

Earth Science III

1. TYPES OF ORGANISMS
 2. FOOD CHAINS, WEBS, AND PYRAMIDS
- 

Types of Organisms

An organism is a living thing.

❖ Includes: Plants, animals, micro-organisms, fungi, insects

An organism:

1. Obtains energy from the environment
2. Contributes energy to the environment

Types of Organisms

There are three large categories that we can classify organisms. They are:

1. Producers

❖ Living things that can make their own food to get the energy they need. Plants tend to be called 'producers' because they produce carbohydrates from carbon dioxide, water and the sun's energy in a process called photosynthesis.

❖ Example: Flowers, trees

Types of Organisms

2. Consumers

❖ Living things that eat producers or other consumers to get the energy they need. Many animals and insects are consumers.

❖ Example: fish, deer, wolves, spiders

❖ There are three classification of consumers:

❖ Herbivores: those that only eat plants

❖ Carnivores: those that only eat other consumers

❖ Omnivores: those that eat both plants and other consumers















Types of Organisms

3. Decomposers/Detrivores

❖ Living things that break down waste and decomposing organisms to get the energy they need. We can also classify them as a type of consumer. Detrivores feed at every trophic level. Detrivores have their own, separate food chains, and are very numerous

❖ Example: bacteria, fungi, earthworm

Which is it: Herbivore, Carnivore, or Omnivore?

 Black Bear <ul style="list-style-type: none">• Berries and nuts• Honey• Bees and insects Omnivore	 Urban Squirrel <ul style="list-style-type: none">• Fruit and nuts• Insects• Eggs Omnivore	 Robin <ul style="list-style-type: none">• Berries• Worms Omnivore	 Hawk <ul style="list-style-type: none">• Birds• Snakes• Rodents Carnivore	 Warthog <ul style="list-style-type: none">• Roots• Mushrooms• Eggs• Dead animals Omnivore
 Shark <ul style="list-style-type: none">• Other fish Carnivore	 Snail <ul style="list-style-type: none">• Fruit• Leaves Herbivore	 Jaguar <ul style="list-style-type: none">• Monkeys• Antelopes Carnivore	 Goat <ul style="list-style-type: none">• Grass• Flowers Herbivore	 Crocodiles <ul style="list-style-type: none">• Buffalo• Birds Carnivore
 Giraffe <ul style="list-style-type: none">• Leaves Herbivore	 Rabbit <ul style="list-style-type: none">• Vegetables Herbivore	 Cow <ul style="list-style-type: none">• Grass Herbivore	 Spider <ul style="list-style-type: none">• Flies Carnivore	

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Video

<https://www.youtube.com/watch?v=0ZOvqYypOuo>

Food Chains, Webs, and Pyramids

There are a variety of ways that we can model how energy flows throughout an ecosystem.

What is a food chain?

Food chains show the flow of energy from one living thing to another.

Each step on the food chain is called a trophic level.

Every food chain starts with a **primary source of energy**.

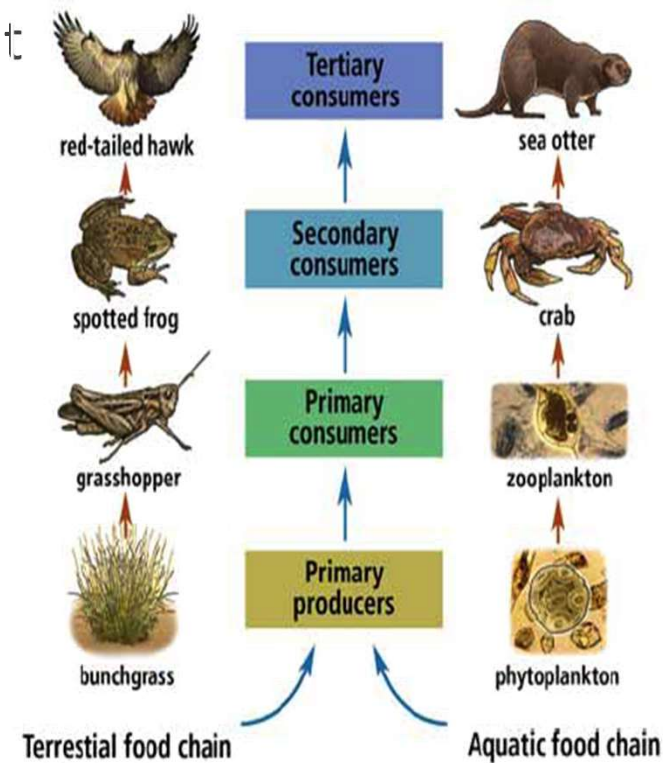
The most obvious source of energy is the sun.



Food Chains

- ❖ Primary Producers (1st trophic level) are organisms that can create their own food from the main energy source
- ❖ Primary consumers (2nd trophic level) will eat the producers
- ❖ Secondary consumers (3rd trophic level) will eat the primary consumers
- ❖ Tertiary consumers (4th trophic level) will eat the secondary consumers
- ❖ Apex consumers are consumers at the very top of the food chain.

Examples of terrestrial and aquatic food chains




Food Chains

In general, only about 10% of food energy is transferred from one organism to another (i.e., about 90% of food energy is lost).

Most of the energy transferred from one trophic level to another is lost to the environment as unusable heat, used to support life functions (growth, cellular respiration), and stored in wastes.

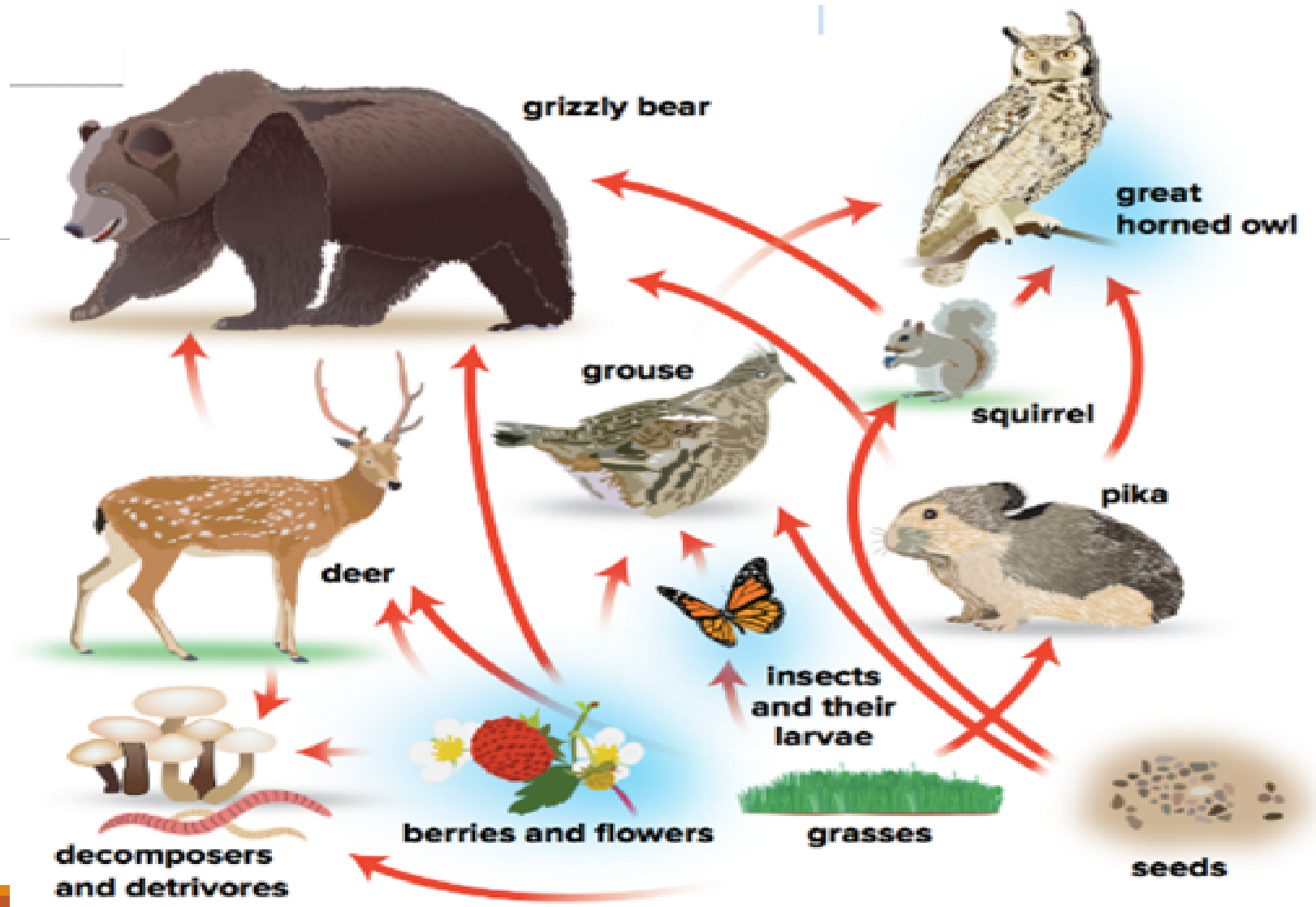
This means that less and less energy is available to each organism in the food chain.



What is a Food Web?

Most organisms are part of a number of food chains. We can use a food web in order to model the relationships between organisms within an environment.

- ❖ A change in the number of one organism could affect several food chains in the food web
- ❖ All organisms in an ecosystem are connected and depend on each other for survival
- ❖ In food webs, arrows point from an organism that is eaten to the organism that eats it. These arrows represent the direction that energy flows.



Video

<https://www.youtube.com/watch?v=MGODmyXkkPU>

What is an Energy Pyramid?

An energy pyramid is a model that shows the amount of energy available at each level of the food chain.

- ❖ A level of the energy pyramid is called a trophic level.
- ❖ Each trophic level represents the energy for those organisms.

Each time energy is transferred some of it is lost as unusable heat. The energy that is lost cannot be used by other living things. Therefore, a constant supply of energy is needed to sustain living things in terrestrial and aquatic ecosystems.