OCEAN SCIENCES SEQUENCE FOR GRADES 3–5

Teacher's Guide

Unit 2:
What Is Life Like in the Ocean?

Great Explorations in Math and Science (GEMS®)

Lawrence Hall of Science
University of California at Berkeley

National Oceanic and Atmospheric Administration

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UNIT 2: WHAT IS LIFE LIKE IN THE OCEAN?

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UNIT OVERVIEW

In this unit, students learn about the diversity of habitats and organisms in the ocean. Through videos, photographs, and readings, students investigate a range of ocean habitats, including coral reefs, arctic waters, and rocky shores. They investigate differences in conditions between habitats and discover that some ocean habitats support more life than others. Through videos, photographs, readings, organism models, and data, students investigate ocean organisms, including plankton. Students learn what an adaptation is and about adaptations that ocean organisms have that help them survive in specific ocean habitats. Particular focus is placed on adaptations related to movement and eating. Students create ocean food webs and build an understanding of how different organisms within a habitat can be connected. Students learn how habitats can be connected by organisms that use different habitats at different stages in their life cycles. Throughout the unit, students learn about the practices of science, with a focus on scientific explanations and the role of evidence. They also learn about the role of technology in providing new evidence.

SESSION SUMMARIES

2.1 Introducing Ocean Organisms
Students complete a First Ideas writing activity, then view a selection of photographs of ocean organisms. The class discusses what ocean organisms need to survive.

2.2 Comparing Habitats
The class views the first two habitat DVD clips. Next, students compare nine types of ocean habitats and look for evidence about which habitats might support more organisms.

2.3 Using Evidence to Protect Habitats
The class views two more habitat DVD clips. Students then consider a variety of evidence in order to choose one area in the ocean for designation as a protected area.

2.4 Observing Plankton
Students view a DVD clip of plankton, distinguish zooplankton from phytoplankton, and match the young plankton form of animals with their nonplankton adult forms.

2.5 Adaptations for Movement
Students examine photographs and plastic models of ocean animals in order to investigate possible adaptations related to movement.

2.6 Adaptations for Feeding
Students examine photographs and plastic models of ocean animals and information about food sources in order to investigate possible adaptations related to feeding.

2.7 Open Ocean Food Web
The class views a DVD clip of the open ocean habitat, then works together to create a food web for this habitat.

2.8 Estuary Food Web
The class views a DVD clip of the temperate estuary habitat, then works together to create a food web for this habitat.

2.9 Traveling Young
Students chart the paths that eight ocean organisms travel as they grow from young to adult.

2.10 Habitat Connections
Using photographs and short readings, students research the different habitats that a range of ocean organisms use at different points in their lives.

2.11 Tools for Investigating Ocean Life
Each student reads one of three short readings about how a new technology has helped scientists answer a question about ocean organisms. Students write a Revised Ideas paragraph showing what they have learned in the unit.

Session 2.5

Adaptations for Movement

In this session, students are introduced to the concept of adaptation, and they investigate organism adaptations related to movement. The teacher begins by giving examples of adaptations involving body parts and behaviors. The class works together to analyze possible adaptations for movement in two organisms. Then, based on photographs and plastic models placed around the room, pairs of students do similar investigations for a range of organisms. As a class and then in small groups, students discuss the relationship between habitats and adaptations. The key concepts for this session are:

- Different ocean organisms have different adaptations for moving through the ocean.
- An organism's adaptations are related to the habitat in which the organism lives.

Students also learn:

- Adaptations can be body parts or behaviors.
- Without a lot of evidence, it is difficult to be sure if a particular body part or behavior is an adaptation.
- An adaptation for moving that functions in one habitat may not function in another.

Adaptations for Movement	Estimated Time
Introducing Adaptations	15 minutes
Researching Organisms' Adaptations	30 minutes
Discussing Adaptations and Habitats	15 minutes
Total	**60 minutes**

UNIT GOALS

SCIENCE CONTENT
- Habitats
- Adaptations
- Food webs

SCIENCE INQUIRY
- Making explanations from evidence
- Researching using secondhand sources

NATURE OF SCIENCE
- Scientific explanations are based on evidence
- Technology plays a role in gathering new evidence

SCIENCE LANGUAGE
- Using science vocabulary
- Having evidence-based discussions

Ocean Literacy Scope and Sequence Correlations for Session 2.5
Principle 1.B.8 Organisms travel on currents. (Also Principles 5.B, 5.B.1, 5.B.2, 5.B.3, and 5.B.6)

TEACHER CONSIDERATIONS

WHAT YOU NEED

For the class:

- ❑ overhead projector or computer and LCD projector*
- ❑ transparencies (#2–7 and #2–8)
- ❑ 16 Adaptation Organism Sheets (with red border from Session 2.1)
- ❑ 16 plastic model organisms
- ❑ sentence strips
- ❑ marker
- ❑ masking tape
- ❑ (optional) Copymaster Packet

For each group of four students:

- ❑ 1 set of 9 Habitat Cards (from Session 2.3)

For each student:

- ❑ Investigation Notebook (pages 20–21, optional: page 14)

*provided by the teacher

GETTING READY

1. **Arrange for the appropriate projector format.** Use a computer with a large-screen monitor, an LCD projector, or an overhead projector to display images to the class.
2. **Arrange Adaptation Organism Sheets and plastic models around the room.** Place each of the 16 Adaptation Organism Sheets together with its associated plastic model around the room. (These materials will also be used in Session 2.6.) Space these materials around the room so students can move easily from one organism to another with as little crowding as possible. **Note:** You'll need to have the plastic models of the Great White Shark and the Moray Eel at the front of the class at the beginning of the session.
3. **Write out key concepts.** Write out the following key concepts for this activity in large, bold letters on sentence strips and underline the words *organisms*, *adaptations*, and *habitat*:

   _ Different ocean organisms have different adaptations for moving through the ocean.

   _ An organism's adaptations are related to the habitat in which the organism lives.
4. **(Optional) Make transparencies.** If you will be projecting transparencies using an overhead projector rather than projecting from a computer, make a transparency of the following page from the Copymaster Packet:

   _ Movement Adaptations (Transparencies 2–7 and 2–8)

LANGUAGE OF SCIENCE

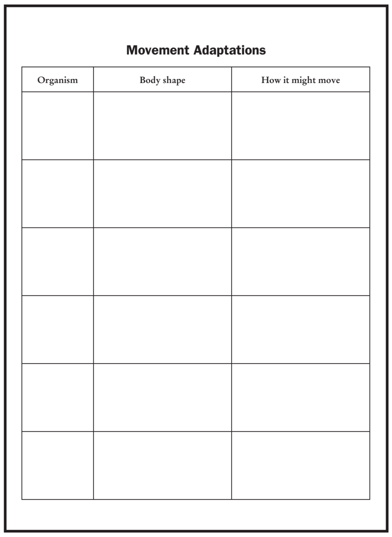
VOCABULARY

adaptation
evidence
habitat
model
organism
plankton
predator
predict
prey

LANGUAGE OF ARGUMENTATION

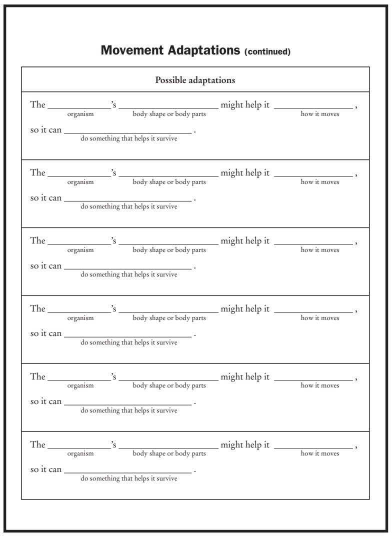
What do you think?
Why do you think that?
What is your evidence?
Do you agree? Why?
Do you disagree? Why?
How sure are we?
How could we be more sure?

Science Standards for Session 2.5
Inquiry: research using secondhand sources, make observations, make inferences
Science Concepts: adaptations, needs of organisms


Movement Adaptations

Organism	Body shape	How it might move

Transparency 2–7 and Investigation Notebook, p. 20


Movement Adaptations (continued)

Possible adaptations

The ______ (organism)'s ______ (body shape or body parts) might help it ______ (how it moves), so it can ______ (do something that helps it survive).

The ______ (organism)'s ______ (body shape or body parts) might help it ______ (how it moves), so it can ______ (do something that helps it survive).

The ______ (organism)'s ______ (body shape or body parts) might help it ______ (how it moves), so it can ______ (do something that helps it survive).

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The ______ (organism)'s ______ (body shape or body parts) might help it ______ (how it moves), so it can ______ (do something that helps it survive).

Transparency 2–8 and Investigation Notebook, p. 21

Introducing Adaptations

1. **Introduce the word *adaptation*.** Write the word "adaptation" on the board. Tell students that adaptation means a body part or behavior that helps an organism survive. During this session and the next, students will investigate the adaptations of ocean organisms.

2. **Give body part examples.** Say, **"For example, the shell of a clam may be an adaptation. The shell protects the clam from animals that could eat the clam. If the shell helps the clam survive, then the shell is probably an adaptation."** Hold up the plastic model of the Great White Shark and ask, **"What's one body part this shark has that could help it survive?"** Take a few responses. If no one mentions it, point out the shark's teeth. Tell students that the shark's sharp teeth might help it catch the animals it needs to eat in order to survive. If the shark's sharp teeth help it to survive, then the teeth may be an adaptation.

3. **Give examples of behaviors.** Say, **"What an organism DOES can also be an adaptation. For example, clams dig down into the sand or mud, which hides them from other animals that would eat the clams. If digging down into the sand or mud helps the clam survive, then that behavior is probably an adaptation."** Hold up the plastic model of the shark and ask students if they can think of something the shark might DO that could help it survive. [Swim fast, bite the animals it eats.]

4. **Focus on *movement* and survival.** Tell students that now the class will focus on adaptations related to how animals move. Ask, **"How could moving help an animal survive?"** [It moves toward the food the it eats, it moves away from predators, it moves with the seasons to stay at the right temperature.] Make sure the ideas about moving toward food and away from predators are mentioned.

Introduce movement adaptations activity. In a moment, students will observe photographs and plastic models of a few ocean organisms. For each organism, students will write about possible adaptations related to a movement that the organisms have. First, the class will discuss a couple of examples together. Distribute the Investigation Notebooks and have students turn to pages 20–21, Movement Adaptations (Pages 1–2). They will follow along as you project the transparencies that match their notebook pages.

TEACHER CONSIDERATIONS

DAILY WRITTEN REFLECTION

If somebody said that all plankton are the same, would you agree or disagree? What is your evidence? This prompt, on page 14 of the Investigation Notebook, gives students a chance to review what they learned in Session 2.4 and to practice using evidence to answer a question. Students may point out differences in shapes of plankton; between phytoplankton and zooplankton; or the fact that some, but not all, are plankton when young but develop into nonplankton adult animals.

SCIENCE NOTES

About Adaptations. An adaptation is an inherited characteristic in a species that helps the species survive and reproduce. An adaptation may be a structure, such as teeth or a fin, or an internal process, such as photosynthesis. Inherited behaviors that aid in survival, such as the migration behaviors of many birds, are also adaptations.

Alternative Conceptions About Adaptations. Many people misunderstand the concept of adaptation, thinking that an individual organism either decides to adapt, or that it "learns" to adapt over the course of its lifetime. In fact, adaptations are the result of evolution in a species—over many generations—not in an individual organism. Certain genetic changes result in characteristics that enable organisms to survive and reproduce and, thus, to pass on those genetic changes to future generations. Those genetic changes eventually become that species' adaptations. The everyday use of the word *adapt* may actually promote misconceptions. We often say that a person has adapted to a situation, such as a new job or a new sibling. This connotation can be problematic for students when they begin to learn about the adaptations that organisms have in order to survive in their habitats. That's why it's important to emphasize that when we discuss the adaptations of particular species, we are referring to the adaptations of the *group* of organisms, not just the individual organism. For more on this, see the Evolution 101 website of UC Berkeley's Museum of Paleontology (http://evolution.berkeley.edu/evosite/evo101/IIIE5Adaptation.shtml).

Alternative Conception—Behaviors Often Not Seen as Adaptations. Many people think of adaptations only as body parts. However, a behavior can also be an adaptation. To be an adaptation, a behavior must help the members of the species survive or reproduce. It must also be coded in the organism's genes and not be a learned behavior, although this distinction is not developed in this unit. The main goal here is to expose students to the idea that some behaviors, as well as some body parts, can be adaptations. At the same time, it's important to remember that not all behaviors are adaptations, and that those that are adaptations apply to the species as a whole, not to a learned behavior of an individual organism.

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How sure are we?
How could we be more sure?

5. **Demonstrate with shark example.** Tell students that the class will first discuss the great white shark. Project Transparency 2–7, Movement Adaptations (Page 1), and point out the first column: "Organism." On the transparency, write "Great White Shark" in the first box of this column.

   a. **Body shape or body part.** Point out the heading of the second column: "Body shape." Hold up the plastic shark and ask students to describe the shark's body shape. [Long body, pointy in the front with wide fins.] Summarize students' ideas in the first box of this column on the transparency.
   b. **How it might move.** Ask, **"Based on what we know about the shark's body shape, how might it move?"** [Swim.] Elicit more details by asking, **"Do you think that with this body shape, the shark swims fast or slow?"** [Fast.] Write "swim fast" in the box under the "How it might move" column. Point out that you don't have enough evidence to be SURE that sharks move this way. Ask how you could be more sure. [Observe a video of a shark, observe real sharks.]
   c. **Possible adaptations.** Project Transparency 2–8, Movement Adaptations (second page). Point out that this is the facing page in students' notebooks, and it continues the table from the first page of Movement Adaptations. The column on this page is "Possible adaptations." Emphasize that the word *possible* is important because it's very difficult, even for scientists, to be completely certain about what is and is not an adaptation. It takes a lot of evidence to be sure about what helps an organism survive. Point out the sentence starter in this column. In the "Possible adaptations" column on the transparency, fill in the blank spaces so the finished sentences reads: "The shark's long, pointy body might help it swim fast so it can catch other animals to eat."

6. **Class completes eel example.** Tell students that you will do one more example as a class. Hold up the plastic model of the Moray Eel and project Transparency 2–7, Movement Adaptations (Page 1), again.

   a. **Name.** Write "Moray Eel" in the first box of the second row on the transparency.
   b. **Body shape.** Have students describe the eel's body shape. Summarize their ideas on the transparency. [Long, thin, bendy.]
   c. **How it might move.** Have students suggest ideas about how the eel might move and summarize their ideas on the transparency. [Slither, weave back and forth, slip between rocks.]
   d. **Possible adaptations.** Project Transparency 2–8, Movement Adaptations (Page 2), again and guide a volunteer to create a sentence about the eel using the sentence starter. Complete the sentence starter on the transparency.

TEACHER CONSIDERATIONS

SCIENCE NOTES

About Animal Adaptations and Movement. Students will probably identify many adaptations related to movement in marine organisms—including fins, flippers, and flukes—which help the organisms swim. At first, students may not point out that variations in body shape and size, as well as fin shape, also have a huge impact on how fast organisms may move and where they are likely to be most adapted to live. There are many marine organisms that barely move at all or move so slowly that, at first glance, one may wonder how they survive. Some animals have coloring that provides camouflage, an adaptation for hiding from potential predators and/or prey. This adaptation is seen in many organisms that do not move much, that move slowly, or that jump out at their prey at the last moment, such as halibut. If you're not sure whether a characteristic your students have named is actually an adaptation for movement that helps the animal survive, use the opportunity to model the idea that you probably need more information to figure out how a certain body structure or behavior may help the organism to survive in its habitat. Ask students to suggest ways that scientists might get more information about an organism so they can be more certain about the purpose of certain characteristics. (Read about the animal in a book, observe the animal in the wild, etc.)

ENGLISH LANGUAGE LEARNERS

Cognates. Cognates are words that have similar spellings and/or pronunciations and similar meanings across two or more languages. Many science words are English–Spanish cognates because the words share a common Latin origin. When Spanish-speaking students recognize words as cognates, they can access unfamiliar English words and better understand what they read. If your class has many English language learners whose native language is Spanish, review the following cognates with students: *adaptation/adaptación*, *evidence/evidencia*, *move/mover*, *survive/sobrevivir*, *habitat/hábitat*, and *possible/posible*. Have students practice forming sentences using these words in English and in Spanish.

PROVIDING MORE EXPERIENCE

Reinforce: Completing More Movement Adaptations as a Class. To help students understand how to identify an organism's body shape, how it might move, and how this may be a possible adaptation, complete the process with several more organisms. Or, you could have students work in small groups instead of pairs, encouraging them to support one another.

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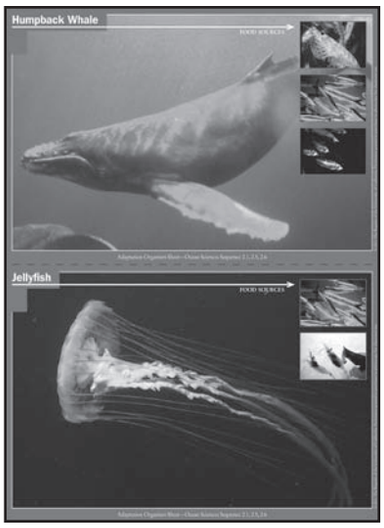

1 of 8 Adaptation Organism Sheets (before cutting apart)

7. **Prompt students to think about habitats.** Point out that the possible adaptations the class has recorded for the Great White Shark and the Moray Eel also have to do with the different habitats in which the two organisms live. The great white shark lives in the open ocean where there is a lot of room to swim very fast. The eel often lives in shallow coastal areas where it can hide in cracks and holes. As students investigate the adaptations of more organisms, they should also think about habitats. Since the ocean has such diverse habitats, there are many adaptations found only in the ocean. (**Note:** Place the plastic models of the Great White Shark and the Moray Eel next to their Adaptation Organism Sheets.)

Researching Organisms' Adaptations

1. **Give instructions.** Point out the Adaptation Organism Sheets and the plastic models arranged around the room. Students will work with a partner to research a few of these organisms and to each fill in their notebook pages as the class did for the shark and the eel. When a pair of students finishes writing about an organism, they can move to any other organism around the room, as long as there are not too many other students already at that spot.

2. **Students research adaptations.** To begin, assign each pair of students to an organism. Make sure students take their notebooks and pencils with them. Circulate and assist as needed. Remind students to move to another organism after they finish with one.

3. **Give instructions for sharing ideas.** After about 15 minutes, have students return to their seats. Tell students that partners will split up into separate small groups to share some of their ideas with others. Each group member will tell about one organism she investigated, explaining the organism's body shape, how it might move, and a possible adaptation. Let students know that they need to listen carefully to each other's ideas. After a student presents, other students in the group who also investigated the same organism can tell whether they came up with similar or different ideas and what evidence they used.

4. **Students share ideas in groups.** Assign students to groups of three or four, splitting up partners, and have group members begin taking turns sharing. Circulate as they share and encourage active listening. Also encourage students to respond to one another's ideas. (**Note:** Get the plastic models of the skate and the crab from their locations to be ready for the concluding discussions.)

TEACHER CONSIDERATIONS

INSTRUCTIONAL SUGGESTIONS

Tentative Language Regarding Adaptations. Discovering why a species has a particular characteristic is very complicated and requires a lot of evidence. Students will not likely be able to make scientifically accurate inferences about which characteristics are adaptations. As students begin learning about adaptations, they often think that any characteristic must be an adaptation, and that they can figure out the purpose of any body part. Scientists actually require a great deal of evidence about an organism to figure out how a specific characteristic might help the animal survive. The important aspect of this session is that students make a plausible inference or prediction about possible adaptations based on the information that is available. Modeling and encouraging the use of tentative language about adaptations will help avoid reinforcing mistaken ideas about adaptations and help demonstrate an important point about the nature of science. You can use some of the following language about adaptations and encourage students to do the same:

"This might be an adaptation...."
"I observe some evidence that this could be an adaptation for...."
"I'm not sure, but one adaptation might be...."

Separating Partners or Keeping Them Together. Splitting partners into separate groups for sharing will allow students to hear about more oganisms. On the other hand, you might decide to keep partners together so they can help each other share with other members of the group. This may provide more support for English language learners or very shy students.

INSTRUCTIONAL ROUTINES

Research Routine. In this session, students conduct a more complete version of the research routine introduced in Session 2.1. They move around the classroom gathering evidence—in this case, evidence about adaptations for movement. Students use this routine again in four of the next five sessions. Clearly explain your expectations for what they should do and provide feedback as needed. Students should soon require less guidance from you.

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Why do you think that?
What is your evidence?
Do you agree? Why?
Do you disagree? Why?
How sure are we?
How could we be more sure?

5. **Add key concept.** After about 10 minutes, regain the class' attention. Hold up the first key concept, have a volunteer read it aloud, and then post it on the concept wall.

KEY CONCEPT

Different ocean organisms have different adaptations for moving through the ocean.

Point out the important words you underlined.

Discussing Adaptations and Habitats

1. **Discuss movement and habitats.** Remind students that they've learned a lot about the differences among ocean habitats. Call on a few students to tell some of what they've learned about some of those differences. Say, **"The adaptations an animal has for moving have to do with the habitat in which the animal lives. Some ways of moving that work in one habitat wouldn't work in another habitat."**

2. **Introduce activity.** Tell students that they'll discuss the connection between adaptations for movement and habitat for two animals. On the board, write "Could the skate live in a coral reef habitat?" "What is your evidence?"

3. Pass each group of students a set of Habitat Cards (from Session 2.3) to use during their discussions.

4. **Class discusses skate.** Hold up the plastic model of the skate. Tell students that this animal lives in the soft bottom habitat. Have groups find the Soft Bottom Habitat card.

   a. **How might the organism move?** Call on a volunteer to tell their idea about how the skate moves. If no one suggests it, tell students that the skate moves by gliding along near the bottom of the ocean and burying itself under mud or sand.
   b. **Connection to habitat.** Ask, **"What does the fact that the skate glides along and buries itself under mud or sand have to do with the fact that it lives in the soft bottom habitat?"** Encourage students to look at the Soft Bottom Habitat card. Then, call on a volunteer or two to share ideas. [The skate needs soft material, such as mud or sand, to bury itself under. The fairly flat bottom allows the skate to glide along without going up and down much.]
   c. **Could the skate live in a coral reef habitat?** Invite students to share their ideas and their evidence. [Probably not, because the bottom of the coral reef habitat is rocky or covered in hard, sharp coral, and the skate could not bury itself there; sandy areas surround the coral, so the skate could be there and then come to the coral reef to feed.] As needed, help students draw upon their evidence about how the skate might move.

TEACHER CONSIDERATIONS

PROVIDING MORE EXPERIENCE

Extend: Comparing Adaptations for Movement. To provide an additional challenge, you could have students compare the adaptations for movement of two of the organisms they investigate during this session. Have each student, or each pair, select two organisms and list the ways that the organisms' adaptations for movement are the same and different. You may need to model this before students do this on their own.

Extend: Body Parts and Behaviors. To provide an additional challenge, have students focus on the differences between adaptations that are body parts and those that are behaviors. Have each student or pair select one organism and identify one body part that may be an adaptation. Then, students should identify one behavior—something students think the organism does—that may be an adaptation. You may need to model this before students do this on their own. Next, lead a discussion about body-part adaptations and behavior adaptations. Guide the class to see that body parts and behaviors are often closely tied together, and that both can be adaptations that help an organism survive.

ASSESSMENT

Quick Check for Understanding: Movement Adaptations. Read over students' work on their Movement Adaptations notebook pages to evaluate their progress toward understanding adaptations. Look for evidence that students understand that an adaptation is a characteristic that helps a type of organism survive. You might also keep an eye out for evidence of alternative conceptions—for example, the idea some students may have that an organism chooses its characteristics or wants to have certain adaptations. A student might say, "Sharks want to eat seals, so they have big teeth," rather than "Sharks have big teeth. This may be an adaptation that helps them eat seals."

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What do you think?
Why do you think that?
What is your evidence?
Do you agree? Why?
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How sure are we?
How could we be more sure?

5. **Introduce crab discussion.** Tell students that their group will now discuss another organism in the same way, answering the same questions about the crab. Hold up the plastic model of the crab and tell students that it lives in the rocky shore habitat. Have groups find the Rocky Shore Habitat card and the Open Ocean: Surface Habitat Card. On the board, write the next questions: **Could the crab live in the open ocean: surface habitat? What is your evidence?**

6. **Groups discuss crab.** Remind students that all group members need to get a chance to talk, that they should be sure to tell their evidence, and that they should listen carefully to each other. Have groups begin discussing. Circulate as they discuss.

7. **Add key concept.** Hold up the following key concept, read it aloud, and then post it on the concept wall.

KEY CONCEPT

An organism's adaptations are related to the habitat in which the organism lives.

Point out the important words you underlined.

8. **Emphasize size of ocean.** Reinforce that the ocean is huge and has many different habitats. These different habitats have provided opportunities for organisms to develop a great many different adaptations, many of which are only seen in organisms living in the ocean.

TEACHER CONSIDERATIONS

SCIENCE NOTES

About Adaptations and Habitats. The adaptations a species has are closely connected to the habitat in which it lives. Many organisms that live in water have webbed feet or fins that help them swim and gills that allow them to breathe underwater. The blowhole on top of a whale's head is an adaptation that allows this marine mammal to just barely break the surface of the water, quickly and efficiently taking in a breath of air, while still swimming rapidly. Some marine animals, such as sea stars, have tube feet like suction cups that help them hang on tightly even when subjected to crashing waves at the rocky shore. Because all adaptations benefit a species' survival, they are directly related to the conditions in the habitat in which that species lives. The more diverse the habitats, the more diverse the adaptations and species that live there. Because there is so much living space in the ocean, there is a great diversity of ocean habitats. There are whole groups of organisms and unique adaptations that occur in the ocean that do not occur on land or in freshwater. (An optional suggestion to help students better visualize ocean-organism adaptations for movement is to show one or more excerpts from some of the excellent ocean videos available from video rental facilities and libraries.)

PROVIDING MORE EXPERIENCE

Extend: Reflection Prompts for the Session. You may want to choose one or more of the prompts below for partner discussions after the session or during a final student sharing circle in which each student gets a turn to share. Or, the prompts could be used for science journal writing during class or as homework.

- Describe one organism you observed that might have adaptations for moving in the open ocean.
- Describe one organism you observed that might have adaptations for moving in a rocky shore habitat.
- One of the key concepts from today was "An organism's adaptations are related to the habitat in which the organism lives." In your own words, describe what this means to you.

LANGUAGE OF SCIENCE

VOCABULARY

adaptation
evidence
habitat
model
organism
plankton
predator
predict
prey

LANGUAGE OF ARGUMENTATION

What do you think?
Why do you think that?
What is your evidence?
Do you agree? Why?
Do you disagree? Why?
How sure are we?
How could we be more sure?