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common name

Bacteria

scientific name

over 100,000 different species

classification

Kingdom: Bacteria

habitat

Every habitat on Earth contains bacteria, including vernal pools, lakes and streams.

size

Bacteria are microscopic. They are invisible to the naked eye. Microscopes make them appear 100 to 400 times bigger, but even then you can barely see some of them.

description

Bacteria are black or clear unless you stain them with special dyes to see them better. Bacteria are made up of one cell. It can be round, long and thin, or spiral shaped.

fun facts

There are thousands of different species of bacteria. Most species live only in certain habitats. Others are found in many different places. Bacteria are the toughest life forms on Earth. In some harsh environments, like boiling hot springs, they are the only form of life.

For 2 billion years, bacteria were the only creatures on Earth. Long before the dinosaurs, a special type of bacteria slowly increased the level of oxygen in the Earth's air to 20 percent. Without this oxygen other plants and animals could not have evolved, including us.

People use bacteria to make certain foods and drugs. Bacteria turn milk into cheese and yogurt. Bacteria help us digest our food. In fact cows and sheep cannot digest grass without certain species of bacteria in their intestines. Some bacteria can cause diseases in humans and other species.

life cycle

The life cycle of bacteria is very fast. Bacteria reproduce by dividing their one cell into two identical cells. Some bacteria can divide every fifteen minutes. The size of their populations can increase very quickly, providing lots of food for other species.

ecology

Bacteria are necessary for a vernal pool ecosystem to function. When rainwater dampens vernal pool soils, the bacteria start to eat detritus (dead plants) lying on the ground. By decomposing the detritus, bacteria release its nutrients. The nutrients act like a natural fertilizer that helps algae to grow. The algae and growing numbers of bacteria in the water become a "living soup." This soup feeds the protozoa, seed shrimp, waterfleas, fairy shrimp and many other animals that will soon hatch.

The most important role of bacteria in most food webs is to decompose (break down) the bodies of dead plants and animals. Life on Earth would be much different if bacteria did not perform this function. Dead plants and animals would not rot. Our world would be littered with dead stuff. There would be no nutrients or food for other living things to eat. The whole food web would stop cycling energy through it.

other

Cyanobacteria (picture above) are the oldest known fossils, more than 3.5 billion years old. They still live in aquatic habitats around Sacramento especially in polluted water. They can be used as a sign to indicate water pollution. We rarely see cyanobacteria in vernal pools because the pools are a clean aquatic habitat.

investigate

As you learn about the other creatures that live in vernal pools, make a list of the species that are connected to bacteria through the vernal pool food web.

