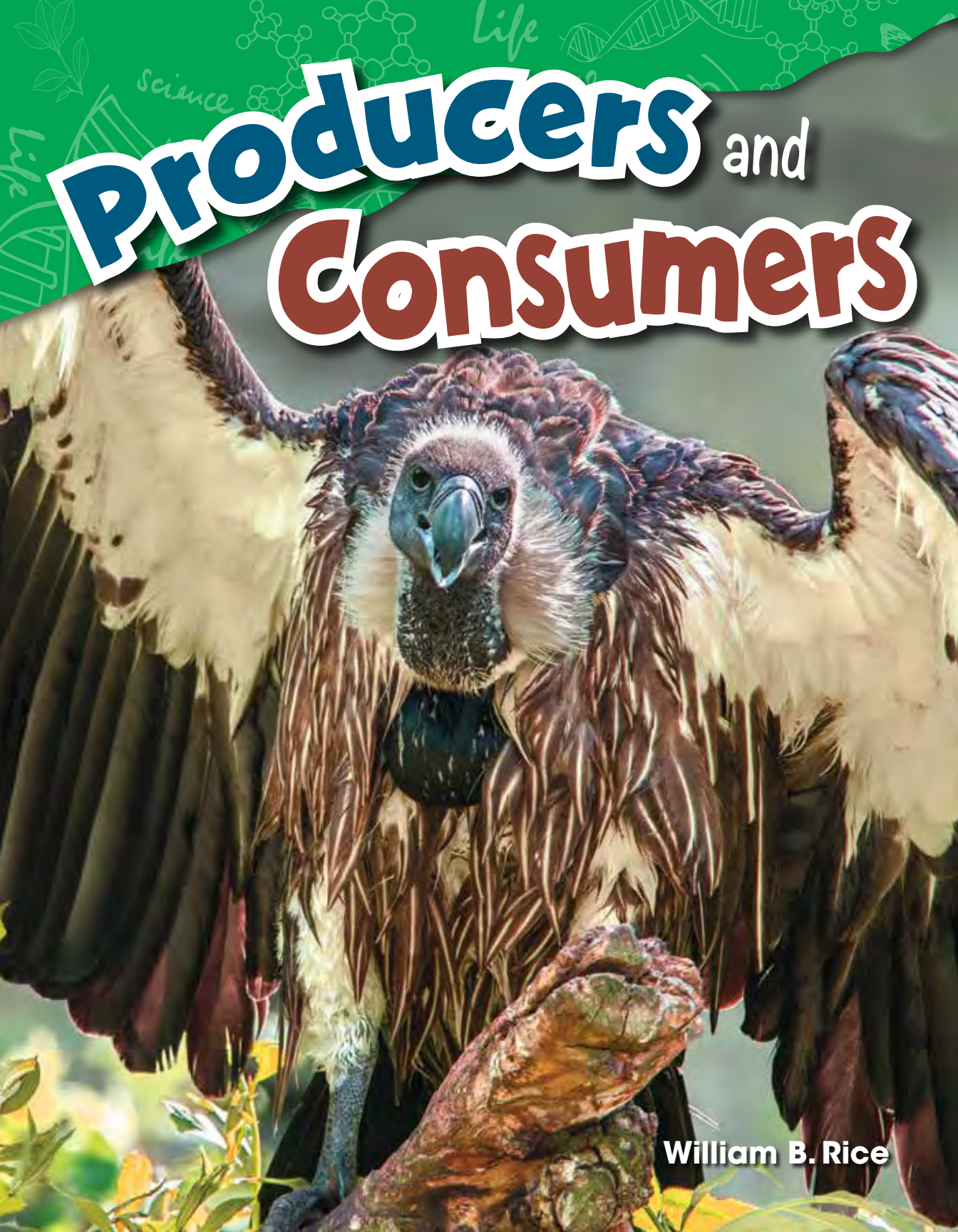
Producers and Consumers



William B. Rice

For teachers' inspection ONLY

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'Round and 'Round

Earth's cycles are something we can all count on. Winter fades and spring dawns, but we know that winter will come again. Water evaporates into vapor and riverbeds dry, but we know the rain will return. Fires and floods strike, but life will grow anew.

Earth is ever changing. In fact, change is a constant we can count on!

Cycles are a basic part of life. And life on Earth has adapted to cycles and counts on them. The cycle of night and day. The cycle of cold winters and hot summers. The cycle of rest and waking. The cycle of life and death. Cycles are like circles. There is no beginning and no end. A cycle follows a pattern and repeats itself forever. Night follows day follows night follows day follows night. It has been that way since Earth began. And as long as there is an Earth and a sun, it will always be that way.



A Butterfly's Life Cycle

First, a butterfly lays eggs. Then, the eggs hatch, and caterpillars emerge. Caterpillars grow until they are ready to form a chrysalis around themselves to change into a butterfly.

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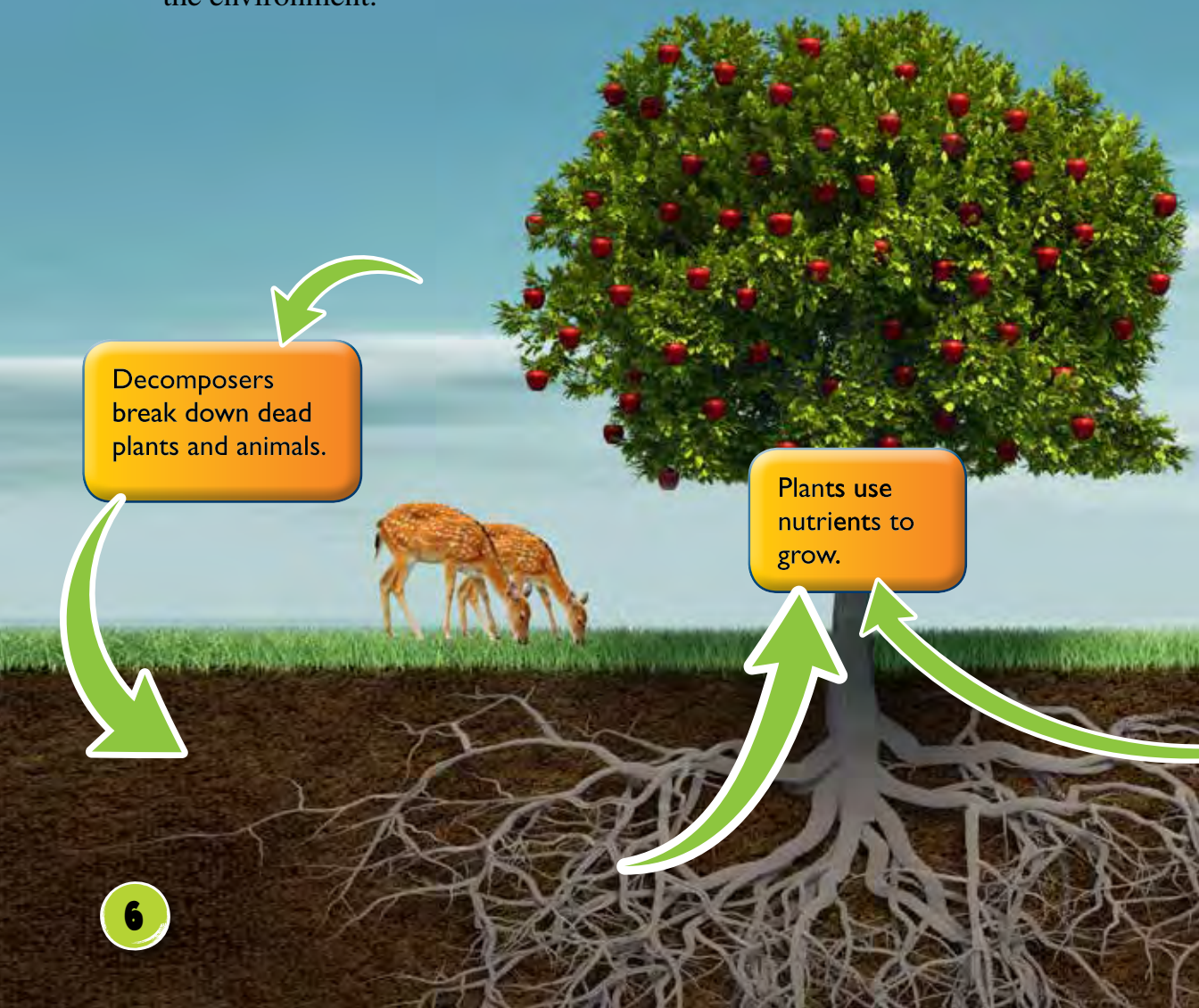
How Cycles Work

Cycles keep repeating themselves. To do that, one step must end where the next step begins. Think about cycles in your life. How do you get back to step one?

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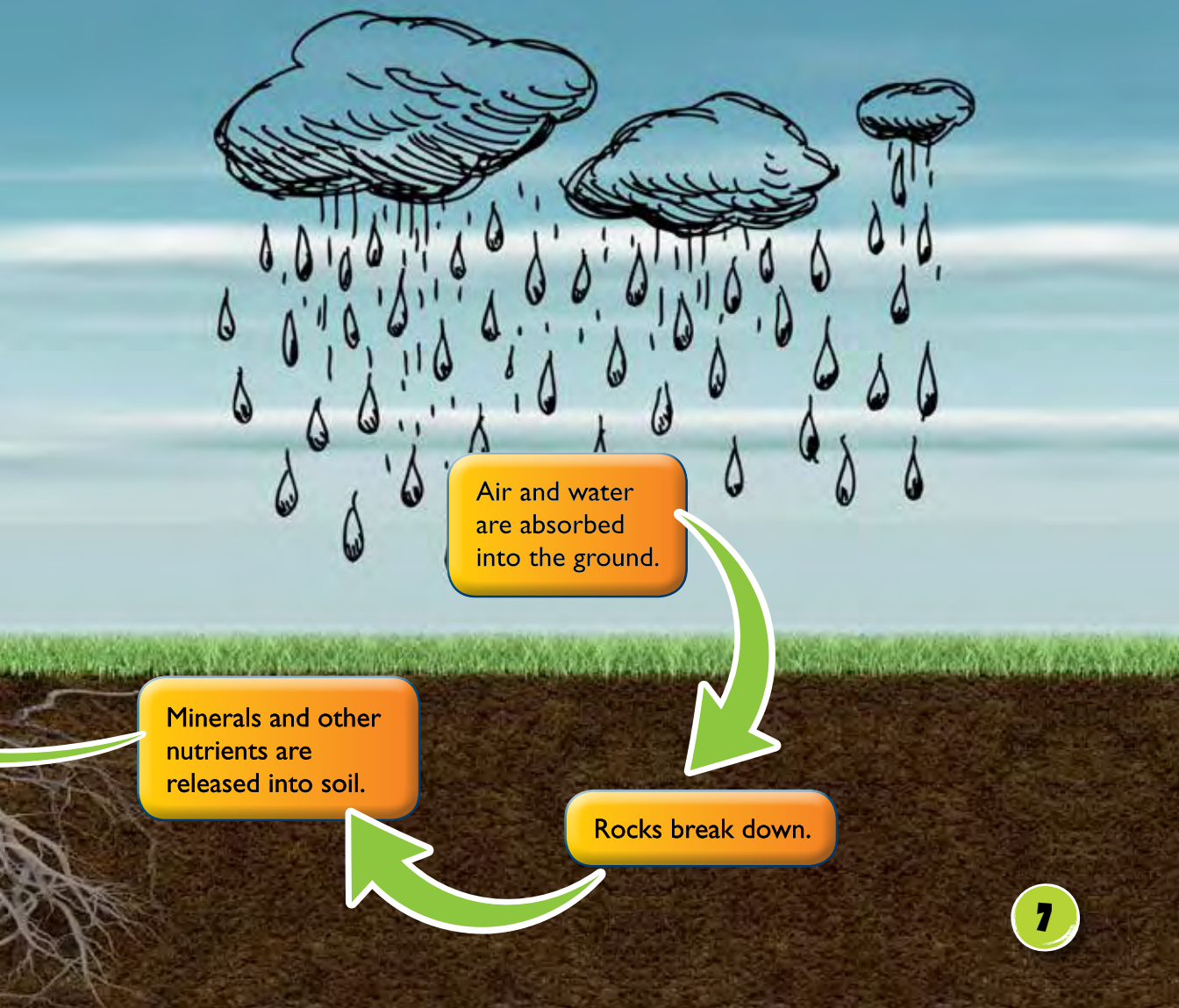
Each phase of a cycle is **dependent** on the other phases. It counts on the other parts of the cycle. Without them, the phase wouldn't happen. Without spring, there would be no summer. Without the **nutrients** from plants, animals couldn't live. Without animals to nourish the soil, plants would never grow.

The **nutrient cycle** is crucial to all life. It lets matter and **energy** pass among living things. It carries on the flow of life on Earth. The sun is the key. Its energy is the fuel in the cycle. The energy gets passed from one thing to another. It even gets passed to the environment.



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Earth's **producers** make food for themselves and for consumers. They make their own food from simple, nonliving substances. Consumers get their nourishment from others. They eat producers and other consumers. Decomposers and producers make use of nutrients from consumers.



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Producers

There's no beginning in a cycle. But for the sake of discussion, we need to start somewhere. So, let's begin with producers.

In the nutrient cycle, producers take basic, nonliving substances and use them to make what they need to grow and live. They make nutrients for themselves. In other words, they make their own food. To do that, they need the sun's energy.

Energy **radiates** outward from the sun every day. Earth receives some of this energy. It makes life on Earth possible. The energy warms the ground. It also warms oceans and lakes. Plants get this energy and use it to help them live. They use this energy to grow. They use it to make their stems and trunks, branches and leaves, and flowers and fruit. They also make their own fuel that powers all this growing.

Since plants produce, or make, their own fuel, they are called *producers*. They make their fuel using energy from the sun.

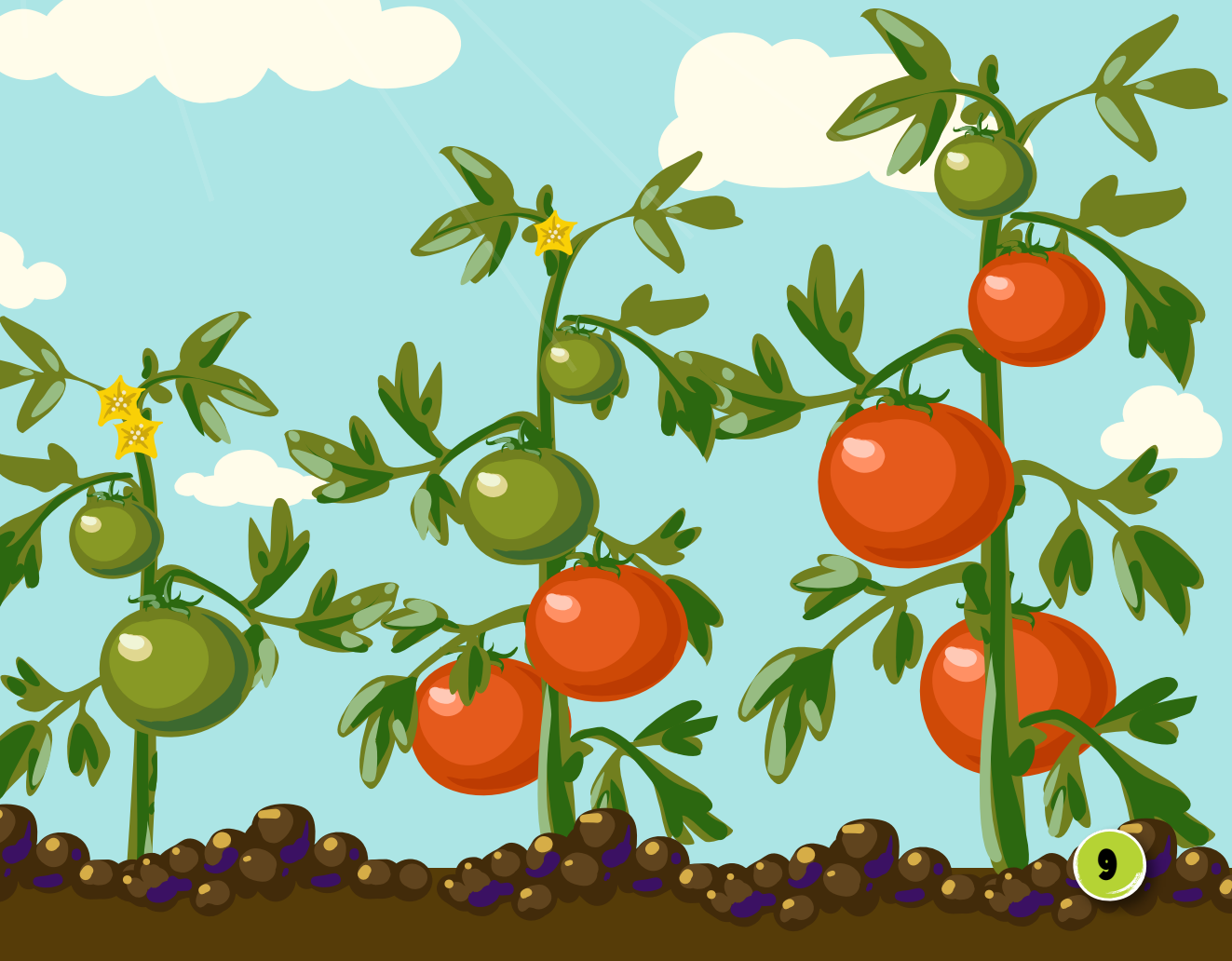
Tasty Tomatoes

Tomatoes start green and mature into ripe, red tomatoes. Having nitrogen-rich soil is essential to growing tasty tomatoes. Without nutrients such as nitrogen, the leaves will shrivel and the fruit will not ripen.

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Energy We Use

The sun radiates energy in many forms. Sunlight is the energy we can see. Earth's atmosphere blocks most of the other forms of energy that may be harmful to living things.



Think Like a Scientist

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What's the best way to help food decompose? Experiment and find out!

What to Get

- 3 clear jars
- food
- grass and leaves
- marker
- soil
- trash, such as plastic bottle tops
- water
- worms

