Name _____ **Date** _____ **Period** ____

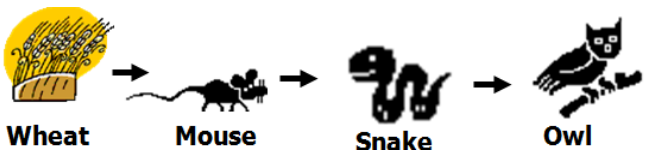
Biology 2nd 9 Weeks, Week 2.4-2.5 Homework 4 (Food Chains, Food Webs, and Pyramids)

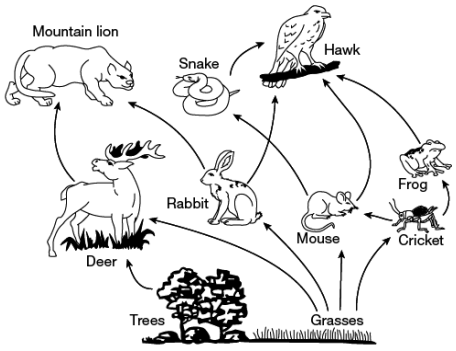
The interactions that take place among biotic and abiotic factors lead to transfers of energy. Every species has a particular role, or **niche**, in an ecosystem. **Autotrophs** are organisms that use energy from the **sun** to produce their own food. Autotrophs are also known as **producers.**

Heterotrophs are organisms that depend on other organisms for food. Because they consume rather than make food, heterotrophs are also known as **consumers.** A heterotroph that eats only plants is known as an **herbivore**. Heterotrophs that eat animals are called **carnivores**. **Omnivores** are heterotrophs that eat both plants and animals. **Decomposers** are consumers that break down and absorb nutrients from dead or decaying organisms returning useful nutrients back to the environment. Many bacteria and most fungi are decomposers.

Food chains and **food webs** are pictures that show relationships among organisms. Each link in a food chain/ web represents a feeding step or trophic level. The arrows in a food chain or food web show the direction of energy flow. That is, arrows point to the organism that receives the energy. **Only about 10% of energy passes to the next level of a food chain. At each level, the other 90% of energy is "lost" to the environment as heat.** Most food chains are only 3-4 links long because by the last link, only a small portion of the original energy is left.

A **food chain** represents one possible path for the transfer of energy in an ecosystem. A **food web** shows many possible feeding relationships.

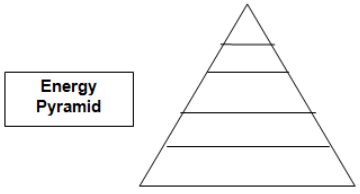


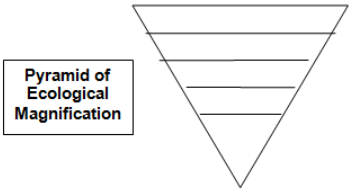


Trophic levels: Steps that energy passes through. Energy **<u>decreases</u>** as you move up an energy pyramid. Only about 10% of energy passes from one level to the next. At each higher step, 90% of energy is "lost" to the environment as heat.

Energy Pyramid

Toxins **<u>increase</u>** as you move up a pyramid of ecological magnification.





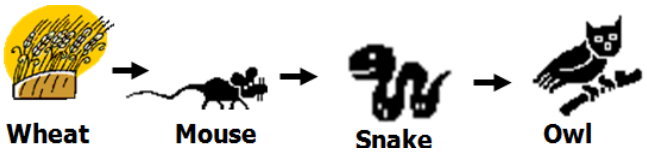
1. Which of the following is a biotic factor in an ecosystem?
a. air
b. soil
c. water
d. tree

2. Only 10% of energy is passed from one trophic level to the next. What happens to the energy that is not passed on?
90% of energy is lost as heat.

3. Ultimately, what is the source of all energy for life on Earth?
The sun is the ultimate source of energy.

4. Which level of an energy pyramid contains the most energy?
a. producer
b. primary consumer
c. tertiary consumer
d. secondary consumer

5. In the food chain below, the mouse is the _____.



a. producer
b. primary consumer
c. competitor
d. secondary consumer

6. Which of the following are “nature’s recyclers”?
a. producers
b. decomposers
c. consumers
d. plants

7. An ecological pyramid is sometimes referred to as a pyramid of numbers. Which level in a pyramid of numbers would contain the fewest organisms?
a. producers
b. primary consumers
c. secondary consumers
d. tertiary consumers

8. Which trophic level would be the most impacted by toxins?
a. producers
b. 2^0 consumers
c. 1^0 consumers
d. 3^0 consumers