

Heroes for Habitat

CASE STUDY: BROAD-HEADED SNAKES

Teacher Toolkit

K-6

OUTCOMES CONTRIBUTED TO

STE-SCI-01

ST1-SCI-01

ST2-SCI-01

ST3-SCI-01

HSE-GEO-01

HS1-GEO-01

HS2-GEO-01

HS3-GEO-01

EN1-CWT-01

EN2-CWT-02

EN2-CWT-03

EN3-CWT-01



Welcome to the Sydney Zoo Teacher Toolkit

At Sydney Zoo: students will explore the zoo and learn about the threats to broad-headed snakes, the latest conservation efforts that are underway to protect this species, and how they can be a 'Hero for Habitat'.

At school: students will apply their knowledge from Sydney Zoo and become environmental stewards to help protect the broad-headed snake and their habitat.

What is in this toolkit:

- ✔ 8 Ways Aboriginal Pedagogy images and strategies for teaching and learning. These are explicit throughout this program with explanations of activity significance.
- ✔ Information regarding Syllabus content covered during your visit to Sydney Zoo
- ✔ Syllabus-linked post-visit project plan

Resources required to best use this toolkit:

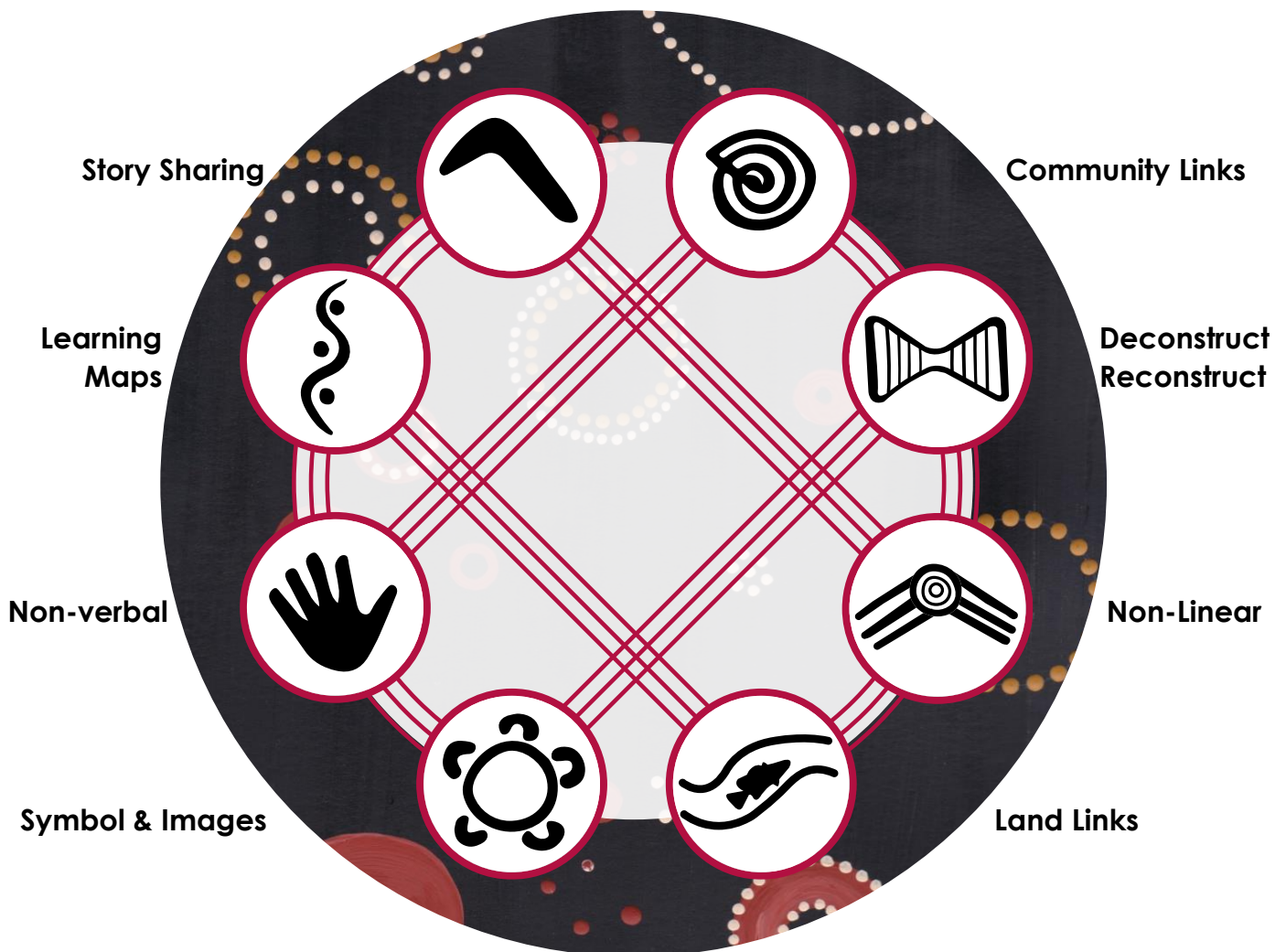
- ✔ Computer and screen or smartboard
- ✔ Internet access
- ✔ Access to playground/outdoors area where possible

**Sydney Zoo
acknowledges
the Darug nation,
their people,
past, present and
their future
generations.**

Thank you to Darug knowledge holders and artists who collaborated on the creation of these resources.

Aboriginal Pedagogy

8 Ways of Learning




TELL A STORY. MAKE A PLAN.
THINK AND DO. DRAW IT. TAKE IT OUTSIDE.
TRY A NEW WAY. WATCH FIRST, THEN DO.
SHARE IT WITH OTHERS




From the 8Ways website <https://www.8ways.online/>

Sydney Zoo has developed this lesson package with a focus on Aboriginal Pedagogy for delivery of all content. Context for each lesson is provided in the lesson plans.

Optional pre-visit ‘Habitat Detectives’ lesson outline

Location & Duration	Outcomes & 8Ways	Learning Activity	Resources
Classroom 45 mins	STE-SCI-01 ST1-SCI-01 ST2-SCI-01 ST3-SCI-01 HSE-GEO-01 HS1-GEO-01 HS2-GEO-01 HS3-GEO-01	<p>Activity 1: Habitat Detectives – Exploring NSW Ecosystems</p> <p>Objective: Students will identify and describe different wildlife habitats in NSW and the animals that live in them.</p> <p>Outcomes: Differentiate by Stage group</p> <p>Description: Students are introduced to various NSW habitats (e.g. woodlands, rainforests, coastal regions, and rocky outcrops) through images, videos, and maps. In small groups, they become “habitat detectives,” researching one habitat type and presenting:</p> <ul style="list-style-type: none"> • Key features (climate, vegetation, etc.) • At least 3 native animals found there • Threats to the habitat <p>Differentiation: Early years groups explore what a habitat is. Identify examples of living and non-living things in a habitat. Describe how animals get air, water and food to survive in their environment. They may identify an animal they have seen in their own backyards or local bush.</p>	<p>Resources: NSW Threatened Species website, internet access or research books.</p> <p>View species by habitat NSW Environment, Energy and Science</p>
	 <p>8Ways Landlinks</p>		
Classroom 45mins	STE-SCI-01 ST1-SCI-01 ST2-SCI-01 ST3-SCI-01	<p>Activity: 2 Activity 2: Species Profile – Meet the broad-headed snake</p> <p>Outcomes: Differentiate by Stage group</p> <p>Objective: Students will learn about the broad-headed snake’s features, behaviour, habitat needs and conservation status.</p> <p>Description: Students create a “Species Profile” poster or digital slide for the broad-headed snake, including:</p> <ul style="list-style-type: none"> • Scientific and common name • Appearance and camouflage adaptations • Habitat and diet • Why it is threatened • Ways people can help protect it <p>Differentiation: Early year groups may focus on drawing and labeling, while later Stages can create an infographic poster or present orally.</p>	<p>Resources: Internet access or research books. Broad-headed Snake - profile NSW Environment, Energy and Science</p> <p>Broad-headed Snake - The Australian Museum</p> <p>Broad-headed snake (Elapidae: Hoplocephalus bungaroides)</p> <p>Cardboard, pencils. Digital creation platforms such as PowerPoint or Canva app</p>
	 <p>8Ways Landlinks</p>		

Optional pre-visit 'Habitat Detectives' lesson outline

Location & Duration	Outcomes & 8Ways	Learning Activity	Resources
In classroom or outside 2 x 45 mins sessions	STE-SCI-01 ST1-SCI-01 ST2-SCI-01 ST3-SCI-01	<p>Activity 3: Build a habitat diorama or digital model</p> <p>Outcomes: Differentiate by Stage group</p> <p>Objective: Students will demonstrate understanding of the components of a suitable wildlife habitat, with a focus on the broad-headed snake's needs.</p> <p>Description: Students construct a diorama or digital habitat model of the broad-headed snake's natural environment. They should include:</p> <ul style="list-style-type: none"> • Rocky ledges, logs, and leaf litter • Native plants • Prey species (e.g. geckoes) • Potential threats (e.g., habitat destruction, introduced predators) <p>Students then explain how each feature supports the survival of the broad-headed snake.</p> <p>Differentiation: Early year groups may create a basic model using Lego or Play-Doh and natural materials from outside such as rocks and leaves. They may choose to use toys or puppets to explain their design.</p>	<p>Resources: Cardboard boxes, clay, natural materials, Lego, drawing materials, or digital platforms like Minecraft or Tinkercad.</p>
	 8Ways Landlinks		
	 8Ways Non-verbal		
In classroom 45 mins	ENe-11D EN1-11D EN2-11D EN3-8D	<p>Activity 4: Creative writing</p> <p>Outcomes: Differentiate by Stage group</p> <p>Objective: Inspired by First Nations Dreaming stories, students will create their own imaginative narrative featuring the broad-headed snake.</p> <p>Description: Snakes hold deep spiritual and cultural significance in First Nations cultures. They symbolise creation, transformation, and connection to the land. Students will explore a variety of First Nations dreaming stories, identifying their key features such as connection to country, use of animal characters, and explanations of natural phenomena. Through discussion and reflection, they will gain insight into aboriginal storytelling traditions and their cultural significance. Drawing inspiration from these stories, students will craft their own imaginative narratives that reflect an understanding of these traditions, using animals, landscapes, and symbolic elements to convey meaning.</p> <p>Story ideas might include: How the broad-headed snake got its name Why snakes sleep on rocky ledges How the snake became a master of camouflage Why snakes disappear in winter Why the snake only lives in sandstone country How the snake learned to hunt geckos</p>	<p>The story of the rainbow serpent http://bit.ly/3Zhs1Ry</p> <p>Tiddalick the frog https://bit.ly/443vRXG</p> <p>Biladurang The Platypus https://bit.ly/4dKvRzc</p> <p>Books: Wargan the Crow by Cindy Laws</p> <p>Splosh for the Billabong by Ros Moriarty</p>
	 8Ways Story sharing		

Visiting Sydney Zoo

During your workshop at Sydney Zoo, students will explore the zoo grounds, discover native Australian wildlife and their unique habitat needs, and learn how we're working with the NSW Government's Saving Our Species program to raise awareness to protect the endangered broad-headed snake.

Pre-visit checklist:

- ✔ Print off the student booklets to take on your excursion to Sydney Zoo
- ✔ Behaviour expectations of students while visiting Sydney Zoo
 - Students must always be accompanied by a teacher
 - Follow instructions of your teacher and zoo staff
 - Take only photographs and memories, leave only footprints and smiles
 - If you get lost, find a staff member in uniform and tell them you need help
 - Have a lot of fun and ask lots of questions!
- ✔ Ask students to prepare low waste/waste free lunches if possible. We love seeing the students' being low waste/waste free – please brag about this to us
- ✔ Wet-weather preparation if the forecast is not favourable (some of our animals love wet days so don't worry about them hiding away)

Upon arrival:

- ✔ Send one staff member to check-in at Group Bookings – assemble classes to enter the zoo with other staff members
- ✔ Enjoy your visit with us and please ask any staff for assistance if required
- ✔ Students must always be accompanied by a teacher

What is a low or no waste lunch?

- Sourcing foods that have minimal or no packaging and using reusable containers to carry food.
- Bringing your own reusable drink bottle and refill it.
- Carrying your own reusable cutlery set.



Examples

- ✔ Sandwiches - without clingwrap, they can stay fresh in a suitable reusable container or beeswax reusable wrap.





- ✔ **Fruit** - apples, bananas and mandarins are easy to eat and/or peel at school or the Zoo, the core and skin can go in the organic bins.
- ✔ **Nuts, dried fruit, biscuits, popcorn etc.** in a small reusable container, buy them in bulk to reduce packaging and put servings into small containers for snacks.







Optional post-visit

'Be a Hero for Habitat' lesson outline




Location & Duration	Outcomes & 8Ways	Learning Activity	Resources
Multiple lessons		<p>Protecting broad-headed snakes This project is designed to be undertaken after participating in the 'Heroes for Habitat' workshop at Sydney Zoo.</p>	
Classroom or outside 45 mins	<p>STE-SCI-01 ST1-SCI-01 ST2-SCI-01 ST3-SCI-01</p>	<p>Activity 1: Excursion reflection Objective: Students will reflect on what they learned during their excursion at Sydney Zoo and identify what actions are being taken to protect broad-headed snakes. Outcomes: Differentiate by Stage group</p>	<p>Resources: Butchers paper, and markers. Modelling clay and natural materials.</p>
	<p>8Ways Landlinks</p>	<p>Description: In pairs, students discuss what they learned about the broad-headed snake during their excursion to Sydney Zoo. Questions to consider:</p>	
	<p>8Ways Deconstruct/Reconstruct</p>	<ul style="list-style-type: none"> • What is Sydney Zoo doing to protect broad-headed snakes? • What is the NSW Government Saving our Species team doing in the field to protect broad-headed snakes? • What actions can you take to help protect broad-headed snakes? 	
		<p>Create a class mind map that summarises key learnings from the excursion.</p>	
		<p>Teacher notes:</p>	
		<p>Sydney Zoo is working with the NSW Government Saving our Species team to help raise awareness and educate zoo visitors on how to protect broad-headed snakes.</p>	
		<p>The SoS conservation project has been monitoring broad-headed snakes from three priority sites since 2017 those being the Woronora plateau, Morton National Park, and the Royal National Park in collaboration with species experts, NPWS, and land managers such as Water NSW, Crown lands and Local Aboriginal Land Councils.</p>	
		<p>The populations monitored at Woronora plateau and Morton NP have seen declines. The Morton NP population is projected to go extinct within the next 20 years without intervention to protect the species.</p>	
		<p>Threats include habitat loss and disturbance, removal of bush rock, bushfires, car strike, and illegal collection of snakes for the pet trade.</p>	
		<p>Activity 1.1 Create an 'Earth Toy'</p>	
		<p>Create an 'earth toy' model of the broad-headed snake made of clay and items from nature (that will breakdown naturally back into the earth). This will represent your commitment to helping protect broad-headed snakes.</p>	

Optional post-visit 'Be a Hero for Habitat' lesson outline

Location & Duration	Outcomes & 8Ways	Learning Activity	Resources
Classroom 45 mins	STE-SCI-01 ST1-SCI-01 ST2-SCI-01 ST3-SCI-01 HSE-GEO-01 HS1-GEO-01 HS2-GEO-01 HS3-GEO-01	<p>Activity 2: Design an interpretation sign for a National Park or bush reserve</p> <p>Outcomes: Differentiate by Stage group</p> <p>Objective: Students will communicate key conservation messages by designing an interpretation sign that educates the public about broad-headed snakes and habitat protection.</p> <p>Description: Students imagine they have been asked by a NSW National Park or bush reserve to create an interpretation sign to help visitors learn about the broad-headed snake and conservation efforts in the area.</p> <p>Their sign should include:</p> <ul style="list-style-type: none"> • The name of the park/reserve • Information about the broad-headed snake habitat, diet, and threats • Tips for visitors on how to help protect the species and its environment • Illustrations, symbols, or maps to make it eye-catching and easy to understand 	<p>Resources: Paper, markers, reference materials, sample interpretation signs, optional digital design tools and apps eg Canva app</p>
	8Ways Non-verbal	<p>Differentiation: Older Stages can include QR codes linking to further information or write persuasive conservation messages. Early year groups can focus on drawings and key facts.</p>	<p>Bushrock removal factsheets Bushrock Removal - a key threatening process (PDF - 326 KB)</p>
	8Ways Landlinks	<p>Image: Interpretation sign from Dharawal National Park</p>	<p>Bushrock belongs in the bush - not in gardens</p>
	8Ways Deconstruct/Reconstruct		<p>Think before you lift...whose home are you disburbing?</p>
			<p>1-2-1-6-bushrock-factsheet blue v 3.pdf</p>

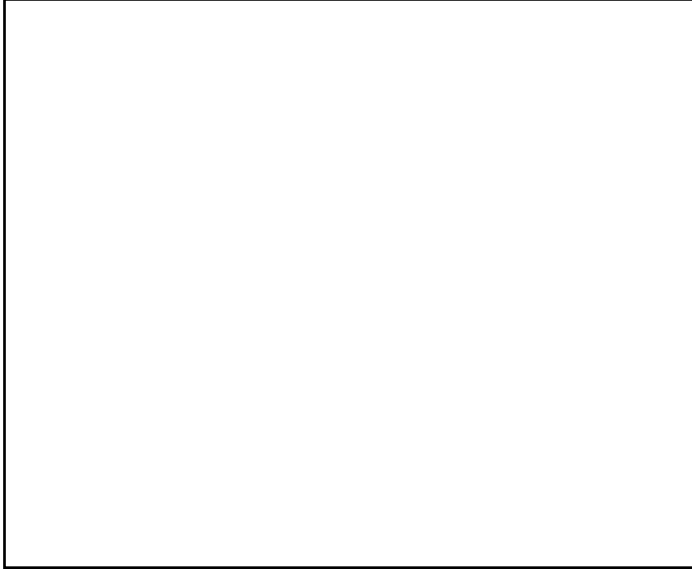
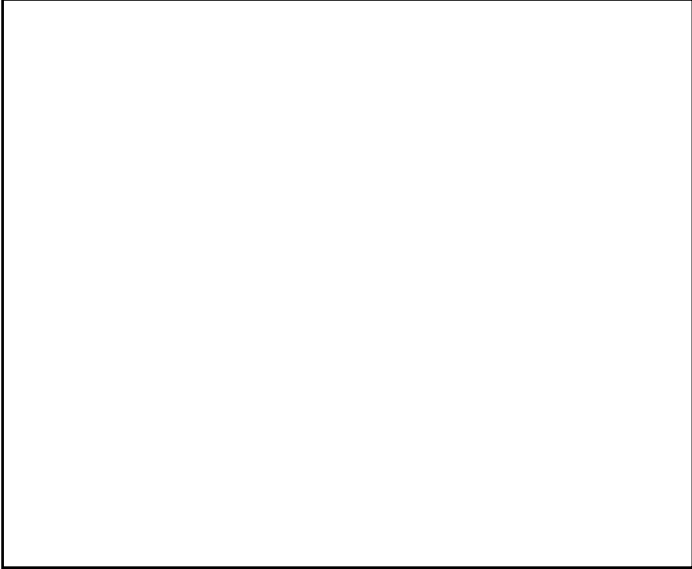
Optional post-visit

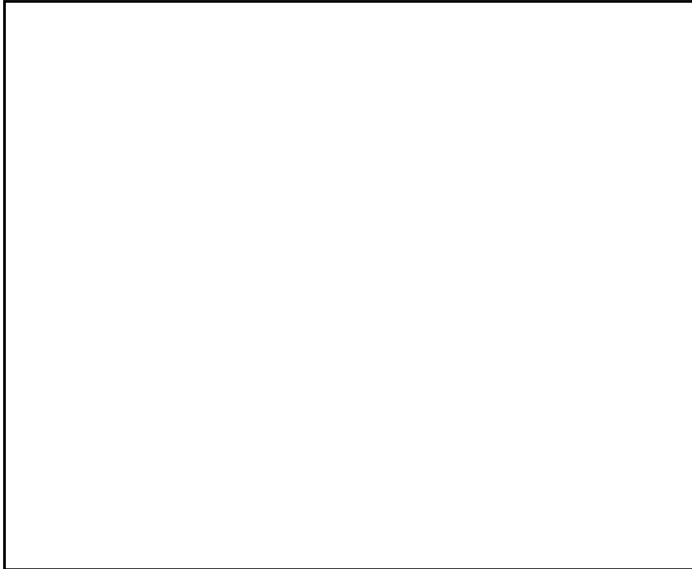
'Be a Hero for Habitat' lesson outline

Location & Duration	Outcomes & 8Ways	Learning Activity	Resources
Take your class outside 2 x 45 mins	STE-SCI-01 ST1-SCI-01 ST2-SCI-01 ST3-SCI-01 HSE-GEO-01 HS1-GEO-01 HS2-GEO-01 HS3-GEO-01 EN2-CWT-03 EN3-OLC-01	<p>Activity 3 : Create a campaign video to save the broad-headed snake</p> <p>Outcomes: Differentiate by Stage group</p> <p>Objective: Students will use persuasive communication and digital literacy skills to raise awareness about the endangered broad-headed snake.</p> <p>Description: Students plan, script, and film a short campaign video (1–2 minutes) aimed at educating others about the broad-headed snake and encouraging conservation action. The goal is to inspire people to care about this threatened species and understand how they can help.</p> <p>Form groups of three and assign roles of Director, Cinematographer and Presenter. These can be rotated so everyone has a turn at each role.</p>	<p>Resources: Storyboard template, tablets/iPads for filming, movie making apps (iMovie, Clips, Canva Video)</p> <p>Bushrock removal video Bushrock Protection #NSWParks</p>
	8Ways Landlinks	Use the provided storyboard template to plan out your campaign video. The blank squares are used to illustrate the scene and camera angle. The script can be written on the lines below for each scene.	
	8Ways Deconstruct/Reconstruct	<p>Video must include:</p> <ul style="list-style-type: none"> • A brief introduction to the broad-headed snake (What is it? Where does it live?) • The main threats it faces • Why it's important to protect it • A clear call to action (e.g., "Don't remove rocks," "Protect bush habitats," "Spread the word!") • Creative visuals – drawings, props, acting, or on-screen text to engage the viewer 	
	8Ways Story sharing	<p>Optional formats: Documentary-style clip A "news report" or "interview with a snake expert" A dramatized skit or animation A music video or catchy jingle</p> <p>Differentiation: Younger Stages divide content and roles to create a whole class campaign video. Older Stages can form small groups to create their own videos.</p> <p>Extension: Upload videos to a class page, school newsletter, or present at assembly to share the message with a wider audience.</p>	
		<p>Share your campaign videos with us at Sydney Zoo! education@sydneyzoo.com</p>	

Storyboard and Script

Project name:





Word bank

Word	Definition
Aboriginal and/or Torres Strait Islander Peoples	<p>The First Peoples of Australia, represented by over 250 language groups, each associated with a particular Country or territory. Torres Strait Islander Peoples are represented by five major island groups, and are associated with island territories to the north of Australia's Cape York which were annexed by Queensland in 1879.</p> <p>An Aboriginal and/or Torres Strait Islander person is someone who:</p> <ul style="list-style-type: none"> • is of Aboriginal and/or Torres Strait Islander descent • identifies as an Aboriginal person and/or Torres Strait Islander person, and • is accepted as such by the Aboriginal and/or Torres Strait Islander community(ies) in which they live.
adaptation	The process of change by which a species becomes better suited to its environment.
built environment	The manufactured artefacts and surroundings that provide the setting for human activity.
characteristics	<p>A set of distinguishing aspects (including attributes and behaviours) of a living thing, object or material. The characteristics of living things are often used to classify them and might include how they move or reproduce.</p> <p>When discussing materials the characteristics are the qualities used by humans to determine their use and the way people work with them. They might include colour, hardness and opacity.</p>
classification	A category into which something is organised.
climate change	A long-term change in regional or global climate patterns eg annual precipitation, frequency of weather events.
climate graph	A graph showing average monthly temperature (by a line) and precipitation (by columns) for a location.
climatic zones	Refers to areas of the Earth that have similar temperatures. The major zones are hot, temperate and polar and are generally demarcated by lines of latitude. Within each zone there are different climates because of the effects of the distribution of continents and oceans and the circulation patterns of the atmosphere and oceans.
conclusions	An opinion or judgement based on evidence.
Country/Place	Country is a space mapped out by physical or intangible boundaries that individuals or groups of Aboriginal Peoples occupy and regard as their own. It is a space with varying degrees of spirituality.
cultural groups	People belonging to or identifying with a nationality, ethnic group, religion or social group with a distinct culture.
culture	The customs, habits, beliefs, social organisation and ways of life that characterise different groups and communities.
designed solution	A product, service or environment that has been created for a specific purpose or intention as a result of design thinking, and design and production processes.
diversity	Differences that exist within a group, for example, age, sex, gender, gender expression, sexuality, ethnicity, ability/disability, body shape and composition, culture, religion, learning differences, socioeconomic background, values and experiences.

Word bank

Word	Definition
environment	The living and non-living elements of the Earth's surface and atmosphere. Where unqualified, it includes human changes to the Earth's surface eg croplands, planted forests, buildings and roads.
features	The tangible elements of a place or environment.
investigate	Carry out a systematic or formal inquiry to discover and examine information.
landscape	A landscape is an area, created by a combination of geological, geomorphological, biological and cultural layers that have evolved over time eg riverine, coastal or urban landscapes.
natural environment	An environment in which humans do not make significant interventions, for example ocean environments or national parks.
natural resources	Resources provided by nature. Resources can be classified as renewable, non-renewable and continuous. Also known as environmental resources.
natural vegetation	The vegetation that has evolved in an area over time.
perception	People's assessment of places and environments.
seasonal calendar	The classification of the weeks or months of the year into seasons eg spring, summer, autumn and winter, or wet and dry, or the classifications of Aboriginal cultures.
sustainable	Supporting the needs of the present without compromising the ability of future generations to support their needs.
weather	The condition of the atmosphere at a point in time eg temperature, humidity.



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