

ROCKY SHORE ZONES: THE SPLASH ZONE

Topic

Zones, Adaptations

Duration

Two sessions

Vocabulary

adaptation
challenge
feature
splash zone
zone

STANDARDS

Practices

Analyzing and Interpreting
Data

Core Ideas

Adaptation

Crosscutting Concepts

Systems and System Models

OCEAN LITERACY PRINCIPLES

OLP 5

FOCUS QUESTION

What is the splash zone?

OVERVIEW

Note: Lessons 8, 10, 12, 14, and 16 are connected and can be taught consecutively or according to the unit schedule. Students recall what challenges rocky shore organisms encounter, as well as review the question, “What is an adaptation?” Students discover that the rocky shore has been divided into zones by marine biologists based on the average water and air exposure of each area. Students record information about the splash zone’s names, characteristics, common plant life, and common animal life. Students begin to construct a bulletin board diagram or individual rocky shore zone diagram by creating the splash zone using art supplies.

OBJECTIVES

Students will be able to:

- ★ Indicate that the rocky shore can be divided into zones
- ★ Identify the splash zone and its features
- ★ Recognize the challenges living organisms encounter in the splash zone and the different adaptations of organisms living in the splash zone
- ★ Create a splash zone using art supplies

MATERIALS NEEDED

If doing bulletin diagram activity:

- ★ Rocky Shore Zones Table (one per student, page 66)
- ★ Atlantic Ocean Rocky Shore Guide (one per student, pages 18–20)
- ★ Rocky Shore Zones Table Answer Key (for teacher reference, page 67)
- ★ Life at the Rocky Shore Fact Sheet (for teacher reference, page 11)
- ★ A large bulletin board or blank wall
- ★ White bulletin board art paper
- ★ White paper/index cards for each student
- ★ Coloring utensils for each student
- ★ Scissors for each student
- ★ Stapler (for teacher)





Teacher Tips

- ★ When creating the large classroom diagram of the rocky shore, secure a piece of twine or yarn to each side of the board or wall to use as a guide to draw straight lines to designate the zones.
- ★ While instructing students about the splash zone using the Rocky Shore Zones Table either project a copy of the table on the board or draw a table on a whiteboard to record information for all students to see.
- ★ Make copies of the Rocky Shore Zones Table Answer Key for students with special needs to use at their own desks to either copy or highlight.

MATERIALS NEEDED (CONTINUED)

If doing individual diagram activity:

- ★ Rocky Shore Zones Table (one per student, page 66)
- ★ Atlantic Ocean Rocky Shore Guide (one per student, pages 18–20)
- ★ My Rocky Shore Diagram (one per student, page 70)
- ★ Rocky Shore Zones Table Answer Key (for teacher reference, page 67)
- ★ Life at the Rocky Shore Fact Sheet (for teacher reference, page 11)
- ★ Coloring utensils for each student

TEACHER PREPARATION

1. Determine whether the class will create a large diagram of the rocky shore together or each student will create their own diagram of the rocky shore using the My Rocky Shore Diagram activity sheet.
2. For the large classroom diagram:
 - a. Reserve a large bulletin board or blank wall and cover it with white bulletin board art paper.
 - b. Draw an outline of a rocky shore gradually descending from the top of one side of the bulletin board/wall to the bottom of the other side of the bulletin board/wall (use My Rocky Shore Diagram as an example).
 - c. Measure out five equal spaces and divide the paper by drawing five sections using a black marker (use My Rocky Shore Diagram as an example).
 - d. Make copies of the Rocky Shore Zones Table and the Atlantic Ocean Rocky Shore Guide for each student.
 - e. Thoroughly review the Rocky Shore Zones Table Answer Key and Life at the Rocky Shore Fact Sheet.
 - f. Prep scissors, drawing utensils, and white paper/index cards for each student.
3. For the individual student diagram:
 - a. Make copies of My Rocky Shore Diagram, Rocky Shore Zones Table and Atlantic Ocean Rocky Shore Guide for each student.
 - b. Thoroughly review the Rocky Shore Zones Table Answer Key and Life at the Rocky Shore Fact Sheet.
 - c. Prep drawing utensils for each student.





Extension Suggestions

★ Have students participate in a research project by creating a classroom field guide during reading or writing sessions. Have each student research a particular rocky shore organism, and have them discover and record the following: habitat, body parts, movement, diet, predators, life cycle, protection, and other interesting facts. Use the Student Field Guide sheets (pages 68–69) for students to record or type their research. When finished, bind and laminate and bring along on a rocky shore field trip (if possible).



Books

- ★ *Oscar the Herring Gull* by Nancy M. Donovan
- ★ *A Field Guide to the Atlantic Seashore: From the Bay of Fundy to Cape Hatteras* (Peterson Field Guides) by Kenneth L. Gosner

PROCEDURE

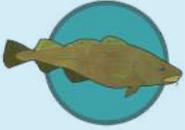
Part One

1. Ask students if they can recall why parts of the rocky shore are under water most or all of the time, and why other parts of the rocky shore are under water very little of the time. (Answer: the tides.)
2. Inform students that the tides create natural zones at the rocky shore.
3. Ask students how they would define the term “zone.”
4. Inform students that a zone can be an area of land that has particular features. Each zone of the rocky shore has particular features, including specific amounts of time they are exposed to air and water, specific living organisms, and specific challenges to an organism’s survival.
5. Inform students that they are going to be learning about the five zones of the rocky shore ecosystem, and today they are going to learn about the splash zone.
6. Provide each student with a copy of the Rocky Shore Zones Table.
7. Instruct students on the names, features, algae and animal life of the splash zone.
8. Emphasize the challenges to life in the splash zone, specifically citing the organisms’ adaptations that allow them to survive these challenges.

Part Two

9. Inform students that they are going to be creating a rocky shore diagram either as a class or individually.
10. If as a class:
 - a. Provide each student with the Atlantic Ocean Rocky Shore Guide.
 - b. Provide each student with white paper or index cards, scissors, and drawing utensils.
 - c. Divide students into groups and designate each group specific organisms to draw and color for the splash zone.
 - d. When finished, have students cut out their organisms, and the teacher will attach them to the bulletin board or wall diagram.
11. If individually:
 - a. Provide each student with the Atlantic Ocean Rocky Shore Guide and My Rocky Shore Diagram.
 - b. Inform students that they are going to draw the specific organisms of the splash zone onto their My Rocky Shore Diagram.





Websites

- ★ Watch “The Wild Classroom” video titled the “Intertidal Biome” on YouTube or their website.
- ★ Go to “All Things Animal TV” YouTube Channel and check out their video on seagulls.



Scientist Notebook

- ★ Students can record the definition of zones. Students can record or paste their Rocky Shore Zones Table facts. Students can record the challenges and adaptations of organisms found at the splash zone.

WRAP-UP

- ★ Have students store their Rocky Shore Zones Table, Atlantic Ocean Rocky Shore Guide, and My Rocky Shore Diagram (if applicable) in a secure place to refer to in upcoming lessons.
- ★ Ask students to define the term “zone.”
- ★ Have students recall the features of the splash zone and its living organisms.
- ★ Have students recall the specific adaptations of splash zone organisms.



ROCKY SHORE ZONES TABLE

Name: _____

Date: _____

Name of Rocky Shore Zone: _____

Zone Name	
Zone Features	
Zone Algae	
Zone Animals	



ROCKY SHORE ZONES TABLE

Answer Key

Name of Rocky Shore Zone: Splash zone

Zone Name	
	Splash zone
Zone Features	
	This zone is closest to the land and is always exposed to air except for rain or waves from major storms. It has few algae or animals because there is little shelter or food sources, as well as predatory birds.
Zone Algae	
	Lichen, Cyanobacteria
Zone Animals	
	Seashore Springtail, Rough Periwinkle, Herring Gull, Great Black-backed Gull, Spotted Sandpiper



STUDENT FIELD GUIDE

Organism: _____

Main Idea	Supporting Details
Habitat	
Body Parts	
Color	
Life Cycle	
Diet	
Predators	
How They Move	
Protection	
Interesting Facts	



STUDENT FIELD GUIDE

Organism: _____

Illustration by: _____



MY ROCKY SHORE DIAGRAM

Name: _____

