

## Food Chains and Webs --- "What's for dinner?"

Every organism needs to obtain energy in order to live. For example, plants get energy from the sun, some animals eat plants, and some animals eat other animals.

A food chain is the sequence of who eats whom in a biological community (an ecosystem) to obtain nutrition. A food chain starts with the primary energy source, usually the sun or boiling-hot deep sea vents. The next link in the chain is an organism that makes its own food from the primary energy source -- an example is photosynthetic plants that make their own food from sunlight (using a process called photosynthesis) and chemosynthetic bacteria that make their food energy from chemicals in hydrothermal vents. These are called autotrophs or primary producers.

### Sample Food Chains

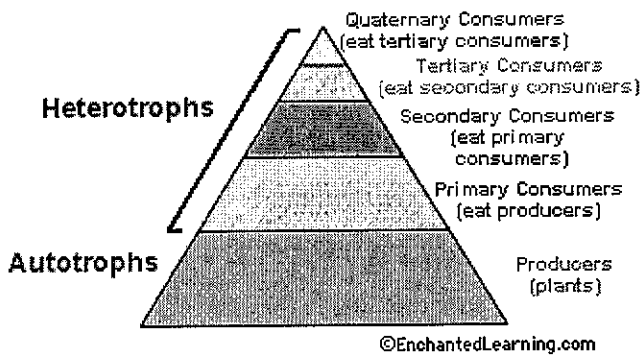
Trophic Level	Grassland Biome	Pond Biome	Ocean Biome
Primary Producer	grass ↓	algae ↓	phytoplankton
Primary Consumer	grasshopper ↓	mosquito larva ↓	zooplankton
Secondary Consumer	rat ↓	dragonfly larva ↓	fish
Tertiary Consumer	snake ↓	fish ↓	seal
Quaternary Consumer	hawk	raccoon	white shark

Next come organisms that eat the autotrophs; these organisms are called herbivores or primary consumers -- an example is a rabbit that eats grass. The next link in the chain is animals that eat

herbivore - these are called **secondary consumers** -- an example is a snake that eats rabbits. In turn, these animals are eaten by larger **predators** -- an example is an owl that eats snakes. The **tertiary consumers** are eaten by **quaternary consumers** -- an example is a hawk that eats owls. Each food chain ends with a **top predator** and animal with **no natural enemies** (like an alligator, hawk, or polar bear).

The arrows in a food chain show the flow of **energy**, from the sun or hydrothermal vent to a top predator. As the energy flows from organism to organism, energy is lost at each step. A network of many **food chains** is called a **food web**.

### The Food Web



### Trophic Levels:

The trophic level of an organism is the position it holds in a food chain.

1. **Primary producers** (organisms that make their own food from sunlight and/or chemical energy from deep sea vents) are the base of every food chain - these organisms are called **autotrophs**.
2. **Primary consumers** are animals that eat primary producers; they are also called **herbivores** (plant-eaters).
3. **Secondary consumers** eat primary consumers. They are **carnivores** (meat-eaters) and **omnivores** (animals that eat both animals and plants).
4. **Tertiary consumers** eat secondary consumers.
5. **Quaternary consumers** eat tertiary consumers.
6. Food chains "end" with top predators, animals that have little or no natural enemies.

When any organism dies, it is eventually eaten by **detrivores** (like vultures, worms and crabs) and broken down by **decomposers** (mostly bacteria and fungi), and the exchange of energy continues.

Some organisms' position in the food chain **can vary as their diet differs**. For example, when a bear eats berries, the bear is functioning as a **primary consumer**. When a bear eats a plant-eating rodent, the bear is functioning as a **secondary consumer**. When the bear eats salmon, the bear is functioning as a **tertiary consumer** (this is because salmon is a secondary consumer, since salmon eat herring that eat zooplankton that eat phytoplankton, that make their own energy from sunlight). Think about how **people's place in the food chain varies - often within a single meal!**

### **Numbers of Organisms:**

In any **food web**, **energy is lost each time one organism eats another**. Because of this, there have to be many **more plants than there are plant-eaters**. There are **more autotrophs than heterotrophs**, and more plant-eaters than meat-eaters. Each level has about **90% less energy** available to it because **some of the energy is lost as heat** at each level. Although there is **intense competition** between animals, there is also **interdependence**. When one **species goes extinct**, it can affect an entire chain of other species and have unpredictable consequences.

1. In food chains and webs, what trophic level must you have more of than others?
2. Each trophic level has how much **LESS** energy?
3. What may happen if a species goes extinct?


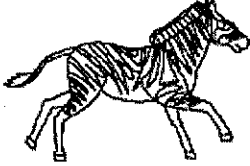




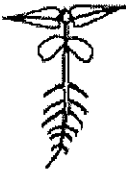







### **Equilibrium**

As the number of **carnivores in a community increases**, they eat more and more of the herbivores, decreasing the herbivore population. It then becomes harder and harder for the carnivores

to find herbivores to eat, and the population of carnivores decreases. In this way, the carnivores and herbivores stay in a **relatively stable equilibrium**, each limiting the other's population. A similar equilibrium exists between plants and plant-eaters.

## Complete the Food Chains Worksheet

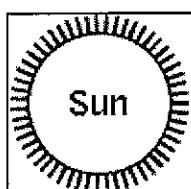
Circle the organisms that complete the food chains below.

 Sun	a. plankton b. alligator c. fish d. grass e. chicken	 zebra	a. spider b. guppy c. lion d. wheat e. human	
 Sun	 algae	a. moth b. snail c. whale d. caterpillar e. snail	a. lion b. starfish c. fish d. grass e. crow	 raccoon
 Sun	 plants	a. javelina b. anaconda c. falcon d. grass e. spider	 jaguar	
 Sun	 grass	a. weasel b. spider c. seaweed d. wolverine e. cricket	 snake	a. sheep b. goat c. ant d. owl e. moose
 Sun	 phytoplankton	a. zooplankton b. algae c. seal d. walrus e. moss	a. jellyfish b. spider c. krill d. starfish e. clam	 humpback whale

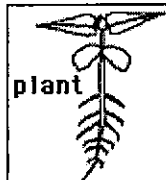
©EnchantedLearning.com

## Food Chain Worksheet

Read the passage then answer the questions below.



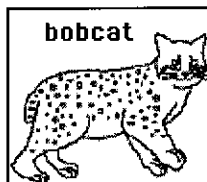
A food chain is a sequence of who eats whom in a biological community. It starts with a primary energy source, like the sun or boiling-hot deep sea vents. The arrows in the chain show the flow of food energy.



The energy source provides the energy for organisms that are able to convert that raw energy into their own food. These organisms (such as plants, phytoplankton, and algae) are called autotrophs or primary producers.



The next link in the chain is organisms that eat autotrophs like plants and algae. These organisms are called primary consumers or herbivores. Some examples are rabbits, deer, tadpoles, and caterpillars.



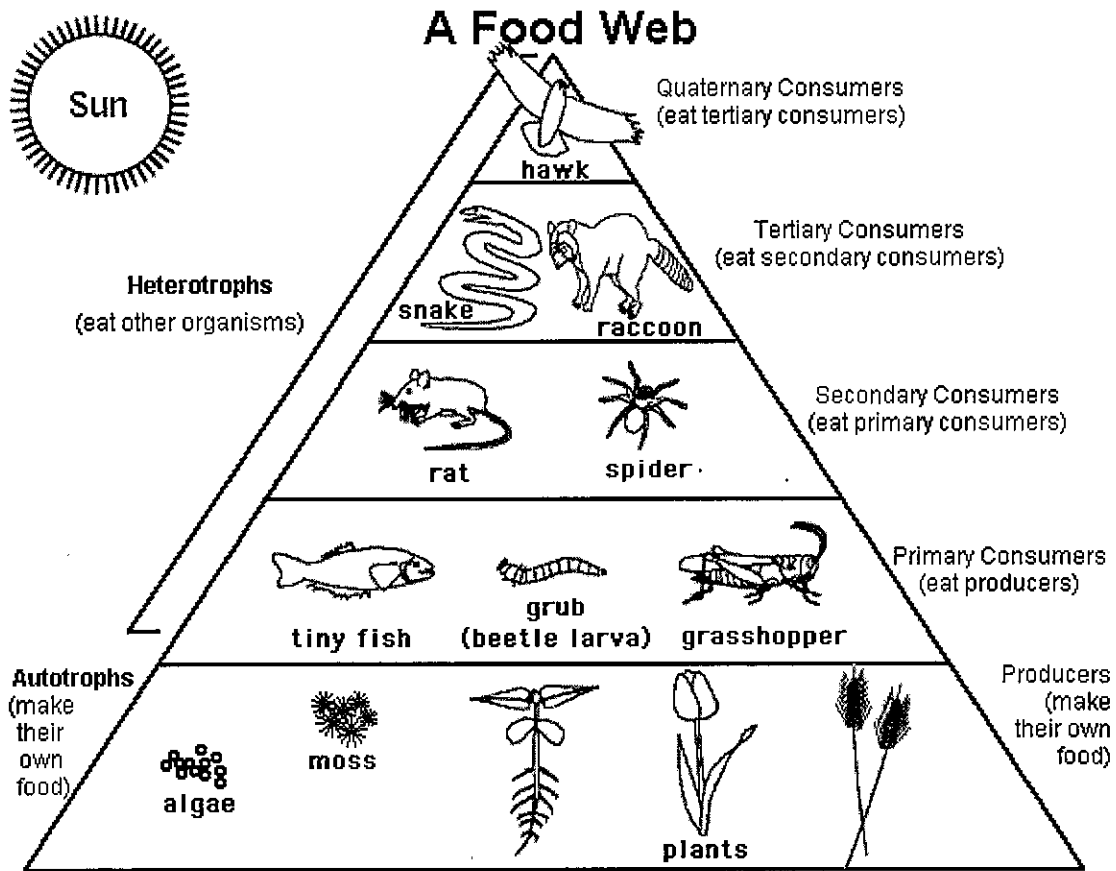
The next link is organisms that eat primary consumers. These organisms are called secondary consumers. Some examples are bobcats and lions. Chains can be longer than this. The animal at the end of a chain is the top predator (it has no natural enemies).

### Questions

1. What do the arrows in a food chain represent? \_\_\_\_\_  
\_\_\_\_\_
2. A food chain starts with an \_\_\_\_\_ source.
3. Organisms that make their own food are called \_\_\_\_\_  
or \_\_\_\_\_.
4. Organisms that eat plants are called \_\_\_\_\_  
or \_\_\_\_\_.
5. An animal with no natural enemies is a \_\_\_\_\_.

# Food Web Worksheet

Read the passage then answer the questions below.



## Questions

1. There are many more \_\_\_\_\_ than there are primary consumers.
2. Organisms that eat other organisms are called \_\_\_\_\_.
3. Organisms that make their own food are called \_\_\_\_\_ or \_\_\_\_\_.
4. Grass is \_\_\_\_\_.
5. Zebras (grass-eaters) are \_\_\_\_\_.
6. Lions (zebra-eaters) are \_\_\_\_\_.

**Food Chain Quiz - Multiple choice comprehension questions**  
 Color the circle by each correct answer.

<p>1. A plant is ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. an autotroph</li> <li><input type="radio"/> B. a heterotroph</li> <li><input type="radio"/> C. a primary producer</li> <li><input type="radio"/> D. A and C</li> </ul>	<p>6. A person who eats a chicken that ate grain is a ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary producer</li> <li><input type="radio"/> B. primary consumer</li> <li><input type="radio"/> C. secondary consumer</li> <li><input type="radio"/> D. quaternary consumer</li> </ul>
<p>2. A cow is ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. a primary consumer</li> <li><input type="radio"/> B. a heterotroph</li> <li><input type="radio"/> C. an herbivore</li> <li><input type="radio"/> D. all of the above</li> </ul>	<p>7. Primary consumers eat ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary producers</li> <li><input type="radio"/> B. primary consumers</li> <li><input type="radio"/> C. secondary consumers</li> <li><input type="radio"/> D. quaternary consumers</li> </ul>
<p>3. Autotrophs ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. make their own food</li> <li><input type="radio"/> B. are the base of the food chain</li> <li><input type="radio"/> C. are primary producers</li> <li><input type="radio"/> D. all of the above</li> </ul>	<p>8. Secondary consumers eat ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary producers</li> <li><input type="radio"/> B. primary consumers</li> <li><input type="radio"/> C. tertiary consumers</li> <li><input type="radio"/> D. quaternary consumers</li> </ul>
<p>4. A lion that eats a zebra that ate grass is a ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary producer</li> <li><input type="radio"/> B. primary consumer</li> <li><input type="radio"/> C. secondary consumer</li> <li><input type="radio"/> D. quaternary consumer</li> </ul>	<p>9. Tertiary consumers eat ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary producers</li> <li><input type="radio"/> B. primary consumers</li> <li><input type="radio"/> C. secondary consumers</li> <li><input type="radio"/> D. quaternary consumers</li> </ul>
<p>5. A bear that eats a fish that ate bugs that ate algae is a ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary producer</li> <li><input type="radio"/> B. primary consumer</li> <li><input type="radio"/> C. secondary consumer</li> <li><input type="radio"/> D. tertiary consumer</li> </ul>	<p>10. Quaternary consumers eat ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary producers</li> <li><input type="radio"/> B. primary consumers</li> <li><input type="radio"/> C. secondary consumers</li> <li><input type="radio"/> D. tertiary consumers</li> </ul>



**Food Chain Quiz #2 - Multiple choice comprehension questions**  
 Color the circle by each correct answer.

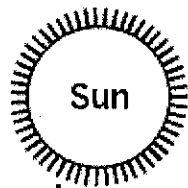
<p>1. A heterotroph ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. is an autotroph</li> <li><input type="radio"/> B. eats other organisms</li> <li><input type="radio"/> C. is a primary producer</li> <li><input type="radio"/> D. A and C</li> <li><input type="radio"/> E. none of the above</li> </ul>	<p>6. A top predator...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. has no natural enemies</li> <li><input type="radio"/> B. is a meat eater</li> <li><input type="radio"/> C. is a heterotroph</li> <li><input type="radio"/> D. all of the above</li> <li><input type="radio"/> E. none of the above</li> </ul>
<p>2. A cow (that eats plants) is ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. a primary consumer</li> <li><input type="radio"/> B. a heterotroph</li> <li><input type="radio"/> C. an herbivore</li> <li><input type="radio"/> D. all of the above</li> <li><input type="radio"/> E. none of the above</li> </ul>	<p>7. A detritivore ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. is an autotroph</li> <li><input type="radio"/> B. eats decomposing matter</li> <li><input type="radio"/> C. kills animals</li> <li><input type="radio"/> D. all of the above</li> <li><input type="radio"/> E. none of the above</li> </ul>
<p>3. If a person eats a vegetable, the person is acting as ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. a primary producer</li> <li><input type="radio"/> B. a primary consumer</li> <li><input type="radio"/> C. a secondary consumer</li> <li><input type="radio"/> D. a tertiary consumer</li> <li><input type="radio"/> E. a quaternary consumer</li> </ul>	<p>8. As nutritional energy passes through the food chain, energy ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. is lost</li> <li><input type="radio"/> B. is gained</li> <li><input type="radio"/> C. remains constant</li> <li><input type="radio"/> D. increases, then decreases</li> <li><input type="radio"/> E. decreases, then increases</li> </ul>
<p>4. If a person eats a steak (from a cow), the person is acting as ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. a primary producer</li> <li><input type="radio"/> B. a primary consumer</li> <li><input type="radio"/> C. a secondary consumer</li> <li><input type="radio"/> D. a tertiary consumer</li> <li><input type="radio"/> E. a quaternary consumer</li> </ul>	<p>9. There are more primary producers than there are ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary consumers</li> <li><input type="radio"/> B. secondary consumers</li> <li><input type="radio"/> C. tertiary consumers</li> <li><input type="radio"/> D. quaternary consumers</li> <li><input type="radio"/> E. all of the above</li> </ul>
<p>5. If a person eats a salmon (that ate smaller fish that ate algae), the person is acting as ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. a primary producer</li> <li><input type="radio"/> B. a primary consumer</li> <li><input type="radio"/> C. a secondary consumer</li> <li><input type="radio"/> D. a tertiary consumer</li> <li><input type="radio"/> E. a quaternary consumer</li> </ul>	<p>10. There are more tertiary consumers than there are ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary consumers</li> <li><input type="radio"/> B. secondary consumers</li> <li><input type="radio"/> C. tertiary consumers</li> <li><input type="radio"/> D. quaternary consumers</li> <li><input type="radio"/> E. all of the above</li> </ul>

**Match each Food Chain Word to its Definition.**

**Draw a line from each word on the left to its definition.**

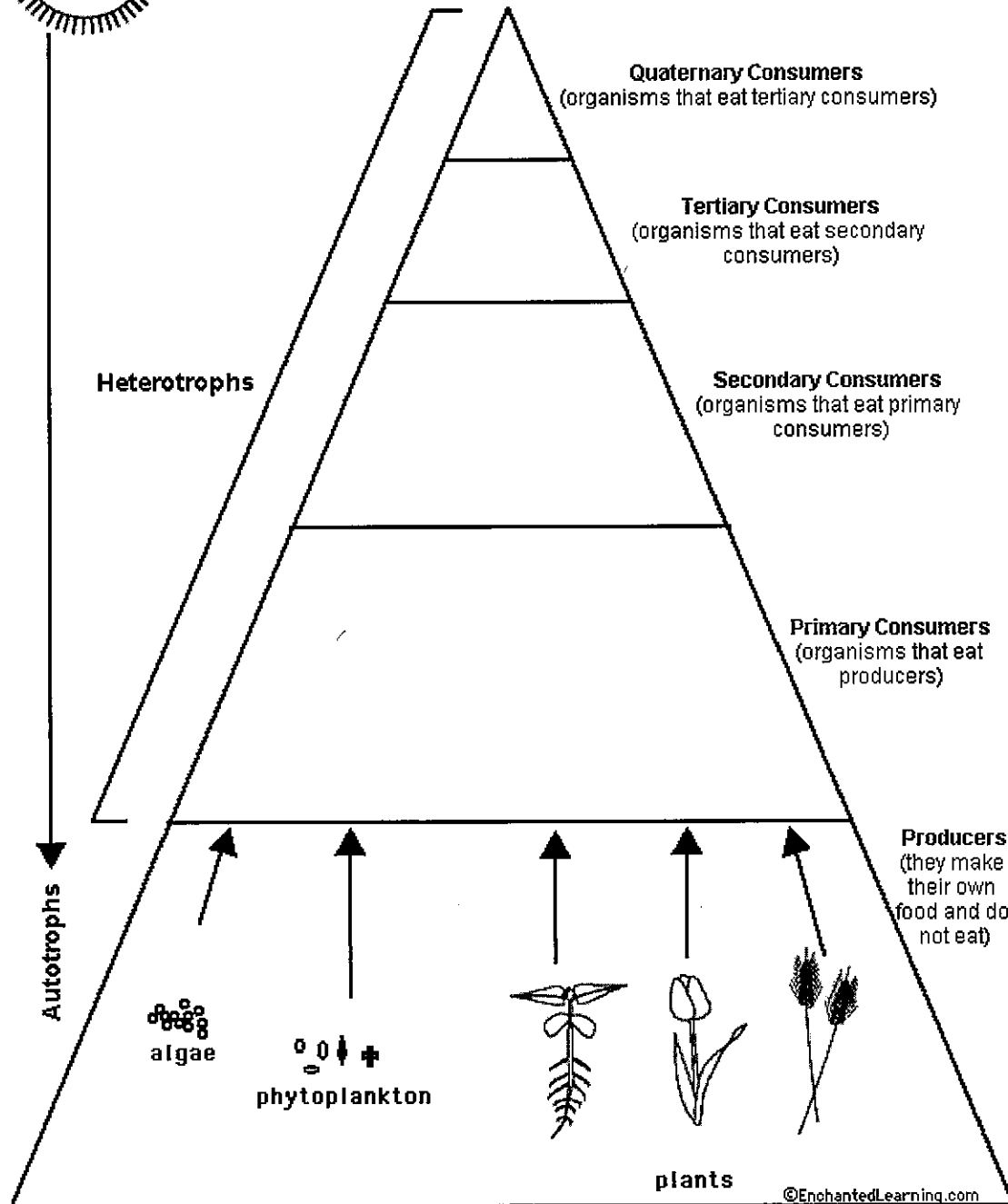
food chain	The network of all the inter-related food chains in a biological community.
food web	The sequence of who eats whom in a biological community.
autotroph	An organism that gets its energy by eating other organisms.
heterotroph	An organism that makes its food from light or chemical energy without eating.
carnivore	An organism that eats plants.
herbivore	An organism that eats meat.
primary consumer	A meat-eater that eats primary consumers.
secondary consumer	A meat-eater that eats tertiary consumers.
tertiary consumer	A meat-eater that eats autotrophs.
quaternary consumer	A meat-eater that eats secondary consumers.

## Food Chain Trophic Levels - Worksheet



The trophic level of an organism is the position it holds in a food chain. For example, plants are producers, zebras are primary consumers (because they eat grass), and lions are secondary consumers (because they eat zebras).

**Write organisms for each trophic level.**



## Food Chain Questions

1. What travels through a food chain or web?
2. What is the ultimate energy for all life on Earth?
3. Food chains start with what?
4. The 1<sup>st</sup> organism in a food chain must always be what type of organism?
5. Name 2 food making processes.
6. Where do chemosynthetic bacteria get their energy?
7. Define herbivore.
8. Herbivores are also called \_\_\_\_\_.
9. What are animals called that feed on herbivores?
10. Secondary consumers are eaten by larger \_\_\_\_\_.
11. \_\_\_\_\_ consumers eat secondary consumers.
12. Make a food chain with a producer and 3 consumers.

## Food Web Questions

1. What is used to indicate the flow of energy in a food chain or web?
2. What happens to energy as we move from step to step in a chain or web?
3. Define food web.
4. What is meant by trophic levels?
5. Define autotroph.

6. The 1<sup>st</sup> trophic level consists of \_\_\_\_\_ producers called \_\_\_\_\_.
7. Name the 2<sup>nd</sup> trophic level (both names).
8. Secondary consumers may be \_\_\_\_\_ eating meat or \_\_\_\_\_ that eat both plants and animals.
9. What is the 3<sup>rd</sup> trophic level called?
10. What is the 4<sup>th</sup> trophic level called?
11. At the 5<sup>th</sup> trophic level would be \_\_\_\_\_ consumers that eat \_\_\_\_\_ consumers.
12. Give an example of 3 detritivores. On what do they feed?
13. What organism feeds on dead plants and animals and helps recycle them?
14. Both \_\_\_\_\_ and \_\_\_\_\_ act as decomposers
15. Can an organism fill more than one trophic level --- yes or no? Give an example.

## Answer Key

### Food Chains and Webs --- "What's for dinner?"

Every organism needs to obtain energy in order to live. For example, plants get energy from the sun, some animals eat plants, and some animals eat other animals.

A food chain is the sequence of who eats whom in a biological community (an ecosystem) to obtain nutrition. A food chain starts with the primary energy source, usually the sun or boiling-hot deep sea vents. The next link in the chain is an organism that makes its own food from the primary energy source -- an example is photosynthetic plants that make their own food from sunlight (using a process called photosynthesis) and chemosynthetic bacteria that make their food energy from chemicals in hydrothermal vents. These are called autotrophs or primary producers.

### Sample Food Chains

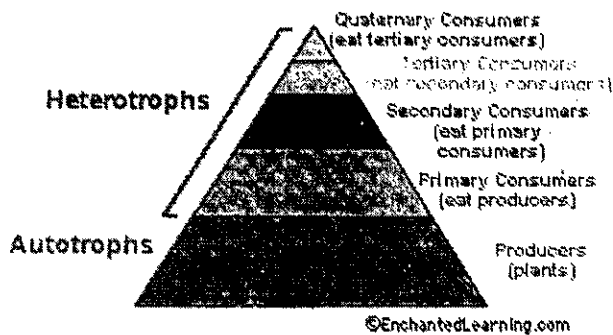
Trophic Level	Grassland Biome	Pond Biome	Ocean Biome
Primary Producer	grass ↓	algae ↓	phytoplankton ↓
Primary Consumer	grasshopper ↓	mosquito larva ↓	zooplankton ↓
Secondary Consumer	rat ↓	dragonfly larva ↓	fish ↓
Tertiary Consumer	snake ↓	fish ↓	seal ↓
Quaternary Consumer	hawk ↓	raccoon ↓	white shark

Next come organisms that eat the autotrophs; these organisms are called herbivores or primary consumers -- an example is a rabbit that eats grass. The next link in the chain is animals that eat

herbivore - these are called **secondary consumers** -- an example is a snake that eats rabbits. In turn, these animals are eaten by larger **predators** -- an example is an owl that eats snakes. The **tertiary consumers** are eaten by **quaternary consumers** -- an example is a hawk that eats owls. Each food chain ends with a **top predator** and animal with **no natural enemies** (like an alligator, hawk, or polar bear).

The arrows in a food chain show the flow of **energy**, from the sun or hydrothermal vent to a top predator. As the energy flows from organism to organism, energy is lost at each step. A network of many food chains is called a **food web**.

### The Food Web



### Trophic Levels:

The trophic level of an organism is the position it holds in a food chain.

1. **Primary producers** (organisms that make their own food from sunlight and/or chemical energy from deep sea vents) are the base of every food chain - these organisms are called **autotrophs**.
2. **Primary consumers** are animals that eat primary producers; they are also called **herbivores** (plant-eaters).
3. **Secondary consumers** eat primary consumers. They are **carnivores** (meat-eaters) and **omnivores** (animals that eat both animals and plants).
4. **Tertiary consumers** eat secondary consumers.
5. **Quaternary consumers** eat tertiary consumers.
6. Food chains "end" with top predators, animals that have little or no natural enemies.

When any organism dies, it is eventually eaten by **detrivores** (like vultures, worms and crabs) and broken down by **decomposers** (mostly bacteria and fungi), and the exchange of energy continues.

Some organisms' position in the food chain can vary as their diet differs. For example, when a bear eats berries, the bear is functioning as a **primary consumer**. When a bear eats a plant-eating rodent, the bear is functioning as a **secondary consumer**. When the bear eats salmon, the bear is functioning as a **tertiary consumer** (this is because salmon is a secondary consumer, since salmon eat herring that eat zooplankton that eat phytoplankton, that make their own energy from sunlight). Think about how **people's place in the food chain varies - often within a single meal!**

### Numbers of Organisms:

In any food web, **energy is lost each time one organism eats another**. Because of this, there have to be many more plants than there are plant-eaters. There are more autotrophs than heterotrophs, and more plant-eaters than meat-eaters. Each level has about **90% less energy** available to it because **some of the energy is lost as heat** at each level. Although there is **intense competition** between animals, there is also **interdependence**. When one species goes extinct, it can affect an entire chain of other species and have unpredictable consequences.

1. In food chains and webs, what trophic level must you have more of than others? **1st trophic level, or primary producers (autotrophs)**
2. Each trophic level has how much LESS energy? **90% less energy**
3. What may happen if a species goes extinct? **it can affect an entire chain of other species + have unpredictable consequences.**







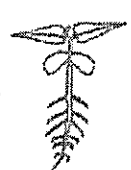




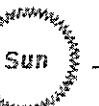


### Equilibrium

As the number of carnivores in a community increases, they eat more and more of the herbivores, decreasing the herbivore population. It then becomes harder and harder for the carnivores



to find herbivores to eat, and the population of carnivores decreases. In this way, the carnivores and herbivores stay in a **relatively stable equilibrium**, each limiting the other's population. A similar equilibrium exists between plants and plant-eaters.

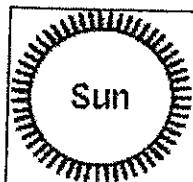
**Complete the Food Chains Worksheet**  
 Circle the organisms that complete the food chains below.

 Sun	a. plankton b. alligator c. fish <input checked="" type="radio"/> d. grass e. chicken	 zebra	a. spider b. guppy <input checked="" type="radio"/> c. lion d. wheat e. human	
 Sun	 algae	a. moth b. snail c. whale d. caterpillar <input checked="" type="radio"/> e. snail	a. lion b. starfish <input checked="" type="radio"/> c. fish d. grass e. crow	 raccoon
 Sun	 plants	<input checked="" type="radio"/> a. javelina b. anaconda c. falcon d. grass e. spider	 jaguar	
 Sun	 grass	a. weasel b. spider c. seaweed d. wolverine <input checked="" type="radio"/> e. cricket	 snake	a. sheep b. goat c. ant <input checked="" type="radio"/> d. owl e. moose
 Sun	 phytoplankton	<input checked="" type="radio"/> a. zooplankton b. algae c. seal d. walrus e. moss	a. jellyfish b. spider <input checked="" type="radio"/> c. krill d. starfish e. clam	 humpback whale

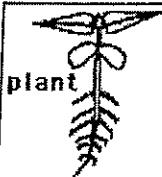
©EnchantedLearning.com

## Food Chain Worksheet

Read the passage then answer the questions below.



A food chain is a sequence of who eats whom in a biological community. It starts with a primary energy source, like the sun or boiling-hot deep sea vents. The arrows in the chain show the flow of food energy.



The energy source provides the energy for organisms that are able to convert that raw energy into their own food. These organisms (such as plants, phytoplankton, and algae) are called autotrophs or primary producers.



The next link in the chain is organisms that eat autotrophs like plants and algae. These organisms are called primary consumers or herbivores. Some examples are rabbits, deer, tadpoles, and caterpillars.



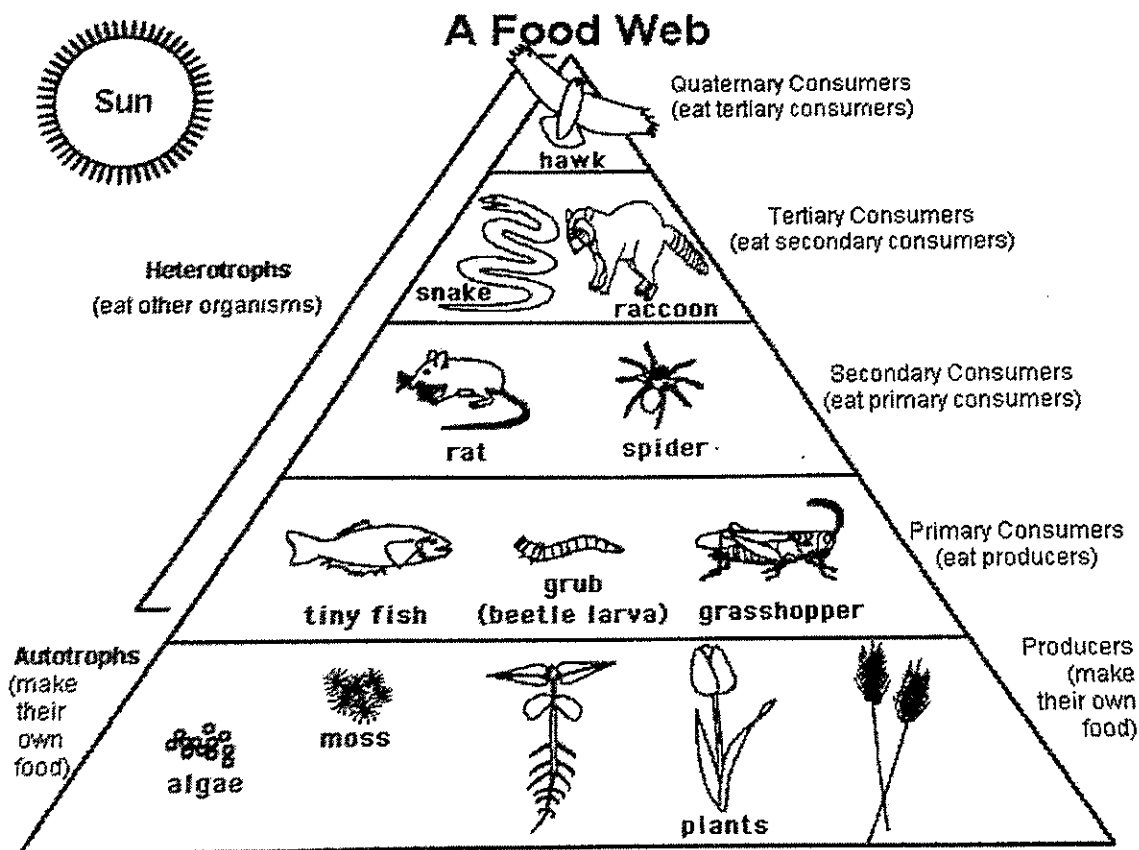
The next link is organisms that eat primary consumers. These organisms are called secondary consumers. Some examples are bobcats and lions. Chains can be longer than this. The animal at the end of a chain is the top predator (it has no natural enemies).

### Questions

1. What do the arrows in a food chain represent? the flow of  
food energy
2. A food chain starts with an primary energy source source.
3. Organisms that make their own food are called autotrophs  
or primary producers.
4. Organisms that eat plants are called primary consumers  
or herbivores.
5. An animal with no natural enemies is a top predator.

## Food Web Worksheet

Read the passage then answer the questions below.



### Questions

1. There are many more producers than there are primary consumers.
2. Organisms that eat other organisms are called heterotrophs.
3. Organisms that make ~~the~~ <sup>their</sup> own food are called autotrophs or producers.
4. Grass is a producer.
5. Zebras (grass-eaters) are primary consumers.
6. Lions (zebra-eaters) are secondary consumers.

**Food Chain Quiz - Multiple choice comprehension questions**  
 Color the circle by each correct answer.

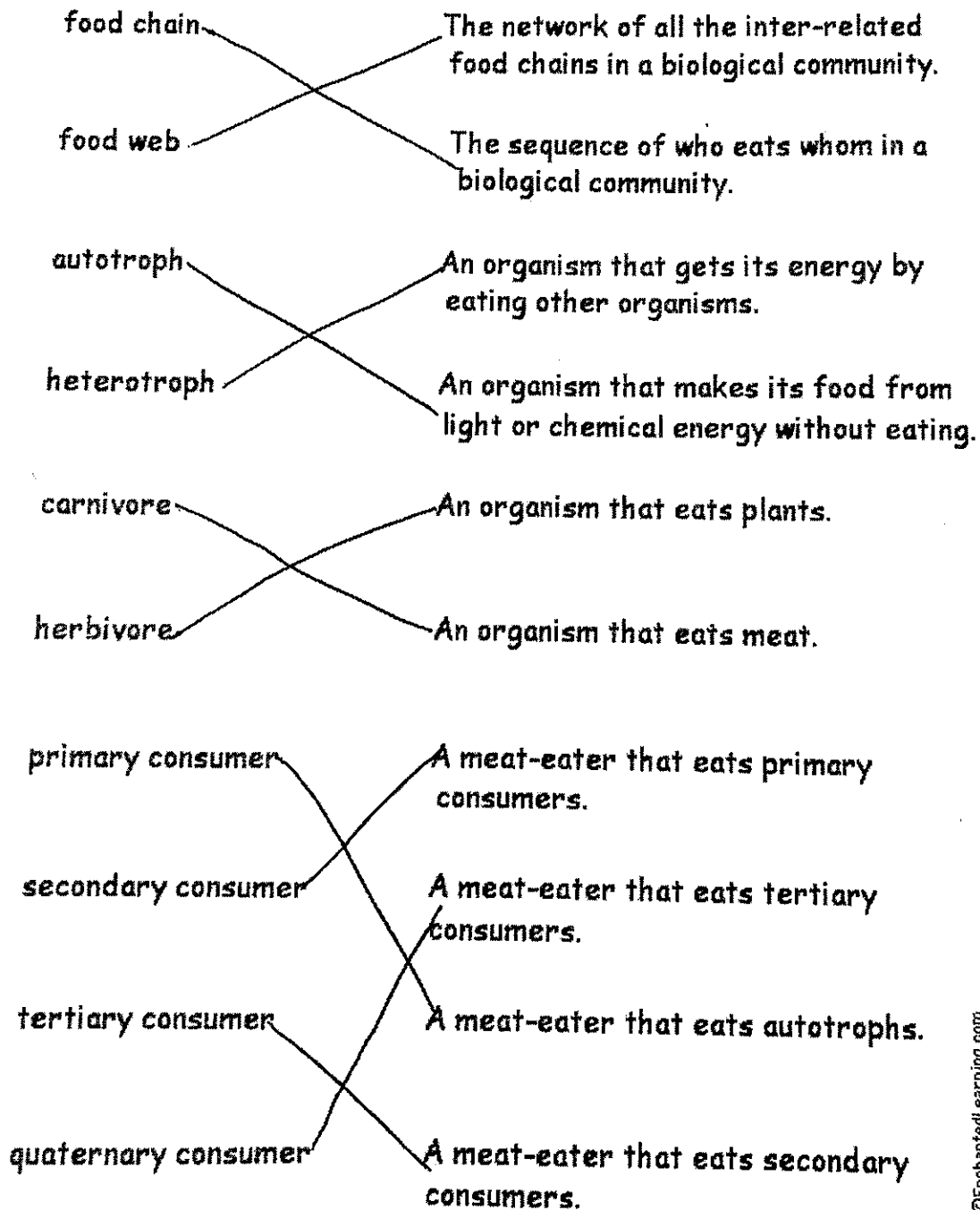
<p>1. A plant is ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. an autotroph</li> <li><input type="radio"/> B. a heterotroph</li> <li><input type="radio"/> C. a primary producer</li> <li><input checked="" type="radio"/> D. A and C</li> </ul>	<p>6. A person who eats a chicken that ate grain is a ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary producer</li> <li><input type="radio"/> B. primary consumer</li> <li><input checked="" type="radio"/> C. secondary consumer</li> <li><input type="radio"/> D. quaternary consumer</li> </ul>
<p>2. A cow is ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. a primary consumer</li> <li><input type="radio"/> B. a heterotroph</li> <li><input type="radio"/> C. an herbivore</li> <li><input checked="" type="radio"/> D. all of the above</li> </ul>	<p>7. Primary consumers eat ...</p> <ul style="list-style-type: none"> <li><input checked="" type="radio"/> A. primary producers</li> <li><input type="radio"/> B. primary consumers</li> <li><input type="radio"/> C. secondary consumers</li> <li><input type="radio"/> D. quaternary consumers</li> </ul>
<p>3. Autotrophs ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. make their own food</li> <li><input type="radio"/> B. are the base of the food chain</li> <li><input type="radio"/> C. are primary producers</li> <li><input checked="" type="radio"/> D. all of the above</li> </ul>	<p>8. Secondary consumers eat ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary producers</li> <li><input checked="" type="radio"/> B. primary consumers</li> <li><input type="radio"/> C. tertiary consumers</li> <li><input type="radio"/> D. quaternary consumers</li> </ul>
<p>4. A lion that eats a zebra that ate grass is a ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary producer</li> <li><input type="radio"/> B. primary consumer</li> <li><input checked="" type="radio"/> C. secondary consumer</li> <li><input type="radio"/> D. quaternary consumer</li> </ul>	<p>9. Tertiary consumers eat ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary producers</li> <li><input type="radio"/> B. primary consumers</li> <li><input checked="" type="radio"/> C. secondary consumers</li> <li><input type="radio"/> D. quaternary consumers</li> </ul>
<p>5. A bear that eats a fish that ate bugs that ate algae is a ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary producer</li> <li><input type="radio"/> B. primary consumer</li> <li><input type="radio"/> C. secondary consumer</li> <li><input checked="" type="radio"/> D. tertiary consumer</li> </ul>	<p>10. Quaternary consumers eat ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary producers</li> <li><input type="radio"/> B. primary consumers</li> <li><input type="radio"/> C. secondary consumers</li> <li><input checked="" type="radio"/> D. tertiary consumers</li> </ul>

**Food Chain Quiz #2 - Multiple choice comprehension questions**  
 Color the circle by each correct answer.

<p>1. A heterotroph ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. is an autotroph</li> <li><input checked="" type="radio"/> B. eats other organisms</li> <li><input type="radio"/> C. is a primary producer</li> <li><input type="radio"/> D. A and C</li> <li><input type="radio"/> E. none of the above</li> </ul>	<p>6. A top predator...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. has no natural enemies</li> <li><input type="radio"/> B. is a meat eater</li> <li><input type="radio"/> C. is a heterotroph</li> <li><input checked="" type="radio"/> D. all of the above</li> <li><input type="radio"/> E. none of the above</li> </ul>
<p>2. A cow (that eats plants) is ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. a primary consumer</li> <li><input type="radio"/> B. a heterotroph</li> <li><input type="radio"/> C. an herbivore</li> <li><input checked="" type="radio"/> D. all of the above</li> <li><input type="radio"/> E. none of the above</li> </ul>	<p>7. A detritivore ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. is an autotroph</li> <li><input checked="" type="radio"/> B. eats decomposing matter</li> <li><input type="radio"/> C. kills animals</li> <li><input type="radio"/> D. all of the above</li> <li><input type="radio"/> E. none of the above</li> </ul>
<p>3. If a person eats a vegetable, the person is acting as ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. a primary producer</li> <li><input checked="" type="radio"/> B. a primary consumer</li> <li><input type="radio"/> C. a secondary consumer</li> <li><input type="radio"/> D. a tertiary consumer</li> <li><input type="radio"/> E. a quaternary consumer</li> </ul>	<p>8. As nutritional energy passes through the food chain, energy ...</p> <ul style="list-style-type: none"> <li><input checked="" type="radio"/> A. is lost</li> <li><input type="radio"/> B. is gained</li> <li><input type="radio"/> C. remains constant</li> <li><input type="radio"/> D. increases, then decreases</li> <li><input type="radio"/> E. decreases, then increases</li> </ul>
<p>4. If a person eats a steak (from a cow), the person is acting as ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. a primary producer</li> <li><input type="radio"/> B. a primary consumer</li> <li><input checked="" type="radio"/> C. a secondary consumer</li> <li><input type="radio"/> D. a tertiary consumer</li> <li><input type="radio"/> E. a quaternary consumer</li> </ul>	<p>9. There are more primary producers than there are ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary consumers</li> <li><input type="radio"/> B. secondary consumers</li> <li><input type="radio"/> C. tertiary consumers</li> <li><input type="radio"/> D. quaternary consumers</li> <li><input checked="" type="radio"/> E. all of the above</li> </ul>
<p>5. If a person eats a salmon (that ate smaller fish that ate algae), the person is acting as ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. a primary producer</li> <li><input type="radio"/> B. a primary consumer</li> <li><input type="radio"/> C. a secondary consumer</li> <li><input checked="" type="radio"/> D. a tertiary consumer</li> <li><input type="radio"/> E. a quaternary consumer</li> </ul>	<p>10. There are more tertiary consumers than there are ...</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. primary consumers</li> <li><input type="radio"/> B. secondary consumers</li> <li><input type="radio"/> C. tertiary consumers</li> <li><input checked="" type="radio"/> D. quaternary consumers</li> <li><input type="radio"/> E. all of the above</li> </ul>

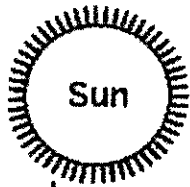
Match each Food Chain Word to its Definition.

Draw a line from each word on the left to its definition.



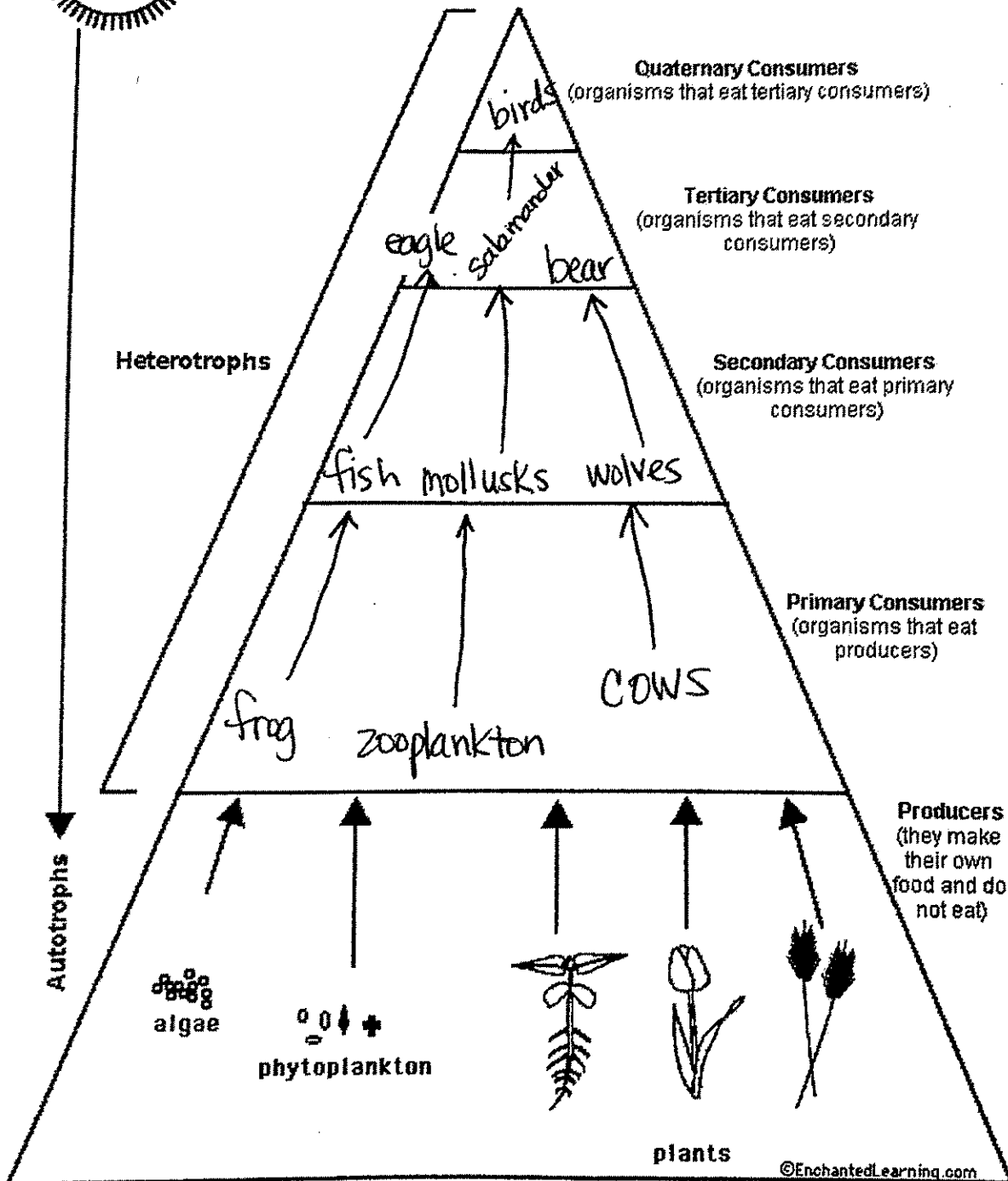
Answers will vary 😊

## Food Chain Trophic Levels - Worksheet



The trophic level of an organism is the position it holds in a food chain. For example, plants are producers, zebras are primary consumers (because they eat grass), and lions are secondary consumers (because they eat zebras).

Write organisms for each trophic level.





## Food Chain Questions

1. What travels through a food chain or web?  
energy
2. What is the ultimate energy for all life on Earth?  
Sun & boiling-hot deep sea vents
3. Food chains start with what?  
primary energy source
4. The 1<sup>st</sup> organism in a food chain must always be what type of organism?  
autotrophs or primary producers
5. Name 2 food making processes.  
photosynthesis & chemosynthesis
6. Where do chemosynthetic bacteria get their energy?  
chemicals in hydrothermal vents
7. Define herbivore.  
a primary consumer (an organism that eats the autotrophs)
8. Herbivores are also called primary consumer.
9. What are animals called that feed on herbivores? secondary consumers
10. Secondary consumers are eaten by larger predators.
11. Tertiary consumers eat secondary consumers.
12. Make a food chain with a producer and 3 consumers.  
grass → grasshopper → mouse → snake

## Food Web Questions

1. What is used to indicate the flow of energy in a food chain or web?  
the arrows
2. What happens to energy as we move from step to step in a chain or web?  
energy is lost
3. Define food web.  
a network of food chains
4. What is meant by trophic levels?  
the position it holds in a food chain.
5. Define autotroph.  
organisms that make their own food from sunlight and/or chemical energy from deep sea vents

6. The 1<sup>st</sup> trophic level consists of primary producers called autotrophs.
7. Name the 2<sup>nd</sup> trophic level (both names). primary consumers/herbivores
8. Secondary consumers may be carnivores eating meat or omnivores that eat both plants and animals.
9. What is the 3<sup>rd</sup> trophic level called? Secondary consumers
10. What is the 4<sup>th</sup> trophic level called? tertiary consumers
11. At the 5<sup>th</sup> trophic level would be Quaternary consumers that eat tertiary consumers.
12. Give an example of 3 detritivores. On what do they feed?  
Vultures, worms, crabs - feed on dead organisms
13. What organism feeds on dead plants and animals and helps recycle them?  
decomposers
14. Both bacteria and fungi act as decomposers
15. Can an organism fill more than one trophic level --- yes or no? Give an example.

