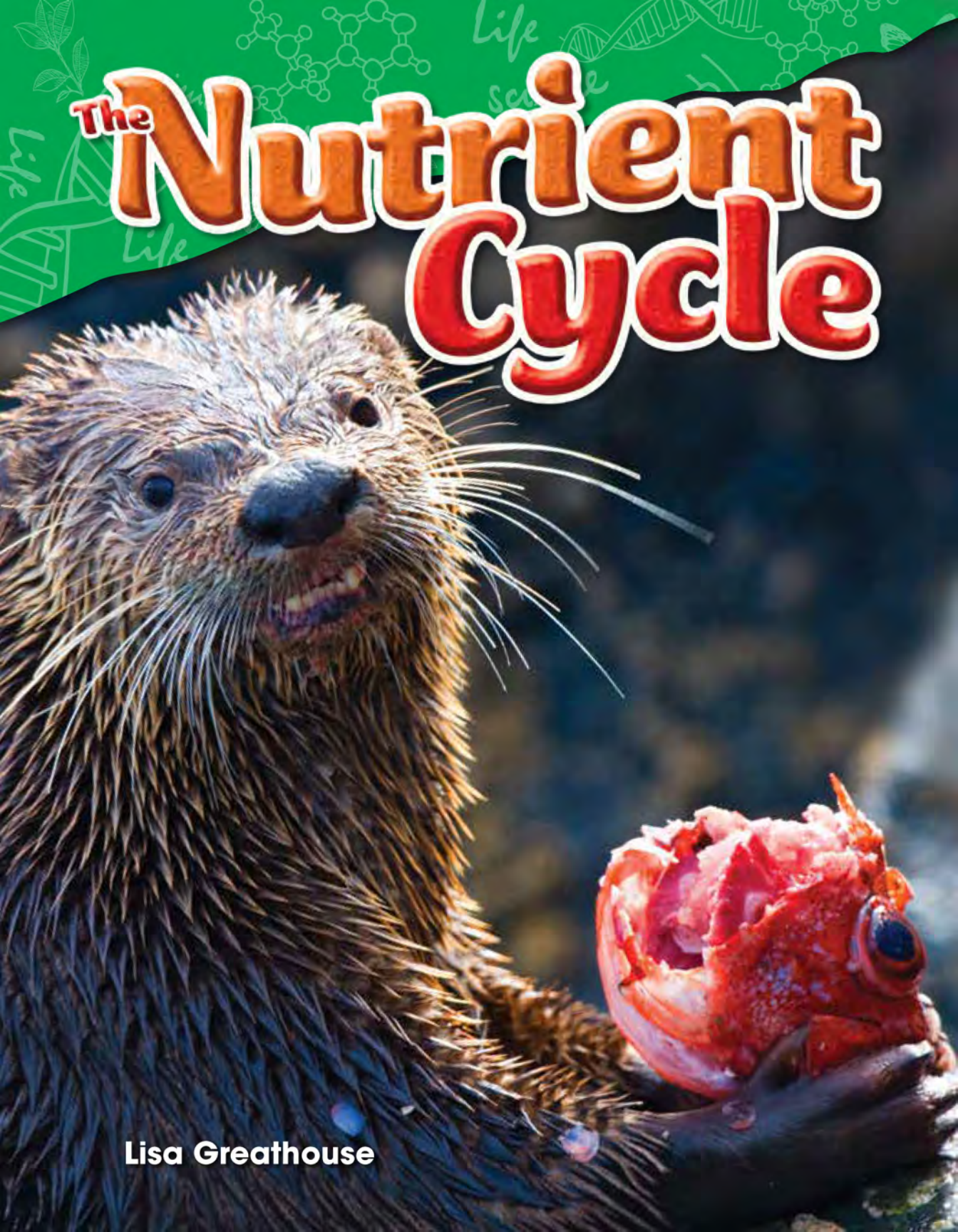
The Nutrient Cycle



Lisa Greathouse

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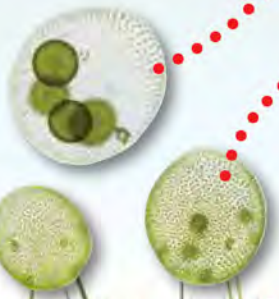
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Nutrient Cycle

It's important to recycle to protect the environment. But did you know nature recycles every day? Nature takes old and used substances and turns them into things that can be used again. Recycling may come in the form of water that pours from a rain cloud into a lake. It may be found in a leaf that drops from a tree to the ground and becomes food for the soil. It may be found on a larger scale when a squirrel dies and it becomes dinner for a fox. This is the cycle of life. And it must stay in balance.



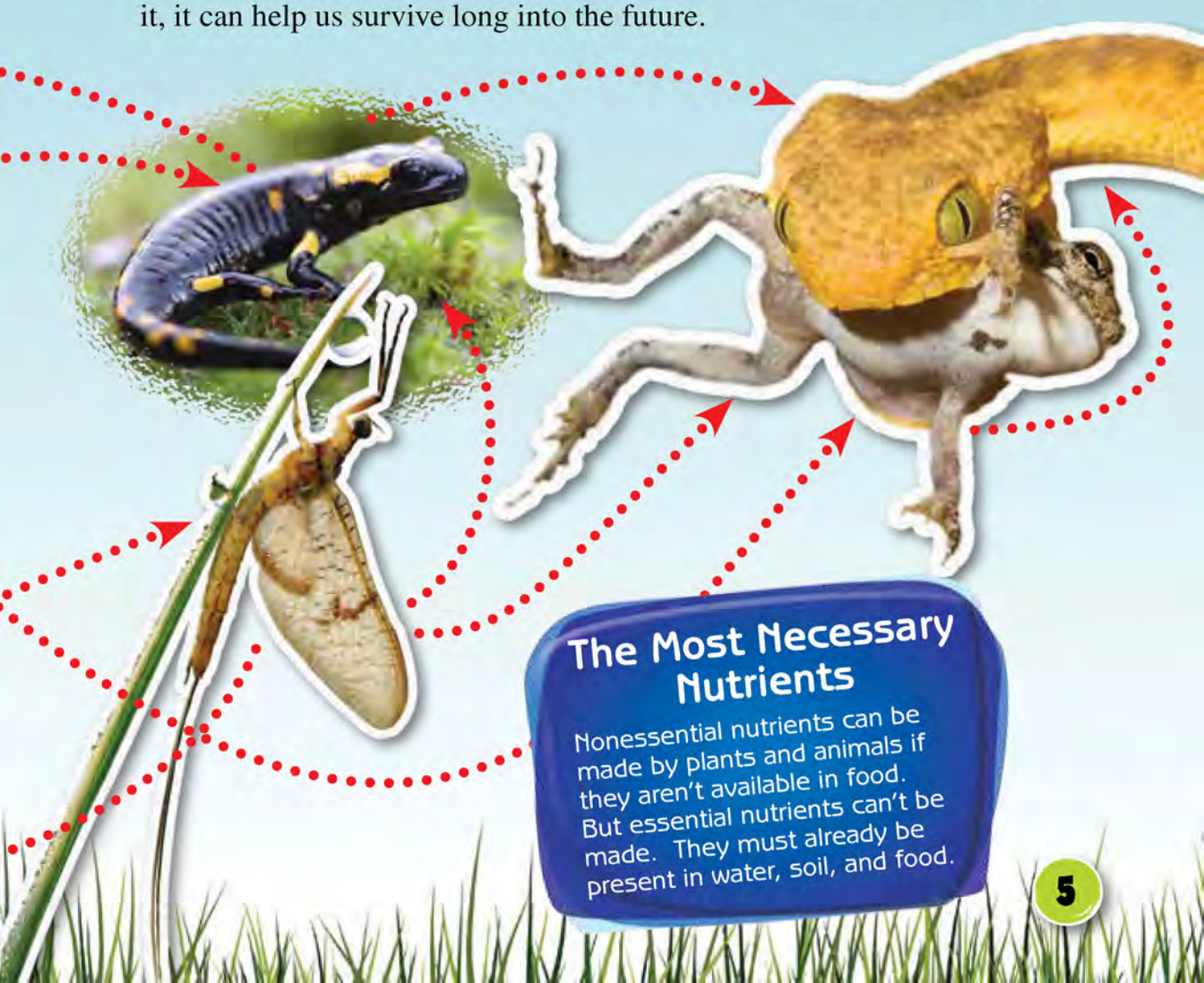






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All living things require a few key **nutrients**. The nutrient cycle describes how these key ingredients nourish nature. Nutrients move from the environment into living things to help them thrive. Then, nutrients are recycled back into the planet's land, air, and water. This cycle occurs within Earth's **ecosystems**. Matter and energy flow through these systems as living things feed, digest, and move around. The nutrient cycle has powered our world for a long time. If we protect it, it can help us survive long into the future.



The Most Necessary Nutrients

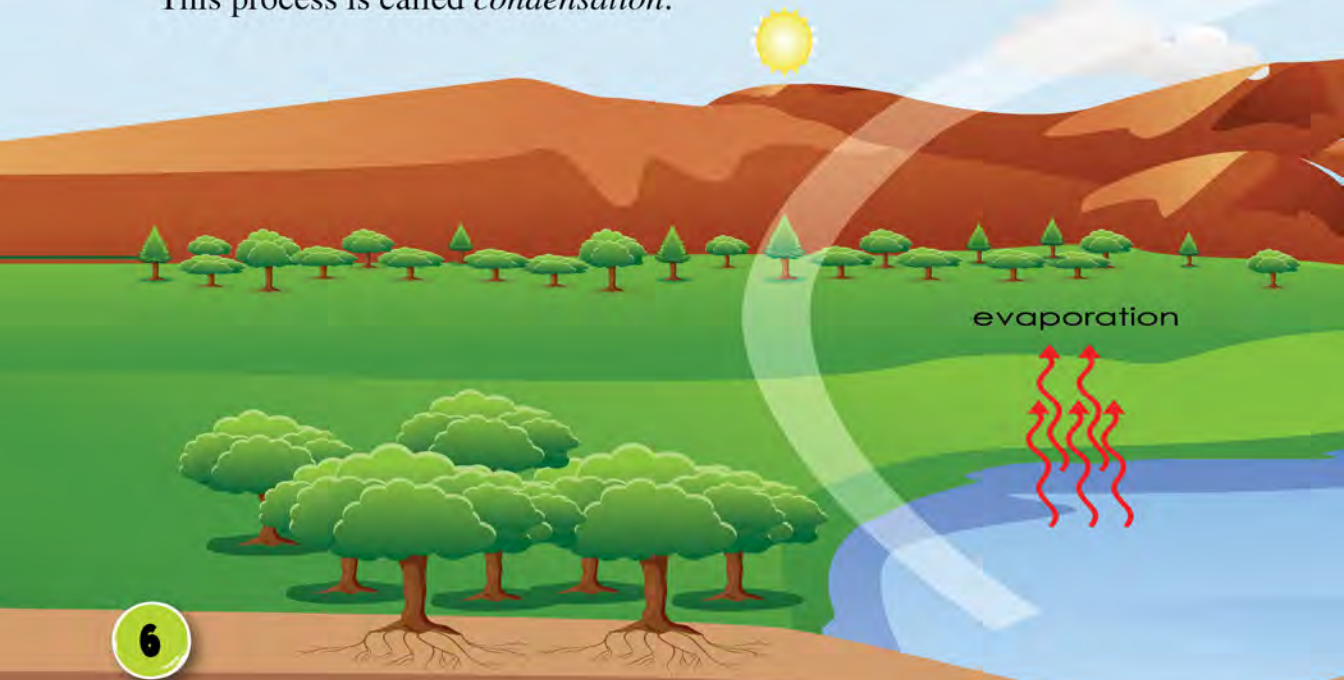
Nonessential nutrients can be made by plants and animals if they aren't available in food. But essential nutrients can't be made. They must already be present in water, soil, and food.

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Water Cycle

The nutrient cycle is made up of smaller cycles. The water cycle is a vital part of this process. Plants and animals (including humans) need water to live. It's essential to our survival. Our bodies are made mostly of water. We need it to keep blood pumping through our bodies. And we need it to create energy. But we're constantly losing water, too. It's important that living things replenish their bodies by drinking water.

Water moves and changes forms in ways that allow us all to survive and thrive. Water can be liquid, like the water in your glass or in the ocean. When water gets hot enough, it turns into a gas, like steam. And when water gets really cold, it can turn into a solid in the form of ice. Other changes might be seen after a storm. You might step in a puddle or see drops forming on leaves. Heat from the sun turns that puddle from a liquid to a gas. This process is called *evaporation*. When these drops rise and cool, they form clouds. The gas turns back into a liquid. This process is called *condensation*.



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Dino Water

The water you drink today has been around a long time. In fact, it may be the same water that was lapped up by a dinosaur millions of years ago! Of course, this water has been recycled and cleaned naturally.



Doctors recommend people drink eight glasses of water daily to stay hydrated.

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When clouds get too heavy to stay in the air, the droplets fall to the ground. They can fall in the form of rain, sleet, snow, or hail. This is called *precipitation*.

Some rainwater fills up lakes. Some flows into streams and rivers. Then, it gets carried out to the ocean. The sun causes some of the rainwater in those bodies of water to evaporate. And the cycle starts all over again.



The Human Factor

Humans affect the water cycle. Much of the water we drink comes from the water that recycles to streams and rivers. But when rain and melting snow run off roofs and roads back into rivers, it collects chemicals, dirt, and trash. Not only does this pollute our drinking water, it also affects animal habitats.

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Do Plants Sweat?

You probably get a little sweaty when you run. Another word for *sweat* is *perspiration*. Plants do something similar. It's called *transpiration*. It's the process by which plants lose water out of their leaves. This releases water vapor back into the air.



The Clean Water Act was created in 1948 to protect our water supply. Drink up!

Rain and melting snow also soak into the ground. This water seeps into the soil, making water for trees and grass. Soil and sand absorb the water and hold onto it like a sponge. Water moves underground and in between spaces in rocks and soil. This groundwater makes up more than 90 percent of all available freshwater in the world. Groundwater is used by trees, plants, and animals. It can also be stored in an **aquifer**. Many people get the water for their homes from an aquifer. The water cycle recycles water and gives living things the water they need to survive.

Think Like a Scientist

How do chemicals enter groundwater, and what effect do they have on Earth's cycles? Experiment and find out!

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What to Get

- clear plastic cup
- food coloring
- food wrappers and other trash
- soil, sand, and pebbles
- vegetable oil
- water

