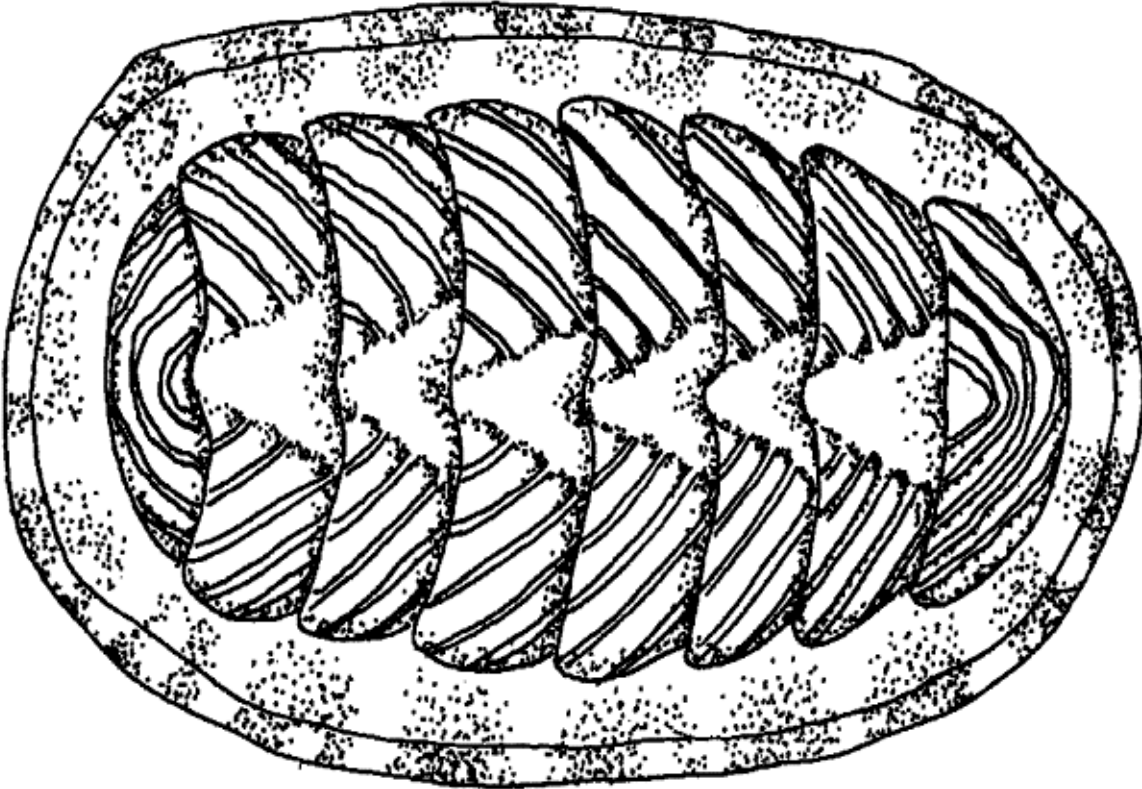

WHO AM I?



FOR THE TEACHER

Discipline

Biological Science

Themes

Diversity, Systems and Interactions

Key Concept

Animals that live at the rocky seashore have special traits that help us to identify them. They also have body designs, ways they act, and relationships with other animals that help them to survive.

Synopsis

Students work in small groups to teach each other about some important traits of tidepool creatures. They participate in a "game show" and a 20-questions type of guessing game to check for understanding. We recommend doing this activity after students have been introduced to some rocky seashore animals, as in the activities Seashore Charades or Seashore Bingo.

Science Process Skills

observing, communicating, comparing, organizing

Social Skills

share ideas and information, check for understanding and agreement, encouraging

Vocabulary

adaptation, barnacle, chiton, exoskeleton, habitat, hermit crab, mollusk, mussel, sea anemone, sea star, tidepool

MATERIALS

INTO the activities

For each small group

- 5-6 pictures of rocky seashore animals cut from magazines and calendars or from the Seashore Bingo Cards (see the Seashore Bingo activity);
- or use some of the following: books about the rocky seashore (*Tidepools* is a good one, see the Literature Connections in the Interdisciplinary section), videotapes depicting rocky seashore creatures (see the Marine Resources section for videos on the rocky seashore), posters, post cards, puppets, etc.

For the class

- colored markers
- 2-3 sheets butcher or chart paper

THROUGH the activities

- Key Concepts written in large letters on butcher or chart paper

For Getting the Facts and Tidepool Game Show activities

For the class

- glue
- one package 3" x 5" index cards
- one copy each of six Tidepool Creature Fact Cards sets. Assemble the card sets as follows: Duplicate the name and picture of each one of these animals (barnacle, sea star, hermit crab, mussel, chiton, sea anemone) six times. Paste each one on one side of a 3" x 5" index card and put one of the six facts about the animal on the other side. This will make six barnacle cards, six sea star cards, and so forth.

For each group of six students

- six pieces of paper, each with a different number written on it from 1 through 6

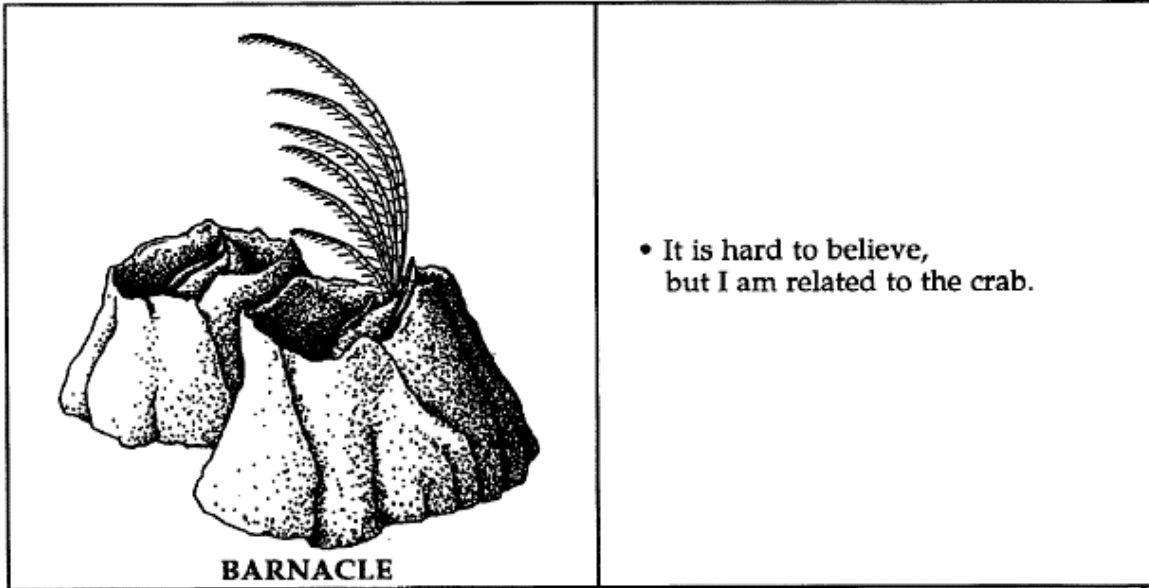
-
- one set of six Tidepool Creature Fact Cards about one animal as assembled above

Tidepool Creature Fact Cards

— Sample —

FRONT

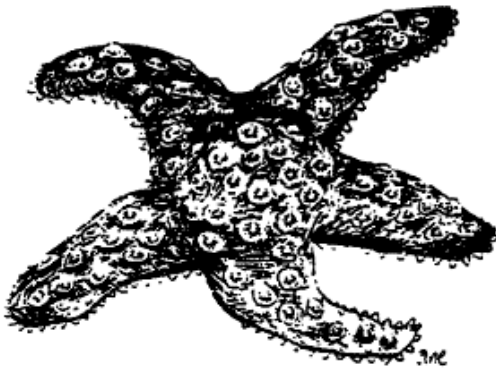
BACK





BARNACLE

- It is hard to believe, but I am related to the crab.
- I look like a little volcano.
- I glue my head to a rock.
- I have feathery legs.
- I kick food into my mouth with my legs.
- I filter food out of the water.



SEA STAR

- I have five arms.
- My skin is rough.
- I have hundreds of tiny tube feet.
- I love to eat mussels.
- My stomach comes out of my mouth when I eat.
- I am orange, purple, brown or red.



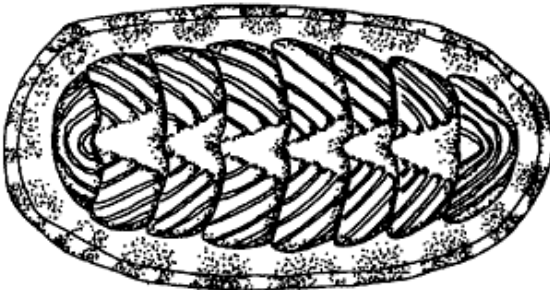
HERMIT CRAB

- I live inside empty snail shells.
- I fight a lot with my buddies.
- I am a scavenger. I eat dead things.
- Each time I grow, I have to move to a new house.
- I have eight legs.
- I have antennae to help look for food.



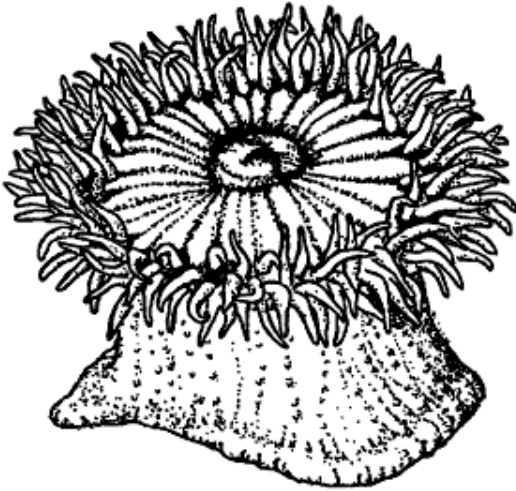
MUSSEL

- I have two shells.
- I attach to a rock with sticky threads.
- My name sounds **very strong**, and I am strong.
- I filter plankton from the water.
- I have blue or black shells.
- Sea stars love to eat me.



CHITON

- I have eight overlapping shells.
- I scrape algae off rocks with my tongue.
- I move very slowly.
- I have one giant foot.
- I am related to snails.
- My tongue is called a radula.



SEA ANEMONE

- I am an animal that looks like a plant.
- I close up tight at low tide.
- I have tentacles all around my mouth.
- I grab and sting my food with my tentacles.
- I live stuck to a rock.
- I eat small fish, crabs, and shrimp.

BEYOND the activities

For the class

- various colors construction paper (1 sheet per student)
- colored library tape

INTRODUCTION

Rocky seashore plants and animals are a hardy bunch. Whether they are on exposed rocks, or within tidepools, each has special adaptations for living there and interacting with the other plants and animals that share their home.

Barnacles live their entire adult life inside a volcano-shaped shell with their head glued to a rock. They have feathery legs that grab plankton from the water at high tide. Spiny-skinned **sea stars** have hundreds of little “tube feet” on their underside that are useful not only for hanging on tightly to a rock, but also for walking and for prying open their favorite food, the mussel. Most sea stars have five arms or “rays,” but some can have 20. **Mussels**, which are mollusks, have soft bodies, protected by two shells, that grow larger as the animal grows. The adult mussel lives in huge groups called “beds” and attach themselves to the rocks using strong filaments called byssal threads. **Chitons**, another mollusk, have eight butterfly-shaped shells covering their large muscular foot. Chitons make a living by scraping algae off rocks with their hard, rasplike tongue, called a radula. The hard shells of the one-shelled mollusks, the snails, are important homes to another common tidepool resident, the hermit crab. **Hermit crabs** are related to other crabs, shrimp, and even barnacles. Unlike its relatives with hard exoskeletons, hermit crabs have soft bodies, so they live in the shells of dead snails. As they outgrow their shells, they often fight with each other over new shells. They are scavengers, keeping things tidy by eating the remains of dead organisms. The **sea anemone** is the stationary, upside down, jellyfish of the tidepools. It lives attached to a rock, waiting for the wash of the tides and waves to bring it a tasty lunch. Equipped with flower-like, stinging tentacles, it quickly pulls an unsuspecting fish, shrimp, or crab that gets too close into its mouth.

While getting to know individuals that make a home in this special place, we can gain an understanding of how they fit into a rocky seashore ecosystem. Investigating the ecological relationships between the plants and animals challenges us to look closely at this delicate and fascinating world where the land and ocean meet.

INTO THE ACTIVITIES

My Buddy Says

See the Teaching Strategies section for how to present this activity.

Be sure to include a mussel, chiton, sea anemone, barnacle, hermit crab, and sea star in the pictures you use.

- Name as many kinds of tidepool animals as you can.
- What are some of the problems that animals at the rocky seashore have to deal with?
- What does a barnacle look like?
- Tell your buddy something you know about sea stars.
- Name three of the body parts of a hermit crab.

-
- What does a mussel do at high tide? at low tide?
 - What does a chiton look like?
 - What words describe a sea anemone?

Brainstorm and Clustering

See the Teaching Strategies section for how to present this activity.

Begin with “what we know about tidepool animals.” Have the students help you cluster or group the animals according to some criteria agreed upon by the class. The animals could be clustered by how they are related: **crustaceans** (crabs, barnacles, lobsters, shrimp, rock louse, etc.), **mollusks** (snails, abalone, limpets, sea slugs or nudibranchs, clams, mussels, chitons, etc.), **echinoderms** (sea stars, sea urchins, sand dollars, sea cucumbers), **cnidarians** (sea anemones and jellyfish), **fish**, or **birds**. They could also be grouped by color, what they eat, by size, etc.

Have students help you to create a simple picture or icon that represents each of the groupings.

Animal Corners

See the Teaching Strategies section for how to present this activity.

Use four or all six of the animals focused on in this activity: barnacle, sea star, hermit crab, mussel, chiton, and sea anemone.

Everything's Connected

1. Have the students brainstorm all the things they need to survive. (*food, water, shelter, and a home*). Tell the students that they and every other living thing no matter where it lives also needs these things. All of these living and non-living things within a large area like a rocky seashore that animals need to survive are part of what is called the **ecosystem**.
2. Now have the students look at the cluster chart of animals from the rocky seashore. Ask the students to imagine they are one of those animals living at the rocky seashore. What kinds of living or non-living things could they add to their animal chart that would be important for animals to have to successfully live in their ecosystem? (*water, waves, wind, sand, rocks, sun, plants, etc.*) List the new words on a separate chart placed next to the animal cluster chart. Have the students suggest an icon to represent each suggestion and draw it next to the word.
3. Challenge your students to think of some ways that different kinds of animals might be connected to one another or to one of the other elements they just added. (*Sea stars eat mussels, mussels get their food out of the water, hermit crabs use snail shells for protection, sea anemones are attached to rocks in the tidepools, etc.*) Have students come up and use colored markers on the chart to circle or draw a line between the connections they've made.

THROUGH THE ACTIVITIES

Getting The Facts

1. Break your students up into groups of six students each. Try to pair confident readers with those that can use some extra help. Assign each group a different animal that corresponds to a set of Fact Cards.
2. Pass out the appropriate set of the Tidepool Creature Fact Cards to each group of students and have them divide their cards up among themselves so that each student has one.
3. Each student should learn the information on their card. If necessary, adults or student helpers can help students read and understand them.
4. When everyone is sure about their own fact, give the groups 10-15 minutes to teach their fact to the rest of their group. Have children check for understanding by taking turns repeating all the facts that the others in the group have shared.

The Tidepool Game Show

1. Have students stop sharing information and pass in their cards.
2. Give each member of each group one numbered card (1 to 6), so that every student in the class has one. (While this looks like a random process, it actually allows you to have some control over the questions that you ask students. If you have students with special needs you can help to ensure their success during the game show by noting their number and making sure that you ask them a question that you think they will be able to answer.)
3. Make a chart on the blackboard with six columns. Label the columns with the names of the animals that each team learned about. As answers are given, write down each team's accumulated points.
4. Pose a question to one group (use the suggested questions that follow or prepare others ahead of time) and ask the group to put their heads together to answer the question.
5. After allowing 1–2 minutes for a group discussion, the teacher repeats the question and calls out a number. The student having that number stands and gives the answer the group has agreed upon. Try to call on girls and boys equally.
6. Remind the students that you will be giving points for social skills as well as points for the correct answers.

SCORING

- a. If the student called on can answer the question completely, that group gets five points.
- b. If the student gives a partial (or incorrect) answer, pick another number and call on another member of the same team. If the second student can complete the answer, the group still gets five points.
- c. If the second student also gives a partial (or incorrect) answer, give the whole team one minute to discuss it again. Choose a third number and give that person a chance to answer. If that answer is complete, give the team three points.
- d. If the team cannot complete the answer in three tries, ask for volunteers from another team to answer. If the volunteer gives a complete answer, that team gets one bonus point.
- e. Repeat steps a–d with the next team and a new question. Continue until each team has had several turns.

f. Remind students that they **ALL** need to listen to **ALL** of the answers because they will need the information to play the next part of the game.

Suggested questions and possible answers

You might want to have someone record the correct answers on the board to be used later as a review before playing “Who Am I?” which follows.

- **BARNACLE** group

How do barnacles eat?

(kick food into their mouth, filter plankton out of the water, use legs to grab tiny plants and animals)

What do barnacles look like?

(little volcanoes, feathery legs, stuck to rocks)

- **SEA STAR** group

How and what do sea stars eat?

(mussels, snails, other shellfish; to eat it pries open shells, inserts stomach into shell of prey)

Describe a sea star.

(five or more arms, rough skin, tube feet, orange, purple, brown or red)

- **HERMIT CRAB** group

What does a hermit crab look like?

(eight legs, soft rear, wears snail shell on back, antennae)

How does a hermit crab depend on others?

(for food, shells from snails, fights for shells with other hermit crabs)

- **MUSSEL** group

Describe how a mussel looks.

(two shells, black or dark blue, stuck to rock with threads)

What does a mussel eat and what eats it?

(eats plankton, eaten by sea stars)

- **CHITON** group

How does a chiton eat?

(scrapes algae off rocks with its radula)

Describe a chiton.

(eight overlapping shells, one muscular foot)

- **SEA ANEMONE** group

How does a sea anemone get its food?

(water/waves bring food, stinging cells, sticky tentacles grab food and pull into its mouth)

What do sea anemones eat?

(fish, crabs, shrimp, plankton, mussels)

Who Am I?

This is the final round of the “Tidepool Game Show.” Using the following questions, plus your own if you wish, ask students (in a 20-questions style) about animals featured in the game, as well as some they may have encountered elsewhere in their rocky seashore study. When a student thinks she has a correct answer, she raises her hand. One student can be called upon to give the answer, but each student keeps track of their own points if they know the correct answer. Everyone is a winner!

Suggested Questions

- You have two arms and two feet, but I have five arms and hundreds of tube feet. Who am I? (*sea star*)
- I have big claws that I use to hunt for food. Who am I? (*hermit crab, crab, lobster*)
- I scrape algae off rocks with my tongue. Who am I? (*chiton, limpet, snail*)
- My shell doesn't cover my whole body, so I wear an empty snail shell. Who am I? (*hermit crab*)
- My head is glued to a rock. I stick my feathery legs outside my shell to feed. Who am I? (*barnacle*)
- I stick my stomach into a mussel shell to eat. Who am I? (*sea star*)
- At low tide I pull my legs in and close my shell up tight. Who am I? (*barnacle*)
- I have eight shells and one strong foot. Who am I? (*chiton*)
- I look like a beautiful flower, but watch out! Who am I? (*sea anemone*)
- My name makes me sound very strong, and I am! Who am I? (*mussel*)

Extra Hard

- I have a trap door that I can shut tight against predators. Who am I? (*snail or barnacle*)
- My purple spines make me look like a pin cushion. Who am I? (*sea urchin*)
- I can change color in the wink of an eye. Who am I? (*octopus*)

Key Concept

Hold up the key concept and have one or two students read it aloud. Post it near other work from this activity.

BEYOND THE ACTIVITIES

- Have students make up some of their own “Who Am I?” questions to share with the class.
- Go to the library to learn more about each of the animals featured in the Tidepool Creature Fact Cards. Have students choose one of them to investigate more closely. Have them make a sketch of their animal, color it appropriately, and label its parts.
- Have students illustrate the facts they learned on a square piece of construction paper. Tape pieces together from the back to make a class quilt. Use colored library tape as seams on the front for a finished look.
- Read the story *A House For Hermit Crab* by Eric Carle (see Literature Connections in the Interdisciplinary section) Have students talk about how a hermit crab depends on other animals at the rocky seashore.
- Have students use the information they have learned about a particular animal to write their own fictional story about it.
- Visit the rocky seashore or an aquarium to observe the different kinds of animals that live there. How many of the animals learned about in this game can you find? Of the animals found, how many of their adaptations can you observe?
- Read *Animals Should Definitely Not Wear Clothing* by Judith Barrett (see Literature Connections in the Interdisciplinary section). Have students think of situations involving animals in the wrong kind of habitat. Have students draw and label pictures of their ideas.