

Environment & Ecology Series

Ecosystems

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COLLEGE OF AGRICULTURAL SCIENCES • COOPERATIVE EXTENSION

An Educational Series for Grades 3 & 4

An ecosystem is a place with living and nonliving things. These things need or use each other. An example of a large ecosystem is a forest. An example of a small ecosystem is a pond. A very simple ecosystem is your home. This is *your* ecosystem.



You, your family, and your pets are all living things. You depend on each other and need the nonliving things in your home, like food, water, air, and furniture.

Living things need nonliving things to *survive*. Without food, water, and air, living things die. Sunlight, shelter, and soil are also important for living things. Living things meet their needs from living and nonliving things in ecosystems.

Plants are important in ecosystems. They are food for many animals. Plants use water from the soil, carbon dioxide from the air, and energy from sunlight to make their own food. This is called *photosynthesis*. Plants give off oxygen when they make food. Animals need oxygen to breathe, and they give off carbon dioxide. Can you see how plants and animals need each other?

Animals and plants depend on each other for other things, too. Birds, lizards, and insects build their homes in trees. Deer and small animals sleep and hide in thick brush. Some plants need animals to spread their seeds. What role does weather play in plant growth?

Soil is important in ecosystems too. It is made from broken-down stones and materials like dead leaves, twigs, and roots. There are living things in soil. Bacteria, fungi, insects, and worms all live here. In many ways soil might be considered an ecosystem. It's a place that has living and nonliving things which need and use each other.



Ecosystems are always changing. Living things are born; they grow and die too. Nonliving things can break down. They can also build up. The living fungus in this photo is breaking down the dead wood in a log. Things like wind, fire, and disease can cause big changes. Do ecosystems ever stay the same?

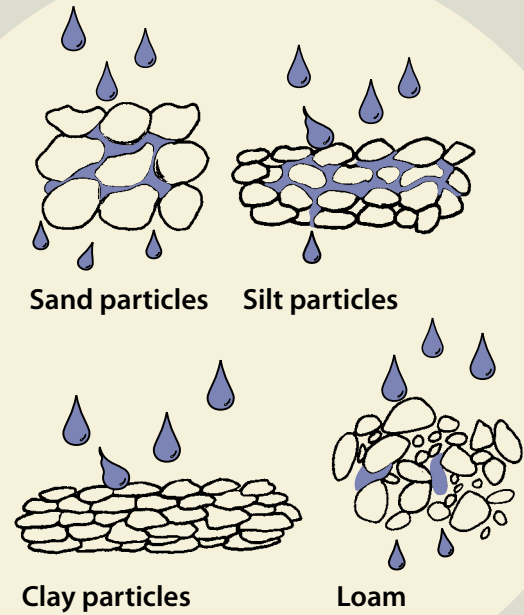


The forest is an ecosystem. Forests are full of living and nonliving things that depend on each other. Trees, ferns, and shrubs grow in the forest. Deer, frogs, lizards, insects, birds, and bears are some forest animals that need these plants. Water, stones, and soil are nonliving things that animals need too. People are also part of forest ecosystems. People gather foods like mushrooms and nuts from the forest. We also use the wood from trees to make many things. Can you think of a few?



Ponds, lakes, streams, wetlands, and oceans are ecosystems too. They are water ecosystems. They are home to things like algae, insects, fish, and turtles. These living things depend on nonliving things like stones, sunlight, and soil, as well as water.

All living things in ecosystems are part of a food chain. A food chain is how energy is passed between things. A simple forest food



There are four textures of soil: sand, clay, silt, and loam. Sand texture is like the sand on a beach. Clay texture is like modeling clay. Silt is in between sand and clay. Loam is a soil made up of equal amounts of sand, silt, and clay. Silt is often found along river banks. Loam makes good farm fields and gardens. Notice how water moves differently through each soil texture.



Farms are ecosystems. Farmers work with crops, animals, soils, and the weather to grow our food. Some animals on farms are visitors from nearby forest or water ecosystems. Can you think of any that might like to eat this alfalfa?

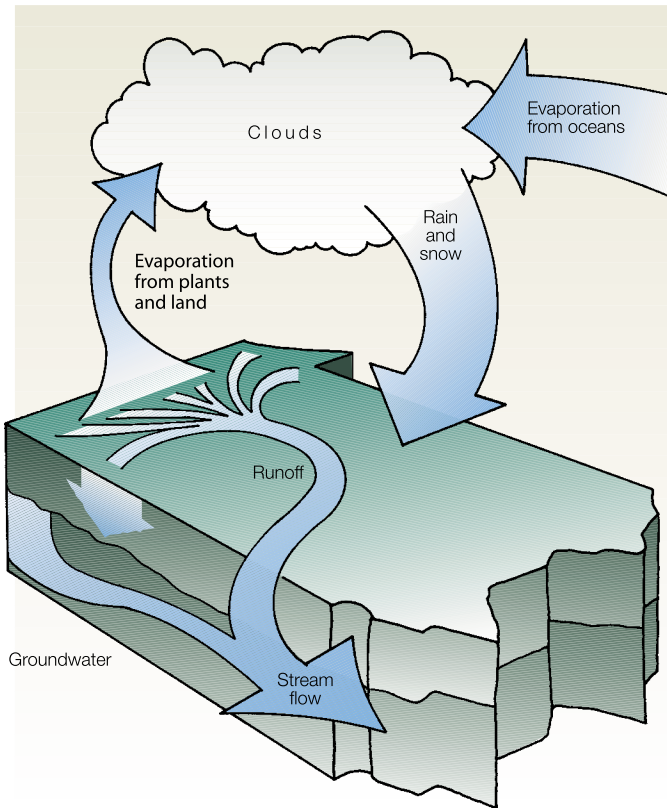
chain might be: the sun shines on leaves, caterpillars eat the leaves, a bird eats the caterpillars, a snake eats the bird, and a raccoon eats the snake. Most food chains are linked to other food chains in ecosystems. Together, they form a food web of life.



Ecosystems are complex and interesting. There are many interactions between living and non-living things in ecosystems. Ecosystems are all around us.



Water insects often live on stones. They hide from larger animals, like fish, that want to eat them. They eat plants and tiny living things. Sometimes you have to look very closely to see them.



Water is a part of all ecosystems. Every living thing needs water. Water moves from one place to another in many ways, such as in clouds, snow, plants, and streams. This movement of water is called the water cycle.

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