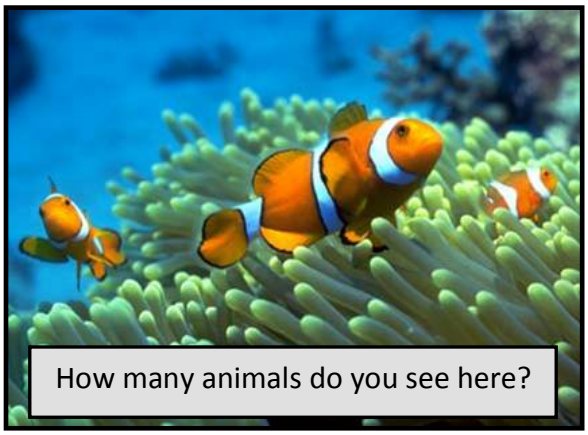
WHAT IS AN INVERTEBRATE?

By: Alice Dennis

Background

This activity is intended to introduce students to a variety of invertebrates, particularly the marine invertebrates of the Louisiana coast. Invertebrates use different body plans for support and locomotion. They often look strange and different; sometimes it's even difficult to recognize them as animals. For example, corals and anemones (as are seen in the photo on the right) are animals in the Phylum Cnidaria that live attached to the bottom of the ocean. Other Cnidarians include jellyfish, which are able to swim around in the ocean, but they don't have eyes or a mouth like we expect to find on most animals. Some invertebrates, such as oysters and mussels, are economically important fisheries in Louisiana. Others animals, such as barnacles, are less well known but are both interesting and important for the coastal ecosystem.



Vocabulary

Vertebrate: An animal with a backbone and a nerve column (spinal cord).
Invertebrate: An animal lacking a skeleton. They are soft bodied but can have hard exoskeletons.
Exoskeleton: A hard outer structure that provides protection and/or support for an invertebrate.
Sessile: Permanently attached or fixed to a substrate (a barnacle, for example).
Vagile: Able to move around in a given environment.
Colonial: A group of organisms of the same species living closely together, usually tightly attached.
Habitat: The area or environment where an organism lives.
Community: A group of species that live in the same place.
Ecosystem: A community of many different species, plus the environment they live in.

Materials

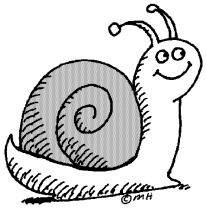
- Examples of a variety of animals (photos or live): Mammals, reptiles, insects, and animals with and without exoskeletons (ex: a snail has an exoskeleton, a slug does not)
- Live animals, such as: anemones, barnacles, snails, crabs, crawfish, millipedes, crickets, etc. [These are flexible, but you want representatives of animals with and without exoskeletons.]
- Websites, field guides, or keys to have students identify the animals
- Measuring tape
- Scope-On-A-Rope* and/or magnifying lenses
- Measuring grid to measure magnified animals (See "Measure Up" activity on SOAR website.)

This work is supported in part by a grant to Louisiana State University from the Howard Hughes Medical Institute through the Precollege and Undergraduate Science Education Program.

*The SOAR is available for loan from LSU. Contact Adrienne Steele for more information:

- http://www.scopeonarope.lsu.edu/
- (225) 578-3080, soar@lsu.edu

Activity



1. Familiarize students with some invertebrates, some of which they may have never seen before. Use both SOAR (1x and 30x) and the naked eye.
2. Compare and contrast their skeletons, or lack of skeletons. Talk about the way that each animal holds itself up. Use SOAR (30x and 200x) to look close up at an exoskeleton. Compare this to a bone if you have one in class.
3. Have the students describe the way the animal moves. Is it attached to something, does it walk, or can it swim around? Is it fast or slow?
4. Have students guess how the animal eats. How does it catch its food? How does it eat its food? Does it chew? Use SOAR (1x or 30x) to view the eating animal as a class.
5. Discuss what type of environment each animal would best live in. How does this relate to how they move?
6. Have the students guess the animals' dimensions, and then measure them as a group. Use SOAR to measure smaller animals on the screen. Use the "Measure Up" activity from the SOAR website to make measurements from your TV, projector screen, or interactive board.

Louisiana Grade Level Expectations

Grade	GLE's	Unit
1st	1, 2, 3, 4, 6, 7, 8, 9, 11, 32, 34	5
2nd	2, 3, 4, 7, 8, 10, 12, 27, 30, 34	4, 5
3rd	1, 2, 3, 4, 5, 7, 8, 9, 11, 13, 15, 38, 39, 57	4, 7
4th	2, 3, 4, 9, 10, 12, 14, 20, 41, 53	5

Extensions

ENGLISH: Have students write a paragraph describing their favorite animal from class. Have them include a physical description of the animal including how it moved and ate. Use the split screen view option with SOAR to compare/ contrast something. For example, look at two different animals or two magnifications of the same animal.

MATH: Measure each animal, and have the students graph length vs. width of all the animals. Alternatively, have the students measure length and width in a lot of individuals of the same type of animal. For example, they could graph to see if there is a constant relationship between length and width in a bunch of crawfish or crickets. Is there a difference in size between males and females?

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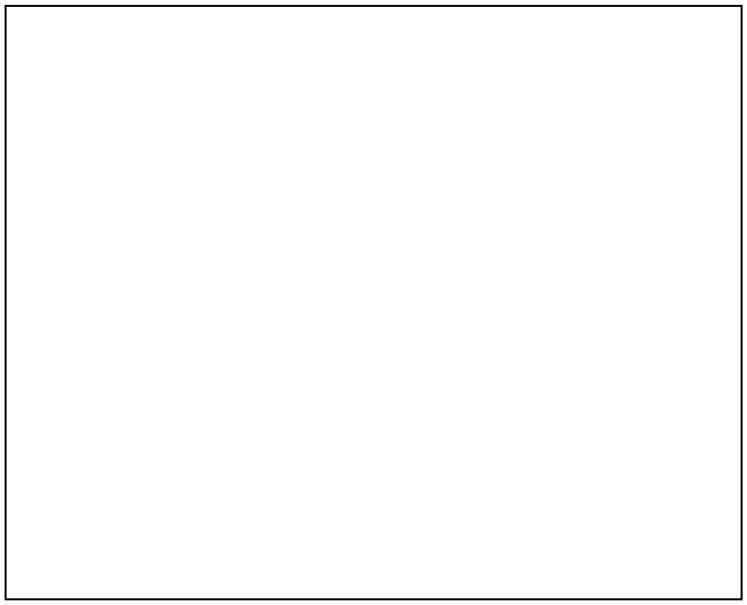
Invertebrate Activity

1. Draw your favorite invertebrate and describe what it looks like:



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2. How does this animal move around? _____

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3. How does this animal catch and eat its food? _____

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4. What structure supports this animal (instead of a backbone)? _____

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5. In what type of environment do you think this animal lives? Why?_____

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6. Describe an experiment you would like to do to learn more about this animal.

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Draw your experiment below:

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