

BEACH
WATER SKILLS FOR LIFE

BEACH
ECOLOGY **MODULE**
7



8 LESSONS

LEVEL 4



SUPPORTED BY



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prevention. care. recovery



BEACH ECOLOGY

DESCRIPTION

This module enables students to understand the factors in the marine environment that shape its environment as well as how it can be impacted by human and natural interaction. Students also learn how to contribute to ensure beaches stay healthy.

ACHIEVEMENT OBJECTIVES

Science

Living World

Ecology: Explain how living things are suited to their particular habitat and how they respond to environmental changes, both natural and human-induced.

Planet Earth & Beyond

Earth systems: Develop an understanding that water, air, rocks and soil, and life forms make up our planet and recognise that these are also Earth's resources.

Health & Physical Education

Personal Health and Physical Development

Safety and Risk Management: Students will access and use information to make and action safe choices in a range of contexts.

Healthy Communities and Environment

Rights, Responsibilities, and Laws: Students will specify individual responsibility and take collective action for the care and safety of other people in their school and in the wider community).

Learning intention:

Understand that a beach is a living ecosystem.

Understand that human action can negatively impact the beach's ecosystem.

Success Criteria:

- Investigate the natural impacts on a beach's ecosystem (tide changes, seasons, weather)
- Identify how they can contribute to caring for their local beach's ecology

Key Competencies:

Participating and Contributing:

- Contribute to class/ group discussions and activities

Managing Self:

- Make sure learning tasks are completed in a timely manner and to a high standard

Thinking:

- Think critically about how their own and others actions are impacting on their local beach's ecology
- Ask and investigate appropriate questions with the aim of furthering personal understanding on the topic

Using language, text and symbols:

- Create a group presentation identifying their understanding of an aspect of their local beach's ecology (an aspect may include sea birds, fish life, plant life...) and how these are impacted by humans (recreational activities, pollution, coastal armoring)

Relating to others:

- Work collaboratively within a group towards a common learning goal
- Communicate my ideas clearly and effectively with others

Resources:

- Pictures of the different life forms that live in the beach environment, pencils/pens, digital devices (chromebooks/iPads), internet, school library books, Coggle, KWL chart, Chromecast/Apple TV

Assessment activities:

- Demonstrate personal understanding of the topic in class discussions
- Create a group presentation identifying their understanding of an aspect of their local beach's ecology (an aspect may include sea birds, fish life, plant life...) and how these are impacted by humans (recreational activities, pollution, coastal armoring)

LESSON

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Tuning In

Teacher Introduction: Discuss what the term ecology means and relate this to the context of your local beach.

Bus stop activity: Spread out pictures of the different life forms that live at the beach around the classroom.

- These could include beach plant life, sea birds, species of fish, shellfish, species of crustaceans

Ask the students to form groups of 4-6. Ask each group of students to add their prior knowledge about each of the life forms in the pictures. Add prompts to each of the pictures including what part of the beach they inhabit, what they eat, what they need to survive, what potential threats they have.

*Give students 3-5 minutes at each bus stop to enable enough time for discussion and writing their ideas down.

Class Discussion: Using the completed bus stop posters, discuss all of the ideas added to each of the life forms. Ask the students to explain how each of these life forms may rely on each other to form an ecosystem. Finally encourage the students to ponder the impacts they think humans can have on each of these life forms.

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4**Finding Out/ Sorting Out****Overarching Inquiry Question:**

What are the negative impacts humans have on beach ecology and what can we do to improve our local beach's ecology?

Class Discussion: Introduce the class inquiry question to students. Discuss any questions or ideas the students may already have about this topic area.

Developing Inquiry Focus and Questions:

Ask students to choose a beach life form to focus their inquiry on (this can be one from the previous bus stop activity). Students can form groups with other like minded classmates to work with to conduct the inquiry.

Possible questions students can use (students insert the appropriate life form):

- What part of the beach do crustaceans inhabit?
- What do crustaceans need to survive?
- What threats do crustaceans have?
- Why are crustaceans an important part of beach ecology?
- How do humans negatively impact crustaceans?
- Are there any laws that protect crustaceans from being harvested?
- What can we do to help the survival of crustaceans?

Researching & Collecting Relevant Information

Students will make a research plan that includes the resources they will use to collect information e.g. websites, school library, youtube...They must also decide whether the information they find is from a credible source (they can check in with the teacher if they are unsure about their information sources). Students can use a KWL chart or an online mind mapping tool such as Coggle to collect their information and add the accompanying source.

Once students have collected research, they must sort through it using the following questions as a guide:

- How can I sort the information I have found?
- What information helps answer my questions?
- Do I need to find out more information to answer the question?
- What are my questions now?
- How have they changed?
- What changes do I need to make to my inquiry?

Students must decide on what information will be useful to use in their presentation.

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Going Further

Creating a presentation and presenting their learning: Students must decide how they will present their inquiry to the class. Possible presentation formats include google slides, prezi, video, infographic, poster...

The teacher and students must co-construct a criteria that all presentations need to have to make sure the students have a clear understanding of what is expected of them.

Students spend time creating their presentations using the following guiding questions:

- What information is important to share?
- Have I answered all the questions to answer my inquiry?
- Have I checked to see if my presentation meets the success criteria?

Students present their inquiry presentation to the class.

LESSON

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Making Conclusions/ Taking Action

Learning wrap up: As a class, discuss overall learning that has been achieved as a result of the inquiry. Make a whole class action plan for potential ways the class can help their local beach ecology on a field trip to the local beach. **Ask students** to highlight any areas they wish to research further.