater turtles
- Threats to turtle eggs
- Conservation

Key learning outcomes

- Understand the life cycle of Australian freshwater turtles
- Identify the environmental threats to turtle eggs
- Explore how scientists and communities help turtle populations
- Consider ways we can take conservation action

Key curriculum areas

- **Science:** Science Understanding (Biological sciences)
- **English:** Language; Literature; Literacy
- **HASS:** Geography; Skills
- **The Arts:** Visual arts
- **Cross-curriculum Priority:** Sustainability

Publication details

Mystery of the Missing Turtles

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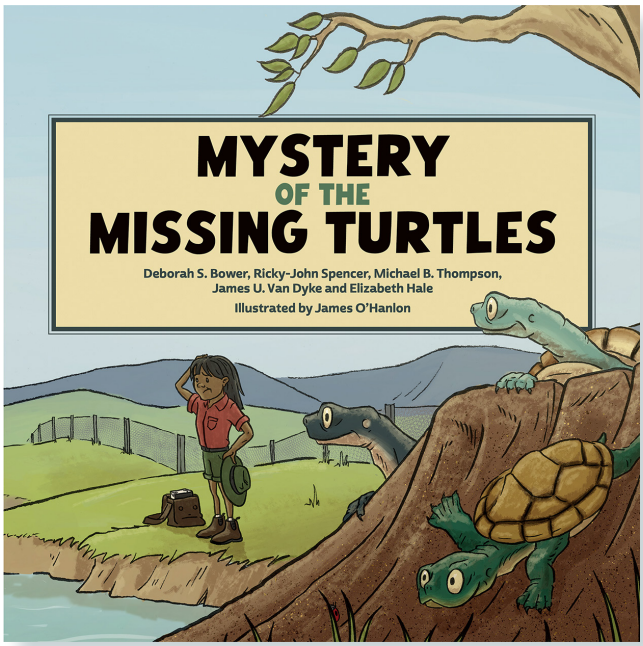

Mystery of the Missing Turtles

Deborah S. Bower, Ricky-John Spencer, Michael B. Thompson, James U. Van Dyke, Elizabeth Hale and James O'Hanlon

About the book

Where have all the baby turtles gone?

Brooke loves watching the turtles in the creek on her farm. But in spring, she notices broken eggshells down near the water. What is happening to the turtle eggs?

Brooke decides to use her detective skills and sets out to solve the mystery of the missing turtles!

Recommended for

Readers aged 5 to 9 (Years 1 to 4)

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About the authors and illustrator

Associate Professors **Deborah S. Bower**, **James U. Van Dyke**, and Professors **Ricky-John Spencer** and **Michael B. Thompson** are turtle biologists who created the 1 Million Turtles Citizen Science Project to encourage participation in turtle conservation in Australia. Associate Professor **Elizabeth Hale** researches and teaches children's literature and writing at the University of New England.

Dr **James O'Hanlon** is an award-winning science communicator, author and illustrator. Whether through art, science or storytelling, James works to illuminate the beauty and complexity of creatures that are often overlooked.

Pre-reading questions or activities

Turtles

What do you know about turtles? Where do they live?

Eggs

Turtles lay eggs, but where do you think they lay them? Do you think they would be safe from predators?

Discussion questions

Science

1. What type of animal is a turtle? *(Reptile, mammal, amphibian, bird, etc.)* What do turtles have in common with, and what makes them different from, other animals in this group?
2. A life cycle is the stages an animal or a plant goes through from the time its life begins, all the way until it can reproduce and the cycle starts again. As a class, can you outline the life cycle of the turtles from the story?

3. At the start of the story Brooke never sees any baby turtles and she notices that turtle eggs keep disappearing. Why do you think turtle eggs are particularly vulnerable to threats? Can you name some of the major threats to turtle eggs?
4. Brooke worked just like a scientist in the story. She was logical and thoughtful in the manner she went about looking after the turtles. Can you outline from start to finish how she prepared for and delivered her conservation strategy. Why do you think this was successful?

English

1. The authors and the illustrator use a variety of page layouts to help tell the story, particularly through the use of panels, a style often seen in graphic novels. How do you think these techniques help the reader follow the story?

HASS

1. How do you think changes and developments in land use, such as farming, impact turtle nesting sites?

Sustainability

1. Like all animals, freshwater turtles are part of an ecosystem. If they were to go missing, other parts of the ecosystem would be affected. From the information in the story and the back pages, how do you think freshwater turtles might benefit their ecosystem?

Activities

Science

1 Million Turtles

The 1 Million Turtles conservation program is a community supported initiative that focuses on protecting and restoring Australia's declining freshwater turtle population through community education. See their website: https://1millionturtles.com/

As a class, explore this website and learn more about turtle conservation. You can check out the turtle nest prediction tool and find possible nesting sites near you, you can view and share photos of freshwater turtles, and you can learn more about ways you can help Australia's freshwater turtles.

Egg-cellent design

Just like Brooke did in the story, you are going to design your very own protective system for the turtle nests. Think about the threats to the turtle eggs: foxes, pigs and goannas like to dig up turtle nests, and birds like to swoop at them once they have hatched and are heading for the water. How are you going to protect against these threats but also allow the eggs to hatch and make it safely to the water?

In small groups, design and label your protective system. Make sure to explain what materials you are using, and how all of it works!

English

March of the baby turtles

The journey from the egg to the water's edge doesn't seem like a big journey, but it is a monumental and death-defying journey for all newborn turtles as they face the threat of birds, foxes and hungry reptiles.

Write a short story about the journey of a baby turtle from the point of hatching all the way to the safety of the water.

The Arts

This art is rubbish

Straws, plastic bottle rings and other forms of plastic are a huge threat to the safety of many turtles in the water. Some people are collecting this waste to clean the ocean and send a message about the impact of plastic on the environment. Check out this website and see what some artists are doing with ocean plastic: https://theartssociety.org/arts-news-features/artist-making-art-plastic-pollution

Now, it's your turn to make some art from plastic pollution.

For the materials, you can:

- bring some plastic waste from home, or
- work as a class to collect plastic litter.

Once you have enough plastic waste you can start making your own creations. You might take inspiration from the story and design a river landscape, or a freshwater turtle. Let your imagination lead the way!

Safety: When collecting the plastic waste, make sure to wear protective gloves and use kitchen tongs to pick up the litter. Be careful when using the plastic waste to make your artwork, as some pieces might have sharp edges. Wash your hands after handling the materials.

Australian Curriculum Links (Version 9.0)

Year level	Learning area: Science	Other learning areas
Years 1/2	**Science Understanding: Biological sciences** • Identify the basic needs of plants and animals, including air, water, food or shelter, and describe how the places they live meet those needs (AC9S1U01)	**English: Language: Text structure and organisation** • Explore how texts are organised according to their purpose, such as to recount, narrate, express opinion, inform, report and explain (AC9E1LA03) **Language for expressing and developing ideas** • Experiment with and begin to make conscious choices of vocabulary to suit the topic (AC9E2LA09) **English: Literature: Literature and contexts** • Discuss how language and images are used to create characters, settings and events in literature by First Nations Australian, and wide-ranging Australian and world authors and illustrators (AC9E1LE01) **English: Literacy: Texts in context** • Discuss different texts and identify some features that indicate their purposes (AC9E1LY01) **English: Interacting with others** • Use interaction skills when engaging with topics, actively listening to others, receiving instructions and extending own ideas, speaking appropriately, expressing and responding to opinions, making statements, and giving instructions (AC9E2LY02) **HASS: Geography** • The natural, managed and constructed features of local places, and their location (AC9HS1K03) **The Arts: Visual arts** • Experiment and play with visual conventions, visual arts processes and materials (AC9AVA2D01) • Use visual conventions, visual arts processes and materials to create artworks (AC9AVA2C01)
Years 3/4	**Science Understanding: Biological sciences** • Compare characteristics of living and non-living things and examine the differences between the life cycles of plants and animals (AC9S3U01) • Explain the roles and interactions of consumers, producers and decomposers within a habitat and how food chains represent feeding relationships (AC9S4U01)	**English: Language: Text structure and organisation** • Describe how texts across the curriculum use different language features and structures relevant to their purpose (AC9E3LA03) **English: Literature: Examining literature** • Discuss how an author uses language and illustrations to portray characters and settings in texts and explore how the settings and events influence the mood of the narrative (AC9E3LE03) **English: Literacy: Interacting with others** • Use interaction skills to contribute to conversations and discussions to share information and ideas (AC9E3LY02) **HASS: Skills: Communicating** • Present descriptions and explanations, using ideas from sources and relevant subject-specific terms (AC9HS3S07) **The Arts: Visual arts** • Experiment with a range of ways to use visual conventions, visual arts processes and materials (AC9AVA4D01) • Use visual conventions, visual arts processes and materials to create artworks that communicate ideas, perspectives and/or meaning (AC9AVA4C01)
Cross-curriculum Priority: Sustainability • Systems: All life forms, including human life, are connected through Earth's systems (geosphere, biosphere, hydrosphere and atmosphere) on which they depend for their wellbeing and survival (SS1)		

Related books from CSIRO Publishing

- *Hatch* (https://www.publish.csiro.au/book/8159)
- *Rakali of the Riverbank* (https://www.publish.csiro.au/book/8115)
- *Sid and the Very Hard to Find Squid* (https://www.publish.csiro.au/book/8201)

For older readers:

- *Sensational Australian Animals* (https://www.publish.csiro.au/book/8094)

Other CSIRO resources

CSIRO has developed and delivered a broad range of high-quality STEM education programs and initiatives for nearly 40 years. Our programs aim to inspire the pursuit of further STEM education among students and the community, to equip the emerging workforce with tomorrow's skill sets, and to strengthen collaboration between industry and classrooms across Australia. For more information visit: https://www.csiro.au/en/Education