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It's Alive!

An **organism** is a living thing. Sometimes it is easy to tell when something is alive. You are alive. You breathe, walk, talk, and think. A dog is alive. It runs and barks.

Other times it is not easy to tell if something is alive. Plants are alive. But they do not move. Some organisms are very large. Other organisms are so small that you need a microscope to see them.

These parrots are organisms. The tree where they sit is another organism.

Some organisms are very tiny. Adult brine shrimp are less than half an inch long.

There are three big differences between organisms and nonliving things. First, organisms make more of their own kind. Dogs have young dogs, or puppies. Plants make seeds that grow into new plants. Nonliving things don't reproduce.

Second, organisms react to changes. A plant that does not get enough water dries out. You jump when you hear a loud noise. Nonliving things don't even notice changes.

The third difference is that organisms need energy to grow and live. Animals get energy from food. Plants get energy from the sun and use it to make their own food. Nonliving things don't need energy.

Focus Skill **MAIN IDEA AND DETAILS** **Is a rock an organism? Why or why not?**

Parts of Organisms

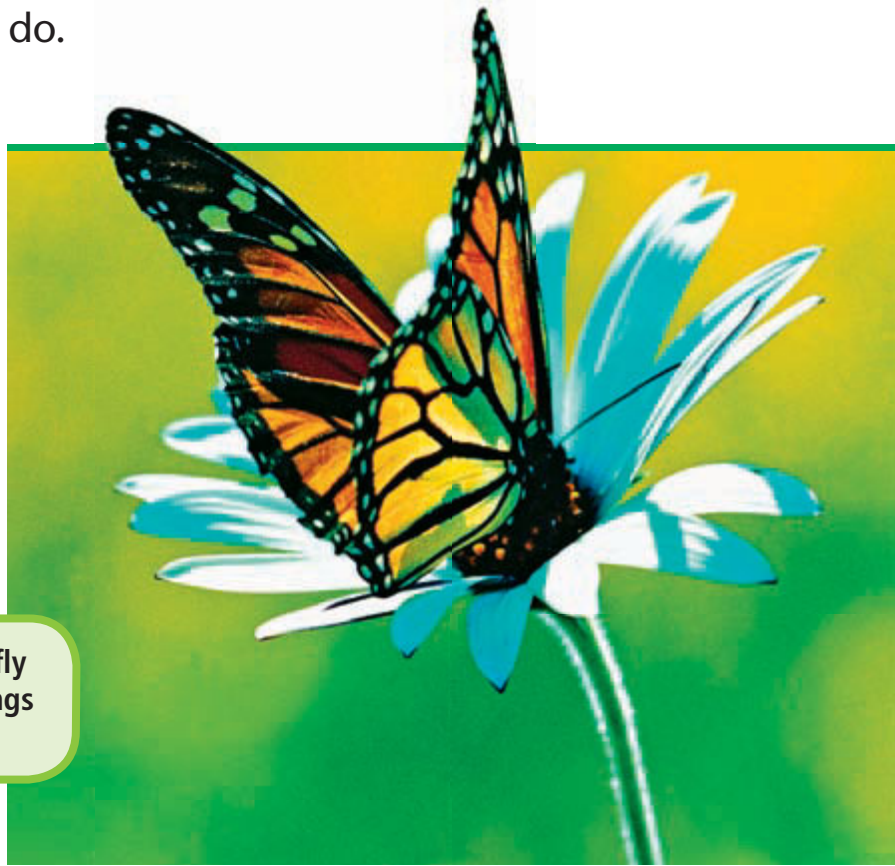
Fast Fact

Crickets have special parts. Males rub their wings together to chirp. Females have an ear on their front legs. They hear the chirp and look for the male!

Organisms are made of many different parts. A person is an organism that has a heart, a brain, lungs, a nose, ears, eyes, and other organs.

Some animals have unique body parts. These body parts have special jobs that help the animal survive. Birds have wings that help them fly. Some insects have antennae to help them sense the world around them. Fish have fins to help them swim.

Plants have body parts, too. Each part has its own job to do.



This butterfly uses its wings to fly.

Most plant roots grow underground. Roots are very strong. They help plants get water from the soil, and they hold the plant in the ground. Stems carry the water to the rest of the plant. They also keep the plant standing straight.

Leaves are important, too. Plants make food inside leaves.

Not all plants have the same parts. Some plants have flowers and fruit. Some plants, like pine trees, grow cones.

Sometimes an organism's parts are so small that you need to use a hand lens to see the details clearly. Sometimes the part is so small that you need a microscope to see it!

A microscope can be used to see the details on a fly's head.

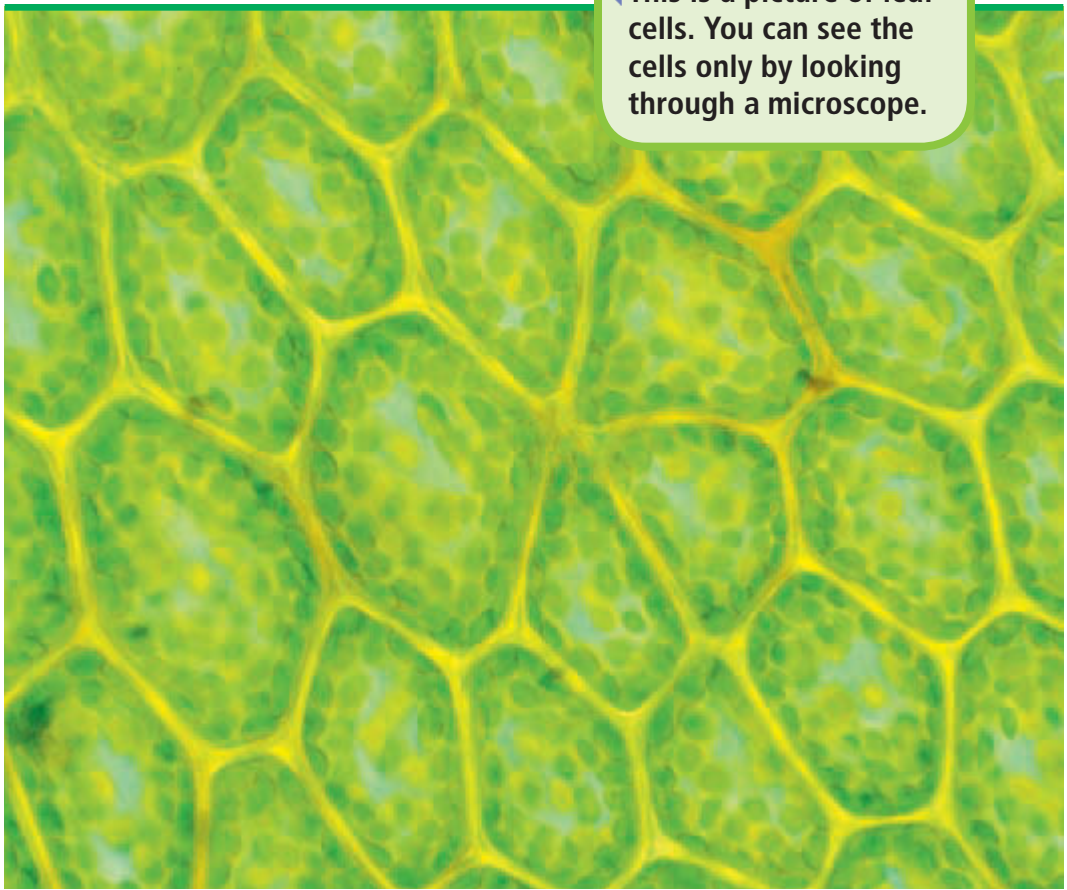
Focus Skill **COMPARE AND CONTRAST** **Compare the parts of a plant to the parts of an animal.**

Organisms Have Cells

All plants and animals have one thing in common. Their parts are made of tiny building blocks called **cells**.

Cells in living things are so small that you need a microscope to see them. Every part of every organism is made of cells. All of the cells work together to help the organism survive.

Each cell in an organism has its own job. In a plant, leaf cells make food for the whole plant. Cells in stems carry food and water through the plant.



This is a picture of leaf cells. You can see the cells only by looking through a microscope.

The horses and trees are made up of different kinds of cells.

Animal cells have jobs, too. Each type of cell in an animal does a different job. But all the cells work together to keep the animal alive.

For example, many animals have bone cells. Cells in bones help a body keep its shape. Skin cells hold the skin together and protect the body from the outside.

Focus Skill

COMPARE AND CONTRAST **How are cells in a plant and an animal the same? How are they different?**

The Life Cycle

Each organism changes during its life. The changes that happen to an organism during its life make up its **life cycle**.

Organisms are all different. Most go through the same steps in their life cycles.

Every life cycle begins with a new organism. Some new organisms hatch from eggs. Others are born alive. Others come from seeds.

Fast Fact

Organisms come in all different sizes. A newborn blue whale can weigh 7 metric tons, or more than 2 cars! Meanwhile, an adult bumblebee bat weighs only 2 grams, about the same as 50 ants!

This porcupine is still young. It depends on its mother to help it grow.

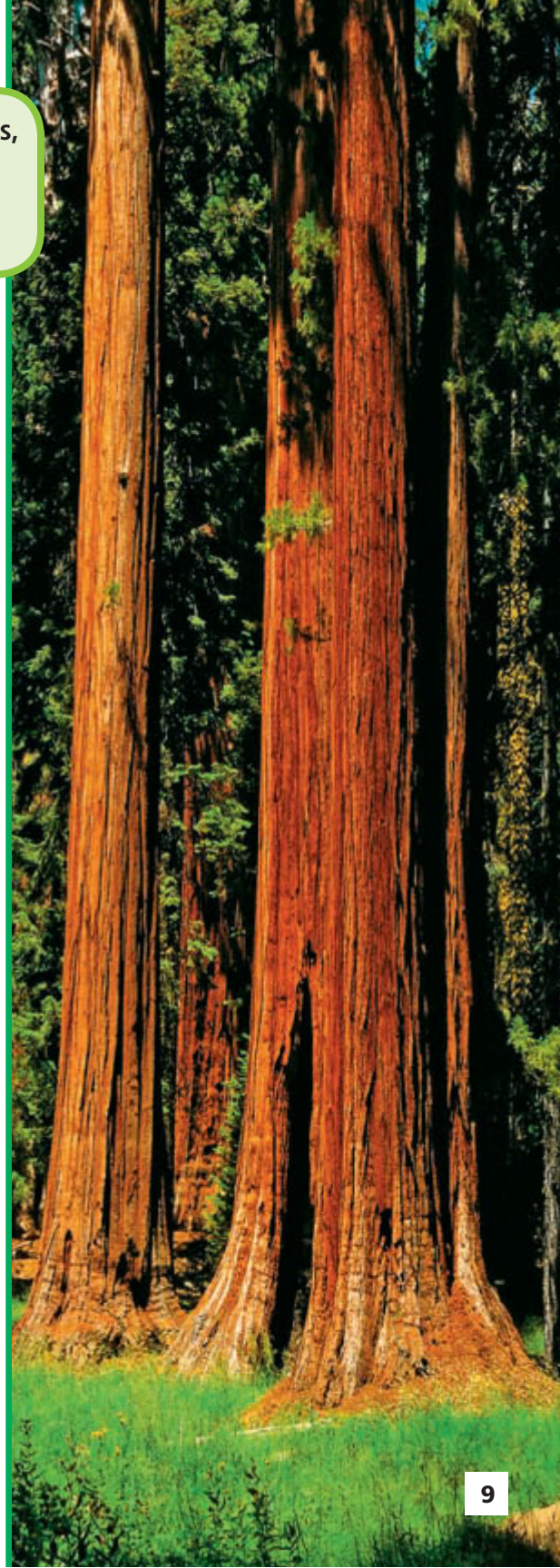
Trees, like many plants, keep growing as they get older. These trees are very old.

The next step of the life cycle is growth. For example, you are growing now. You don't look like you did when you were born.

The next step in the life cycle is reproduction. Many adult organisms make organisms like themselves. A new life cycle begins with a new organism.

The last step in the life cycle is death. All organisms die. The life cycle goes on because as organisms die, new organisms are produced.

Focus Skill **SEQUENCE** **What are the steps of a life cycle?**



Life Cycle of Plants

Organisms go through the same steps in the life cycle. However, plants and animals go through these steps in different ways.

Many plants grow from seeds. Others grow from underground stems called bulbs and tubers. Tulips grow from bulbs. Potatoes are tubers. Seeds, bulbs, and tubers all contain nutrients and water. The new plants use the nutrients to grow.

When a new plant begins to grow from a seed, bulb, or tuber, the root appears first. Then the shoot pushes above the ground. Leaves start to grow. The adult plant reproduces. The life cycle begins again. All plants have life cycles.

A large apple tree grows from small seeds found in the fruit.

Sometimes a part of a plant breaks off from the main stem. If you put this part into damp soil, it may grow roots and become a new plant. This new plant will be just like the one it came from.

Focus Skill **SEQUENCE** **Describe the steps in the life cycle of a plant.**

Fast Fact

The sequoia tree can live more than 3,000 years and grows the entire time. The sequoia grows slowly. It doesn't even start making seeds until it is 150 years old!

As these stems grow, they will turn into full-grown plants.

Life Cycle of Animals

The life cycle of most animals begins with an egg. Some animals hatch from eggs. Others do not. Some animals grow from an egg inside the mother. Then they are born.

After an animal is born, it begins to grow. An animal changes as it grows.

This mother has given birth to many puppies. Now she will take care of them.

Once an animal is grown, it is ready to have its own young. This is the start of a new life cycle.

Focus Skill **COMPARE AND CONTRAST** **How is the life cycle of an animal like the life cycle of a plant?**

Fast Fact

You may know that a human baby takes 9 months before it is ready to be born. But did you know that a young elephant grows for 21 to 22 months before it is born?

After three years with its mother, this bear is learning to live on its own.

Who Is That?

A few animals go through major changes as they grow. They go through **metamorphosis**, or a series of changes in appearance. For example, caterpillars grow into butterflies. A caterpillar eats and eats. Then it makes a wrap for itself. It changes in the wrap. It comes out of its wrap as a winged butterfly.

Frogs also go through metamorphosis. They hatch from eggs under water. At this time, they have no legs and can breathe only under water. Then they grow legs and lungs and can live on land.

Focus Skill

MAIN IDEA AND DETAILS **Name a part of a butterfly that a caterpillar doesn't have.**

When frog eggs hatch, they're called tadpoles. They look different from adult frogs.

Summary

Living things are called organisms. Plants and animals are organisms. All organisms are made of cells. Different kinds of cells have different jobs. But they all work together to help organisms live. Most organisms go through a life cycle. Plants and animals go through the life cycle in different ways.

These elephants represent two stages of the life cycle.

Glossary

cell (SELL) A tiny building block that makes up every part of an organism (6, 7, 15)

life cycle (LYF CY•kuhl) The changes that happen to an organism during its life (8, 9, 10, 12, 13, 15)

metamorphosis (meta•uh•MAWR•fuh•sis) A series of changes in appearance that some organisms go through (14)

organism (AWR•guh•niz•uhm) Any living thing (2, 3, 4, 5, 6, 8, 9, 10, 15)

Think and Write

1. Describe the parts of a plant. Tell what each part does.
2. **COMPARE AND CONTRAST** What are some differences between organisms and nonliving things?
3. **SEQUENCE** As animals grow during the life cycle, how do they change?
4. **Narrative Writing** During the growth step of the life cycle, humans learn from other humans how to survive. Write a paragraph that tells how your family has taught you to survive while you grow.

Hands-On Activity

Locate 3 different types of leaves. Use a hand lens to study the leaves. Draw your observatons and compare them with a classmate's.

School-Home Connection

Ask a member of your family to tell you about how you have grown since you were a baby.

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