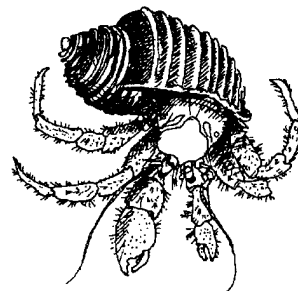


Observing Hermit Crabs

Lesson by Laura Erickson, Poulsbo, WA

Key Concepts

1. Aquatic organisms recycle and reuse life sustaining minerals through the ecosystem.
2. Hermit crabs use discarded shells for their homes to provide protection.
3. Hermit crabs have unique structural and behavioral adaptations for protecting themselves, for eating, and for moving.



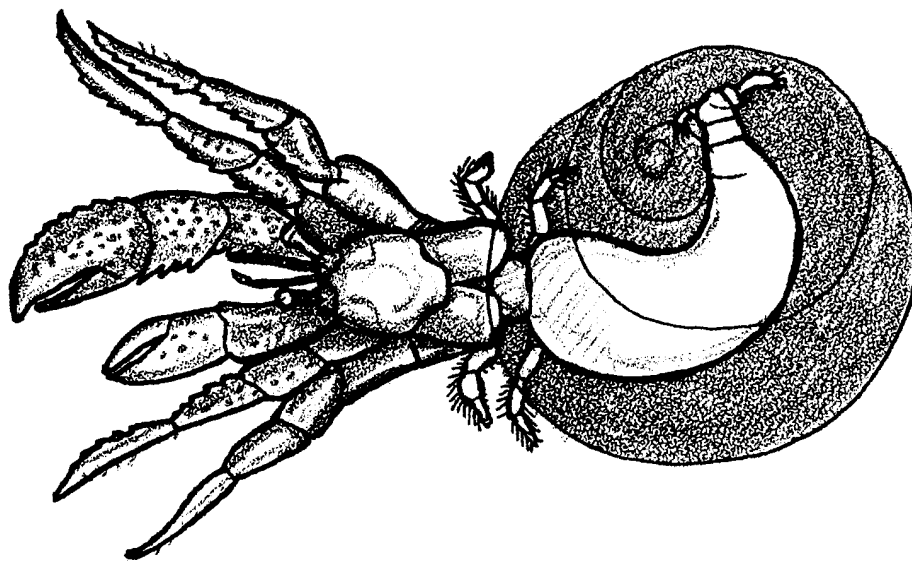
Background

Hermit crabs are usually the star attractions in most tidepools. Interesting creatures, hermit crabs typify the interconnected nature of the marine realm through their use of discarded or abandoned mollusc shells. Without the use of the empty shells of other animals, the hermit crab would become very vulnerable to its enemies. With the exception of its big pinchers, the hermit crab is rather soft shelled.

Hermit crabs belong to the group of animals (phylum) scientists call Arthropoda. “Arthropoda” means “joint- footed”. Relatives of hermit crabs in this group include spiders and insects.

A crab’s body is comprised of three parts: head, thorax, and abdomen. Hermit crabs differ from other crabs in that their hard, shield-like “shell”, or carapace, covers only the head and thorax, leaving the abdomen unprotected. Since the carapace does not cover the abdomen, hermit crabs are vulnerable to predators. To solve this problem, hermit crabs carry an empty mollusc (snail, whelk, etc.) shell they “borrow” from the beach. They choose a shell that they can withdraw into entirely when danger approaches.

Unlike our skeleton, the hard outer covering, or exoskeleton, of a hermit crab does not grow as the animal grows. Continued growth for a hermit crabs requires the shedding of its exoskeleton in a process called molting. Before a hermit crab sheds its shell, it grows a new shell under its old one. The hermit crab splits the seams that join the top and bottom parts of its body shell. Then it backs away from its old shell. The old shell which is left behind looks just like a hermit crab. Many of the “dead” crabs we find at the seashore are actually these old, molted shells.



Hermit crabs have five pairs of legs: one pair holds the claws, two pairs are walking legs, and two pairs are reduced and act as hooks to hold on to the borrowed shell.

Materials

For the class:

- live hermit crabs, if possible (video or pictures could substitute)
- plastic aquaria or other clear containers
- reference books such as *Hermit Crabs* by Kathleen Pohl or *Hermit Crabs* by Sylvia Johnson.

Teaching Hints

“Observing Hermit Crabs” is an introductory activity which emphasizes observing the behavior of a live hermit crab rather than the identification of its body parts. This activity is best done in groups of two or three. Allow time for students to sit and observe.

Hermit crabs are readily obtained from your local pet store which usually stock tropical, wild-caught hermit crabs. **IMPORTANT:** If you plan on collecting hermit crabs from the beach, be sure you check with the state Department of Fisheries or similar agency that regulates collection through permits. Once collected, you must have an aquarium and other equipment to replicate the environmental conditions from their own habitat! Return them alive to the same collection site.

Procedure

1. Tell class that today they will be observing hermit crabs.

Ask: **“Does anyone know what observing means?”**

(The act of paying attention or noticing, often including recording the information in some fashion.)

Say: **“We can use our eyes to observe. What else can we use?”**

(Other senses, instruments.)

2. Place hermit crabs in clear containers. Have small groups of students sit close to a hermit crab. Students should observe the hermit crab carefully using their senses (seeing, hearing, touching, and smelling).
3. Have students record their observations by drawing. Have students draw a large detailed picture of the hermit crab. Encourage students to make and record observations like these:

How does the crab move?

Does it pick up or drag its shell when it moves?

How many legs does it use in walking?

What color is the crab?

What color is the shell in which it is living?

Is one claw bigger than the other?

Is the crab right-handed or left-handed? How can you tell?

Use your hand to make a shadow over the crab? What happens?

Tap the side of the container lightly? What happens?

What does the crab do when it is picked up?

4. Ask: **“What do you think is the most interesting thing about the hermit crab?”**
5. Have students tell a friend the most important thing that they learned about the hermit crab.
6. Have students write about what they saw the hermit crab doing.
7. Have students, in teams of two, act out how a hermit crab moves.
8. Encourage students to build a model of the hermit crab (using clay or other craft materials available). Remind them to continue looking at the hermit crabs in the classroom so that they can record every detail.

9. As a class, write a paragraph using the information learned from observation of the crabs. The following pattern could be placed on a pocket chart for completion by students.

This is a hermit crab.

It _____. (action)

It _____. (appearance).

It is like a _____ because _____.

It is not like a _____ because _____.

This is a hermit crab.

10. Ask students what other things they want to learn about hermit crabs.

Record their questions. You may need to model with questions like: “How are their babies born? How do they keep their shells on? Why is one claw bigger than the other?”

11. As a group, select some of their questions to be answered using reference books.

Key Words

Arthropoda - a large group of invertebrate animals with horny, segmented external covering and jointed appendages including insects, spiders, and crustaceans (crabs, shrimp, etc.)

observation - the act of paying attention or noticing; the act of noting a phenomenon often with instruments and recording it for scientific or other purposes