

SUGGESTED REFERENCES:

Bendick, Jeanne and Todd Telander (illustrator)
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Cousteau, Jacques
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Rinard, Judith
ALONG A ROCKY SHORE (KIDS WANT TO
KNOW SERIES)
National Geographic Society, 1997

WEBSITES:

Hardy's Internet Guide to Marine Gastropods
http://www.gastropods.com/shell_pages/

Life on the Rocky Shore
<http://library.thinkquest.org/J001418/>

By the Sea (and its Rocky Shores Web page)
<http://www.gfc.dfo.ca/habitat/index.html>
<http://www.gfc.dfo.ca/habitat/aifm7.htm>

The Rocky Shore
http://www.botany.uwc.ac.za/Envfacts/facts/rock_y_shores.htm

Rocky Shores
http://www.env.qld.gov.au/environment/coast/ha_bitats/rs.html

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TEACHER'S GUIDE

VOLUME 31 ISSUE 7/8

ECOLOGY: LIFE AT THE EDGE OF THE SEA



A rocky shore provides a unique environment to learn about the abilities of plants and animals to survive hostile conditions. Photo courtesy of the National Oceanic and Atmospheric Administration.

SYNOPSIS:

Not all the world's coastlines are sandy, friendly places. A type of coastline called the rocky shore is an inhospitable place that is pounded by waves, scorched by the sun, chilled by the tides, and battered by fierce winds.

This issue of SCIENCE SCREEN REPORT explores the tough life on the rocky shore and vividly illustrates the amazingly diverse plants and marine animals that survive here. Their uniqueness draws scientists to conduct research to learn more about the ability of plants and animals to survive hostile conditions. They also study the rocky shore for new chemicals to be used in medicines and in many products we use today, as well as to study the effects of climate change.

CURRICULUM UNITS:

Climatology
Geology

Marine biology
Oceanography

Zoology

RUNNING TIME: 24:00

BACKGROUND INFORMATION AND PROGRAM OVERVIEW:

The rocky shore is continually changed by the actions of three natural phenomena: wind, water, and tides. The program demonstrates how tides form a special sub-habitat on the rocky shore called tide pools, or rock pools. These tide pools provide homes for plants and animals, like starfish, anemones, and nudibranchs. The program also illustrates how other sea creatures, such as snails, kites, sea hares, sea cucumbers, the Portuguese man-of-war, and the rock octopus, survive on the rocky shore.

Students see that the conditions on the rocky shore can change at a moment's notice. For the marine life, the struggle for food and protection never stops. Neither does the constant action of the waves, and each wave brings all the nutrients necessary to support life on the rocky shore.

Students learn that scientists study many of the animals that live on the rocky shore. These studies could one day produce new cures for cancer and a better understanding of how human cells respond to chemicals. Scientists also study the effects of waves on marine ecology and the effects of climate change on marine life everywhere.

ISSUES AND CRITICAL THINKING:

1. After showing the program, ask the class the following:
 - a) What are the three natural phenomena that affect the rocky shore?
 - b) What are some ways in which sea creatures that inhabit the rocky shore defend themselves?
 - c) Name the sub-habitat on the rocky shore that is formed when a boulder grinds a hollow in the rock.
 - d) Name some sea creatures that cooperate with one another for their mutual safety and survival.
 - e) Explain why chitin is of interest to scientists.
2. If you live near an ocean, visit a rocky shore. Ask students to make a list of all the sea creatures and plants they can identify, and note if they occur in particular parts of the shore.
3. If you do not live near the ocean, visit a nearby aquarium. Ask students to make a list of all the sea creatures they see whose natural habitat is a rocky shore.

4. Ask students to pick one of the sea creatures shown in the program and to write a short report, with drawings, about it.
5. Ask students to use common household supplies or crafts materials to build a model Portuguese man-of-war. Tell students to label the four polyps that comprise the creature.
6. As part of a class discussion, make two lists: one that describes the attributes of a sandy beach, the other that describes the attributes of a rocky shore. Then discuss the similarities and differences of the two types of shorelines.
7. As a class project, ask students to check the tide tables published in the newspaper every day, and to keep track of the times of the tides. Then, after a month of record keeping, ask students to draw charts, graphs, and other visual aids for a presentation about their findings.
8. For classrooms with access to the Internet, ask students to visit a virtual tide pool at http://students.itec.sfsu.edu/itec815_s99/gfrye/index.html. The Web site also contains teacher resources.

VOCABULARY:

Anemones	Gobbies
Chitin	Mollusk
Echinoderms	Nudibranch
Galeolaria	Operculum

CAREER POSSIBILITIES:

Geologist	Meteorologist
Marine biologist	Oceanographer