

CULMINATING LESSON

Protecting Our Coral Reefs

Lesson at a Glance

Students demonstrate their knowledge of coral reef concepts by sharing their work with an appropriate audience (through posters, stories, or murals.) Student teams will complete a product of their choice to reflect knowledge gained in the unit. The students will choose to either develop a story/mural involving creatures from the coral reef and how they are impacted by human activity or create an educational poster to focus on a specific human impact issue.

Lesson Duration

Three 45-minute periods

Essential Question(s)

How can we share what we learned about coral reefs and the human impact on the reef ecosystem?

What can each of us do to help protect the reefs?

Key Concepts

- As we learn more about what we are doing to the reefs and why they are important, we begin to figure out ways to protect them.
- Coral reefs need specific living conditions to grow and survive.
- Corals are animals with unique polyp structure, colonial forms, symbiotic relationships with zooxanthellae algae, and strict survival requirements.
- Coral polyps have special structures for defense, support and protection from predators.
- Human activities on land and in the marine environment can have a negative impact on coral reefs.

Instructional Objectives

- I can identify different ways to help protect the reefs.
- I can collaborate with peers to convey the importance of protecting our reefs.
- I can describe the relationship between coral structure and function.
- I can describe some human activities that negatively impact the coral reef environment.

Related HCPS III Benchmark(s):

Science SC 3.3.1
Describe how plants depend on animals.

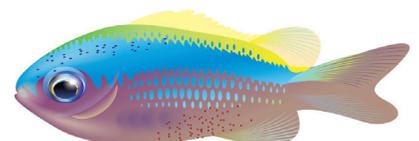
Science SC 3.4.1
Compare distinct structures of living things that help them to survive

Science SC 3.5.1
Describe the relationship between structure and function in organisms

Language Arts LA. 3.4.1
Write in a variety of grade-appropriate formats for a variety of purposes and audiences.

Language Arts LA 3.6.2
Give a planned speech to share information with peers.

Social Studies SS 3.7.4
Examine the ways in which people modify the physical environment and the effects of these changes.



Assessment Tools

Benchmark Rubric:

Topic		Interdependence	
Benchmark SC.3.3.1		Describe how plants depend on animals	
Rubric			
Advanced	Proficient	Partially Proficient	Novice
Classify plants by their dependence on animals.	Describe how plants depend on animals.	Name very few ways in which plants depend on animals.	Recognize that plants depend on animals.

Topic		Cells, Tissues, Organs, and Organ Systems	
Benchmark SC.3.4.1		Compare distinct structures of living things that help them to survive	
Rubric			
Advanced	Proficient	Partially Proficient	Novice
Group living things by the distinct structures that help them to survive and provide justification for the grouping	Compare distinct structures of living things that help them to survive	Describe a few ways in which distinct structures of living things help them to survive	Name distinct structures of living things that help them to survive

Topic		Unity and Diversity	
Benchmark SC.3.5.1		Describe the relationship between structure and function in organisms	
Rubric			
Advanced	Proficient	Partially Proficient	Novice
Classify the structures of organisms according to their function	Describe the relationship between structure and function in organisms	Identify the relationship between structure and function in an organism	Recall that structures in organisms are related to the functions they perform

Topic		Range of Writing	
Benchmark LA.3.4.1		Write in a variety of grade-appropriate formats for a variety of purposes and audiences, such as: <ul style="list-style-type: none"> • stories with a beginning, middle, and end and poems with sensory details • short reports on content area topics • pieces related to completing tasks • friendly letters • responses to literature • pieces to reflect on learning and to solve problems 	
Rubric			
Advanced	Proficient	Partially Proficient	Novice
Insightfully adapt writing to grade-appropriate formats for a variety of purposes and audiences	Adapt writing to grade-appropriate formats for a variety of purposes and audiences	Write with some adaptation to grade-appropriate formats for a variety of purposes and audiences	Write with little adaptation to grade-appropriate formats for a variety of purposes and audiences
Topic		Discussion and Presentation	
Benchmark LA.3.6.2		Give a planned speech to share information with peers	
Rubric			
Advanced	Proficient	Partially Proficient	Novice

Give a planned speech to share information with peers, in a highly effective way	Give a planned speech to share information with peers	Give a speech that shows some planning but shares limited information with peers	Give a speech that shows little planning and does not share information with peers
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Topic		Environment and Society	
Benchmark SS.3.7.4		Examine the ways in which people modify the physical environment and the effects of these changes	
Rubric			
Advanced	Proficient	Partially Proficient	Novice
Examine the ways in which people modify the physical environment, and evaluate the effects of these changes.	Examine the ways in which people modify the physical environment, and explain the effects of these changes.	Examine the ways in which people modify the physical environment, or the effects of these changes.	Ineffectively examine the ways in which people modify the physical environment, or the effects of these changes.

Assessment/Evidence Pieces

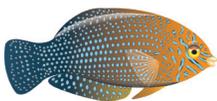
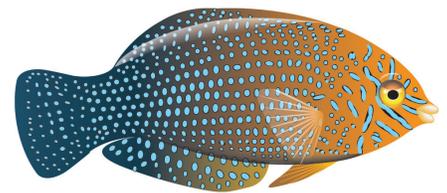
Lesson <ul style="list-style-type: none"> • Student produce either a poster or story

Materials Needed

Teacher	Class	Group	Student
<ul style="list-style-type: none"> • Chart or butcher paper 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Desk-sized paper • Colored pens • Student sample sheets

Instructional Resources

- Student Worksheet: *Protecting the Reef*
- Student Worksheet: *A Coral Reef Story*
- Assessment Tool: *Coral Reef Story Assessment Checklist*



Student Vocabulary Words

None

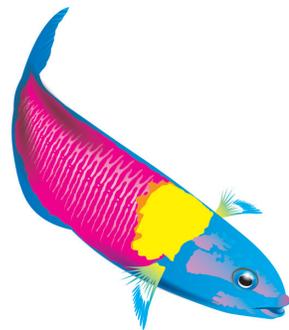
Lesson Plans

Lesson Preparation

- Read and review the background information and purpose of the culminating lesson.
- Review ideas for student products and share with students where necessary.
- Prepare class chart / butcher paper to post student ideas.
- Run off appropriate hand outs.
- Provide adequate class time for groups to work together.
- If possible, conduct peer review and allow group revision time before final product is due.

I. *A Coral Reef Story or Protecting the Reef*

- A. Explain to students that they have a choice to develop either a poster that illustrates the importance of caring for our coral reefs and ways to protect the reef or they may choose to write a coral reef story, which they will turn into a play to be acted out in front of the class. Briefly go over the directions found on the student worksheets *Protecting the Reef* and *A Coral Reef Story*.
- B. Have the students raise their hands if they want to do the poster assignment. Hand out the student worksheet *Protecting the Reef*. Ask these students to read the instructions again to themselves and then get out the materials that they will need to complete the assignment.
- C. Give the remaining students the student worksheet *A Coral Reef Story*. Divide these students into small groups. Remind the small groups to read the directions again and then get out any materials they will need to complete the assignment.
- D. Once the students have completed their assignment allow time for the small groups who wrote a coral story to perform them for the rest of the class.
- E. Create a wall gallery for the work of the students who chose to complete a poster. Allow the class time to walk through the gallery and review the posters.



CULMINATING LESSON

Protecting the Reef

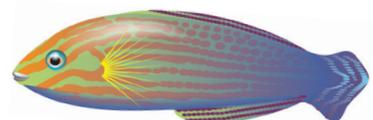
Name _____ Date _____

Directions:

1. Your task is to develop a poster that illustrates the importance of caring for our coral reefs and ways to protect the reef.
2. Below are some suggestions, however you may choose another if you would like.
3. Before starting your poster
 - i. Select one threat learned from the previous lesson that impacts coral reefs.
 - ii. Select one way you can help protect the corals
(Suggestions on the next page)
 - iii. List four ideas or pieces of information to include in your poster
 - iv. How will you show on the poster: (1) the problem, and (2) how it might be solved?
 - v. Sketch your idea for the poster on a piece of paper.
4. Draw your final poster on the desk-sized piece of paper.

10 Ways in Which You Can Help Protect the Reef

1. Embrace island living – learn about and follow traditional Hawaiian practices.
(*Ahupua'a*)
2. Look but don't touch – respect Hawai'i's marine life.
3. Don't feed the fish – it's unhealthy for the reef ecosystem.
4. If you must stand, stand on sand – corals are alive.
5. Boat responsibly – use moorings or anchor in sand only.
6. Support earth-friendly businesses; know before you go. Use a trash can, not the sand – keep our oceans and beaches litter free.
7. Keep your gear clean – avoid transporting marine pests.
8. Use eco-friendly products – “Remember, all drains lead to the ocean.” (Nemo)
9. Harvest only what you need for today – ensure fish and limu for your ohana's future.
10. Learn Hawai'i's rules and regulations – report violations to DLNR (643-DLNR).
Visit www.hawaii.gov/dlnr for additional information.





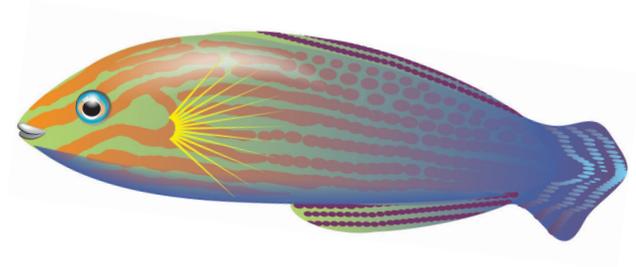
Ideas/information to include on my poster:

1. _____

2. _____

3. _____

4. _____



CULMINATING LESSON

A Coral Reef Story

Group Members:

Create A Coral Reef Story:

Step 1:

Look at the human impact drawings, and summarize learning/ideas from the other group members.

Step 2:

Brainstorm with your group members for a few minutes on some ideas for a coral reef story. Use these questions to get your creative juices flowing:

Who will be the characters?

Where in the reef do they live?

What do they eat?

How do they defend themselves?

What types of human impact might affect these characters?

Step 3:

Come to a decision as a group, and then fill in the rest of the worksheet.

- A.** Who are the main characters?
- B.** Outline with brief notes the beginning, middle, and end to your story on a separate sheet of paper. This list does not have to have complete sentences. (HOWEVER, someone in your group must write out the entire story once this worksheet is completed.)
- C.** Which 'props' will you need for your story? (stuffed animals, snorkel, rubbish, and others.)
- D.** How will each group member be involved in telling the story? List each person, and his/her responsibilities below.
(*Who will be the writer, director, narrator, props manager, actor(s), camera man, timer, and others?*)
- E.** Write out your complete story on a separate sheet of paper.
- F.** Plan your scenes and make a shooting schedule. Check with your teacher about the proper handling of video equipment.

Note: use similar steps to create a PSA. After filming is done, you will need to edit and revise your PSA, keeping it to about 1 minute. During editing you may add effects and music. Written statements can also be added.

CULMINATING LESSON Coral Reef Story

Assessment Checklist

X	Category	Your story must include:
	Main Characters	At least one coral and two reef animals.
	Coral Reef Habitats	Mention of the specific zone or habitat in the reef for the main characters.
	Coral	The structure and function of coral organisms.
	Coral Colony	At least one description of the behavior of a coral colony, and how it relates to coral structure and function.
	Adaptations of Reef Animal(s)	Description of at least two reef animals' use of its unique body shape or appendages, and how it is useful in its reef habitat.
	Feeding Styles of Reef Animal(s)	Description of at least two reef animals' eating style.
	Human Impact	At least one encounter with some type of human impact, such as over-fishing, marine debris, or careless recreation.
	Narration	Clear, loud spoken narration by at least one person in the group.
	Use of Mural as Visual Aid	Pointing to the reef, and possibly adding additional props to tell the story.
	Group Member Participation	ALL group members participating in the telling of the story.