

Ecosystem Energy Exchange

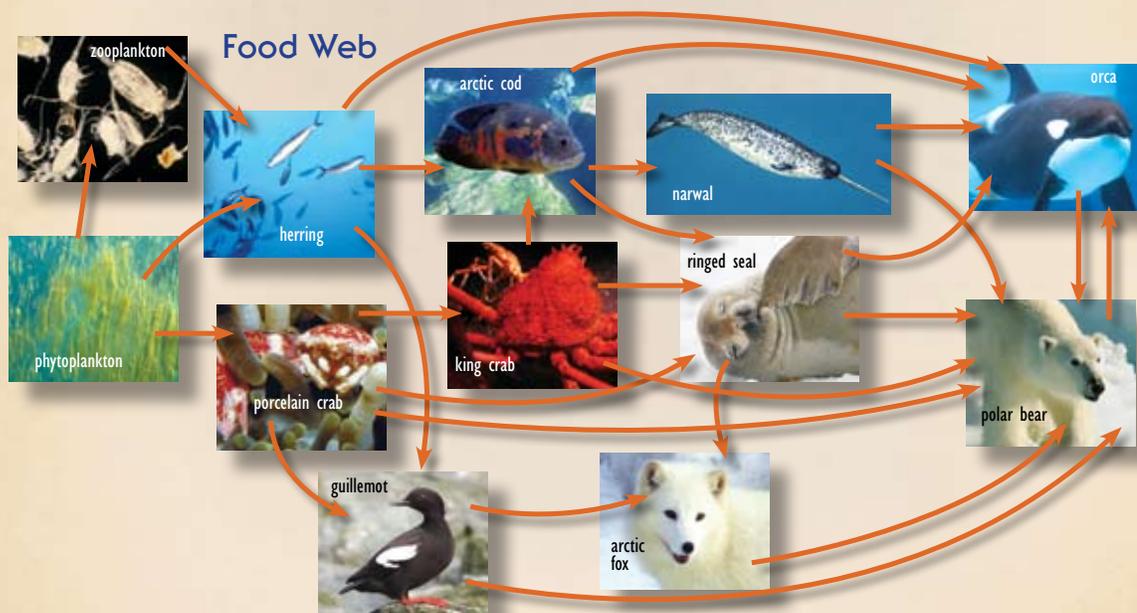
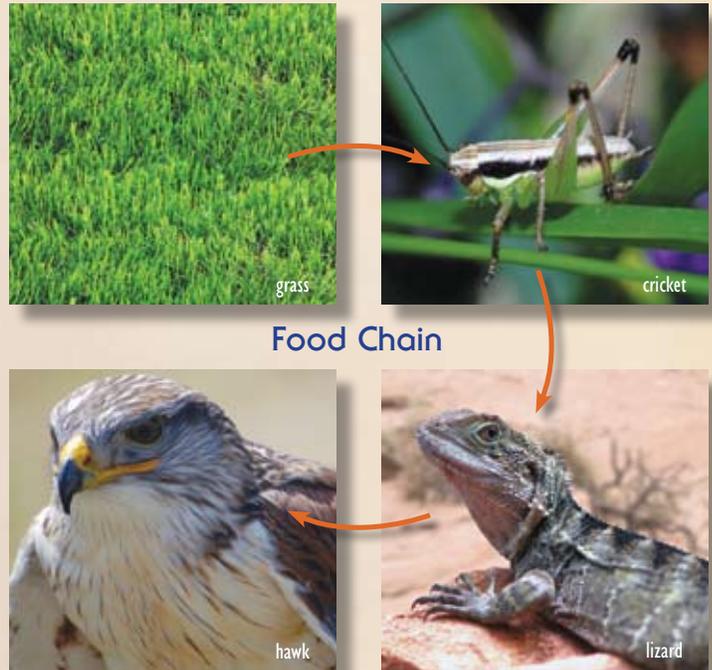
An ecosystem has lots of parts. It is made up of many living things. It has plants and animals and more. Some of them are producers. They make their own food. The rest are consumers. They eat other things for food. We can study the way that they all act together. We can ask who eats whom. That helps us figure out how the ecosystem works.

Food Chains and Webs

Have you ever heard of a food chain? A food chain is a list of living things. Each one eats the one before it. A cricket might eat grass. A lizard eats the cricket. A hawk eats the lizard. Line up the grass, the cricket, the lizard, and the hawk. You've made a food chain. This is an easy way to see how living things are connected in an ecosystem.

Most animals eat more than one kind of food, though. They are also eaten by more than one kind of predator. A food chain does not tell us the whole story. That would be too simple.

Imagine you drew all the living things in an area. Then imagine lines drawn from each one to all the things it eats. You would have a busy web of many lines. These networks of lines are food webs.



Energy Pyramid

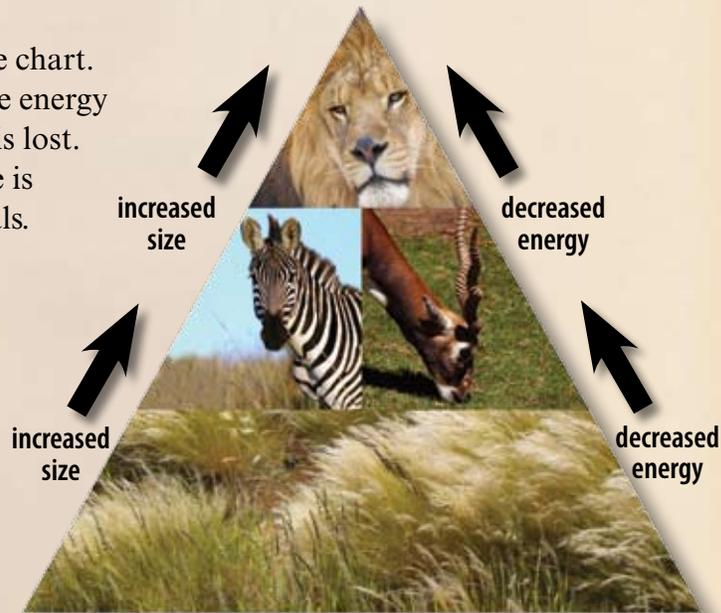
An energy pyramid is one more way to look at an ecosystem. It shows how energy flows. It goes from one kind of living thing to the next. It flows from one to the other when they eat each other.

The bottom row is made of producers. These are plants like grass. The plants are eaten by plant eaters. They are in the middle row. Zebras eat grass. These are called primary consumers. They, in turn, are food for meat eaters. They are on the top row. Lions eat zebras. These are called secondary consumers.

The pyramid gets narrow at the top. There are only a few consumers up there. It takes a lot of food to feed them. In one year, a herd of zebras can eat 6,798 metric tons (7,494 tons) of grass. The herd of zebras weighs 55 metric tons (61 tons). And that's what just one lion needs to eat to stay alive! The lion weighs 204 kilograms (450 lbs).

Energy is lost as you move up the chart. Animals eat. They do not get all the energy from what they eat, though. Some is lost. By the time you get to the top, there is only enough energy for a few animals.

Keep in mind that the pyramid does not tell the whole story. That is why you need a food web. The pyramid is like a food chain. It only shows one path. Many more living things make up an ecosystem. They are all part of the energy flow.



Comprehension Question

How do animals get energy?

Ecosystem Energy Exchange

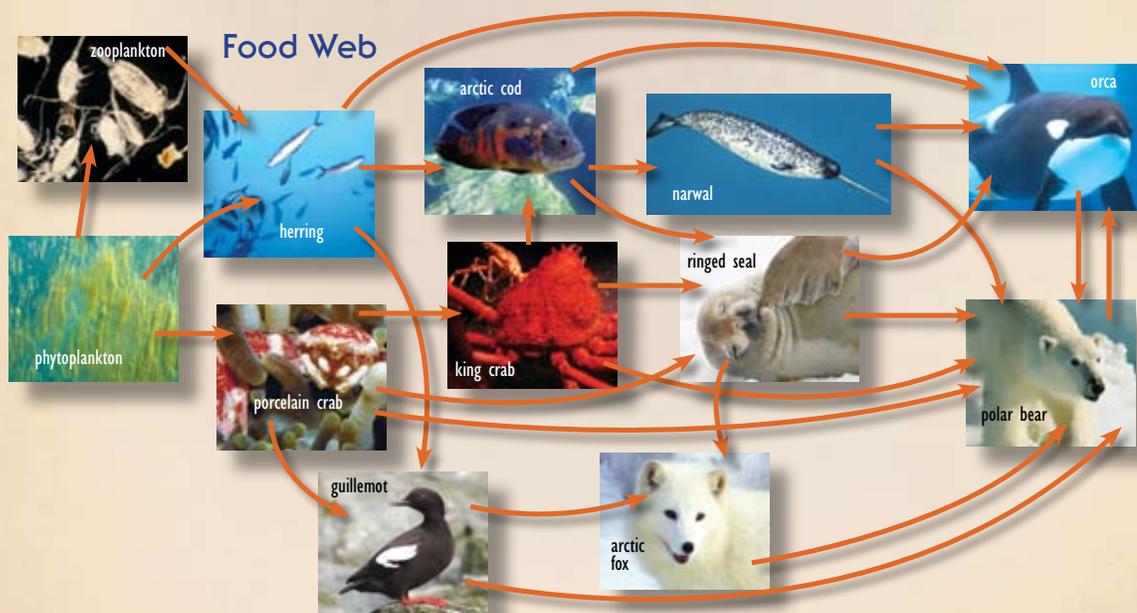
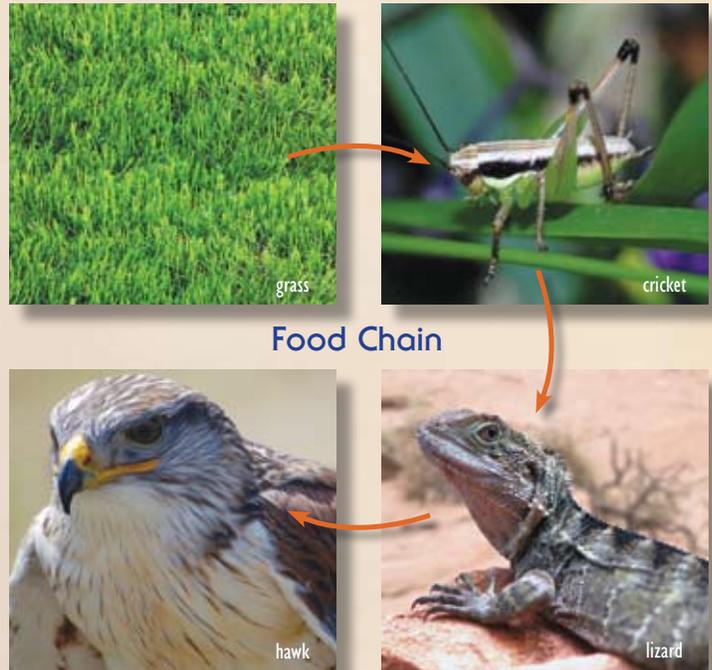
An ecosystem has lots of parts. It is made up of many organisms. It has plants and animals and other living things. Some of them are producers. They make their own food. The rest are consumers. They eat other things for food. The way that they all interact says a lot about the ecosystem. We can ask who eats whom. That helps us figure out how the ecosystem works.

Food Chains and Webs

Have you ever heard of a food chain? A food chain is a list of organisms that eat each other. A cricket might eat grass. A lizard eats the cricket. A hawk eats the lizard. Line up the grass, the cricket, the lizard, and the hawk. You've made a food chain. This is an easy way to see how different organisms are connected within an ecosystem.

Most animals eat more than one kind of food, though. Then those animals are often eaten by more than one kind of predator. A food chain does not tell us the whole story. It's too simple.

Imagine you drew all the plants and animals in an area. Then imagine drawing lines from each one to all the things it eats. You would have a very complex web of lines. These networks of lines are food webs.



Energy Pyramid

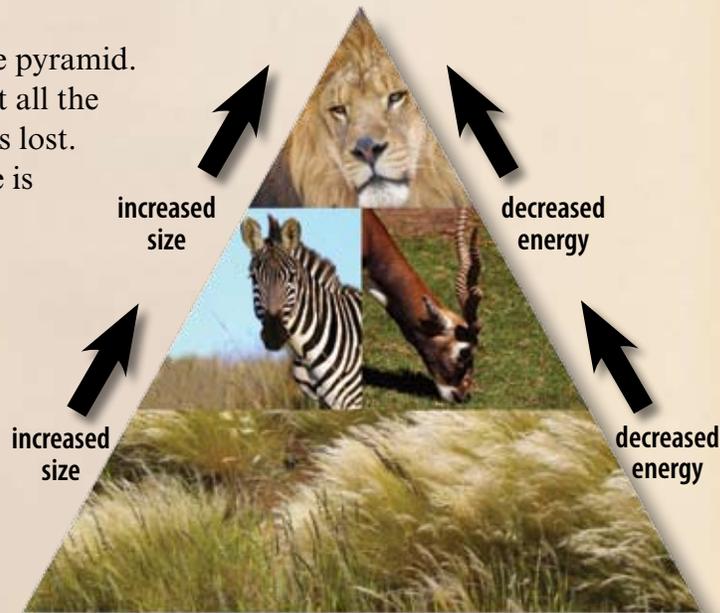
An energy pyramid is one more way to look at things. It shows how energy flows. It goes from one kind of organism to the next. Energy flows between them when they eat each other.

The bottom row is made of producers. They are mostly plants like grass. The plants are eaten by consumers. They are in the middle row. Zebras eat grass. These plant eaters are called primary consumers. They, in turn, are food for more consumers. That is the top row. Lions eat zebras. These meat eaters are called secondary consumers.

The pyramid gets narrow at the top. There are only a few consumers up there. It takes a lot of food to feed them. In one year, a herd of zebras can eat 6,798 metric tons (7,494 tons) of grass. The herd of zebras weighs 55 metric tons (61 tons). And that's what just one lion needs to eat to stay alive! The lion weighs 204 kilograms (450 lbs).

Energy is lost as you move up the pyramid. When an animal eats, it does not get all the energy from its prey. Some energy is lost. By the time you get to the top, there is only enough for a few animals.

Keep in mind that the energy pyramid doesn't tell the whole story. That is why you need a food web. The pyramid is like a food chain. It only shows one path. Many more plants and animals make up an ecosystem. They are all part of the energy flow.



Comprehension Question

How do plants and animals exchange energy?

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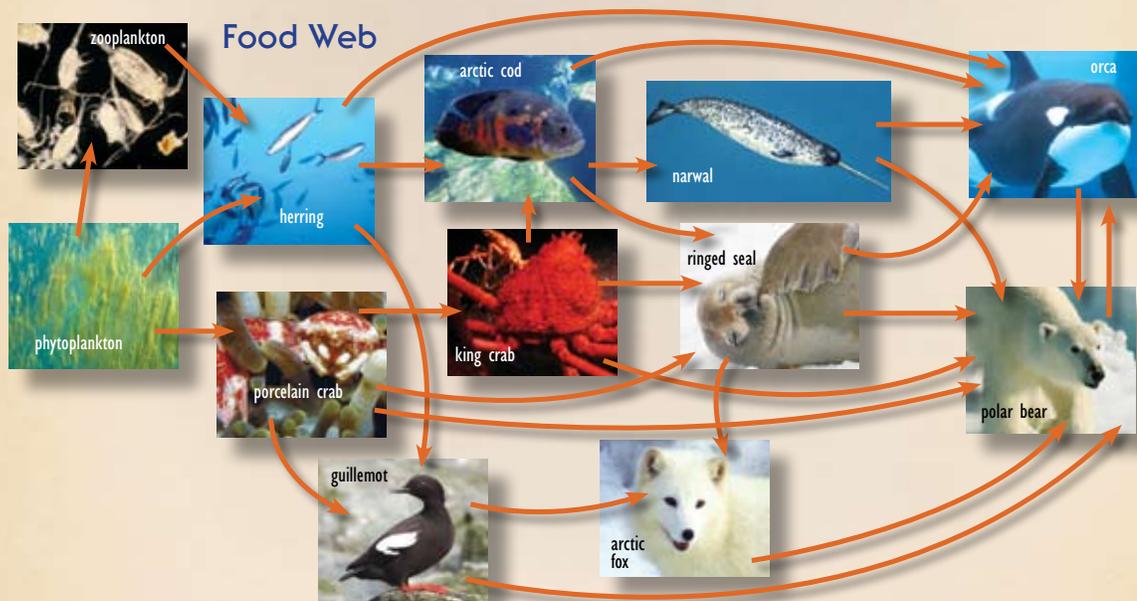
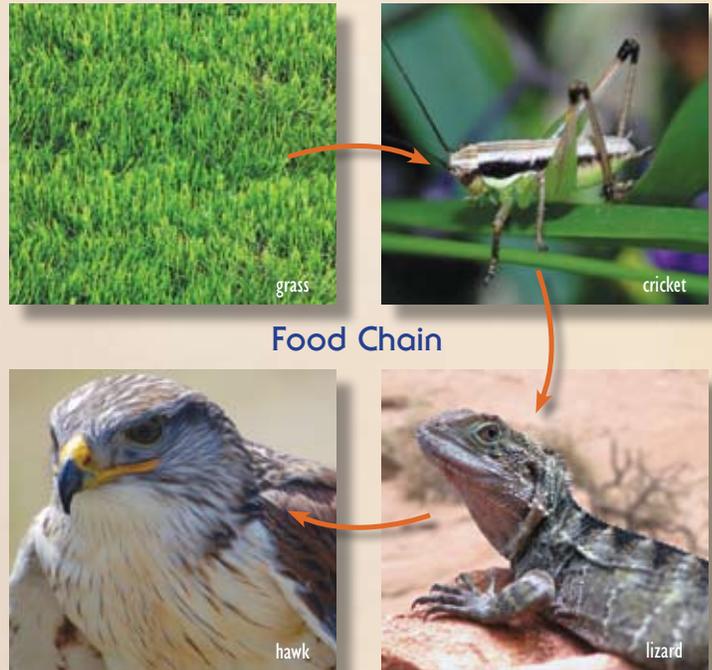
An ecosystem is made up of many different plants, animals, and other organisms. Some of them are producers. They make their own food. The rest are consumers. They eat other things for food. The way that they all interact says a lot about the ecosystem. Asking who eats whom helps us figure out how the ecosystem works.

Food Chains and Webs

Have you ever heard of a food chain? A food chain is a list of organisms that eat each other. A cricket might eat grass. A lizard eats the cricket. A hawk eats the lizard. The grass, the cricket, the lizard, and the hawk make a food chain. This is an easy way to see how different organisms are connected within an ecosystem.

However, most animals eat more than one kind of food. Then those animals are often eaten by more than one kind of predator. A food chain doesn't really tell us the whole story. It's too simple.

Imagine you drew all the plants and animals in an area. Then imagine drawing lines from each one to all the organisms it eats. You would have a very complicated web of lines. These networks of lines are food webs.



Energy Pyramid

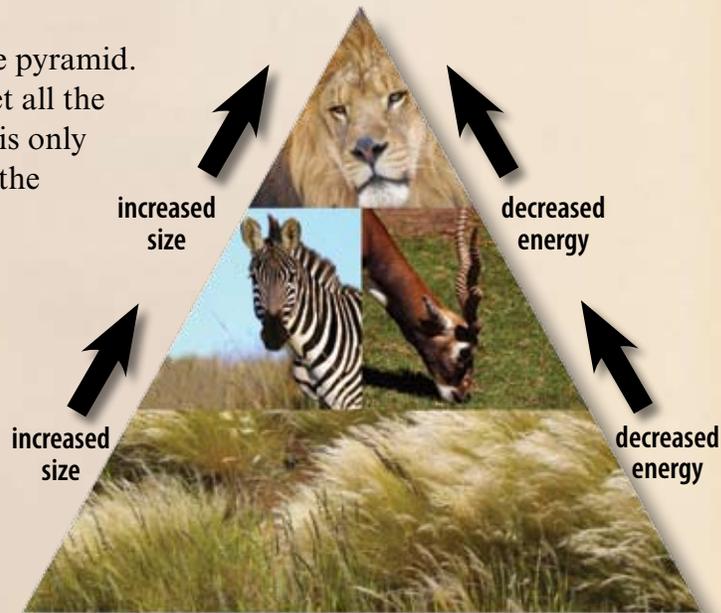
An energy pyramid is one more way to look at an ecosystem. It shows how energy flows. It goes from one kind of organism to the next. Energy flows between them when they eat each other.

The bottom of the pyramid is made of producers. They are mostly plants. The plants are eaten by consumers such as zebras. These plant eaters are called primary consumers. They, in turn, are food for consumers such as lions. These meat eaters are called secondary consumers.

The pyramid narrows at the top. The number of consumers up there is small. It takes a lot of food to feed the animals on the top. In one year, a herd of zebras can eat 6,798 metric tons (7,494 tons) of grass. The herd of zebras weighs 55 metric tons (61 tons). And that's what just one 204-kilogram (450 lbs) lion needs to eat to stay alive!

Energy is lost as you move up the pyramid. When something eats, it does not get all the energy. Some energy is lost. There is only enough energy for a few animals at the top.

Keep in mind that the energy pyramid doesn't tell the whole story that a food web tells. The pyramid is like a food chain. It only shows one path. Many more plants and animals make up an ecosystem. They are all part of the energy flow.



Comprehension Question

How do food chains, food webs, and energy pyramids show how animals exchange energy?

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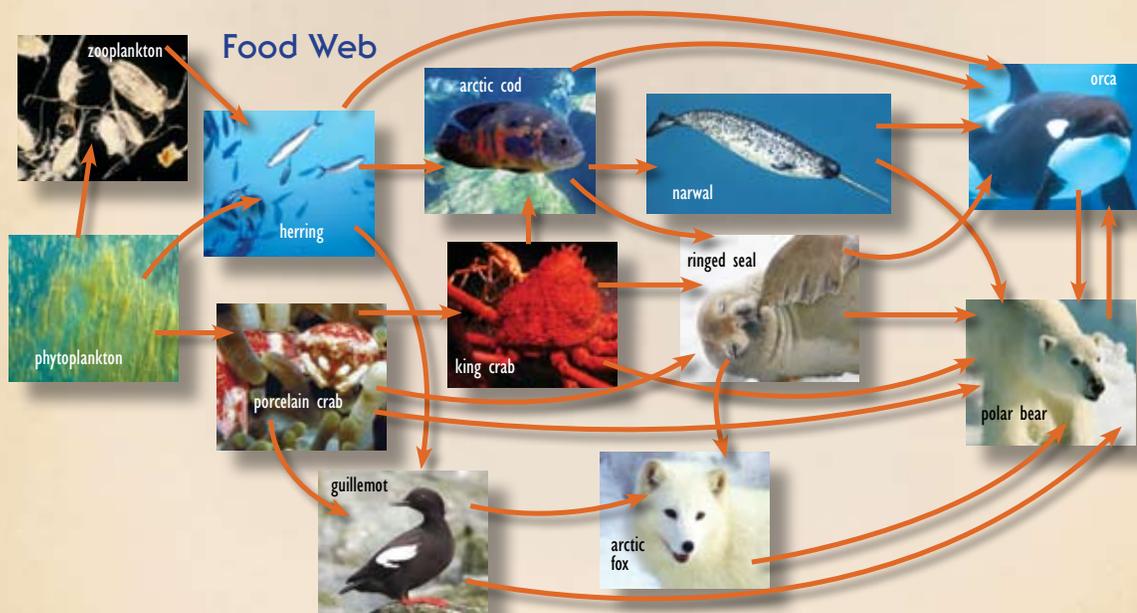
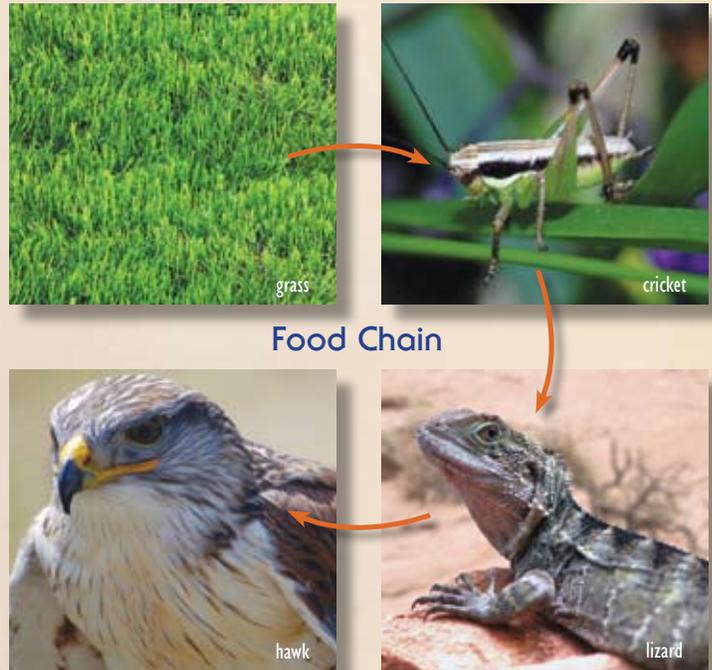
An ecosystem is made up of many different organisms. Some of the organisms are autotrophs, or producers, which make their own food. The rest are heterotrophs, or consumers, which eat other organisms for food. The way that all the organisms interact says a lot about the ecosystem. Understanding who eats whom lets us understand how the ecosystem works.

Food Chains and Webs

Have you ever heard of a food chain? A food chain is a list of organisms that eat each other. A cricket might eat grass. A lizard eats the cricket. A hawk eats the lizard. The grass, the cricket, the lizard, and the hawk make a food chain. This is an easy way to see how different organisms are connected within an ecosystem.

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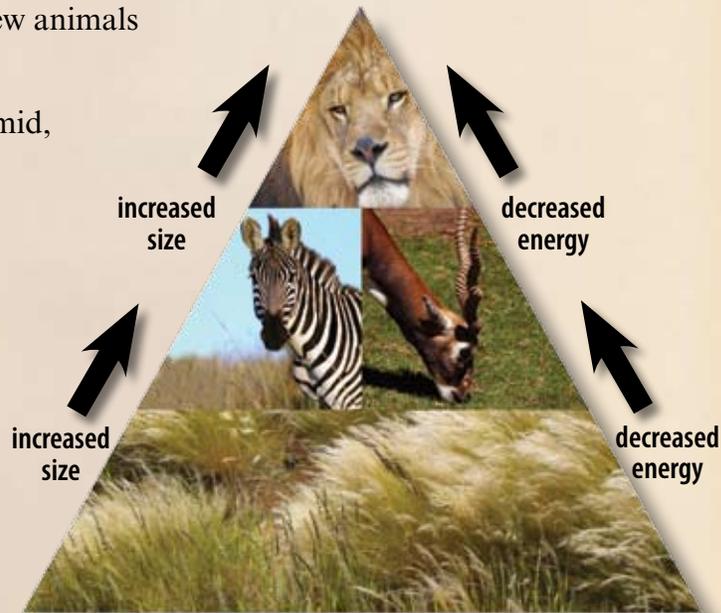
An energy pyramid shows the exchange of energy among organisms in an ecosystem. Organisms get energy from other organisms by eating them.

The bottom of the pyramid is made of producers. They are usually plants. The plants provide food for primary consumers such as zebras and gazelles. The primary consumers, in turn, provide food for secondary consumers such as lions.

As the pyramid narrows to the top, the number of consumers decreases. It takes a lot of food to feed the animals on the top. For example, in one year it takes 6,798 metric tons (7,494 tons) of grass in an area to keep 55 metric tons (61 tons) of primary consumers alive. And that amount of primary consumers keeps just one 204-kilogram (450 lbs) lion alive.

Energy decreases as you move up the pyramid. Every time something gets eaten, energy is lost. There is only enough energy for a few animals at the top.

When looking at an energy pyramid, keep in mind that it doesn't tell the whole story that a food web tells. Many more plants and animals are involved in the exchange of energy in an ecosystem than the plants and animals shown in the pyramid.



Comprehension Question

What do food chains, food webs, and energy pyramids show us?