A sustainable future

A teaching and learning resource for Foundation, Year 1, and Year 2

To support the film
Sea Lions: Life by a Whisker

Government of South Australia
Department for Environment and Water

Acknowledgements

This online curriculum-linked resource was produced by Angela Colliver Consulting Services for the National Parks and Wildlife Service, Department for Environment and Water, South Australia.

The curriculum-linked resource is designed to introduce young people to the management and protection of the Australian sea lion and the marine environment.

The materials in this educational resource have been developed by Angela Colliver from Angela Colliver Consulting Services Pty Ltd.

Foundation, Year 1 and Year 2

Activity 2: A sustainable future for Australian sea lions

Overview: Explain to the class that their task will be to explore Australian sea lions, view the movie 'Sea Lions. Life by a Whisker", and then create a book to educate others about what sea lions need for a sustainable future.

Background science for students: Scientists

A scientist is someone who uses a systematic approach to acquire new knowledge. A scientist can also be defined as someone who uses the 'scientific method' and performs research work.

A scientist may be an expert in one or more areas of science, such as biology, or agriculture, space, food, nutrition, or plants! Some scientists think about how all these fit together to make up our whole 'life support system'.

Being a scientist begins by *thinking* like a scientist. Scientists are curious about how the world works. They have many questions and go about answering those questions using the scientific methods.

If you are fascinated by how things work and why they work a certain way, you too could become a scientist!

To work as a scientist, a person usually needs a degree in science. A degree is obtained by attending university and getting a Bachelor of Science or Engineering degree.

The essential question:

What happens when we understand that science involves observing, asking questions about, and describing changes in, objects and events?

The scenario:

Discover what a sustainable natural environment might look like, sound like and feel like through the development of short, illustrated books.

We are calling on your school because we have heard about the wonderful sustainability and science program at your school. Your school is well known for its food garden, composting program, worm farm and the ability for all children to be involved in the 'magic of sustainability'.

Your challenge is to produce a short, illustrated book for a pre-school or kindergarten that explains how science involves solving problems and how it could help create a sustainable natural environment for Australian sea lions.

I wonder how your school could promote a 'sustainable natural environment for Australian sea lions through a short, illustrated book. Does anyone have any thoughts?

Are you up for the challenge? If so, then we would like you to create a short, illustrated book that explains:

- How anyone could help create a sustainable natural environment for Australian sea lions.
- A description of a sustainable natural environment.

I wonder will you create a paperback or an e-Book?

A suggested learning process:

Define:

Capture students' interest and share information about the movie *'Sea Lions. Life by a Whisker'*

Choose different features on the top toolbar, and discover the more about the movie, its characters, settings, problem, and solution.

Talk about what a sustainability scientist might need to observe, and what information they might need to collect.

As a class, talk about all stories having an illustrated cover, an inside front cover, a title page, a sizzling start, and the other pages available for the story, including the back cover.

Talk about stories needing an action starting point where something exciting happens and the characters are introduced to the reader. Talk about the place or 'setting' in which the story happens, and how the story then unfolds around a problem moves to a strong ending.

Ask students what they might need to know more about, to undertake the challenge. Might they need to know something about science, what scientists do, and sustainability?

Discover:

Talk about the importance of working together to create solutions.

Go outside and connect with nature in the school grounds. As a class, sit under trees, lie on the grass, visit the school veggie patch, and look for signs of life. Watch, listen, and take in what is happening in these places.

Where possible visit a local beach or stretch of coastline and imagine life beneath the water.

View the photographs that provide clues about Australian sea lions and their homes here. Then, ask students a range of geographical questions, such as:

- What is this place?
- What is this place like?
- What are natural features in it?
- What are built features in it?
- How is it being used?
- What is happening at this place at this time?

Collate and list the common natural and built features found by the students.

Encourage students to complete the following matrix, by naming or listing what they have seen.

Features	Coast (shoreline)	Samphire flats (Intertidal region)	Nearby catchment area
Animals Plants Natural features Human made features Caring for the place Why this place is important			

Go outside and investigate places in the school grounds. As a class or in small groups, discuss actions you could take to improve or care for part of the school or its grounds and look after it. Ask students to reflect on the places investigated and ask students to suggest ways that people could improve, care for, or look after them. Record the students' ideas.

Revisit where Australian sea lions live and ask students to suggest ways that people could improve, care for, or look after these places. Record the students' ideas.

In class meetings put forward suggestions, vote and make decisions regarding actions classes could take to care of special places in the school, e.g., start a litter team or a compost heap, recycle paper, plastics, cans and bottles, mulch garden areas. Talk about how such actions might help sea lions have a more sustainable future.

Explain to the class that we all live in a catchment that is connected to the sea. Explore gutters in and around the school and discuss how with wing and water the litter, leaf litter and soil all end up in the ocean via our stormwater system.

Discuss about how our coasts and oceans receive large amounts of waste be it by deliberate dumping or by natural run-off from the land.

Talk with students about what we do at home and school and how these actions affect the coast, oceans and our marine parks.

Talk about where water goes down the drain, in the classroom area. Describe the types of water that goes down the drain. e.g., water used for washing hands, paint brushes, glue pots.

Brainstorm ways the class might show more care when disposing of solutions down the drain, e.g., scrape left over paint into paint pots, clean paint palettes using newspaper, not using too much detergent or soap, etc.

Identify areas in the school and home that involve water and chart these, e.g. drains, gutters, downpipes, sprinklers, tap, showers, laundries, rainwater tanks, toilets, drinking fountains.

Discuss any environmental issues connected with these areas. Draw cause and effect flow charts to show the issue and its effect on coastal area.

For example:

drains → blocked with leaves and litter → mini flooding in school grounds and after draining away pollutes coastal areas

Talk with students about leaf litter and both urban and agricultural run-off that is washed into watercourses or drains. Follow its path to the coast, or sea.

Brainstorm ways the class could get involved in activities for the protection of our waterways and the sea.

Choose an area of the school grounds to adopt and care for. As a class decide, who will do what, when and how? Gather ideas by role playing to show ways individuals and groups can care for the school grounds.

Create a 'How we can care for our coast and the sea' space in the classroom. Display pictures, photographs, and information about your class actions. Promote these at school assemblies.

Focus on the task of writing a story. Brainstorm six ideas for the story. Ask students to select the idea that really 'grabs' the class and draft a story sequence. Ask questions like; 'And then what happens?' Encourage students to think deeply about how the story might reveal the way anyone can create a sustainable natural environment in a funny, exciting, and creative way. Talk about the ending as well, asking 'what will happen at the end of the story?'

Ask students to create a short, illustrated book that explains:

- How anyone could help create a sustainable natural environment for Australian sea lions.
- A description of a sustainable environment in which Australian sea lions live.

Dream:

Ask students to visualise an illustrated cover for their book as well as an inside front cover and a title page.

Ask students to imagine what their short, illustrated story book might look like. Will it be a paperback or an e-Book? Will it include photographs, pop-ups, pull-tabs, textures, or other features to increase a reader's interaction with the book?

Design:

Ask students to design their draft story for their book.

Ask students to gather the materials, tools, and equipment needed and then design their book.

Invite a peer class group to the class and to find out more about how a short, illustrated book can explains:

- How anyone could help create a sustainable natural environment for Australian sea lions.
- A description of a sustainable natural environment.

Deliver:

Create the stories about a sustainable natural environment in which Australian sea lions live.

Prepare a display of students' stories about how sustainability science could help create a sustainable natural environment for Australian sea lions to enjoy.

Visit the local pre-school, kindergarten, Foundation class or day-care centre and share and discuss the stories with younger children.

Share photos and students' stories via the school's online community. The public loves to see pictures of children in the classroom learning, and to share photos via Facebook or Instagram. Please ensure that you have parental permission prior to posting any images of students.

Debrief:

Ask students to recall what they learned.

Talk about what they might still like to find out.

Ask students to describe their favourite part of creating a story and sharing it with others to learn more about for Australian sea lions.

Curriculum connections

Australian Curriculum (ACARA 2022)

Science

Science as a human endeavour – Use and influence of science

Foundation

Explore the ways people make and use observations and questions to learn about the natural world AC9SFH01

Year 1

Describe how people use science in their daily lives, including using patterns to make scientific predictions AC9S1H01

Year 2

Describe how people use science in their daily lives, using patterns to make scientific predictions AC9S2H01

HASS K-6

Geography: Knowledge and understanding

Foundation

The features of familiar places they belong to, why some places are special and how places can be looked after AC9HSFK03

Skills

Pose questions about familiar objects, people, places and events AC9HSFS01

Share a perspective on information, such as stories about significant events and special places AC9HSFS03

Draw conclusions in response to questions AC9HSFS04

Share narratives and observations, using source and terms about the past and places AC9HSFS05

Geography: Knowledge and understanding

Year 1

The natural, managed and constructed features of local places, and their location AC9HSFIK03

Skills

Develop questions about objects, people, places and events AC9HS1S01

Collect, sort and record information and data from observations and from provided sources AC9HS1S02

Interpret information and data from observations and provided sources AC9HS1S03

Discuss perspectives related to objects, people, places and events AC9HS1S04

Draw conclusions and make proposals AC9HS1S05

Develop narratives and share observations, using sources, and subject-specific terms AC9HS1S06

Year 2

Skills

Pose questions about familiar objects, people, places and events AC9HS2S01

Collect, sort and record information and data from observations and from provided sources AC9HS2S02

Interpret information and data from observations and provided sources AC9HS2S03

Discuss perspectives related to objects, people, places and events AC9HS2S04

Draw conclusions and make proposals AC9HS2S05

Develop narratives and share observations, using sources, and subject-specific terms AC9HS2S06

Technologies (ACARA, 2022)

Foundation

Design and Technologies: Processes and production skills

Generate, communicate and evaluate design ideas, and use materials, equipment and steps to safely make a solution for a purpose AC9TDEFP01

Year 1 and Year 2

Design and Technologies: Processes and production skills

Generate and communicate design ideas through describing, drawing or modelling, including using digital tools AC9TDEFP201

Use materials, components, tools, equipment and techniques to safely make designed solutions AC9TDEFP202

Evaluate the success of design ideas and solutions based on personal preferences and including sustainability AC9TDEFP203

Sequence steps for making designed solutions cooperatively AC9TDEFP204

General capabilities: Literacy; Digital Literacy, Critical and Creative thinking, Ethical Understanding and Personal and Social Capability.

Cross Curriculum Priority: Sustainability

Organising Ideas

SS1: 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.

SS2: Sustainable patterns of living require the responsible use of resources, maintenance of clean air, water, and soils, and preservation or restoration of healthy environments.

SD1: Sustainably designed products, environments and services aim to minimise the impact on or restore the quality and diversity of environmental, social and economic systems.

SD2: Creative and innovative design is integral to the identification of new ways of sustainable living.

SD3: Sustainable design requires an awareness of place, past practices, research and technological developments, and balanced judgements based on projected environmental, social and economic impacts.

SF1: Sustainable futures are achieved through informed individual, community, business and political action that values local, national and global equity and fairness across generations into the future.

SF2: Sustainable futures require individuals to seek information, identify solutions, reflect on and evaluate past actions, and collaborate with and influence others as they work towards a desired change.

Department for Environment and Water.
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