SOL 4.5 -- ADAPTATIONS, ECOSYSTEMS, FOOD CHAINS & NICHES

Key concepts include

a. **plant and animal adaptations**;
b. **organization of populations, communities, and ecosystems and how they interrelate**;
c. **flow of energy through food webs**;
d. **habitats and niches**;
e. **changes in an organism's niche at various stages in its life cycle**;
f. **influences of human activity on ecosystems**.

ADAPTATIONS

- Organisms have **structural adaptations** or physical attributes that help them meet a life need.
- Organisms also have **behavioral adaptations**, or certain types of activities they perform, which help them meet a life need.

POPULATIONS, COMMUNITIES, ECOSYSTEMS

- All the organisms of the same species that live in the same place at the same time are a **population**.
- Populations of species that live in the same place at the same time together make up a **community**.

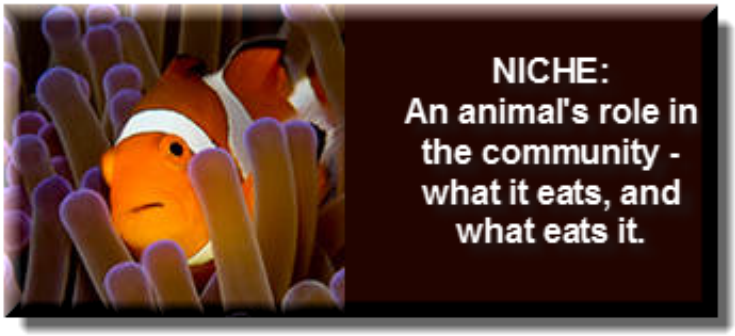
- All the populations and the nonliving components in an environment that interact with each other form an **ecosystem**.

ENERGY PYRAMIDS; FOOD CHAINS

- The organization of communities is based on the utilization of the **energy from the sun** within a given **ecosystem**. The greatest amount of energy in a community is in the **producers.**
- Within a community, organisms are dependent on the survival of other organisms. **Energy is passed** from one organism to another.
- The sun's energy cycles through ecosystems from **producers** through **consumers** and back into the nutrient pool through **decomposers**.

HABITATS AND NICHES

- A **habitat** is the place or kind of place in which an animal or plant naturally lives. An organism's habitat provides food, water, shelter, and space. The size of the habitat depends on the organism's needs.
- A **niche** is the **function that an organism performs in the food web** of that community. A niche also includes everything else the organism does and needs in its environment. No two types of organisms occupy exactly the same niche in a community.



- The organization of a community is defined by the interrelated niches within it.
- During its life cycle, an organism's role in the community – its **niche — may change**. For example, what an animal eats, what eats it, and other relationships will change.
- Humans can have a major impact on ecosystems.