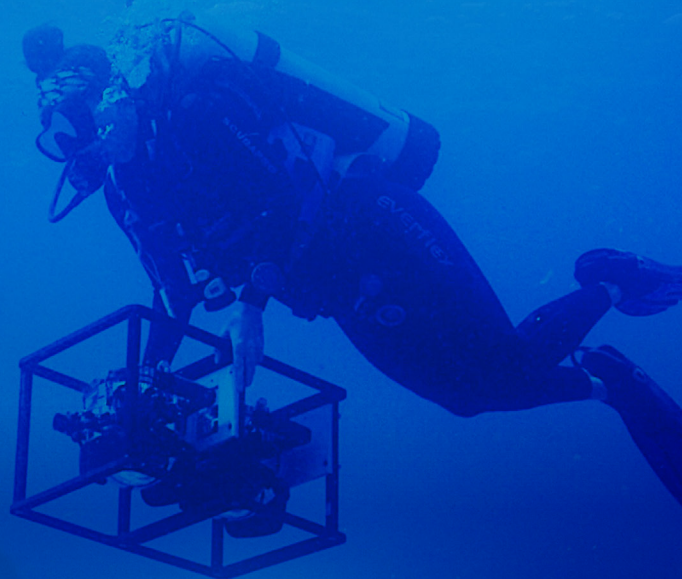
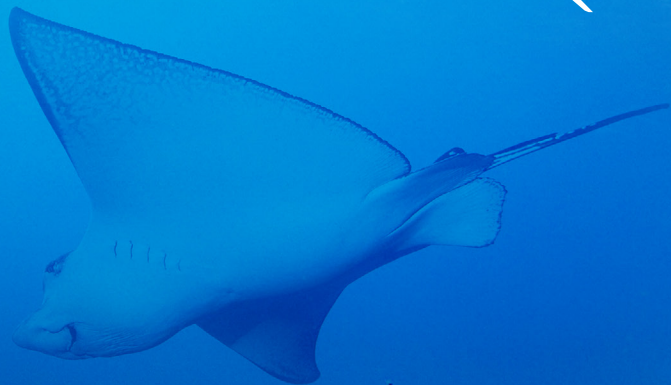


OCEANX



# OCEANXPERIENCE



**INSTRUCTIONAL SEQUENCE**

## **CLEAN UP THE CORAL REEF**

Habitats & Human Impact

**GRADE LEVEL: PP-2**



Never stop wondering.  
Never stop imagining.™

Presented for Australian audience by:



## PURPOSE

Students will learn about the interconnectedness of a habitat and research how, when humans impact one part of the habitat, there will be a chain reaction.

## EXHIBITION LEARNING GOAL

Visitors are left with a call to action and steps they can take to help restore and preserve ocean environments.

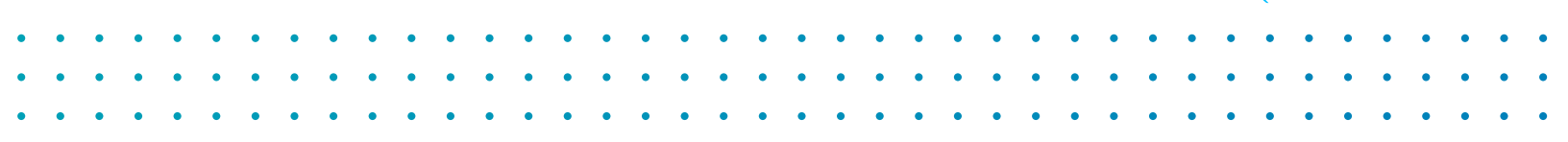
## OBJECTIVE

Students will explain how animals use features of their habitat to meet their needs.

Students will explain how human actions affect a habitat, therefore affecting life in that habitat.

Students will engineer a solution to a problem by creating a tool for trash collection.

*Clean up the Coral Reef* may also be used to allow students to investigate the causes of climate change (such as the burning of fossil fuels) and examine its impacts, including rising ocean temperatures and effects like coral bleaching in Australian coral reefs. Through this learning experience, students can be supported to make meaningful connections to real-world issues and reflect on how their own choices and actions can help protect the environment and reduce these impacts.



## PRE-PRIMARY

### SCIENCE

#### Science Inquiry Skills - Questioning and predicting:

WA1SSIQ1 - Pose questions and make predictions based on knowledge and experiences.

#### Science Inquiry Skills - Collaborating and applying:

WAPSSICL1 - Use the senses to learn about the natural and physical world and develop scientific ideas.

#### Science Inquiry Skills - Communicating:

WAPSSICM1 - Share questions, predictions, observations and ideas with others.

### DESIGN AND TECHNOLOGIES

#### Design Thinking Skills - Project management:

WAPTDEDTPM1 - Share ideas to develop a solution.

#### Design Thinking Skills - Investigating and defining:

WAPTDEDTID1 - Explore the purpose for design.

#### Design Thinking Skills - Designing:

WAPTDEDTD1 - Design solutions through discussion, drawing and/or modelling to meet a personal need.

#### Design Thinking Skills - Producing and implementing:

WAPTDEDTPI1 - Use available technologies and materials to safely create a solution.

#### Design Thinking Skills - Evaluating:

WAPTDEDETE1 - Use personal preferences to evaluate the solution.

## YEAR 1

### SCIENCE

#### Science Understanding - Earth and space sciences:

WA1SSUE1 - Water is a natural resource that comes from a range of sources and is used by people, plants and animals in different ways.

#### Science Inquiry Skills - Questioning and predicting:

WA1SSIQ1 - Pose questions and make predictions based on knowledge and experiences.

#### Science Inquiry Skills - Planning and conducting:

WA1SSIPL1 - Engage in guided investigations to answer questions, test predictions, and assess risks.

WA1SSIPL2 - Make and record observations, including informal measurements.

#### Science Inquiry Skills - Evaluating:

WA1SSIE1 - Compare observations to predictions and identify further questions for investigation.

### DESIGN AND TECHNOLOGIES

#### Design Thinking Skills - Project management:

WA1TDEDTPM1 - Share ideas and work with others to develop a solution.

#### Design Thinking Skills - Designing:

WA1TDEDTD1 - Design solutions through drawing, modelling and/or a sequence of steps.

#### Design Thinking Skills - Producing and implementing:

WA1TDEDTPI1 - Use available technologies and materials to safely create a solution.

## YEAR 2

### SCIENCE

#### Science Inquiry Skills - Questioning and predicting:

WA1SSIQ1 - Pose questions and make predictions based on knowledge and experiences.

#### Science Inquiry Skills - Planning and conducting:

WA2SS IPL1 - Engage in guided investigations to answer questions, test predictions, and assess risks.

WA2SS IPL2 - Make and record observations, including informal measurements.

#### Science Inquiry Skills - Communicating:

WA2SSICM1 - Communicate observations, ideas, and findings using everyday and scientific vocabulary.

### DESIGN AND TECHNOLOGIES

#### Technologies and society:

WA2TDETS1 - People use selected technologies to make familiar products and environments to meet local needs.

#### Design Thinking Skills - Project management:

WA2TDETPM1 - Plan, share ideas and work with others to develop a solution for a known user.

#### Design Thinking Skills - Investigating and defining:

WA2TDETTID1 - Explore ideas and design opportunities for a known user.

#### Design Thinking Skills - Designing:

WA2TDETD1 - Design solutions through drawing, modelling and a sequence of steps.

## YEAR 2 - CONTINUED

#### Design Thinking Skills - Producing and implementing:

WA2TDEDTPI1 - Use given equipment and technologies to safely create a solution.

#### Design Thinking Skills - Evaluating:

WA2TDEDETE1 - Use personal preferences and the needs of the known user to evaluate the solution.

## YEAR 6

### SCIENCE

#### Science Understanding - Biological Science:

WA6SSUB1 - The growth and survival of living things are affected by the changing conditions in their environment and the influence of human activities.

## VOCABULARY

### HABITAT

The place where living things naturally live and grow

### ECOSYSTEM

A community of interacting organisms and their environment

### PREY

A person who designs and builds complex products, machines, systems, or structures

## MATERIALS

1 ALUMINUM PAN

RUBBER BANDS

WATER

PIPE CLEANERS

ASSORTED TRASH

MESH

CARDBOARD

CHEESE CLOTH

WAX PAPER

FABRIC

TOOTHPICKS

ALUMINUM FOIL

POPSICLE STICKS

OTHER ASSORTED  
CRAFT MATERIALS

MASKING TAPE

## ONLINE RESOURCES

[PACIFIC CORAL REEF LIVE STREAM](#)

## LITERARY CONNECTIONS

*Over and Under the Pond* by Kate Messner

*What's your Habitat?* by Sarah Leidhold

*Whose Habitat is That?* by Lucile Piketty

*I See a Kookaburra! Discovering Animal Habitats Around the World* by Steve Jenkins & Robin Page

## ENGAGE

Today we are going to explore the places where animals live and the impact that you (the students) have on these places.

**SAY:** There are many places where animals can live, so let's see how many types of places we can name. (Make a list of these answers)

- Possible answers: a person's home, farm, ocean, desert, tree, jungle, safari, etc
- If students are getting specific with answers, try to group responses by like places, leading them towards identifying: tundra, rainforest, desert, river, ocean, etc.
  - You can also ask, what are different places that I can go to where I can see different types of animals?

Let's find out about more habitats we may not have thought of. Read *I See a Kookaburra! Discovering Animal Habitats Around the World* by Steve Jenkins & Robin Page or any habitat book you may have. Add any habitats from the book that were not mentioned in the student conversation to the list.

## EXPLORE

Let's explore a specific part of our ocean habitat, a coral reef! We are going to take a look at a [coral reef habitat](#) (scroll down to Pacific Coral Reef Live Stream)

Have students discuss the following questions:

- What did you observe?
- Why do you think these animals live here?
- How do these animals get what they need to survive from this habitat?

I wonder how life would change for these animals, if their environment was changed. Let's take another look at a coral reef and see what has been happening to it recently. Watch this [video](#).

Have students discuss the following questions:

- What did you observe?
- How do you think animals will be affected by the trash in the reef?
- What could be done to help this problem?

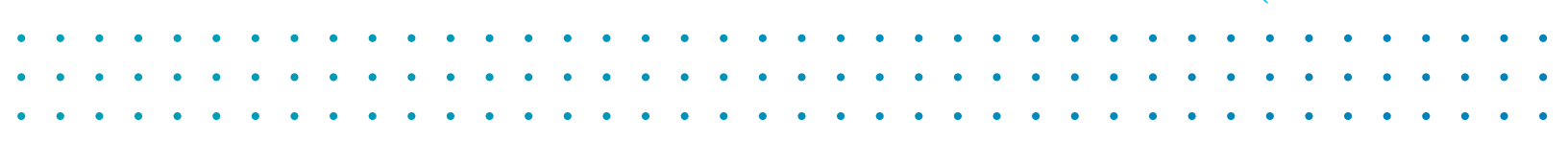
Scientists all over the world are trying to solve this problem – maybe we can help to come up with some ideas too!

Show students the aluminum tray of water and trash and tell them that their challenge will be to engineer some kind of trash collector to clean up this habitat.

Show students the materials available and give them a few minutes to brainstorm and discuss a plan with their group. Have groups draw their agreed-upon plan.

Once groups are ready, have them build their design. Once the groups have a prepared design, have them test their designs with the trash and water.

Based on their test, give time for improvements to be made.



## EXPLAIN

Once students have a completed design, have them prepare a presentation.

During their presentation, they will:

- Explain the design and what materials were chosen
- Give details on how they improved their original design
- Demonstrate their trash collectors' ability to pick up the trash in the water
- Explain how their device would help animals in the coral reef habitat

## EXTEND

### [Code.org Fish AI](#)

Use this lesson to discuss new technologies used to collect trash in the ocean with artificial intelligence. During this activity, students will train the AI to know when an object is a fish, and should stay in the environment, and when it is trash, and should be removed.

## EVALUATE

Evaluate students' understanding of habitat and human impact during their presentations based on their explanation of how their design helps the animals.

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