TEACHER NOTES FOR

BEFORE IT WAS CALLED SCIENCE

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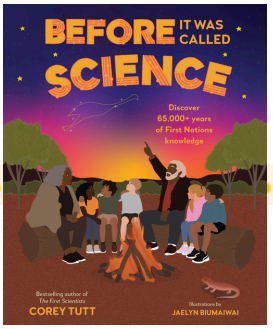
ILLUSTRATOR: JAELYN BIUMAIWAI

ALLEN&UNWIN
AUSTRALIAN. INDEPENDENT. FOR READERS.

TEACHER NOTES

Before It Was Called Science
Written by Corey Tutt
Illustrated by Jaelyn Biumaiwai



Recommended for: Ages 7–12 years old (Grades 2–6)

Genre: Illustrated non-fiction

Themes: First Nations science and knowledge systems; tools, engineering and innovation; food, water and medicine; caring for Country; animals, the environment and sustainability; continuity of knowledge — past and present; First Nations scientists; observation, experimentation and problem-solving.

Curriculum learning areas: English, Science, Technologies, Humanities and Social Sciences, The Arts

Cross-curriculum priorities: Aboriginal and Torres Strait Islander Histories and Cultures, Sustainability

Notes written and designed by: Jordyn Green (Wiradjuri, Ngemba and Paakantji primary teacher and founder of The Yulang Effect)

ISBN (AUS): 978 1 76118 151 1

Book summary: In this follow-up to the groundbreaking children's book *The First Scientists,* bestselling author Corey Tutt shares more incredible stories of how Australia's First Peoples have practised science for thousands of years, long before it was given that name. Organised into two sections – BEFORE and NOW – the book explores examples of First Nations scientific knowledge and innovation from communities across Australia.

About the author: Corey Tutt OAM is a Kamilaroi man who was born on Yuin Country on the New South Wales South Coast. In 2018, Corey founded DeadlyScience, a not-for-profit organisation that aims to provide science resources to remote schools in Australia and connects young First Nations People with mentors to encourage their participation in STEM subjects. This is Corey's fifth book following *The First Scientists*, *This Book Thinks Ya Deadly!, Caution! This Book Contains Deadly Animals* and *Come Home Bigibila.* Corey also edited the *Deadly Science Series* in collaboration with Australian Geographic.

About the illustrator: Jaelyn Biumaiwai is an illustrator of Mununjali and iTaukei Fijian ancestry, and lives and creates on Kombumerri Country, Gold Coast (forming part of the Yugambeh Language Region). Jaelyn's illustrations have appeared in several children's books, including *Come Together and Come Together Again* written by Isaiah Firebrace.

TEACHER NOTES

OVERVIEW

These teacher notes for *Before It Was Called Science* support students to explore First Nations science, knowledge, technologies and innovation through discussion, research, hands-on investigations, creative responses and reflection before, during and after reading.The notes are divided into three parts:

BEFORE READING **DURING READING** **AFTER READING**

Activities are designed to be flexible and can be selected, adapted or extended to suit students, classroom contexts and available time. Teachers are welcome to complete every activity, but each activity can also be completed independently depending on how much time you have to explore.

Suggested learning experiences connect with the Australian Curriculum (Version 9), mostly across the subjects of Science, Technologies, Humanities and Social Sciences, English and The Arts.

CULTURAL SAFETY

Be mindful not to put First Nations students on the spot or expect them to speak for their culture, community or all First Nations peoples. Encourage respectful participation from everyone, using kind and appropriate language at all times and allowing students to engage in ways that feel comfortable.

BEFORE READING:

AIATSIS MAP OF INDIGENOUS AUSTRALIA

- Identify on the AIATSIS Map of Indigenous Australia where your school is located and what First Nations Country you are on.
- This can become a collaborative writing activity, by creating a class Acknowledgement of Country if you haven't written one together as a class already.

ACCESS PRIOR KNOWLEDGE

- Create a class mindmap of what students already know about Aboriginal and Torres Strait Islander peoples and First Nations science and knowledge. Save it to revisit after reading.

DISCUSSION QUESTIONS

Ask the following questions to students:

- What comes to mind when you hear the word science?
- Who do you think can be a scientist? What makes someone a scientist?
- Looking at the title and front cover of *Before It Was Called Science,* what do you predict the author want readers to think about and learn?

TEACHER NOTES

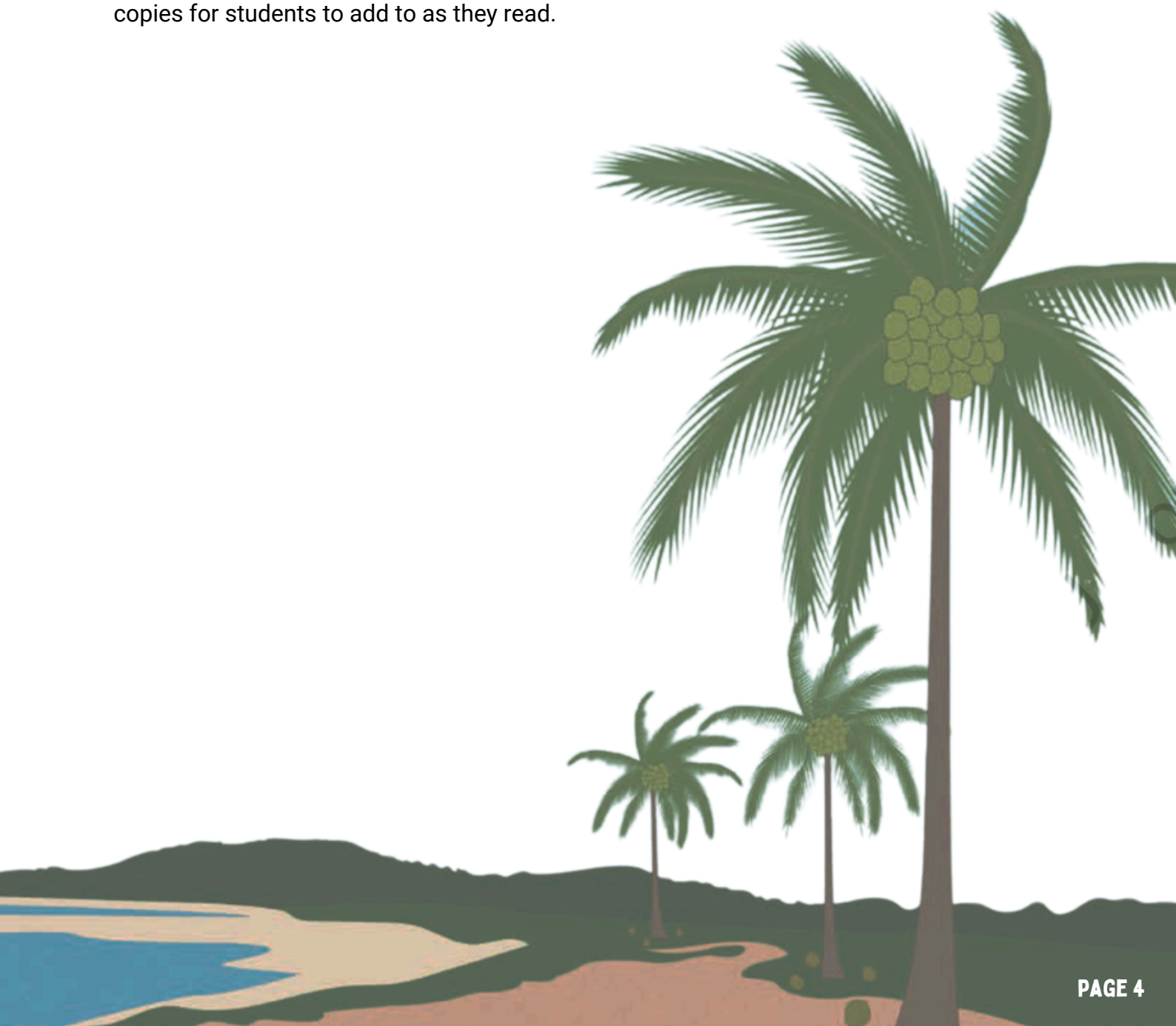
DURING READING:

AIATSIS MAP OF INDIGENOUS AUSTRALIA

- As you read, when knowledge or examples are shared from a particular Aboriginal or Torres Strait Islander nation or group, locate where they come from on the AIATSIS Map of Indigenous Australia.
- If the map is displayed in your classroom, add a pin or dot for each location and continue adding to it throughout the year as students learn from different First Nations peoples and places.

LANGUAGE LIST

- As you read, record new words from Aboriginal and Torres Strait Islander languages in the table on the next page. Print one large class copy to complete together, or provide individual copies for students to add to as they read.



GROWING LANGUAGE LIST

As you read the book *Before It Was Called Science,* complete the table below to record Aboriginal and Torres Strait Islander language words you learn along the way.

Word	Language	Meaning
Dhinawan	Gamilaraay	Emu
Barran	Gamilaraay	Boomerang
Baddawal	Wiradjuri	Boomerang

TEACHER NOTES

AFTER READING:

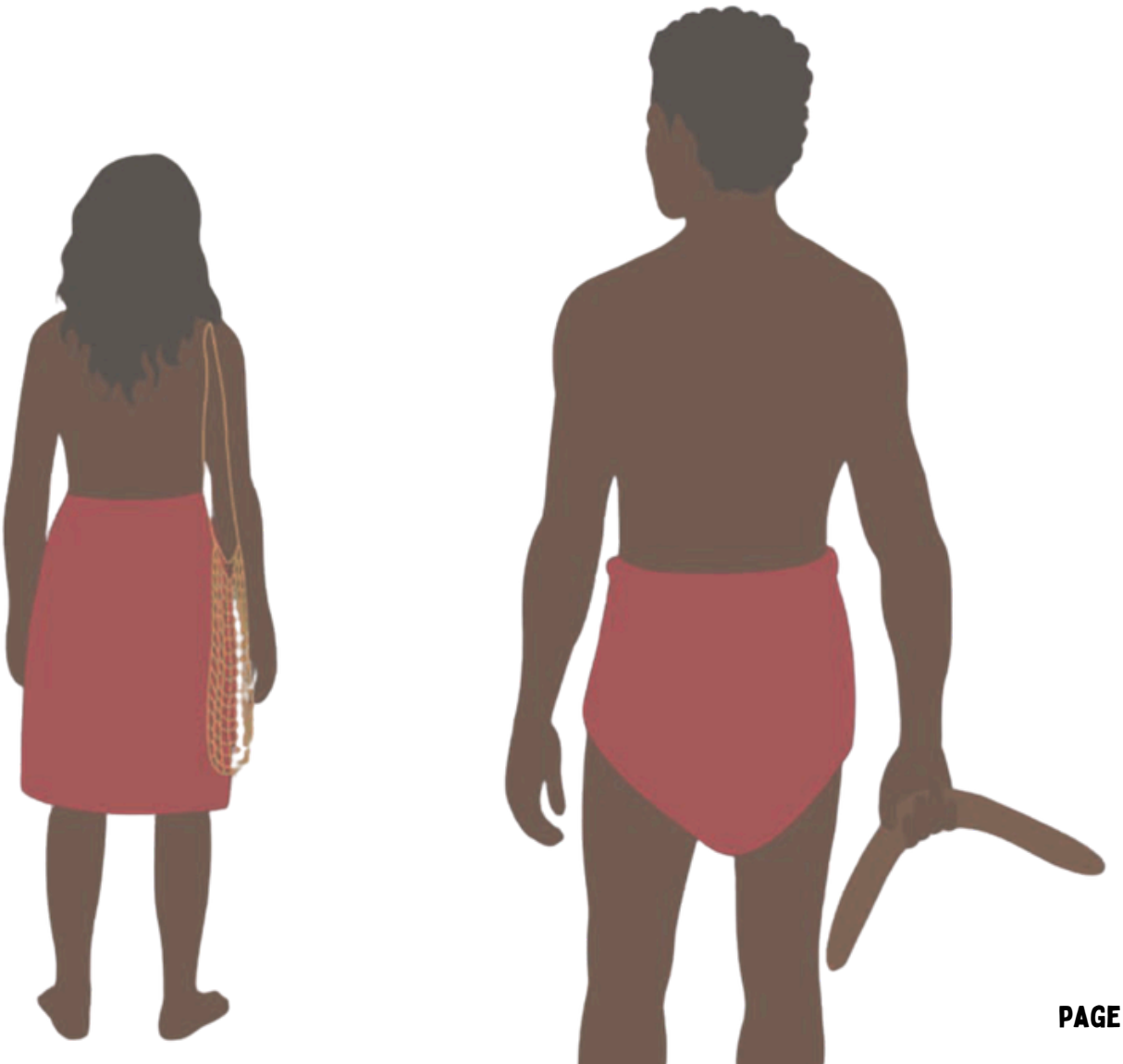
DISCUSSION QUESTIONS

Ask the following questions to students:

- What is one idea from the book that surprised you or changed the way you think about science?
- Which example of First Nations science or technology did you find most interesting? Why?
- What connections did you notice between knowledge from the BEFORE and NOW sections?
- How does the book show that First Nations science and knowledge are continuing today?
- What is something from the book you would like to learn more about?

ADDING WHAT WE KNOW NOW

- Before reading, students brainstormed what they already knew about Aboriginal and Torres Strait Islander peoples and First Nations science and knowledge. Revisit this mindmap and set a timer for 10 minutes. As a class, brainstorm as many new learnings from the book as possible and add them to the original mindmap in a different colour. Encourage students to notice how their knowledge and understanding have grown or changed.



AFTER READING (CONTINUED):

The following activities are organised into **BEFORE** and **NOW** sections, followed by additional activities to help students conclude and consolidate their learning from *Before It Was Called Science*. Activities can be completed individually or selected to suit your class, with opportunities for students to research further, solve problems, create, explain and make connections between knowledge from the past and the present.

BEFORE

BEFORE THERE WERE SHOPS

- Explore the outdoor areas of your school and investigate the natural materials available. Challenge students to design and create a small container that could hold or carry water using only materials they can safely collect from the ground. Ask students to record:
  - the materials they used and their properties
  - what worked well and why
  - what they would change
  - what other materials they wish had been available

BEFORE THERE WERE TRADIES

- Provide students with sticks, bark, leaves and other safe natural materials collected from the ground and challenge them to design and build a miniature shelter. Encourage them to consider stability, protection from weather, available materials and how different parts of the structure work together.

BEFORE THERE WERE HARDWARE STORES

- Ask students to explore the different tools featured in this chapter. They can create a labelled diagram showing each tool and explain what it was used for. Alternatively, have students choose one tool, such as an axe, and investigate its different uses.

BEFORE THERE WERE SUPERMARKETS

- Ask students to choose one bush medicine featured in the book and research it further. Encourage them to find out which First Nations people or Country the knowledge comes from, what plant or natural material is used, and how it has traditionally been used.

BEFORE THERE WERE PETS WITH JOBS

- Ask students to choose one relationship between First Nations peoples and animals explored in the book. Use the template on the next page to explain the relationship between humans and one animal mentioned in the book.

BEFORE THERE WERE INFLUENCERS

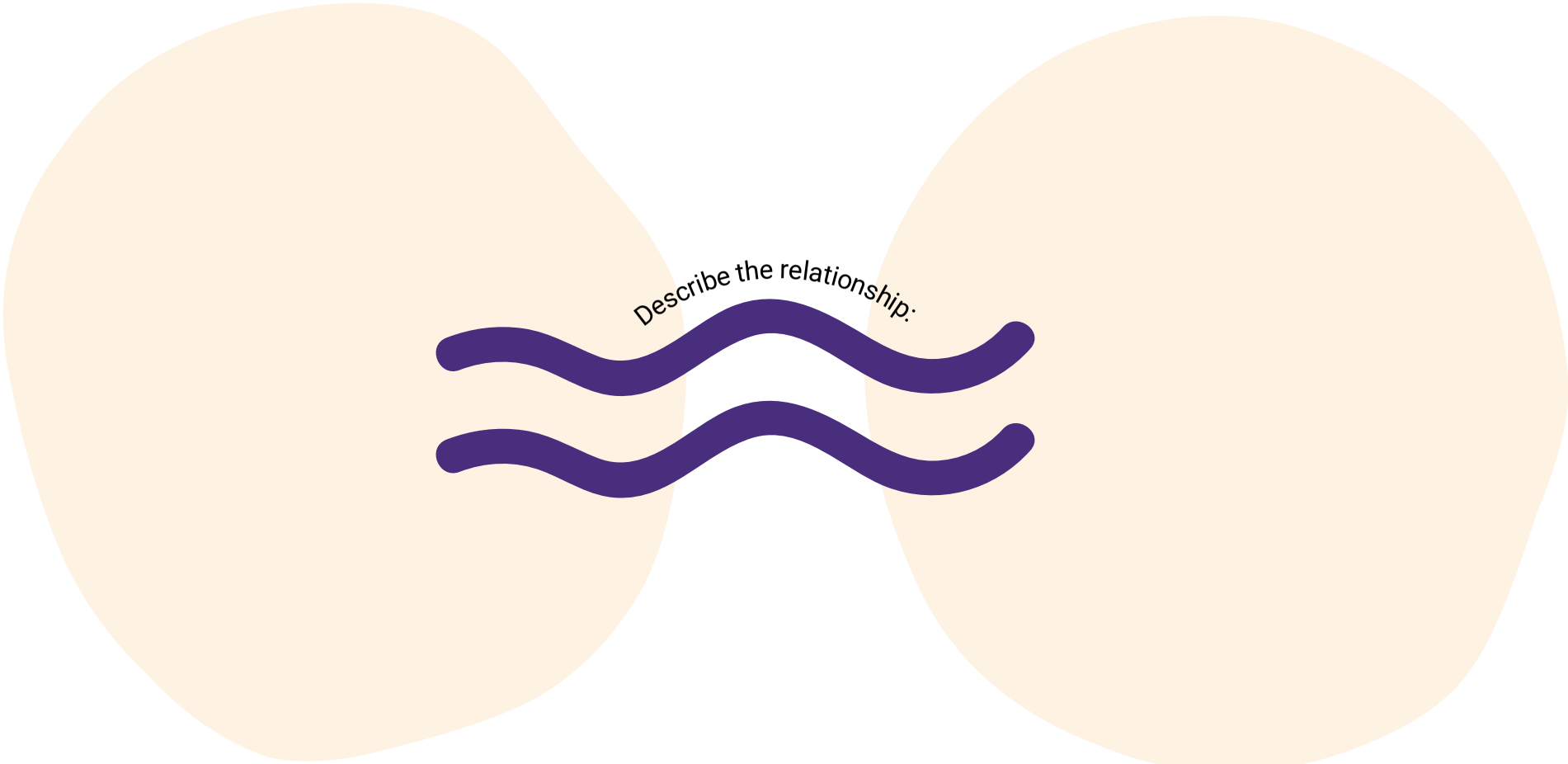
- Explore the benefits of animal skins as clothing with students, including warmth, protection and the use of locally available materials. Then discuss sustainability today: what might happen to animal populations and ecosystems if people around the world relied on animal skins for clothing now?

RECIPROCAL RELATIONSHIPS

DRAW A HUMAN

DRAW AN ANIMAL

from pages 42-49 in the book



TEACHER NOTES

NOW

Support students to research and create a poster or PowerPoint presentation about one of the following:

CARING FOR COUNTRY

- A contemporary example of First Nations land, sea or animal management. Students should explain the work being done, the knowledge involved and why it is important.

DEADLY SCIENTISTS

- One of the First Nations scientists featured in the book. Students should introduce the person, their area of expertise, their work or achievements, and the impact they are making.

THE NEW DEADLY GENERATION

- A contemporary First Nations innovation, business, project or achievement featured in the book, such as Nguki Kula Green Labs founded by Dr Katrina Wruck. Students should explain the problem being addressed, the science or technology involved and why the work matters.

The following activities encourage students to apply, reflect on and communicate what they have learned in different ways:

OVER TO YOU

- Ask students to identify something at home or school that could be more sustainable. Have them develop a practical idea for improving it, then sketch and explain how their solution would work.

BEFORE AND NOW ARTWORK

- Have students choose a local landscape, waterway or place, and create one continuous drawing across a page, divided into Before and Now. The left half should show the landscape before colonisation, while the right half shows the same landscape today.
- Encourage students to research early written, mapped, illustrated or photographic records to help them represent the Before side as accurately as possible. If suitable records are not available, students can use the present-day landscape as a starting point and consider which modern features would not have been there.
- The aim is to use art to show students' understanding of how a place has changed over time. A printable template is provided on the following page, or students can simply fold a piece of paper in half to create the two sections.

A CLOSER LOOK AT THE TORRES STRAIT

- Reflect on what students have learned specifically about the Torres Strait throughout the book. As a class or individually, use the template on page 11 to record key learnings about Torres Strait Islander scientists, knowledge and innovation.

BEFORE & NOW ARTWORK

BEFORE

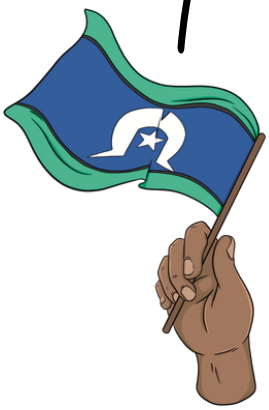


NOW

A CLOSER LOOK AT THE TORRES STRAIT

Reflect on what you have learned about the Torres Strait throughout the book. Add your learnings around the Torres Strait Islander flag below.

Turtle-shell containers were made by Torres Strait Islander people to carry water.



CURRICULUM OUTCOMES

Here is a list of the most relevant Australian Curriculum (Version 9) outcomes for Years 3–6:

SCIENCE

Science understanding

- AC9S4U04 Examine the properties of natural and made materials and consider how these properties influence their use.
- AC9S5U01 Examine how particular structural features and behaviours of living things enable their survival in specific habitats.
- AC9S6U01 Investigate the physical conditions of a habitat and analyse how changing conditions affect the growth and survival of living things.

Science as a Human Endeavour

- AC9S4H02 Investigate how scientific knowledge helps people to meet a need or solve a problem.
- AC9S6H01 Investigate why advances in science are often the result of collaboration of many different scientists and describe how scientific knowledge has changed over time.
- AC9S6H02 Investigate how scientific knowledge is used by individuals and communities to identify problems, consider responses and make decisions.

TECHNOLOGIES

Knowledge and Understanding

- AC9TDE4K01 Examine design and technologies occupations and factors, including sustainability, that impact the design of products, services and environments.
- AC9TDE4K02 Describe how forces and the properties of materials affect function in a product or system.
- AC9TDE6K01 Explain how people in design and technologies occupations consider competing factors, including sustainability.
- AC9TDE6K05 Explain how characteristics and properties of materials, systems, components, tools and equipment affect their use when producing designed solutions.

Processes and Production Skills

- AC9TDE4P01–P04 Explore design needs or opportunities; generate and communicate ideas; safely create designed solutions; and evaluate them, including through consideration of sustainability.
- AC9TDE6P01–P04 Investigate design opportunities; generate and communicate ideas; safely produce designed solutions; and evaluate them against criteria, including sustainability.

ENGLISH

Literacy

- AC9E3LY06
- AC9E4LY06
- AC9E5LY06
- AC9E6LY06

These outcomes focus on planning, creating, editing and publishing informative written and multimodal texts for different purposes and audiences. They strongly connect with the poster, PowerPoint and one-page explanation activities.

CURRICULUM OUTCOMES

HUMANITIES AND SOCIAL SCIENCES

Knowledge and Understanding

- AC9HS4K01 The diversity of Nations within both the First Peoples of Australia and the First Nations Peoples of the Torres Strait region of Australia, including their social organisation and continuing connections with Country/Place.
- AC9HS4K05 The importance of environments, including natural vegetation and water sources, to people and animals.
- AC9HS5K04 The influence of people, including First Nations Australians, on the characteristics of a place.
- AC9HS5K05 The management of Australian environments.

Skills

- AC9HS3S02 / AC9HS4S02 / AC9HS5S02 / AC9HS6S02 Locate, collect and organise information and data from primary and secondary sources in a range of formats.
- AC9HS5S03 Evaluate information and data to identify patterns, trends and relationships.

THE ARTS

Creating and Making

- AC9AVA4C01 Use visual arts processes, visual conventions, materials and techniques to create visual artworks that communicate ideas.
- AC9AVA6C01 Use visual arts processes, visual conventions, materials and techniques to create visual artworks that communicate an artistic intention.



RECOMMENDED RESOURCES

Here are some further books and resources to support your exploration of *Before It Was Called Science*:

BOOKS

The First Scientists
Corey Tutt and Blak Douglas

This Book Thinks Ya Deadly!
Corey Tutt and Molly Hunt

The *Deadly Science* Book Series
Australian Geographic and Corey Tutt
www.shop.australiangeographic.com.au/collections/deadly-science-book-collection

Caution! This Book Contains Deadly Reptiles
Corey Tutt and Ben Williams

Come Home Bigibila
Corey Tutt, Irma Gold and Jessica Tedim

Animals on Country
Victor Steffensen and Sandra Steffensen

Back on Country
Adam Goodes, Ellie Laing and David Hardy

Walk with Us
Adam Goodes, Ellie Laing and David Hardy

Young Dark Emu
Bruce Pascoe

TEACHING RESOURCES

AIATSIS Map of Indigenous Australia
www.aiatsis.gov.au/explore/map-indigenous-australia

Free DeadlyScience Digital Teacher Resources:
www.deadlyscience.org.au/teacher-resources/

Free teacher notes for *Caution! This Book Contains Deadly Reptiles:*
www.allenandunwin.com/browse/book/Corey-Tutt,-illustrated-by-Ben-Williams-Caution!-This-Book-Contains-Deadly-Reptiles-9781761181030

