



Which Niche?

Objectives: Participants will be introduced to the concept of niche. They will be encouraged to think critically about animals' roles in their environment, combining observations about their morphology with prior knowledge about behavior, etc. Participants will gain information about particular habitats and animals.

Time needed: 10 minutes

Target age: 2-10

Materials needed:

- picture of habitat (can be rendered in cloth, on poster board, paint, etc. Examples include a salt marsh cross section with tidal zones, a sandy beach and dunes showing zonation.)
- pictures of individual animals that fill different niches in the habitat, that can be stuck to the habitat picture (for marsh, examples might include fiddler crabs, periwinkle snails, flounder, killifish, blue crabs, birds, etc.)
- key with information about the habitat and the animals

Description: Young students often question an animal's role in its environment, asking, "What is this animal's purpose." Without realizing it, they are asking about its niche, and this activity can be used to adjust their understanding from 'purpose' to 'niche'. This activity is transferrable to different habitats. Participants are given animals to place in the habitat. Discussion should draw on prior knowledge (Does this animal swim?) and participants are asked to make observations about animals' morphology (What do you notice about the shape of this fish? It's flat. Where are its eyes? On top of its body). Using observations, prior knowledge and other information given, participants will determine where to place the animal in the habitat. (Where do you think this animal is found?). Discussion should also include the concept of adaptation, the place that the animal occupies in the food chain (Does this fish have teeth? Do you think it eats meat or do you think it filters plankton out of the water?), and the importance of filling different niches (for the organisms and the environment). Participants should also be given information about the habitat and about the animals represented. Discussion might also include the way animals fill different niches at different life stages.

Extensions:

- A basic discussion of adaptation can be developed into an introduction to the concept of evolution.
- This activity might extend into a discussion of habitats and organisms as resources.
- Discussion might include the impacts of human-induced changes, how the changes affect the animals' niches, how the changes in niches affect the habitat (For example, the overharvesting of blue crabs might lead to less predation on marsh periwinkle snails, more periwinkle snails, not enough food for periwinkle snails, modification snails' feeding (fungal farming), modification of the habitat (less grass)).

Standards: *

National Science Education Standards:

Unifying Concepts and Processes – Form and function

K-4

Science as Inquiry – Abilities necessary to do inquiry

Life Science – Characteristics of organisms; Organisms and environments

Ocean Literacy: Essential Principles and Fundamental Concepts:

5. *The ocean supports a great diversity of life and ecosystems.* – d. Ocean biology provides many unique

examples of life cycles, adaptations and important relationships among organisms (symbiosis, predator-prey dynamics and energy transfer) that do not occur on land.

Extensions:

NSES:

Unifying Concepts and Processes – Evolution and equilibrium

K-4

Life Science – Life cycles of organisms

Science in Personal and Social Perspectives – Types of resources; Changes in environments

History and Nature of Science – Science as a human endeavor

Ocean Literacy:

1. *The Earth has one big ocean with many features.* – h. Although the ocean is large, it is finite and resources are limited.

 6. *The ocean and humans are inextricably interconnected.* – e. Humans affect the ocean in a variety of ways. Laws, regulations and resource management affect what is taken out and put into the ocean. Human development and activity leads to pollutions (point source, non-point source . . .) and physical modifications (changes to beaches, shores and rivers) . . .
- * Additional standards may be addressed depending on particular habitats used.