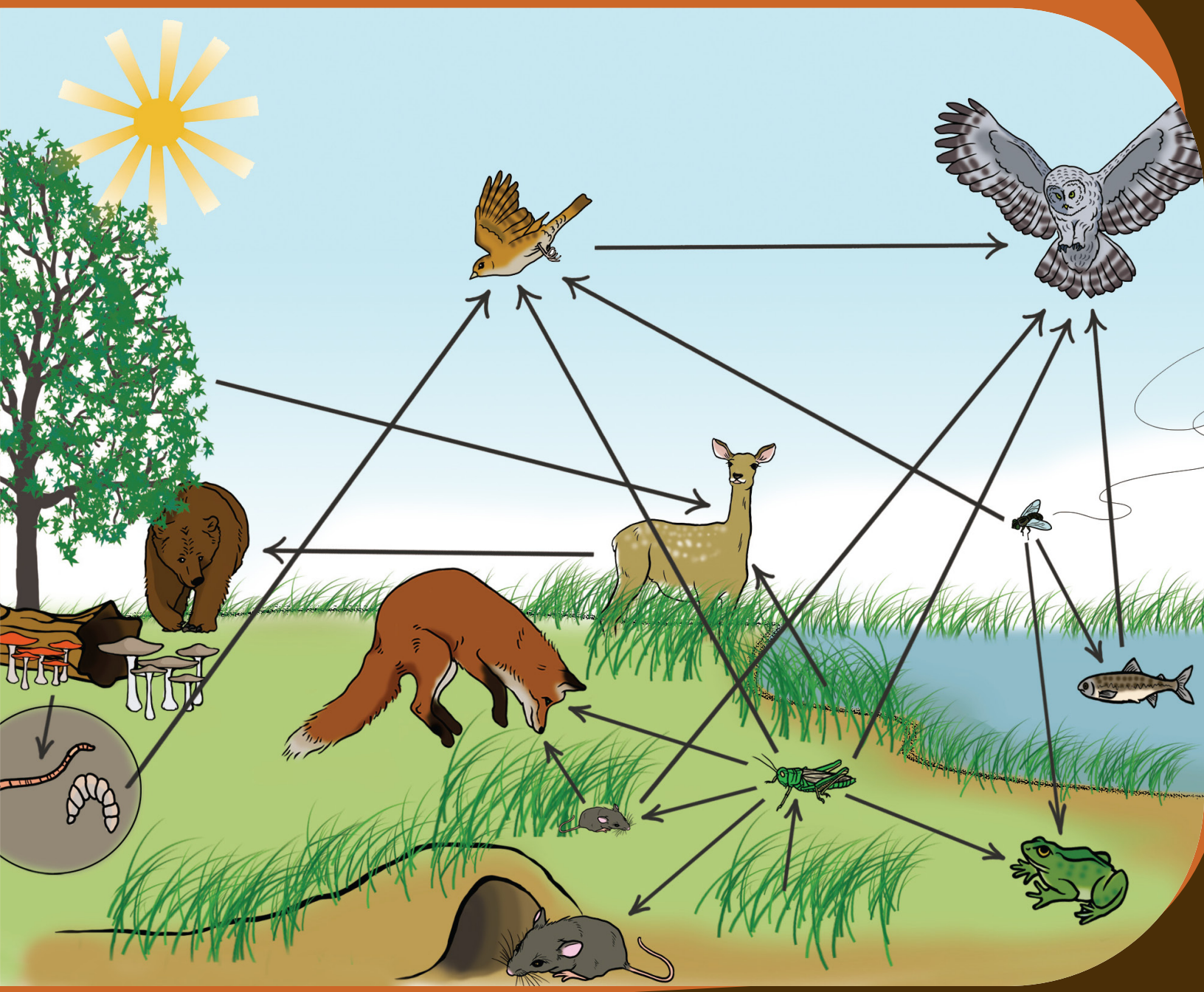
Food Webs

4th grade



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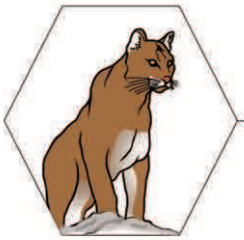
** Has an Answer Sheet*

Vocabulary

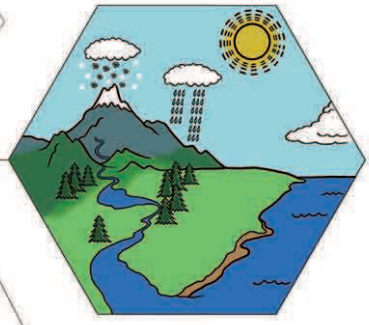
You're going to come across some new vocabulary in this workbook.
If you get stuck, simply turn back to this page. The words are in alphabetical order.



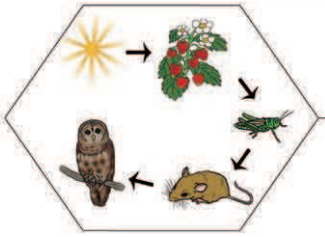
carnivore [kahr-nuh-vohr] : an animal that eats only meat.

consumers [kuhn-soo-mer] : living things that eat other living things.

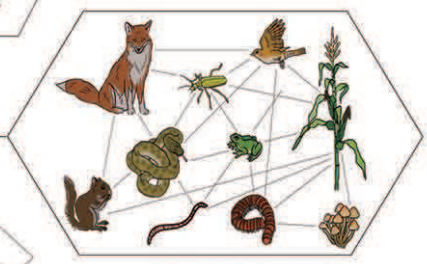
decomposer [dee-kuhm-poh-zer] :
an organism that breaks down dead plants and animals.



ecosystem [ee-koh-sis-tuh m] :
a community of living and non-living things that work together.



food chain [food cheyn] :
shows how living things rely on each other for food and how energy is moved from one living thing to another.



food web [food web] : a group of connected food chains.

herbivore [hur-buh-vohr] : an animal that eats only plants.

habitat [hab-i-tat] : an area or environment where a plant or animal normally lives.

omnivore [om-nuh-vawr, -vohr] :
an animal that eats plants and animals.

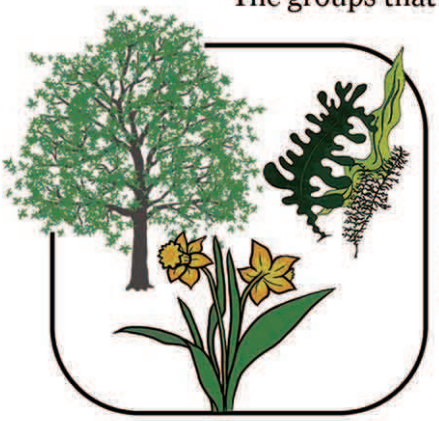
predator [pred-uh-ter] :
an animal that hunts and eats other animals.

prey [prey] : an animal that is hunted by other animals.

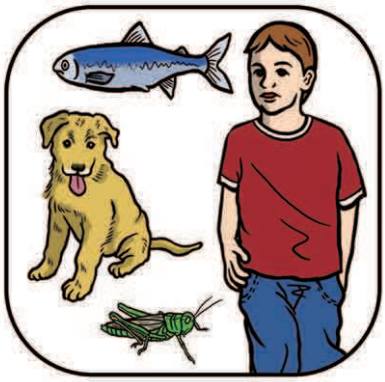
producer [pruh-doo-ser](also called autotroph [aw-tuh-trof]) :
a living thing that can produce or make its own food.

Producers, Consumers, and Decomposers

Living things can be divided into many groups.
The groups that make up a food chain are *producers, consumers*, and *decomposers*.



Producers are living things that produce, or make, their own food. Plants are producers; they make their food from water and sunlight in a process called photosynthesis. Some organisms in the ocean, like plankton and algae, also use the sun's energy to make their own food. Most of the living things on Earth are producers. They provide the energy for all other living things.



Consumers are living things that eat other living things, and include herbivores, carnivores, and omnivores. Herbivores are animals that only eat plants; ex. squirrels, butterflies, and zebras. Carnivores are animals that only eat other animals; ex. lions, sharks, and the Venus flytrap. Lions are also an example of predators, animals that hunt and eat other animals, called prey. Omnivores are animals that eat both plants and animals, ex. people, bears, and raccoons.

Decomposers are organisms that break down dead plants and animals, so they can return to the earth as nutrients for plants. Worms, mushrooms, slugs, and aquatic fungi are examples of decomposers. Other parts of the food chain also eat the decomposers, so nothing is wasted. Think of humans eating mushrooms, for example. Since all living things eventually return to the earth, the food chain is really the circle of life.

Draw lines connecting the word to the correct definition.

•

•

•

Living things that can produce or make their own food.

Living things that eat other living things.

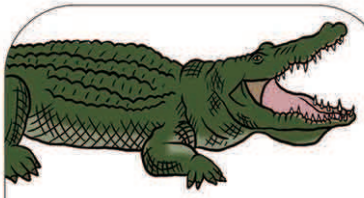
An organism that breaks down dead plants and animals.

Consumers Diagram

Take a look at these animals: Your job is to write the animals in the correct areas.
The circle on the left is for herbivores only. The circle on the right is for carnivores only.
The intersection of the two circles in the middle is for omnivores.

Zebra
(leaves, bark, grass)

Boa
(birds, small rodents, lizards)



Black caiman
(fish, turtles, birds)

Toucan
(small fruit, insects)

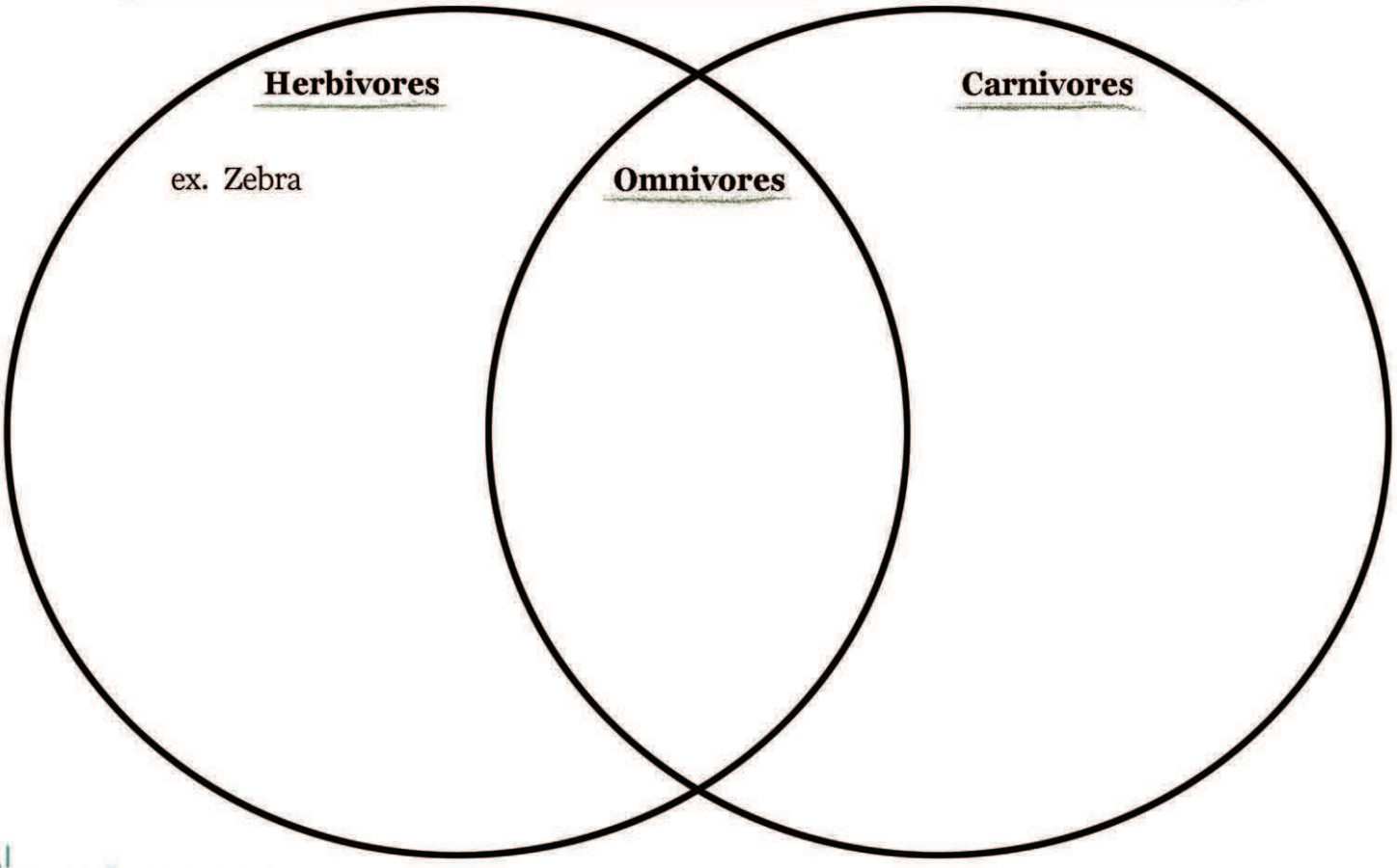
Gorilla
(leaves, fruit, bark)

Birdwing butterfly
(pipevine plants,
nectar from flowers)

Red-eyed tree dog
(insects, smaller frogs)

Lemur
(fruit, leaves, insects)

Orangutan
(tropical fruit, leaves, bark)



Let's review before we move forward!

You've learned about predators, prey, carnivores, omnivores, herbivores, producers, consumers and decomposers. Now, let's double check before we move forward.

Hint: Use the vocabulary page at the beginning of the workbook if you get stuck.

1. Why are green plants called producers?

_____

2. Why are animals considered consumers?

_____

3. What is a predator?

_____

4. What is prey?

_____

5. What is the source of energy for plants?

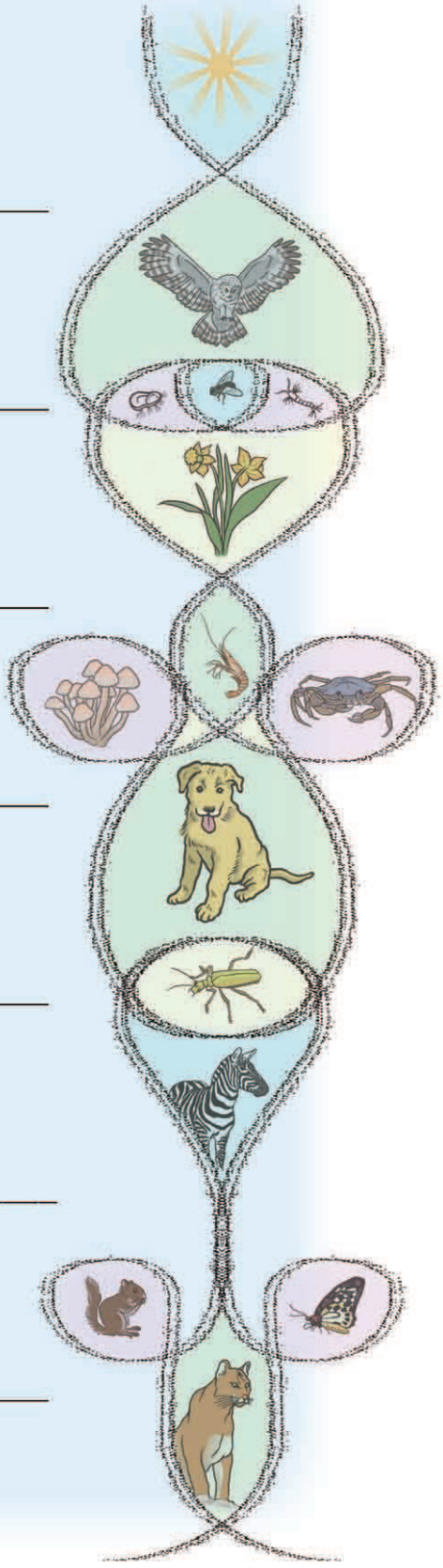
_____

6. Why are decomposers important?

_____

7. What would happen if the sun didn't exist?

_____

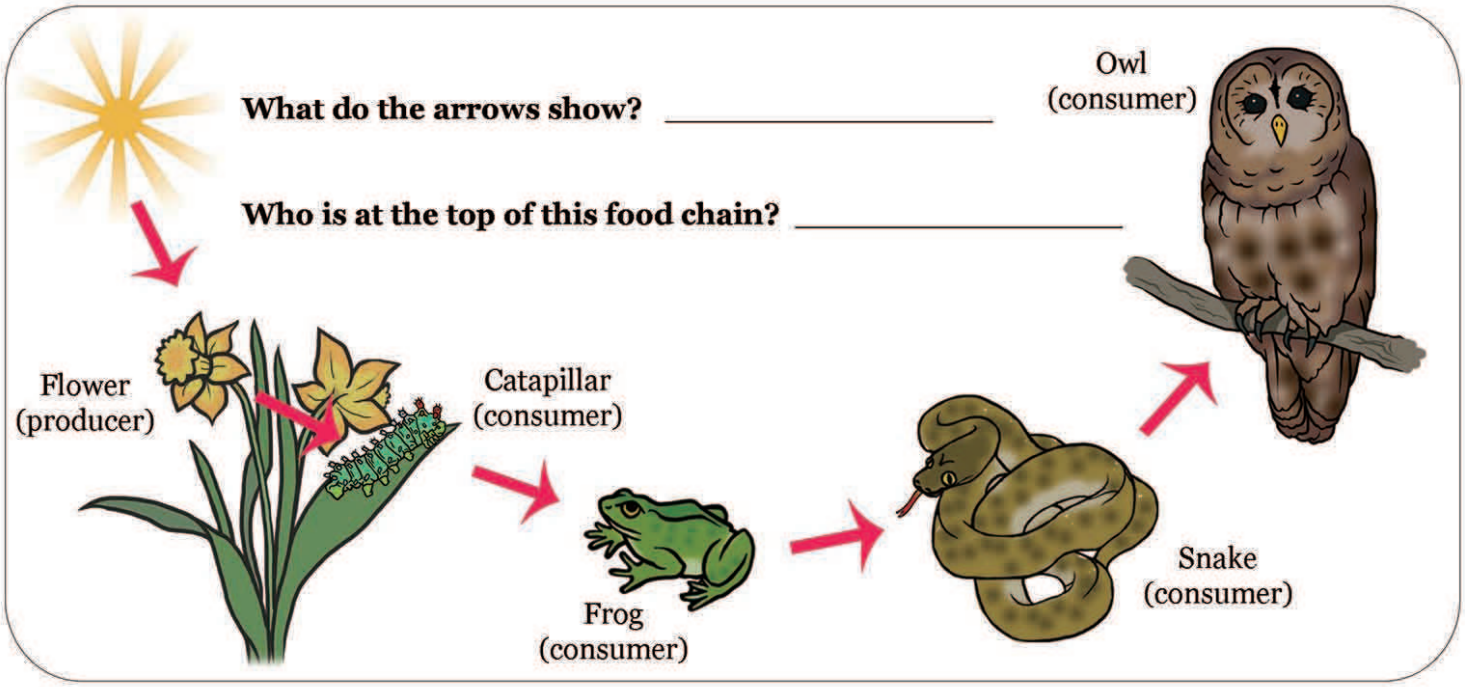


Food Chains

Here are some important facts about food chains:

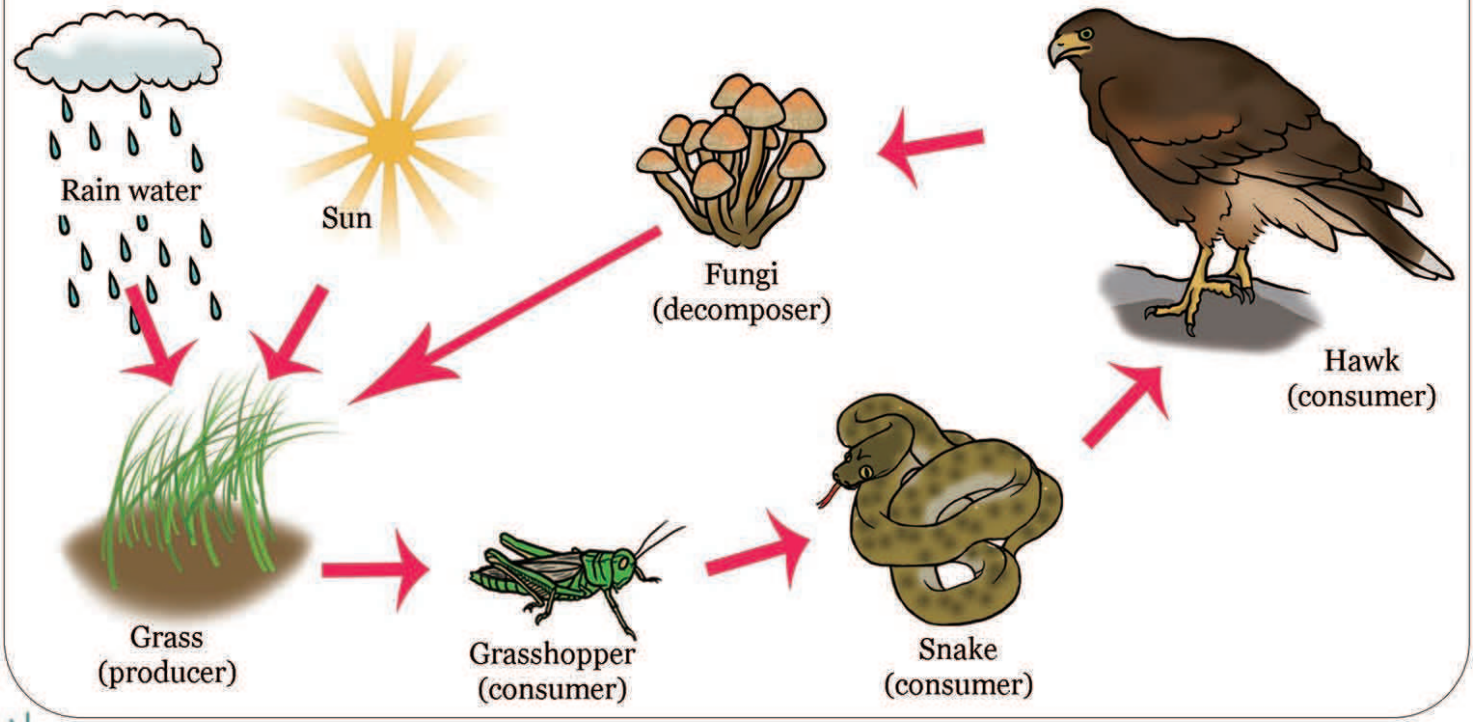
- The sun provides food for the producer.
- A food chain shows who is eating whom.
- There are many different food chains.
- A food chain usually begins with plants. Therefore, they are normally at the bottom of a food chain.

Look at the food chains below and then answer the questions.



What does the hawk eat? _____

What does the grass need to survive? _____ , _____ **and** _____



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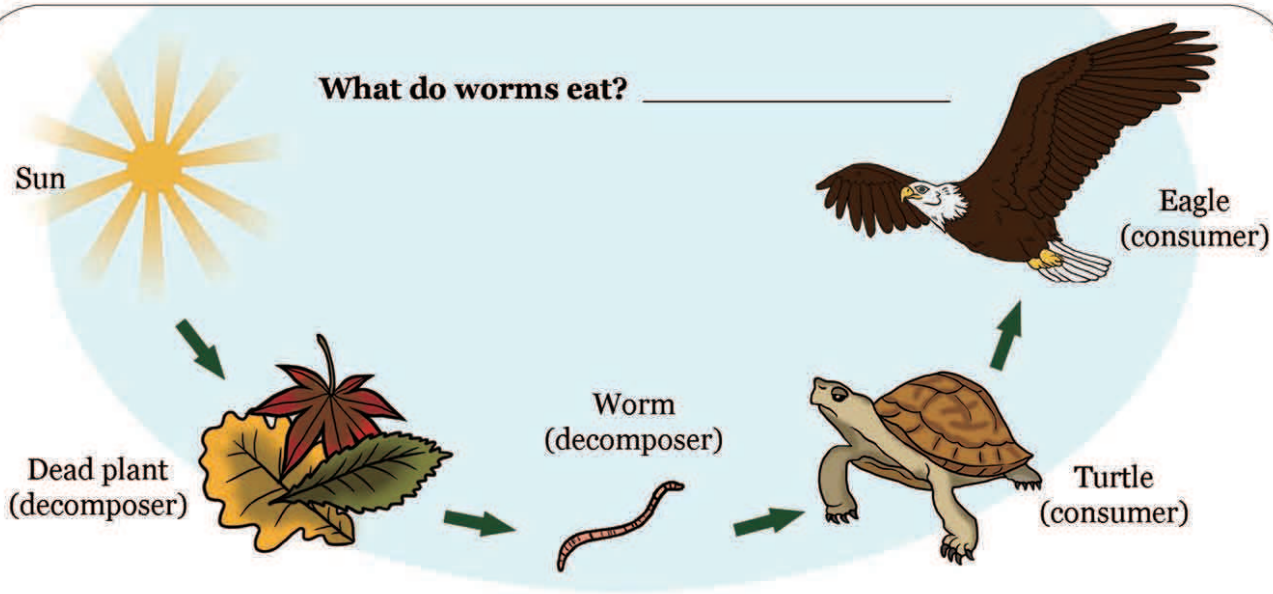
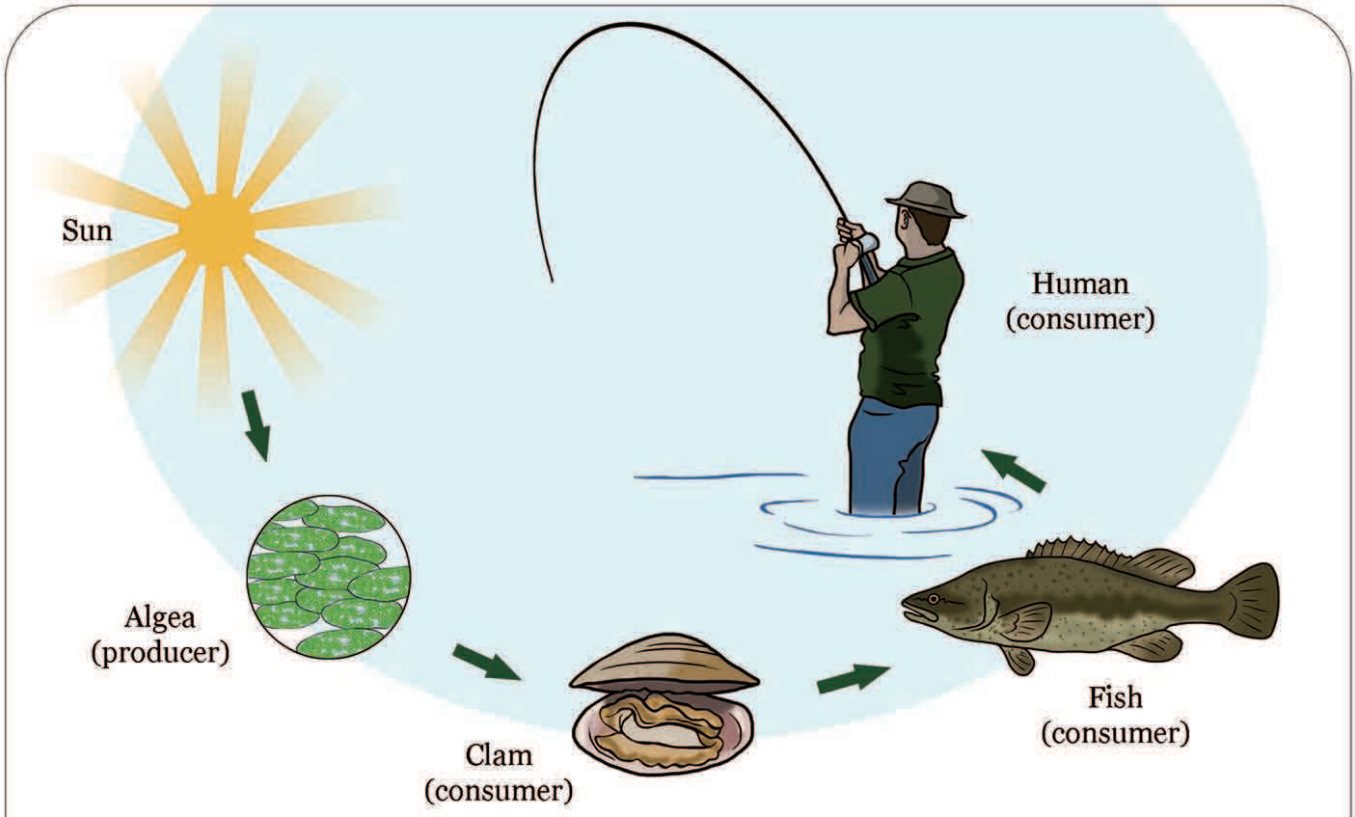
Food Chains



The worm plays two important roles in the food chain. What are they?

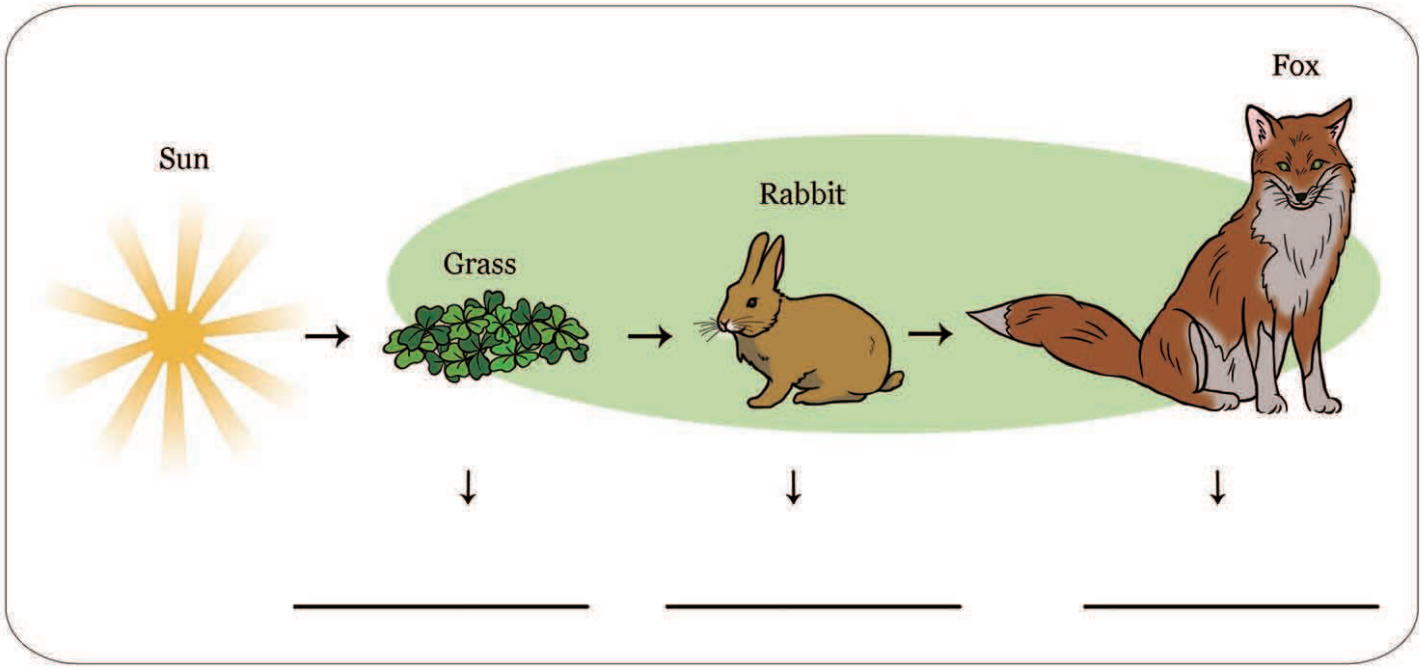
_____ **and** _____

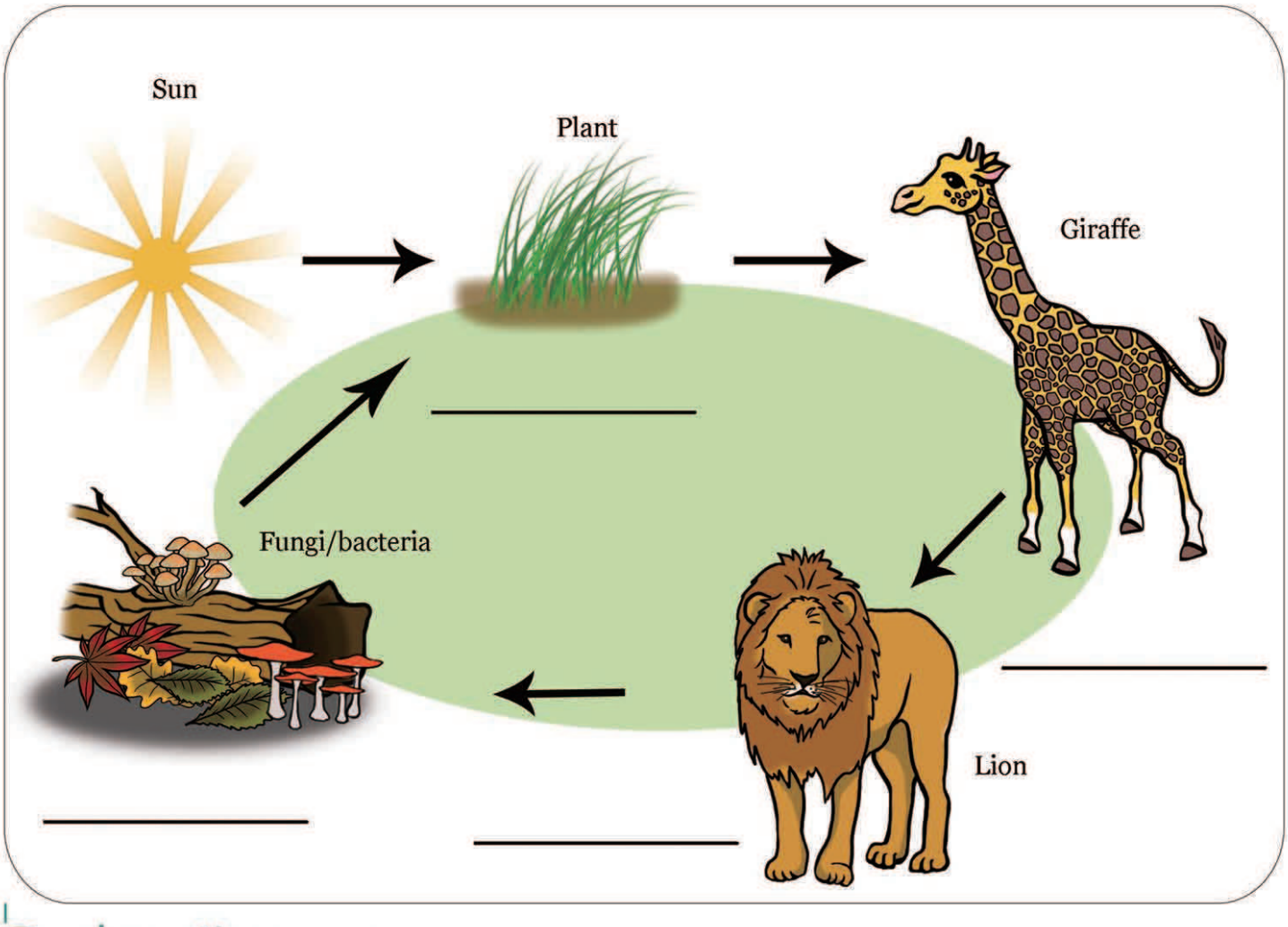


What is the last consumer in this picture? _____

Food Chains

Label each organism/animal in the food chain below with "producer," "consumer," or "decomposer."

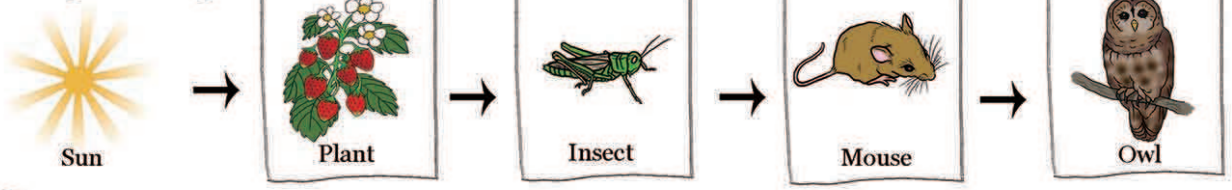




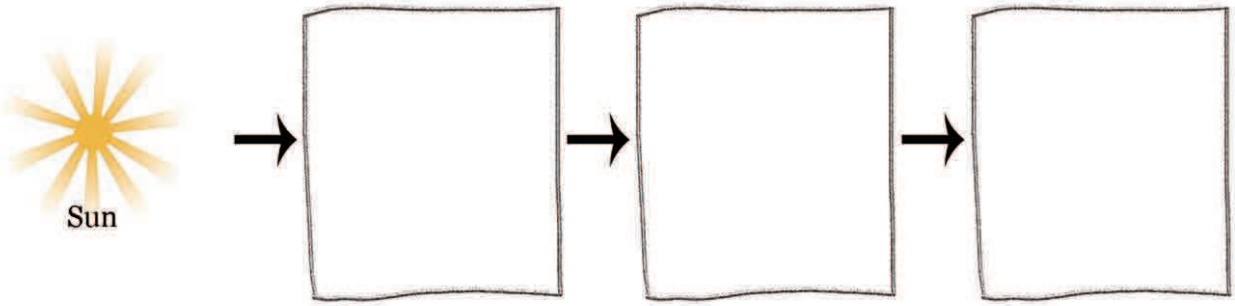
Create Your Own Food Chains

Draw pictures of the animals and organisms of each food chain in the blank boxes.
Make sure you draw them in the right order!

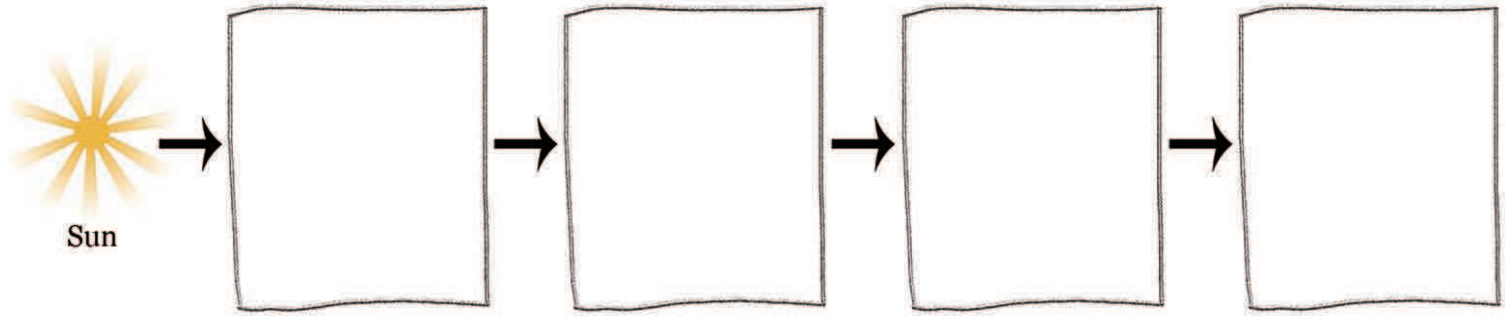
Completed example



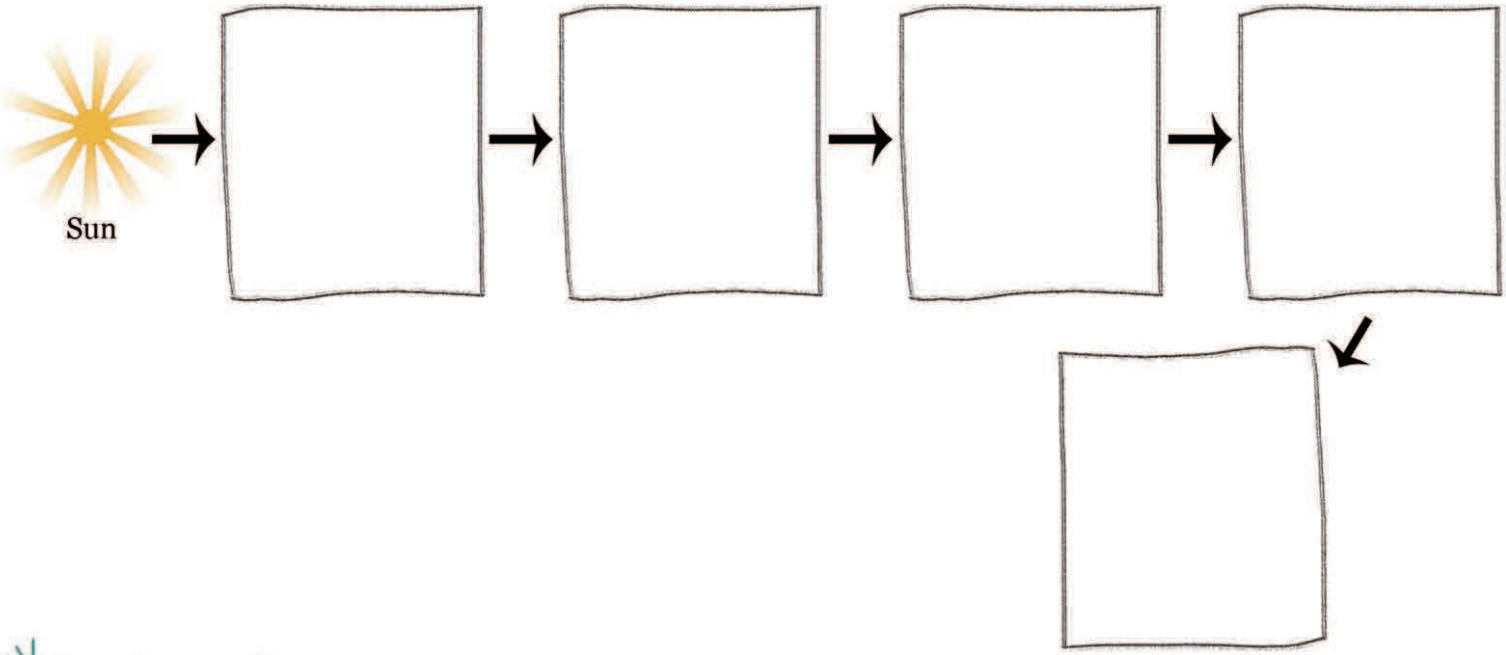
1. deer, grass, wolf



2. Corn, mouse, snake, hawk



3. algae, cod fish, polar bear, seal, shrimp

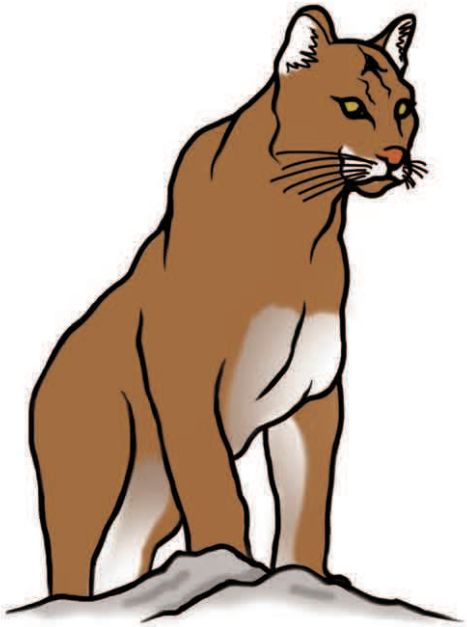


Dinner Time!

The cougar's stomach is rumbling.....

It's time for dinner!

It looks around and sees a few deer not far off.
Write a story about the cougar and the deer.



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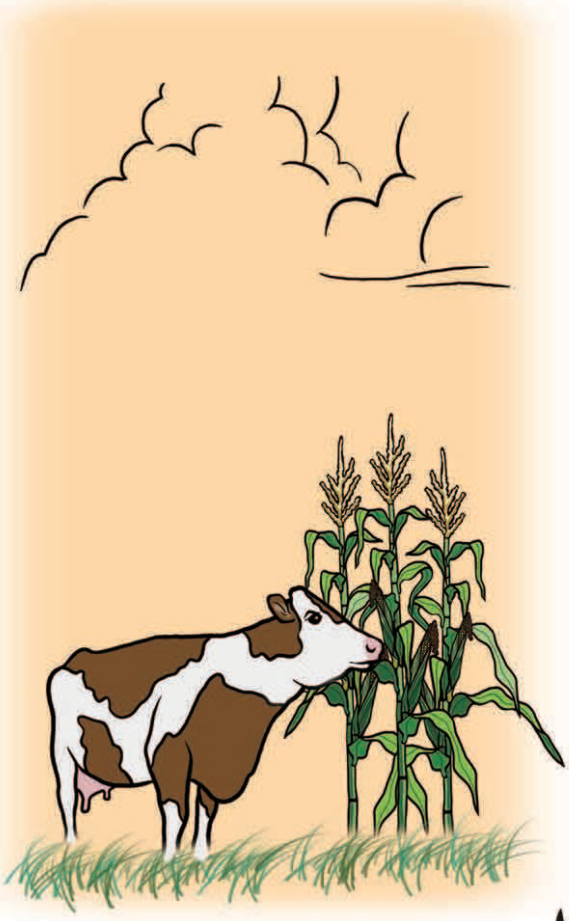
The Game of Chains

How to play:

- Cut out the game boards and cards along the dotted lines.
- Each player gets a board.
- Shuffle the cards and set them in a stack facing down.
- Take turns drawing cards one at a time.
- Place the card in the right space on your game board.
- If there is no empty space on your board for a card you draw, put the card back into the stack at the bottom.
- The player who fills his or her game board first wins!



Player 1

Player 2

Cut out the game cards along the lines.

Meadow

producer

Leaf

producer

Tree

producer

Apples

producer

Corn field

producer

Cactus

producer

Rabbit

herbivore

Antelope

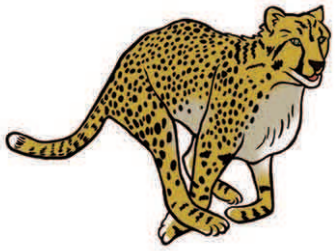
herbivore

Squirrel

herbivore

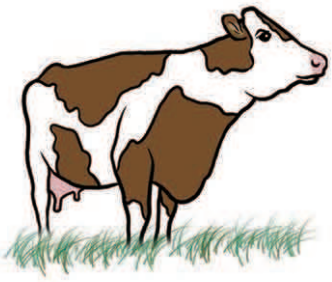
Cut out the game cards along the lines.

Cheetah



carnivore

Cow



herbivore

Sloth

omnivore

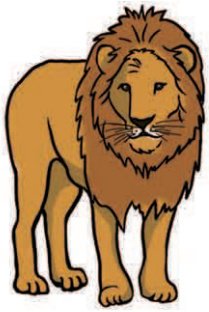
Wolf

carnivore

Giant Panda

herbivore

Lion



carnivore

Zebra

herbivore

Honey badger

carnivore

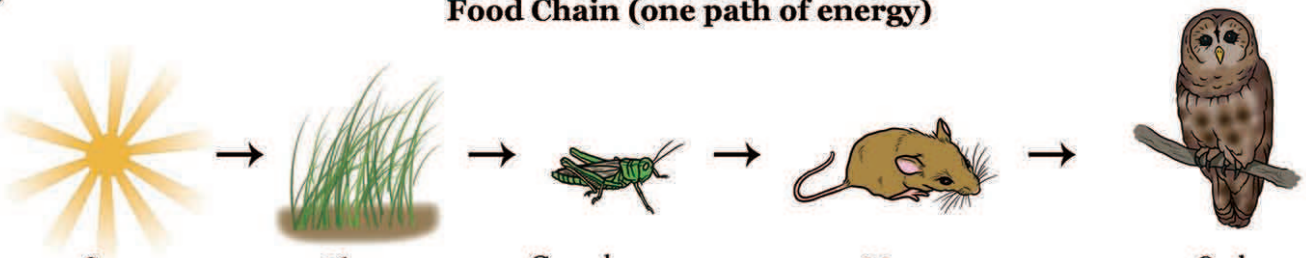
Human

omnivore

Intro to Food Webs

A food chain shows one path through which energy flows. A food chain with a plant, grasshopper, mouse and owl, for example, shows that energy flows from the plant to the grasshopper, and then to the mouse and owl. But ecosystems are more complex than that. An owl may eat rabbits, small birds, and mice. A food web shows multiple paths of energy flow, instead of just one.

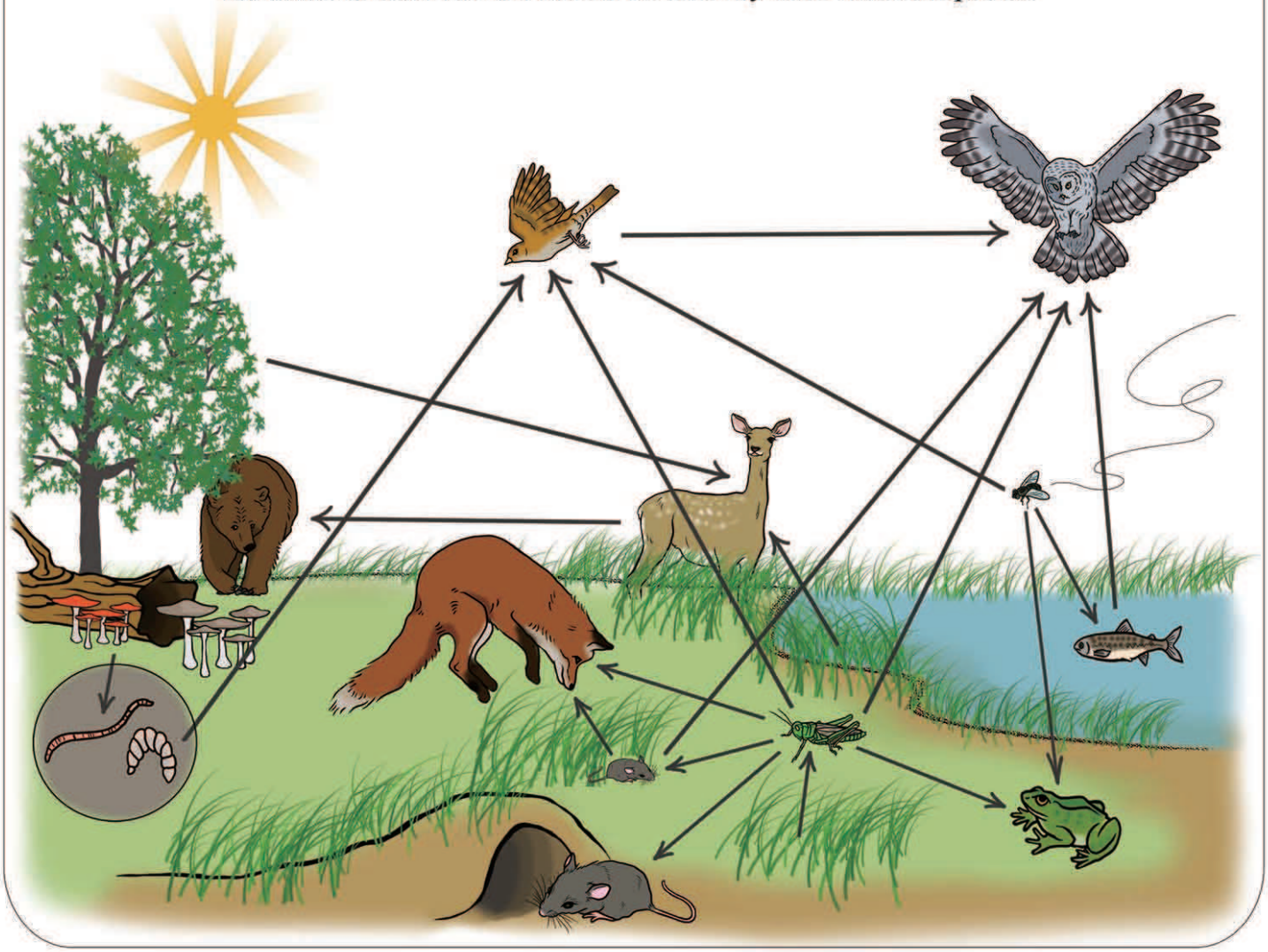
Food Chain (one path of energy)



VS.

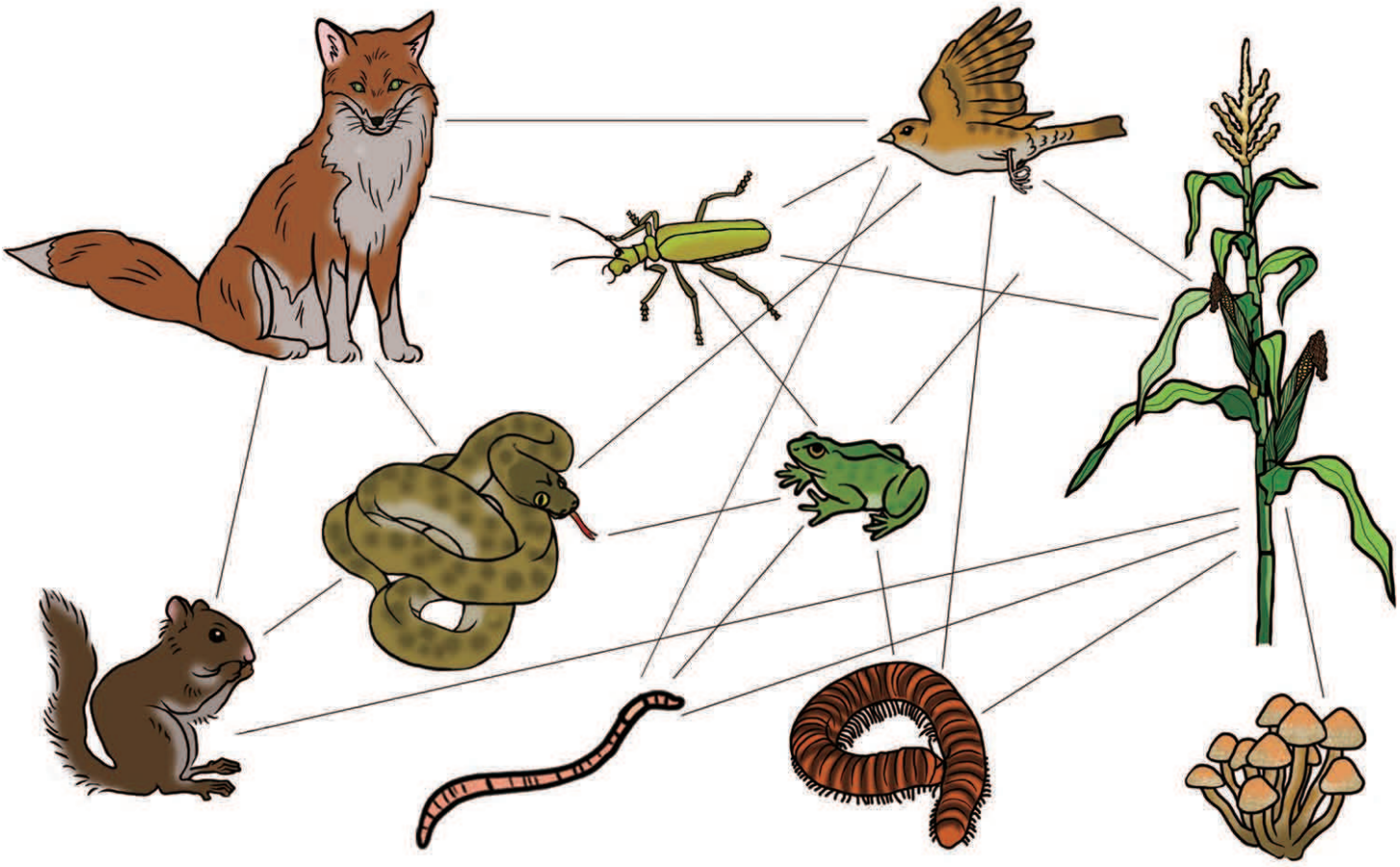
Food Web (multiple paths of energy)

A food web includes many food chains that are connected to one another. It shows that most animals eat and are eaten by more than one species.



Food Web Review

Decide if the animal/organism is a producer, consumer, or decomposer and write it on the chart.
If it is a consumer, make sure you label it herbivore, omnivore, or carnivore.



Producers	Consumers	Decomposers

Create a Food Web

Now that you've gotten to know food chains and food webs, it's time to create your own. If you get stuck, do some research online or at a library.

Here's what your food web must have:

- There must be at least seven living things in your web.
- There must be at least two producers, two consumers, and one decomposer.
- All of the plants and animals must be from the same habitat.
- Your food web must contain pictures and names of each living thing.
- The arrows must point from the living thing being eaten to the living thing doing the eating to correctly represent the energy flow.

Create your own!

Prove it!

As a scientist, you need to be able to read scientific text and find the important information. Let's do a review of what you've learned about food chains and food webs.

Living things can be divided into many groups, including producers, consumers, and decomposers. Producers are living things that produce their own food. Plants, for example, are producers that use the sun and the process of photosynthesis to make their food.

Consumers are living things that eat other living things. Consumers can be grouped into herbivores, carnivores, and omnivores.

All living things rely on each other for food. A food chain shows this relationship and how energy in the form of food transfers from one living thing to another. Here is an example: A plant makes its own food by using energy from the sun. Caterpillars eat plants, small birds eat caterpillars, and other animals such as cats hunt small birds. In this way, energy from the sun is transferred all the way up the food chain to the cat.

Remember, a predator is a living thing that hunts animals, and prey is an animal that is hunted. An animal can be both a predator and prey. In the food chain mentioned above, caterpillars are prey for small birds, and small birds are prey for cats. While cats are predators, they may be hunted by even larger predators, like bears.

A food web is a group of food chains that are connected. Imagine the ocean: Plankton use sunlight to produce food. Krill eat plankton. Animals like fish, seals, penguins, and certain whales feed on krill. Seals and penguins both eat fish, but the seals also eat the penguins. Sharks and killer whales eat both seals and penguins. In this food web, killer whales are the top of the food chain because they have no natural predators.

A food web is a complex system that needs balance. For example, if a predatory animal dies out, the population of the animals it preys on would increase. The overpopulated prey might eat up all the producers, leaving the landscape barren and lifeless. If certain prey becomes endangered or extinct, its predators might not have enough food and their numbers would also fall. Humans have a huge impact on food webs. Humans are responsible for pollution, habitat destruction, pesticide use, and overfishing, all of which can weaken or destroy food webs.

Prove it!

Answer the questions and write down the sentences from the text that support your answers. Remember to use quotation marks!

1. How do plants make their own food? _____

Which sentence supports your answer?

_____

2. What are consumers? _____

Which sentence supports your answer?

_____

3. What does a food chain show? _____

Which sentence supports your answer?

_____

4. What is a food web? _____

Which sentence supports your answer?

_____

5. What happens if a type of predator dies out? _____

Which sentence supports your answer?

_____

Prove it!

The main idea tells you what the text is all about. Sometimes a text has more than one main idea. This is especially true in science when you are often given a lot of information at once.
Put an X next to the main ideas. Make sure it is a main idea that shows the big picture and not just a supporting detail.

1. __X_ All living things are divided up into many different groups.

2. _____ A producer can make its own food.

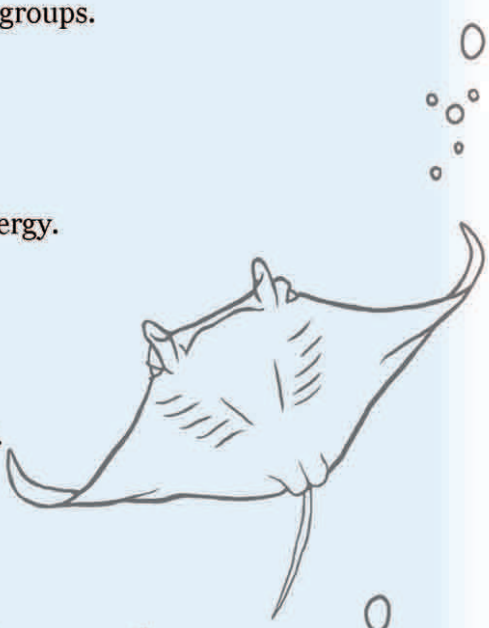
3. _____ All living things rely on each other for food and energy.

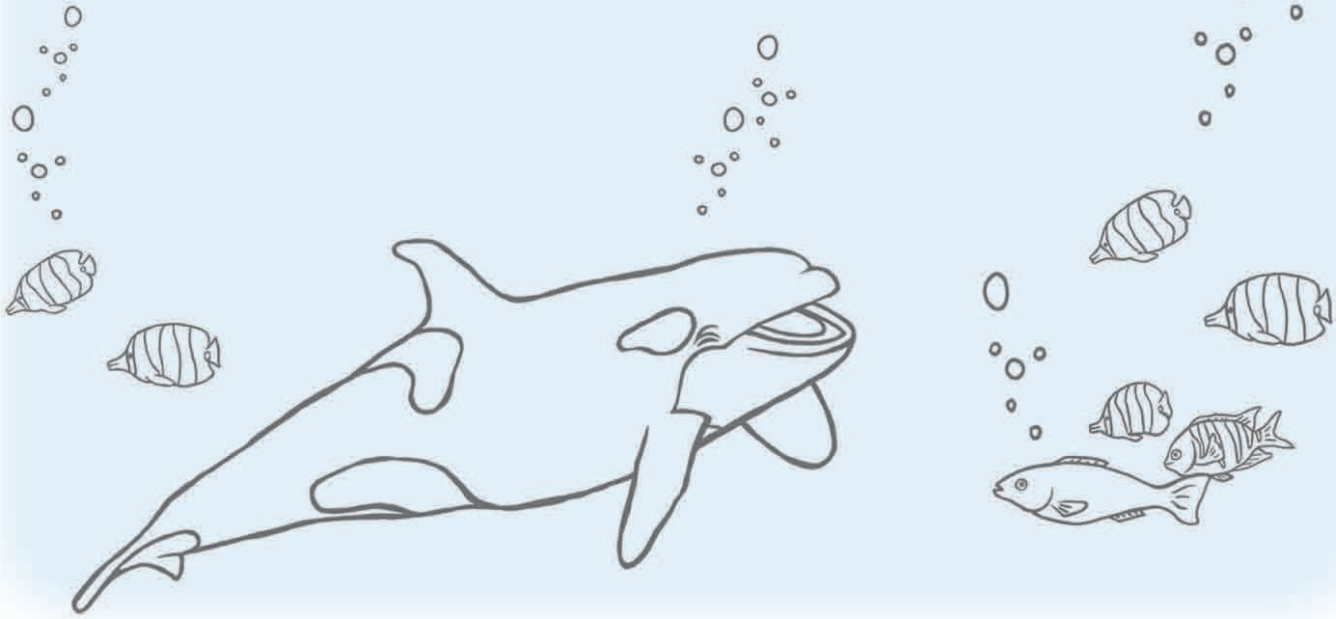
4. _____ A food web is a group of connected food chains.

5. _____ Adult killer whales are at the top of their food web.

6. _____ Balance in a food web is very important.

7. _____ Caterpillars are prey for small birds, and small birds are prey for cats.





Review

Directions: Put all your knowledge to the test. Circle the correct answer.

1. What two major elements make up most food webs?
   a. The sun and producers
   b. Producers and consumers
   c. Carnivores and herbivores
   d. Decomposers and omnivores

2. Humans can cause an imbalance in the food chain.
   a. True
   b. False

3. Why are decomposers important?
   a. Because without them there would be a lot of dead plants and animals.
   b. Because consumers depend on them for food.
   c. Because producers depend on them for food.
   d. None of the above.

4. People are...
   a. Omnivores
   b. Carnivores
   c. Herbivores
   d. Decomposers

5. How do plants grow?
   a. By absorbing nutrients from consumers.
   b. By being at the top of the food chain.
   c. Through photosynthesis.
   d. Plants do not need to grow because they are producers.

6. A cow is a carnivore.
   a. True
   b. False

7. A lion is at the top of its food chain.
   a. True
   b. False

8. The sun is the ultimate source of energy for all living things.
   a. True
   b. False

9. An animal is either a predator or a prey, not both.
   a. True
   b. False

10. What can weaken or destroy food webs?
    a. Pollution
    b. Habitat destruction
    c. Overfishing
    d. All of the above

Humans and Food Webs

Read the passage below about how humans can impact food webs, and then answer the questions.

Food webs are complex systems that must stay in balance, and since humans are the dominant species on the planet, we have an impact on food webs everywhere. You already know that if a part of a food web disappears, that affects the entire food web. Imagine this scenario: Humans cut down all the trees in a forest. Soon, the animals that feed on the trees, like deer, die from too little food. Next, the consumers that eat the deer, like wolves, also die from too little food. In this way, the whole food web is destroyed by human action.

Ecology is the study of the Earth and how to take care of it so that humans, plants, and animals can all live together healthfully. One way we can positively impact our Earth is through conservation. Conservation means using the planet's resources wisely so that they don't run out and there is enough for all living things, not just humans.

We can practice conservation by not wasting resources, like water, and by reducing the amount of waste we produce. Waste is any trash like soda bottles, tossed-out food, broken electronics, and old clothes. Americans create 220 million tons of trash every year. Paper makes up a lot of our trash, so much that we can use the paper we throw away each year to build a 12-foot tall wall going from New York to San Francisco. That's 10,000 sheets of paper per person! To reduce waste, you can recycle and compost. That way, we'll all use less paper and cut down fewer trees, leaving food webs in balance.

Follow-up Questions:

1. The word ecology comes from the Greek word that means "the study of the house." Now, ecology has a new meaning. How would you define ecology today?

2. What does conservation mean?

3. List three ways that you can reduce the amount of waste you produce?

4. Write two to three sentences explaining why it is it important to reduce waste and conserve our Earth's resources.

5. Write two to three sentences explaining how over-fishing (fishing a species to near extinction) can impact the food web.

Great job!

_____

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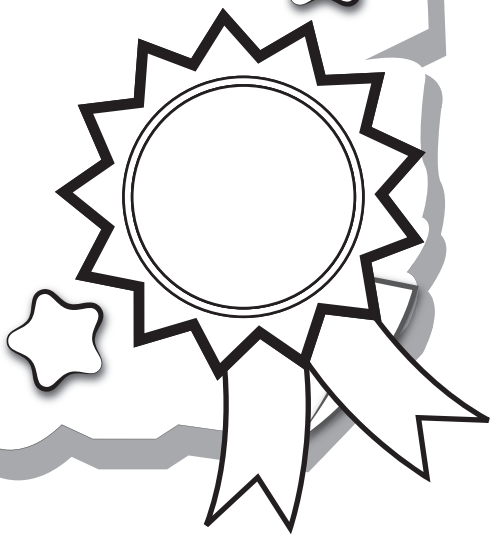


Answer Sheets

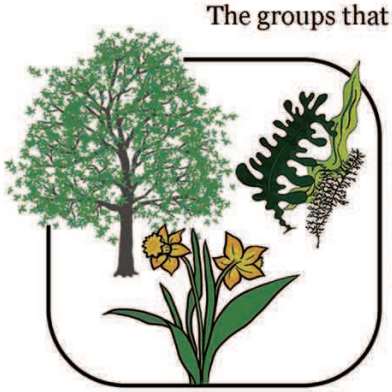
Food Webs

Answer Sheet

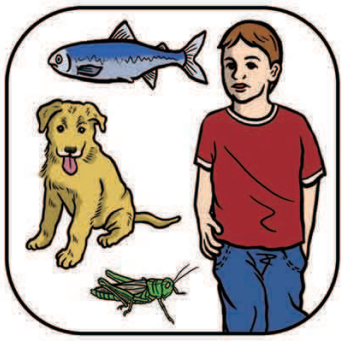
Producers, Consumers, and Decomposers

ANSWER

Living things can be divided into many groups.
The groups that make up a food chain are *producers, consumers*, and *decomposers*.



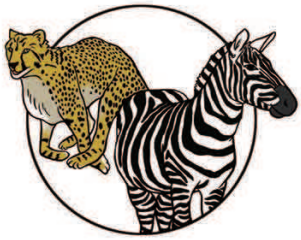
Producers are living things that produce, or make, their own food. Plants are producers; they make their food from water and sunlight in a process called photosynthesis. Some organisms in the ocean, like plankton and algae, also use the sun's energy to make their own food. Most of the living things on Earth are producers. They provide the energy for all other living things.



Consumers are living things that eat other living things, and include herbivores, carnivores, and omnivores. Herbivores are animals that only eat plants; ex. squirrels, butterflies, and zebras. Carnivores are animals that only eat other animals; ex. lions, sharks, and the Venus flytrap. Lions are also an example of predators, animals that hunt and eat other animals, called prey. Omnivores are animals that eat both plants and animals, ex. people, bears, and raccoons.

Decomposers are organisms that break down dead plants and animals, so they can return to the earth as nutrients for plants. Worms, mushrooms, slugs, and aquatic fungi are examples of decomposers. Other parts of the food chain also eat the decomposers, so nothing is wasted. Think of humans eating mushrooms, for example. Since all living things eventually return to the earth, the food chain is really the circle of life.

Draw lines connecting the word to the correct definition.



Living things that can produce or make their own food .

Living things that eat other living things .

An organism that breaks down dead plants and animals .

Answer Sheet

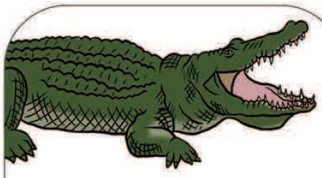
Answer

Consumers Diagram

Take a look at these animals: Your job is to write the animals in the correct areas.
The circle on the left is for herbivores only. The circle on the right is for carnivores only.
The intersection of the two circles in the middle is for omnivores.

Zebra
(leaves, bark, grass)

Boa
(birds, small rodents, lizards)



Black caiman
(fish, turtles, birds)

Toucan
(small fruit, insects)

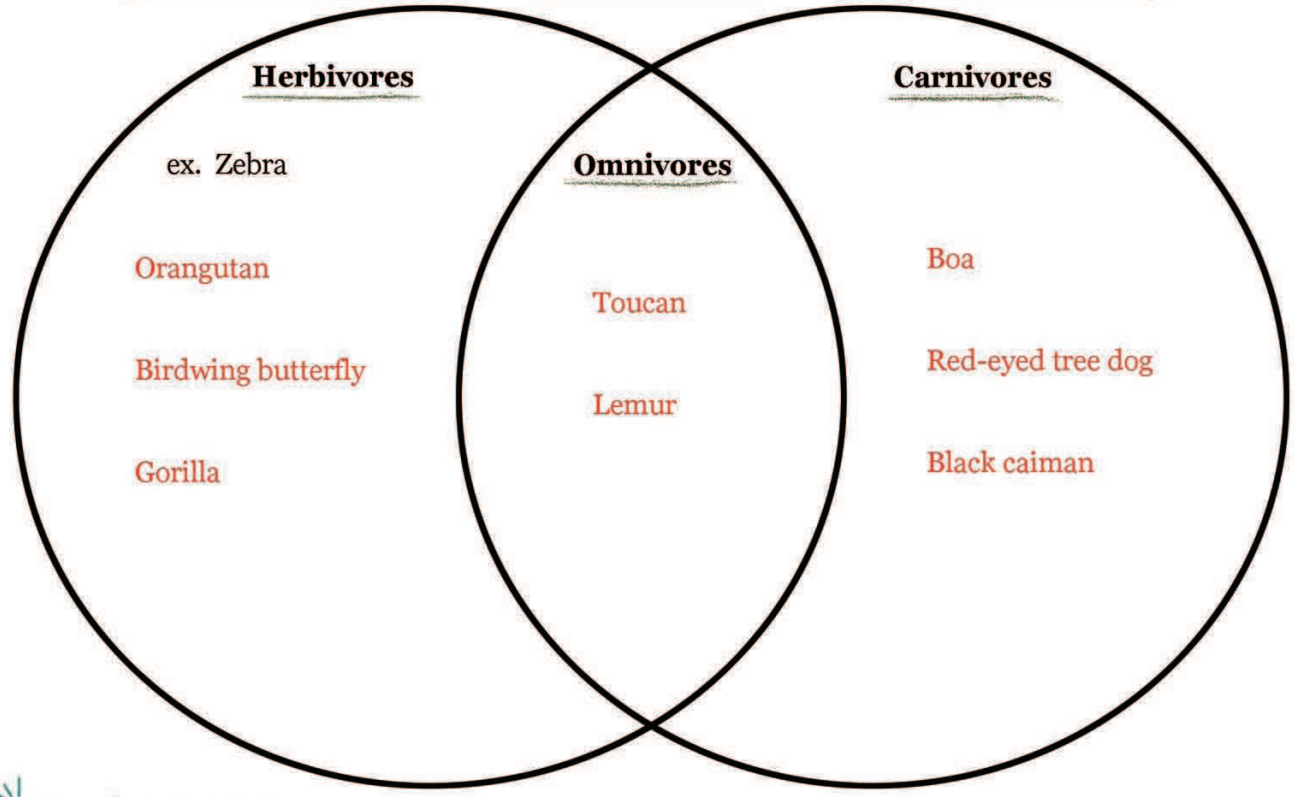
Gorilla
(leaves, fruit, bark)

Birdwing butterfly
(pipevine plants,
nectar from flowers)

Red-eyed tree dog
(insects, smaller frogs)

Lemur
(fruit, leaves, insects)

Orangutan
(tropical fruit, leaves, bark)



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Answer Sheet

Let's review before we move forward!

You've learned about predators, prey, carnivores, omnivores, herbivores, producers, consumers and decomposers. Now, let's double check before we move forward.

Hint: Use the vocabulary page at the beginning of the workbook if you get stuck.

ANSWER

1. Why are green plants called producers?

They make their own food from the sun.

2. Why are animals considered consumers?

They get their food from plants or other animals.

3. What is a predator?

An animal that eats other animals.

4. What is prey?

The animal that is being eaten.

5. What is the source of energy for plants?

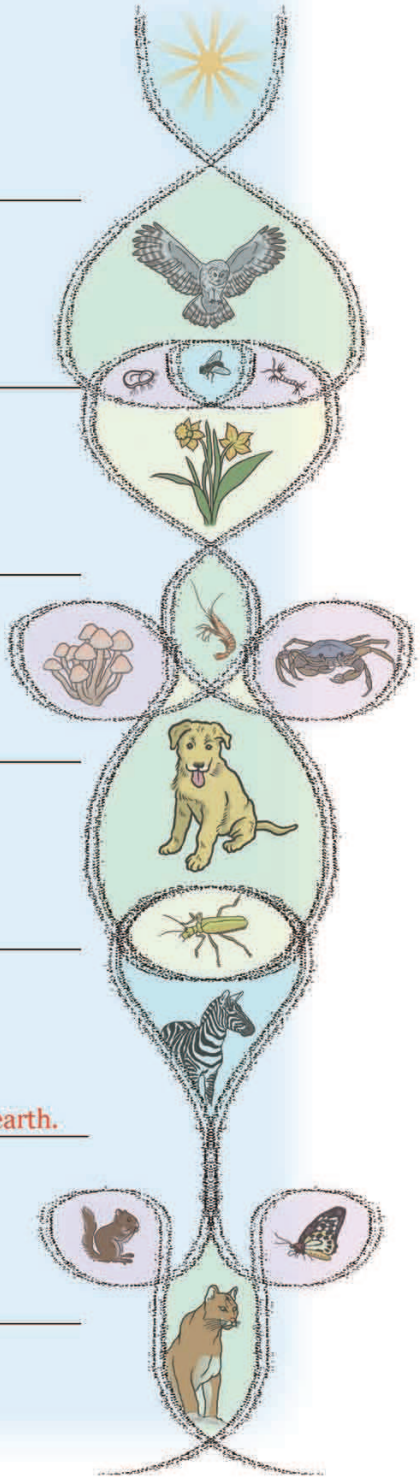
The sun.

6. Why are decomposers important?

They get rid of and help dead plants and animals to return to the earth.

7. What would happen if the sun didn't exist?

Plants would die, so consumers that eat plants would die, too.



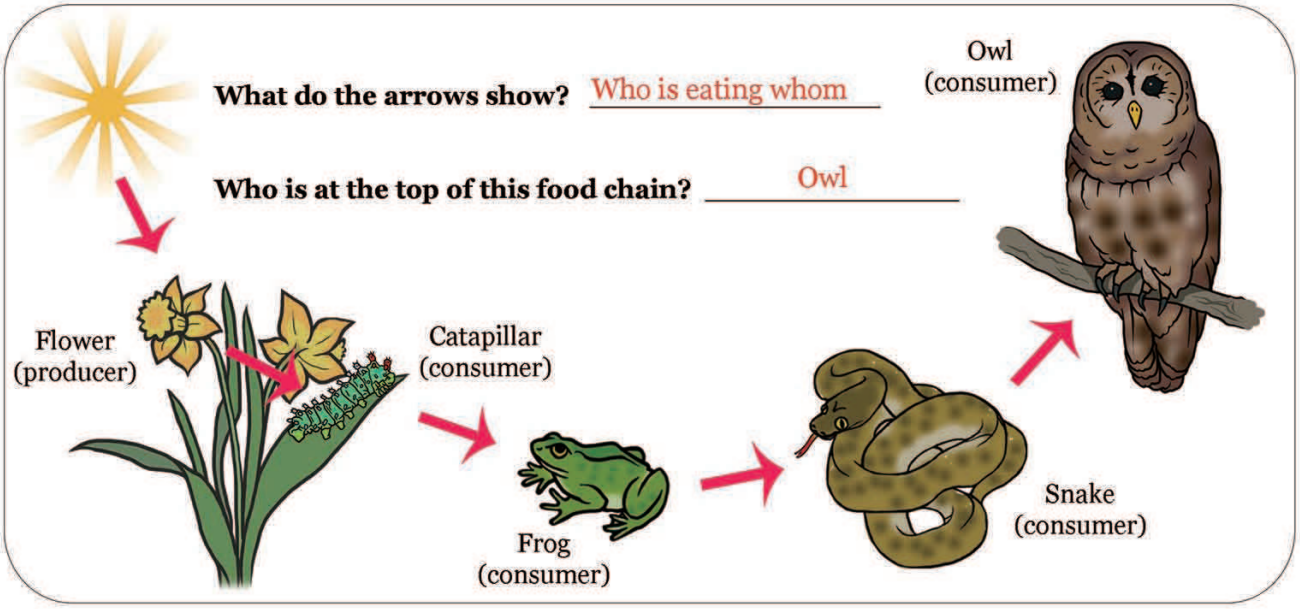
Answer Sheet

Food Chains

Answer

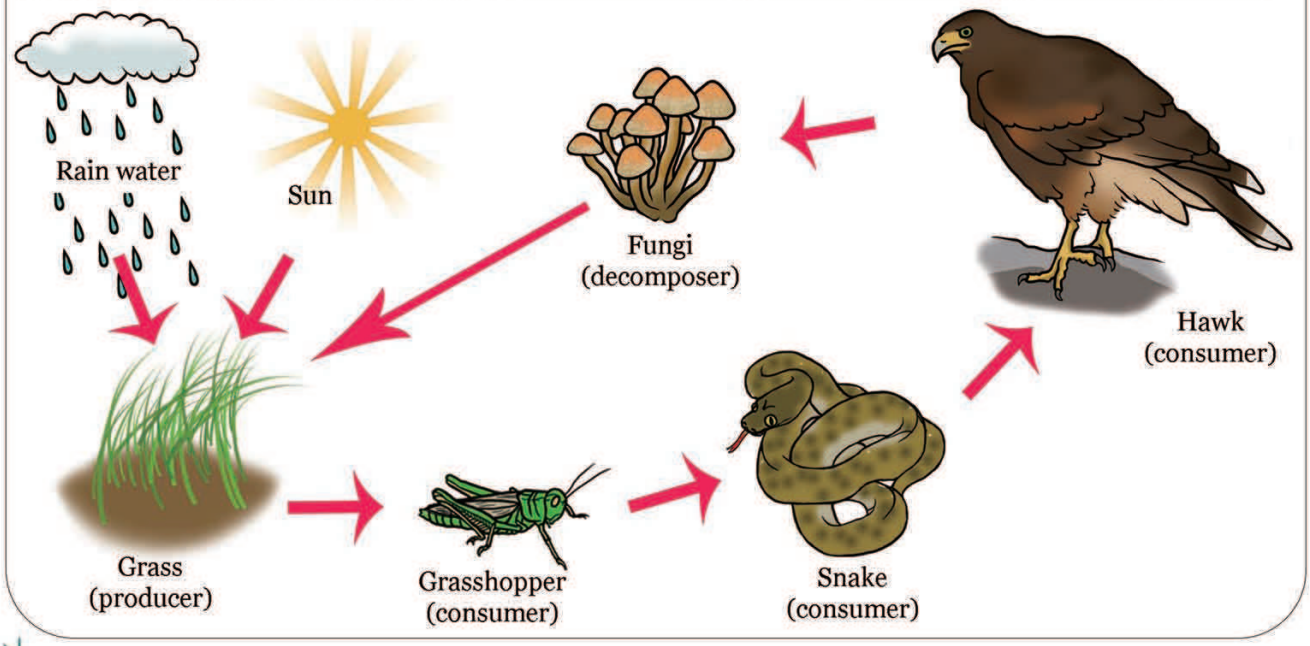
Here are some important facts about food chains:
- The sun provides food for the producer.
- A food chain shows who is eating whom.
- There are many different food chains.
- A food chain usually begins with plants. Therefore, they are normally at the bottom of a food chain.

Look at the food chains below and then answer the questions.



What do the arrows show? Who is eating whom

Who is at the top of this food chain? Owl



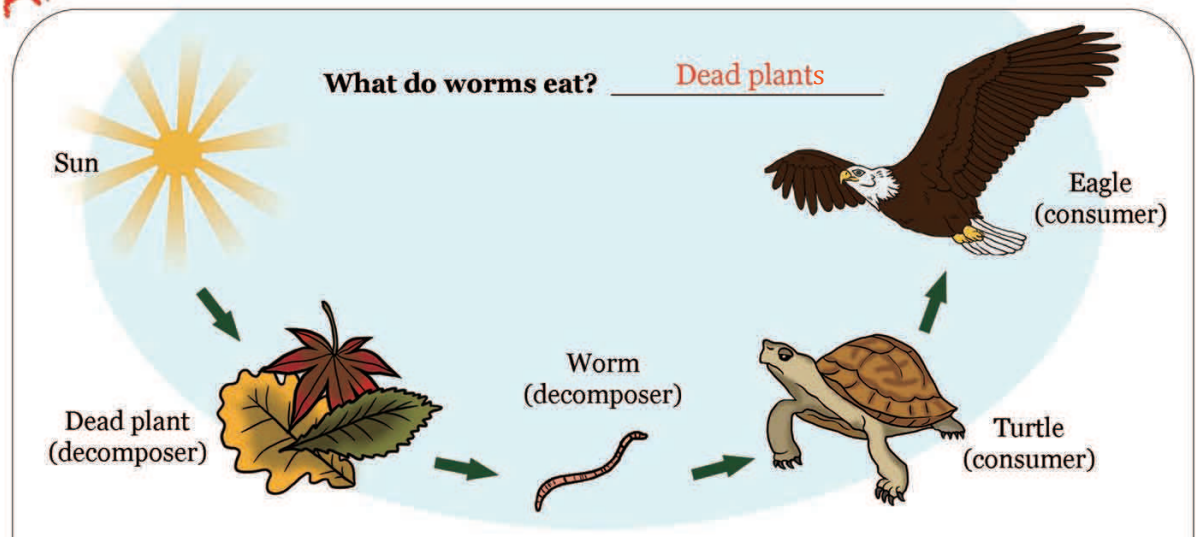
What does the hawk eat? Snake

What does the grass need to survive? Sun , Water and Decomposer

Answer Sheet

Answer

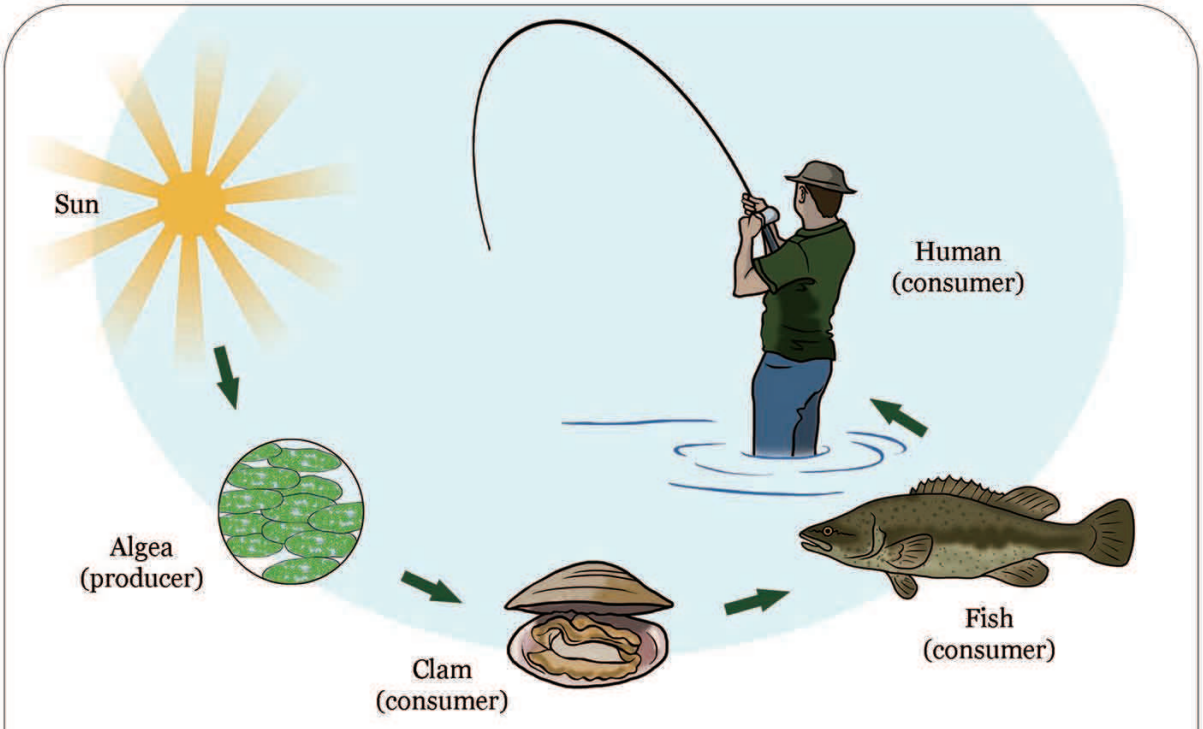
Food Chains



What do worms eat? Dead plants

The worm plays two important roles in the food chain. What are they?

Decomposer **and** food for the turtle



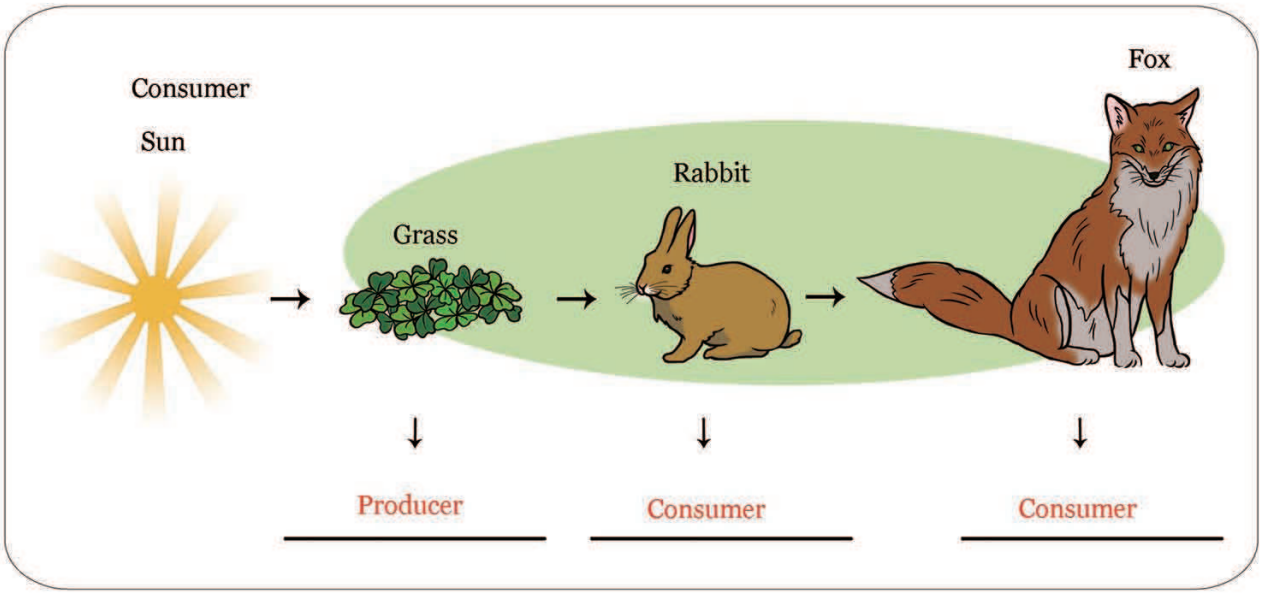
What is the last consumer in this picture? Human

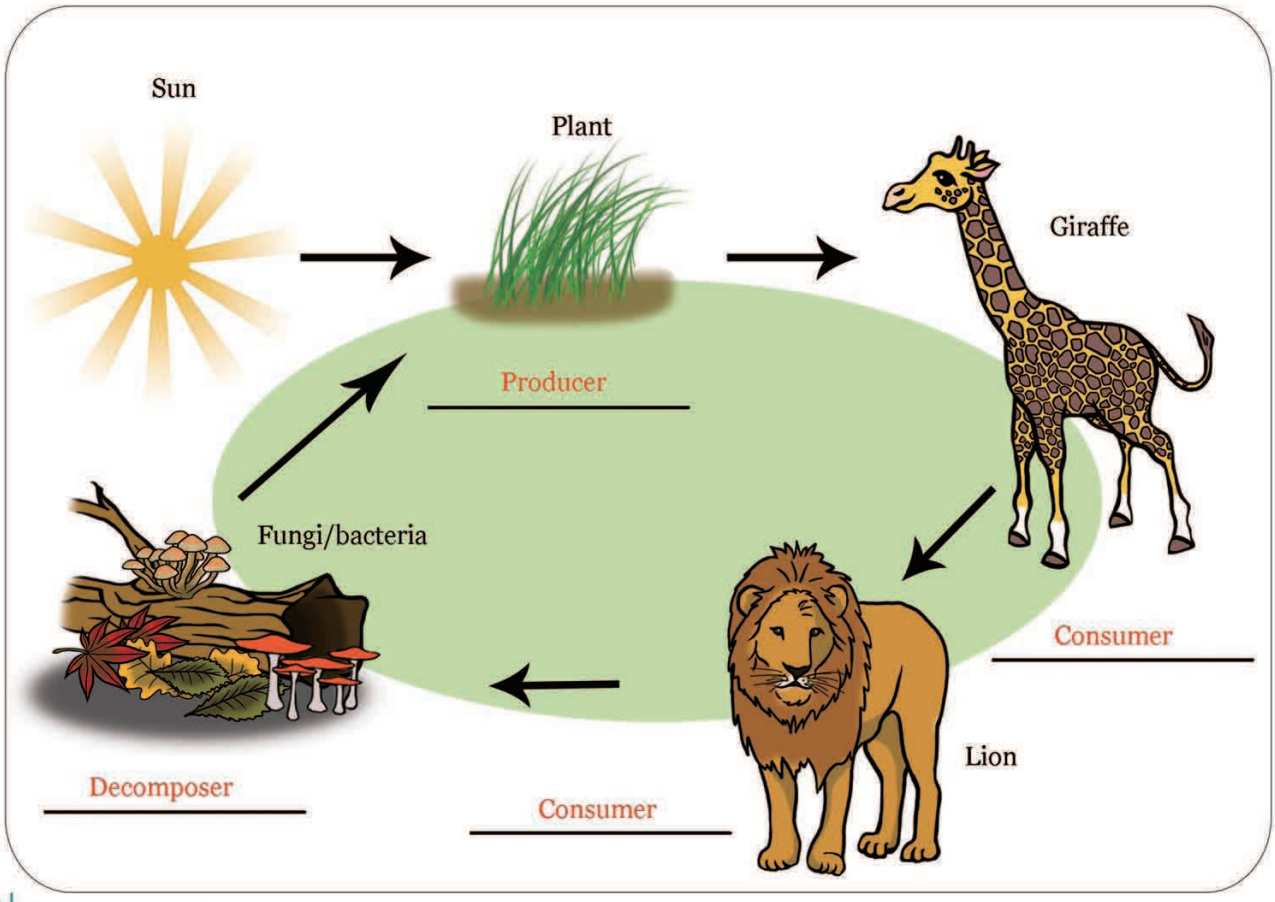
Answer Sheet

Food Chains

Answer

Label each organism/animal in the food chain below with "producer," "consumer," or "decomposer."





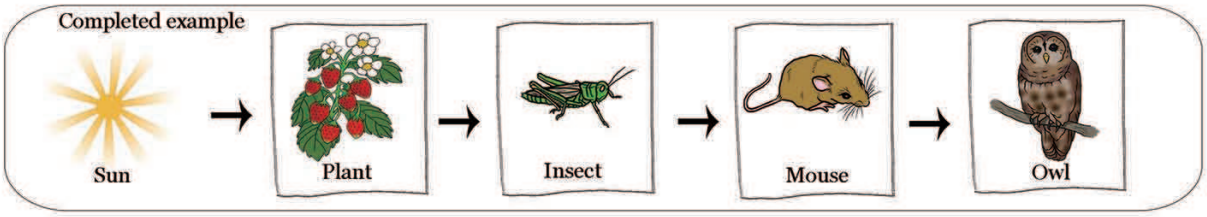
Answer Sheet

Answer

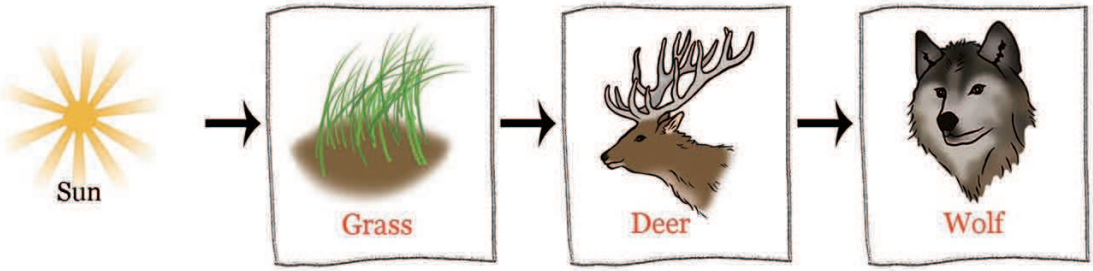
Create Your Own Food Chains

Draw pictures of the animals and organisms of each food chain in the blank boxes.
Make sure you draw them in the right order!

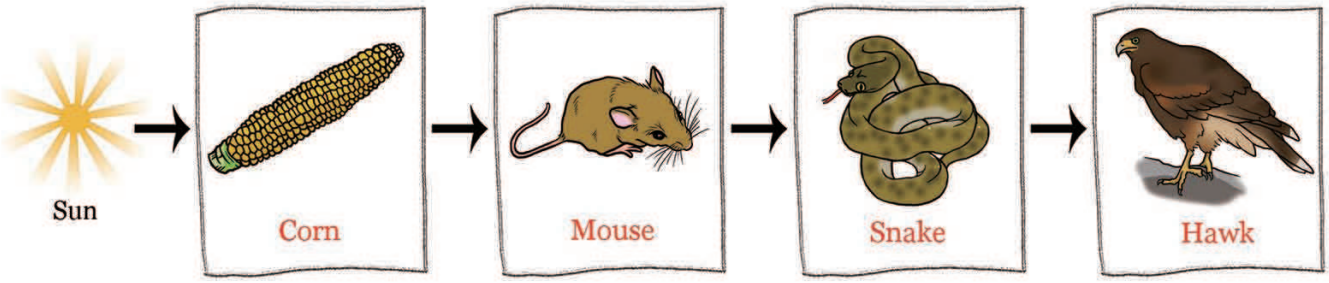
Completed example



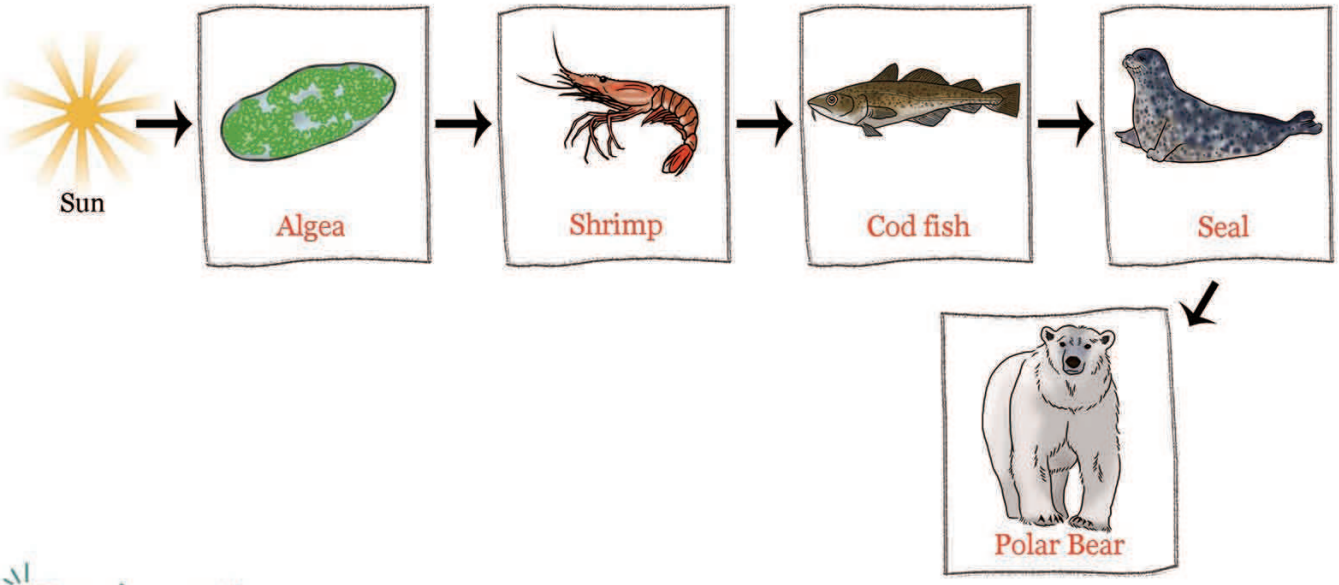
1. deer, grass, wolf



2. Corn, mouse, snake, hawk



3. algae, cod fish, polar bear, seal, shrimp



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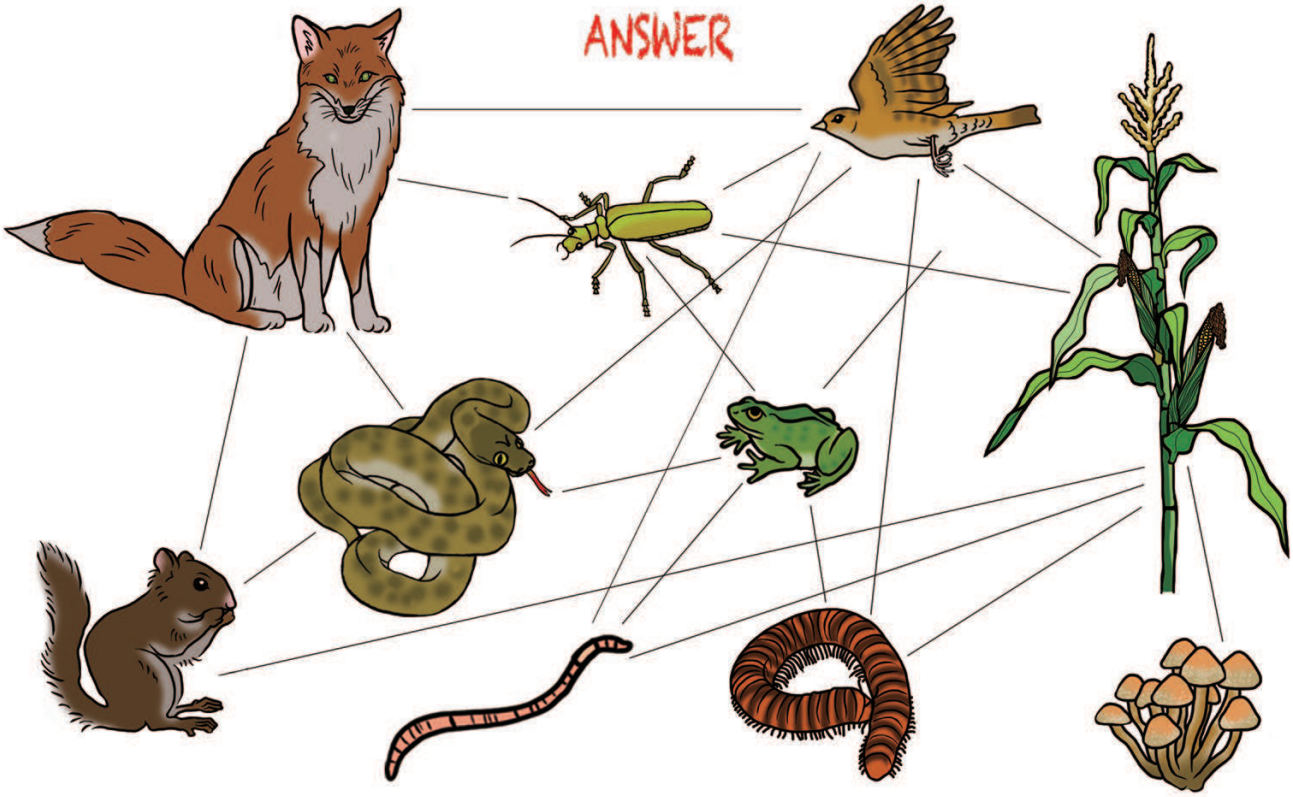
Answer Sheet

Food Web Review

Decide if the animal/organism is a producer, consumer, or decomposer and write it on the chart.
If it is a consumer, make sure you label it herbivore, omnivore, or carnivore.



Producers	Consumers	Decomposers
Corn	Beetle (herbivore) Bird (omnivore) Fox (carnivore) Frog (carnivore) Snake (carnivore) Squirrel (herbivore)	Miilipede Mushrooms Worm

Answer Sheet

ANSWER

Prove it!

Answer the questions and write down the sentences from the text that support your answers. Remember to use quotation marks!

1. How do plants make their own food? Through photosynthesis from the sun.

Which sentence supports your answer?

"Plants, for example, are producers that use the sun and the process of photosynthesis to make their food."

2. What are consumers? Living things that eat other living things.

Which sentence supports your answer?

"Consumers are living things that eat other living things."

3. What does a food chain show? It shows how energy is transferred from one living thing to the next.

Which sentence supports your answer?

"A food chain shows this relationship and how energy in the form of food transfers from one living thing to another."

4. What is a food web? A group of connected food chains.

Which sentence supports your answer?

"A food web is a group of food chains that are connected."

5. What happens if a type of predator dies out? The prey would become overpopulated.

Which sentence supports your answer?

"For example, if a predatory animal dies out, the population of the animals it preys on would increase."

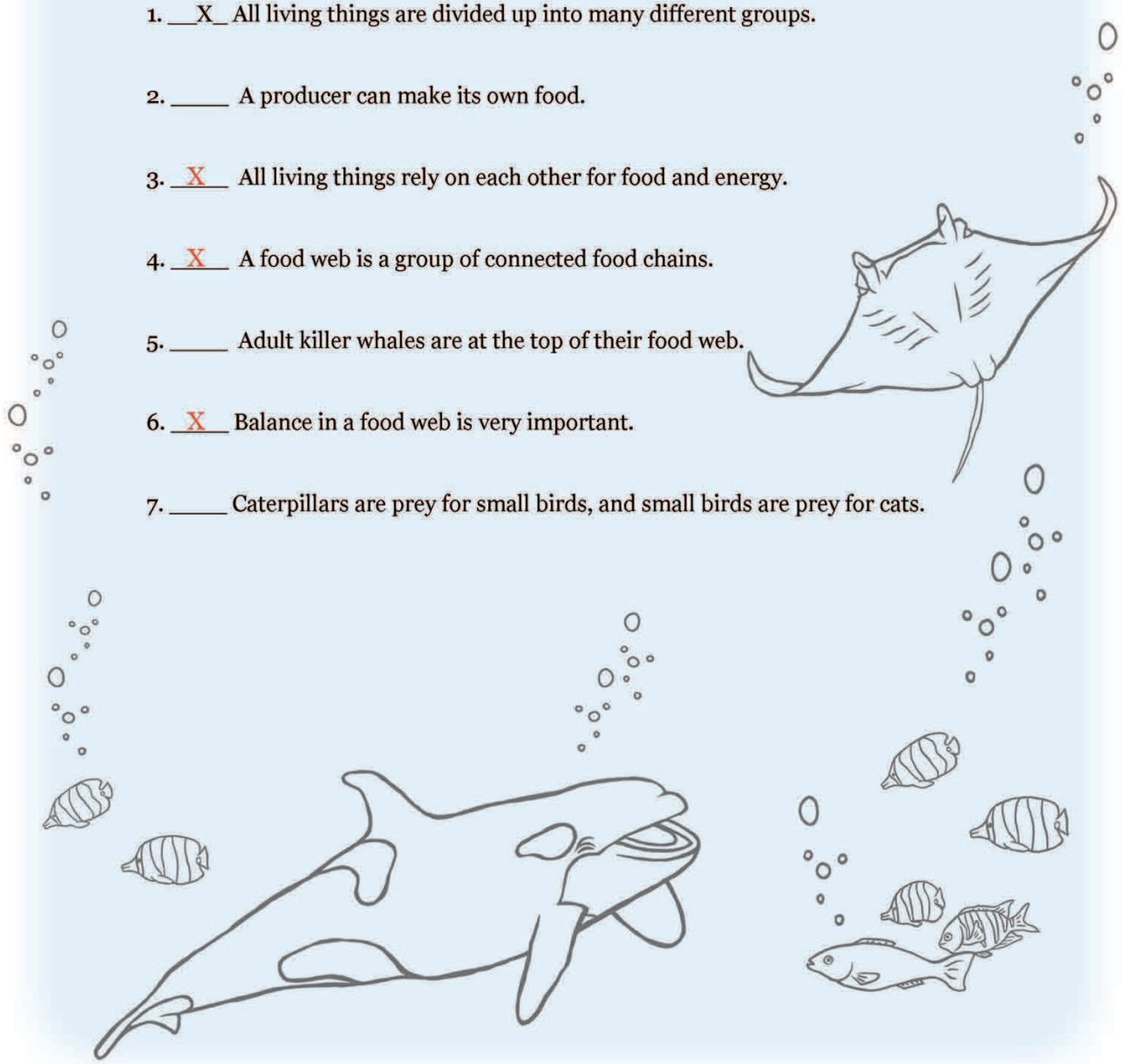
Answer Sheet

Prove it!

ANSWER

The main idea tells you what the text is all about. Sometimes a text has more than one main idea. This is especially true in science when you are often given a lot of information at once. Put an X next to the main ideas. Make sure it is a main idea that shows the big picture and not just a supporting detail.

1. __X_ All living things are divided up into many different groups.
2. _____ A producer can make its own food.
3. _X__ All living things rely on each other for food and energy.
4. _X__ A food web is a group of connected food chains.
5. _____ Adult killer whales are at the top of their food web.
6. _X__ Balance in a food web is very important.
7. _____ Caterpillars are prey for small birds, and small birds are prey for cats.



Answer Sheet

Answer

Review

Directions: Put all your knowledge to the test. Circle the correct answer.

1. What two major elements make up most food webs?
   a. The sun and producers
   b. Producers and consumers
   c. Carnivores and herbivores
   d. Decomposers and omnivores

2. Humans can cause an imbalance in the food chain.
   a. True
   b. False

3. Why are decomposers important?
   a. Because without them there would be a lot of dead plants and animals.
   b. Because consumers depend on them for food.
   c. Because producers depend on them for food.
   d. None of the above.

4. People are...
   a. Omnivores
   b. Carnivores
   c. Herbivores
   d. Decomposers

5. How do plants grow?
   a. By absorbing nutrients from consumers.
   b. By being at the top of the food chain.
   c. Through photosynthesis.
   d. Plants do not need to grow because they are producers.

6. A cow is a carnivore.
   a. True
   b. False

7. A lion is at the top of its food chain.
   a. True
   b. False

8. The sun is the ultimate source of energy for all living things.
   a. True
   b. False

9. An animal is either a predator or a prey, not both.
   a. True
   b. False

10. What can weaken or destroy food webs?
    a. Pollution
    b. Habitat destruction
    c. Overfishing
    d. All of the above

Answer Sheet

ANSWER

Humans and Food Webs

Read the passage below about how humans can impact food webs, and then answer the questions.

Food webs are complex systems that must stay in balance, and since humans are the dominant species on the planet, we have an impact on food webs everywhere. You already know that if a part of a food web disappears, that affects the entire food web. Imagine this scenario: Humans cut down all the trees in a forest. Soon, the animals that feed on the trees, like deer, die from too little food. Next, the consumers that eat the deer, like wolves, also die from too little food. In this way, the whole food web is destroyed by human action.

Ecology is the study of the Earth and how to take care of it so that humans, plants, and animals can all live together healthfully. One way we can positively impact our Earth is through conservation. Conservation means using the planet's resources wisely so that they don't run out and there is enough for all living things, not just humans.

We can practice conservation by not wasting resources, like water, and by reducing the amount of waste we produce. Waste is any trash like soda bottles, tossed-out food, broken electronics, and old clothes. Americans create 220 million tons of trash every year. Paper makes up a lot of our trash, so much that we can use the paper we throw away each year to build a 12-foot tall wall going from New York to San Francisco. That's 10,000 sheets of paper per person! To reduce waste, you can recycle and compost. That way, we'll all use less paper and cut down fewer trees, leaving food webs in balance.

Follow-up Questions:

1. The word ecology comes from the Greek word that means "the study of the house." Now, ecology has a new meaning. How would you define ecology today?

   Ecology is the study of the Earth and how to take care of it so that humans, plants, and animals can all live together healthfully.

2. What does conservation mean?

   Conservation means using the planet's resources wisely so that they don't run out and there is enough for all living things, not just humans.

3. List three ways that you can reduce the amount of waste you produce?

   [Student's choice.]

4. Write two to three sentences explaining why it is it important to reduce waste and conserve our Earth's resources.

   Reducing waste means we won't use up as many resources. If we use up all the resources, other living things on Earth won't have enough. Without enough resources, food webs will be destroyed.

5. Write two to three sentences explaining how over-fishing (fishing a species to near extinction) can impact the food web.

   If one portion of a food web disappears, other species that depend on it will die out. This can wreck the food web.