

SUSTAINABILITY & BIODIVERSITY

LEARNING RESOURCE



THEBEATS

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ACKNOWLEDGEMENTS

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Zane Osborn

On behalf of theBeats, a special thank you to **Zane Osborn**, a passionate Assistant Principal and environmentalist, who made the contents on this learning resource available under creative commons licensing.

Please reach out to theBeats if you are interested in creating sharable environmental learning resources.

Vinod Ralh
theBeats



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UNIT ONE

THINK GLOBAL | ACT LOCAL

Welcome to this engaging learning resource designed specifically for Year 5 and Year 6 students. This unit encourages students to think globally about the environment, society, and economy while acting locally, with a unique focus on the incredible biodiversity found in Australia.

Photo by [Damon Hall](#) on [Unsplash](#)

THINK GLOBAL | ACT LOCAL

Science and Geography Exploration

The unit begins by immersing students in the work of scientists and geographers, with a special emphasis on Australian biodiversity. They'll understand its importance to our planet's health and learn about the crucial balance that exists between various ecosystems. This exploration aligns with the UN Sustainable Development Goals of Life Below Water and Life on Land, encouraging students to make connections between local Australian environments and the broader global context.

Threatened & Endangered Species Study

Students will engage in a focused study of Australia's threatened and endangered animal species. They'll choose one species to research in depth, uncovering its unique habitat, the threats it faces, and its role within Australia's ecosystem. This promotes not only biological understanding but also a sense of responsibility and empathy towards our native wildlife.

Art-Based Awareness Campaign

The unit culminates in a creative, visual art campaign. Students will apply their newfound knowledge to raise awareness about their chosen Australian species within their local community. This fun project encourages effective communication about environmental issues and challenges students to make a difference in their own backyards.

The "Think Global, Act Local" unit aims to not only inform students about Australian environmental issues, but to inspire them to actively participate in their communities. Our goal is to foster a deep connection to the unique Australian environment and motivate students to contribute to a sustainable future for our precious native species.



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Introduction to UN Sustainable Development Goals: Life Below Water and Life on Land



As we embark on our journey exploring Australia's biodiversity, it's essential to understand our place within the larger global context. The United Nations Sustainable Development Goals (SDGs) provide us a framework for this, specifically "Life Below Water" (SDG 14) and "Life on Land" (SDG 15).



[Life Below Water](#) (SDG 14) focuses on conserving and sustainably using the oceans, seas, and marine resources. Australia, with its rich marine biodiversity, including the world-renowned Great Barrier Reef, plays a significant role in this global goal.

[Life on Land](#) (SDG 15) emphasizes the protection, restoration, and sustainable use of terrestrial ecosystems. It aims to manage forests sustainably, combat desertification, halt and reverse land degradation, and halt biodiversity loss. Australia's diverse landscapes, from rainforests to deserts, hold a unique place in fulfilling this goal.

By understanding these goals, students will see how their local actions in Australia can contribute to global sustainability efforts. This understanding is the first step in our journey to "Think Global, Act Local".

LEARNING OUTCOMES (FROM WORD)

By the end of this unit a student:

Science and Technology

ST3-1WS-S: Plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions.

ST3-3DP-T: Defines problems, and designs, modifies and follows algorithms to develop solutions.

ST3-4LW-S: Examines how the environment affects the growth, survival and adaptation of living things.

Geography

GE3-1: Describes the diverse features and characteristics of places and environments.

GE3-2: Explains interactions and connections between people, places and environments.

GE3-3: Compares and contrasts influences on the management of places and environments.

GE3-4: Acquires, processes and communicates geographical information using geographical tools for inquiry.

Creative and Performing Arts

VA3.1: Investigates subject matter in an attempt to represent likenesses of things in the world.

VA3.2: Makes artworks for different audiences assembling materials in a variety of ways.

English

EN3-OLC-0: Communicates to wide audiences with social and cultural awareness, by interacting and presenting, and by analysing and evaluating for understanding.

EN3-CWT-01: Plans, creates and revises written texts for multiple purposes and audiences through selection of text features, sentence-level grammar, punctuation and word-level language.

LEARNING OUTCOMES (FROM PPT)

By the end of this unit a student:

Science and Technology

ST3-4LW-S: Examines how the environment affects the growth, survival and adaptation of living things.

Geography:

GE3-2 Explains interactions and connections between people, places and environments.

Creative and Performing Arts:

VAS3.1 Investigates subject matter in an attempt to represent likenesses of things in the world.

VAS3.2 Makes artworks for different audiences assembling materials in a variety of ways.

VAS3.4 Communicates about the ways in which subject matter is represented in artworks.

English:

EN3-OLC-01 Communicates to wide audiences with social and cultural awareness, by interacting and presenting, and by analysing and evaluating for understanding.

EN3-CWT-01 Plans, creates and revises written texts for multiple purposes and audiences through selection of text features, sentence-level grammar, punctuation and word-level language.

TERM PLAN

1	2	3	4	5
Launch	Changing Environments	Endangered Species	Art Task 1: Paper	Art Task 1: Paper
Concepts	Survival of living things	Independent Inquiry	Independent Inquiry	Independent Inquiry
Conservation Champions				
6	7	8	9	10
Art Project 2: Sculpture Presenting Research	Art Project 2: Sculpture	Art Project 2: Sculpture	Preparations for Art Show Paper	Art Show

INVESTIGATION FOCUS

Students will delve into several key areas of study, including:

Sustainability Across Spheres: They will explore the interplay between environmental, economic, and social sustainability, understanding the need for balance between these areas.

Species at Risk: A close examination of endangered and threatened species will expose students to the realities of biodiversity loss and the need for conservation efforts.

Life Cycle Study: Students will investigate the features and life cycle of a selected species of flora or fauna, gaining insight into the intricate biological processes that shape life on Earth.

Community Advocacy: Students will learn about the power of collective action and the strategies used to inform, persuade, and rally community support for a cause.

ESSENTIAL QUESTIONS

During this unit, students will grapple with a series of thought-provoking questions:

Understanding Sustainability: What does it truly mean to be sustainable, and how can we strive for it in our daily lives?

Environmental Study Methods: How do scientists and geographers study the environment, and why is their work so vital to our understanding of the world?

Communication for Change: How can we effectively inform and persuade people to take action for environmental causes?

Environment and Lifestyle: How does our environment shape the way we live, work, and play?

FUTURE ACTION

The ultimate aim of this unit is to instill in your students an awareness of their role in sustaining our world. They will learn how scientific and geographic thinking can inform sustainable practices, and they will acquire skills in recording and sharing scientific information. As they develop a curiosity about biodiversity, students will begin to identify themselves as global citizens who can positively impact our shared future.

KEY CONCEPTS



Concepts word cloud

LEARNING SEQUENCE

LEARNING SEQUENCE 1

Title	Intention	Learning Activity
Concepts	Students will explore the vocabulary associated with this unit of work	Students are to work through the concepts and begin orientating themselves with the unit of work. Working in pairs, students can practice saying the word and then investigating the definition, synonyms, and etymology of the words. These words can be added to their vocabulary journals via google classroom.
Biodiversity	Your students will consider the concept Biodiversity and understand why the conservation of a healthy ecosystem is important to the prosperity.	<p>Delivery of Conservation Champions program run by NSW Biodiversity Conservation Trust (Free). Lesson delivered by Petaurus Science Education (Caitlin Lawrence)</p> <p>Conservation Champions is a free education project run by the Biodiversity Conservation Trust with the help of Petaurus Education Group.</p> <p>The project includes curriculum-linked class lessons, excursions, resources and professional development opportunities for NSW schools, providing regional students with the opportunity to learn about the importance of biodiversity conservation across a range of different landscapes.</p> <p>Elements of the project aim to connect motivated students to a champion landholder who is promoting biodiversity conservation, as well as scientific experts in biodiversity and sustainable agricultural practices.</p> <p>Biodiversity Conservation Education Program</p>
Making plans to create a sculpture	Students will begin preparations for the end of term art exhibitions.	<p>Explain to students that at the conclusion of the unit they will create a piece of artwork that will help raise awareness of the sustainability issue they research.</p> <p>Ask students to start bringing in items like tin cans, milk bottle tops and or any other “scrap/junk” items that might be good for building a sculpture.</p> <p><i>We made owls using tin cans and milk bottle tops which worked out great. However, the art work you choose to create may impact the items you request students to bring in.</i></p>

LEARNING SEQUENCE 2



Title	Intention	Learning Activity
Changing Environments Over Time	Your students will consider changes to the environment over time.	Present and explore data and information which presents how our environment has changed over time. https://sdgs.un.org/goals/goal15 https://sdgs.un.org/goals/goal14
The Survival Of Living Things	Your students will conduct an experiment to work out the conditions that yeast needs to survive.	Plan and conduct a fair test to show the conditions needed for a particular plant or animal to grow and survive in its environment. Describe how changing physical conditions in the environment affect the growth and survival of living things. This link has suggested experiments that could be used. https://www.plt.org/educator-tips/easy-plant-science-experiments-for-the-classroom/

LEARNING SEQUENCE 3

Title	Intention	Learning Activity
Endangered and Threatened flora/fauna	Students learn about what plant and animal species are endangered or threatened in their local area.	Start by exploring what an endangered species is and look more broadly at a national level. https://www.natureaustralia.org.au/what-we-do/our-priorities/wildlife/wildlife-stories/australias-endangered-animals/ Then investigate more specifically which plants and animals are endangered/threatened in your local area. Reach out to your Local Land Services for support and resources (they often have a dedicated education officer in your region that can assist) https://www.ils.nsw.gov.au/ Finally ask each student to select a plant or animal that they would like to know more about. You can make a decision as a class or leave it up to each student. The choice will impact the art work and independent inquiry later in the unit. Other useful resources: https://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl https://hiddenvalewildlife.uq.edu.au/species#qt-species_tabs-foundation-tabs-2 https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species
Assessing the credibility of sources	Students will learn to evaluate sources of information for credibility and reliability.	Take a look at one of the previously listed websites or one of your own choosing and then using appendix 1 (attached), guide students through the scaffold that can be used to assess a source's reliability.

Planning An Independent Inquiry

Students will practise the skills of questioning, research and working independently as they conduct an inquiry into an endangered animal or plant.

**The Independent inquiry will form part of the assessment of learning*

Students consider a topic that has been explored in this unit, e.g. sustainability, conservation or it could be more specific like the conservation of a particular species.

Step 1 – create T chart (see appendix 2) and on one side ask students to make a list of all the things they know about the topic and on the other make a list of things they wonder about the topic.

Step 2 – looking at the things in the ‘wonder’ column students then can create a series of questions which they could potentially ask an expert to help give them answers.

Step 3 – Use the questions to drive student research into their chosen topic.

Step 4 - Identify and locate a range of relevant sources to support an inquiry. Analyse and use sources, using evaluation scaffold to assess the credibility
(Allow time over several lessons to conduct the inquiry)

LEARNING SEQUENCE 4

Title	Intention	Learning Activity
Art Task 1		
Art Task 1 – Zentangle	Students will learn how to use Zentangle - is a style of doodling/drawing that allows you to create lines and patterns to create intricate designs by completing small areas of patterns. We call intricate artwork.	these patterns, tangles. You create tangles with combinations of lines. Explore this technique and allow students to create an artwork using the style. See appendix 3 for sample using owls. https://zentangle.com/
Conducting An Independent Inquiry	students will practise the skills of questioning, research and working independently as they conduct an inquiry into an endangered plant or animal *The Independent inquiry will form part of the assessment of learning	See and follow steps outline in Learning sequence 3

LEARNING SEQUENCE 5

Title	Intention	Learning Activity
Art Task 1 - completion	Students will learn how to use Zentangle - is a style of doodling/drawing that allows you to create lines and patterns to create intricate designs by completing small areas of patterns. We call intricate artwork.	these patterns, tangles. You create tangles with combinations of lines. Explore this technique and allow students to create an artwork using the style. See appendix 3 for sample using owls. https://zentangle.com/

Conducting An Independent Inquiry	Students will practise the skills of questioning, research and working independently as they conduct an inquiry into an endangered plant or animal <i>*The Independent inquiry will form part of the assessment of learning</i>	See and follow steps outline in Learning sequence 3
Ask an Expert	Connect students with experts in the field of study.	Make arrangements with someone like Local Land Services, a nearby university or you might even have a parent/family member who might be willing to come in and share their knowledge on a particular vulnerable species or more broadly speak about conservation and biodiversity. This could be done face to face or via an online platform over a video link. Provide students with time to develop some specific questions for the expert speaker and or they may also like to use the questions they developed while planning their independent inquiry.

LEARNING SEQUENCE 6

Title	Intention	Learning Activity
Art Project 2	Students will investigate and appreciate art that has been created to raise awareness of endangered animal/sustainability issue. <i>*The artwork will form part of the assessment of learning</i>	Explain to student that art has been used to communicate important messages about all manner of topics. Art can be thought provoking and connect with people emotionally therefor providing a good vehicle to reach an audience stimulate discussion and even action. Show students some local and international examples of when art was used to raise awareness of environmental issues. The Hello Koala and The Water Tank Project are both good examples of local people making contribution to the UNSDG through art. https://www.hellokoalas.com/about/ https://www.supatank.com.au/water-tanks-take-spotlight-new-york-city/ After researching these projects students can take a moment and consider and answer some reflective questions like; What was the project trying do? What inspired the project/artwork? What key messages were the artwork attempting to communicate? Who was the audience for the artwork and what has been the response? What was the impact of the artwork.
Planning an Art Exhibition	Make preparations to host a classroom exhibition.	Select a date and time for the end of term when students can showcase their work to family members. Book spaces and send out invitations.
Planning to present research	Students will consider the best way to present the different types of information that they have researched.	Plan, draft and publish imaginative, informative and persuasive texts, choosing and experimenting with text structures, language features, images and digital resources appropriate to purpose and audience Represent different types of geographical information by constructing maps that conform to cartographic conventions using spatial technologies as appropriate

**The Independent inquiry will form part of the assessment of learning*

LEARNING SEQUENCE 7

Title	Intention	Learning Activity
Art Project 2	Students will create a plan for their artwork.	Explain to students what a sculpture is and provide examples. Provide student with a scaffold or blank piece of paper. Also allow them to explore, feel and play with the recycled resources they have bought from home and start planning/experimenting what they might create. These steps are open to student interpretation, and it should be remembered that the process of making art is just as important as the end result.
Planning to present research	Students will consider the best way to present the different types of information that they have researched. <i>*The Independent inquiry will form part of the assessment of learning</i>	Plan, draft and publish imaginative, informative and persuasive texts, choosing and experimenting with text structures, language features, images and digital resources appropriate to purpose and audience Represent different types of geographical information by constructing maps that conform to cartographic conventions using spatial technologies as appropriate

LEARNING SEQUENCE 8

Title	Intention	Learning Activity
Art Project 2	Students will create their sculpture. <i>*The artwork will form part of the assessment of learning</i>	Students will work to complete their sculpture based around the planning they have done. Depending on what you are creating, you may like to scaffold this by working through a step-by-step process. Its important that students are given the chance to individualised their sculptures.
Planning to present research	Students will consider the best way to present the different types of information that they have researched. <i>*The Independent inquiry will form part of the assessment of learning</i>	Plan, draft and publish imaginative, informative and persuasive texts, choosing and experimenting with text structures, language features, images and digital resources appropriate to purpose and audience Represent different types of geographical information by constructing maps that conform to cartographic conventions using spatial technologies as appropriate <i>When I completed this step I allowed students some autonomy in how they presented their information. Some students created information reports, some wrote persuasive arguments as to why owls must be protected and other created a narratives and folk tales about owls.</i>

LEARNING SEQUENCE 9



Title	Intention	Learning Activity
Art Project 2	Students will finalise their sculpture. <i>*The artwork will form part of the assessment of learning</i>	Students will work to complete their sculpture based around the planning they have done. Depending on what you are creating, you may like to scaffold this by working through a step-by-step process. Its important that students are given the chance to individualised their sculptures.
Artist statement	Students will write an artist statement. <i>*The artwork will form part of the assessment of learning</i>	Students will write a statement that helps viewers to understand, what they have created, how they have created it and why they have created. See appendix 4.
Planning to present research	Students will finalise the presentation. <i>*The Independent inquiry will form part of the assessment of learning</i>	Plan, draft and publish imaginative, informative and persuasive texts, choosing and experimenting with text structures, language features, images and digital resources appropriate to purpose and audience Represent different types of geographical information by constructing maps that conform to cartographic conventions using spatial technologies as appropriate

LEARNING SEQUENCE 10

Title	Intention	Learning Activity
Art exhibition	Students will present their artwork.	Set up the classroom or school hall with all the sculptures as an art exhibition.
Presentation of research	Students will present their research.	Depending on how students have presented their research, they will need to publish and present as part of the art exhibition/classroom show case.
Unit reflection	Students will reflect on their work and provide feedback on reflection on the unit of work. the unit of work.	Using sentence stems, students can complete a simple but effective See appendix 5

ASSESSMENT TASK OVERVIEW

This three-part task engages students with one of Australia's threatened owl species. They will research the species' characteristics and threats, synthesize findings into a well-analysed report, and create an artwork for a class-wide awareness campaign, emphasizing the importance of biodiversity.

Task	Learning Activity
Research	Select one of the threatened owl species and thoroughly investigate it. Compile your findings, focusing on its unique characteristics and habitat, the specific threats that it faces, and its current status as a threatened species.
Report	Report: Based on your research, write an information report that: <ul style="list-style-type: none">• Outlines the distinct features and characteristics of the owl, as well as its habitat.• Analyses the primary threats that have most significantly impacted the owl, along with its status as a threatened species.• Communicates these key insights in an engaging and sophisticated manner, ensuring that the information is both informative and captivating for readers.
Respond	Create an artwork as a part of a collaborative class campaign aimed at raising awareness for the selected threatened owl species. Your artwork should visually communicate the importance of maintaining biodiversity and resonate with the need to protect this unique and fragile aspect of our ecosystem.

MARKING RUBRIC

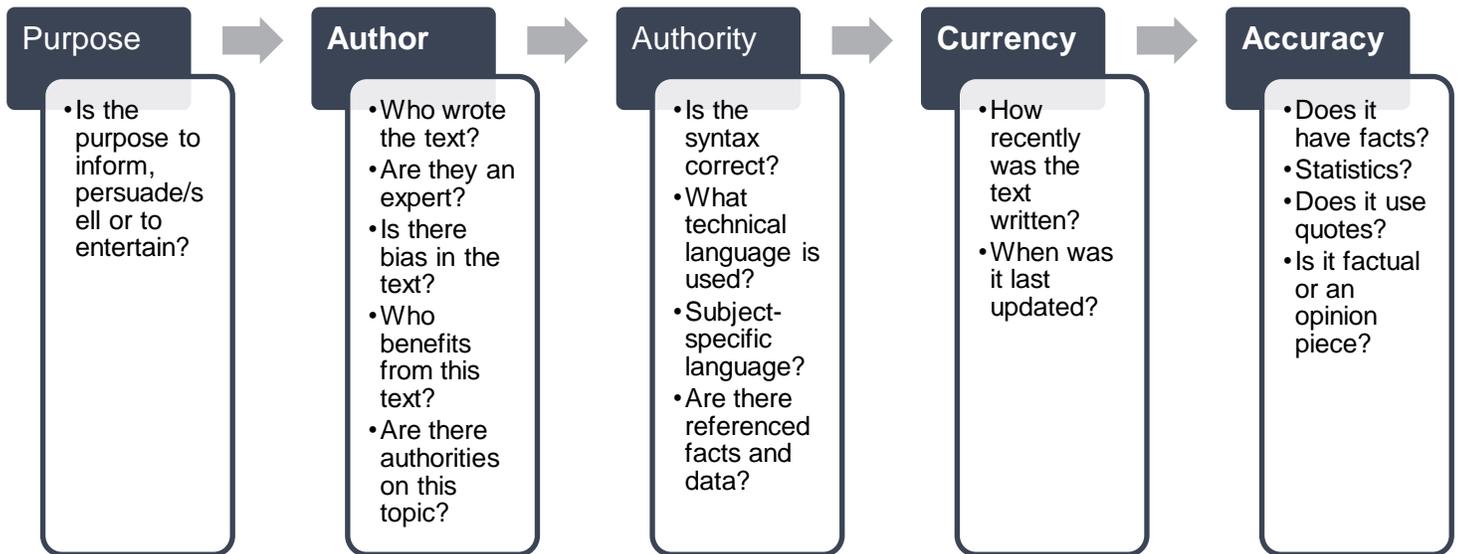
Area	5	4-3	2	1	0
Research	Extensive research, strongly supported by evidence, used to underscore main ideas and themes in writing and artwork. A cause-and-effect relationship is clearly identified and articulated.	Research is evident, and facts vividly illustrate the issue, enhancing the artwork. A cause-and-effect relationship is identified.	Some accurate research conducted and recorded with partial linkage to writing and artwork. Cause and effect relationship is not made explicit.	Inaccurate or minimal research recorded. Minimal or irrelevant use of facts in writing and artwork.	No research or planning evident.
Writing	Uses a variety of sentence structures and correctly selects and spells subject-specific words.	Uses diverse sentence structures with good spelling of most simple and difficult words.	Sentences are mostly correct. All simple words are spelled correctly.	Some sentence structure is evident, with attempts to spell accurately.	Only symbols or drawings present.
Impact	Analyses key features of the threatened species and its habitat; also analyses key environmental changes leading to the species survival being threatened.	Describes key features of the threatened species and its habitat. Describes some changes to the environment and suggests some possible reasons for the impact. Describes key features of the threatened species and its habitat; describes some changes to the environment and suggests possible reasons for the environmental impact.	Lists features of the threatened species and its habitat; outlines some environmental changes.	Briefly outlines features of the threatened species and its habitat.	No attempt made to outline the species or its environment.
Artwork	Investigates the subject matter and expertly represents the species for an awareness campaign; justifies creative choices and their effects.	Research subject matter and represents the species for an awareness campaign; communicates clearly about the artwork's intended impact.	Understands subject matter and recreates features of the species to a reasonable level; describes main features of the artwork.	Understands subject matter but only recreates the species' features to a basic level.	Unfinished artwork

OVERALL SCORE

_____ /20



APPENDIX 1. IS IT CREDIBLE?



APPENDIX 1A. CRITICALLY EVALUATING A WEB SOURCE

Website evaluation

Student responses

Name of site:

Site author(s):

Credentials of the author(s):

Purpose of site:

Is the site regularly updated?

Does the site use credible references?
How do you know?

Is the site affiliated with other credible organisations?

Do the links work?
Do they take you to reliable sources?

Can you contact the site's authors easily?

What else do you notice about the site?
URL address, use of language devices...

When you look at other credible sources of information, what do they suggest about the information on this site?

Are there obvious omissions from this site? (Evidence missing, only one side presented.)

Is this site a reliable source of information?
Why/why not?

APPENDIX 2. WHAT I KNOW AND WONDER

What I know	What I wonder

APPENDIX 4. MY ARTS STATEMENT

MY ARTIST STATEMENT



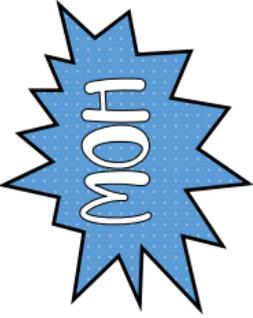
My artwork is about ...



I made my artwork because ...

DID YOU MAKE IT?

I made my artwork by ...



DID YOU MAKE IT?

APPENDIX 5. LEARNING REFLECTIONS

During this unit of work, somethings I have learnt include...

I am proud of _____ because...

If I could change one thing, it would be _____ because...

Next time, I would like to...