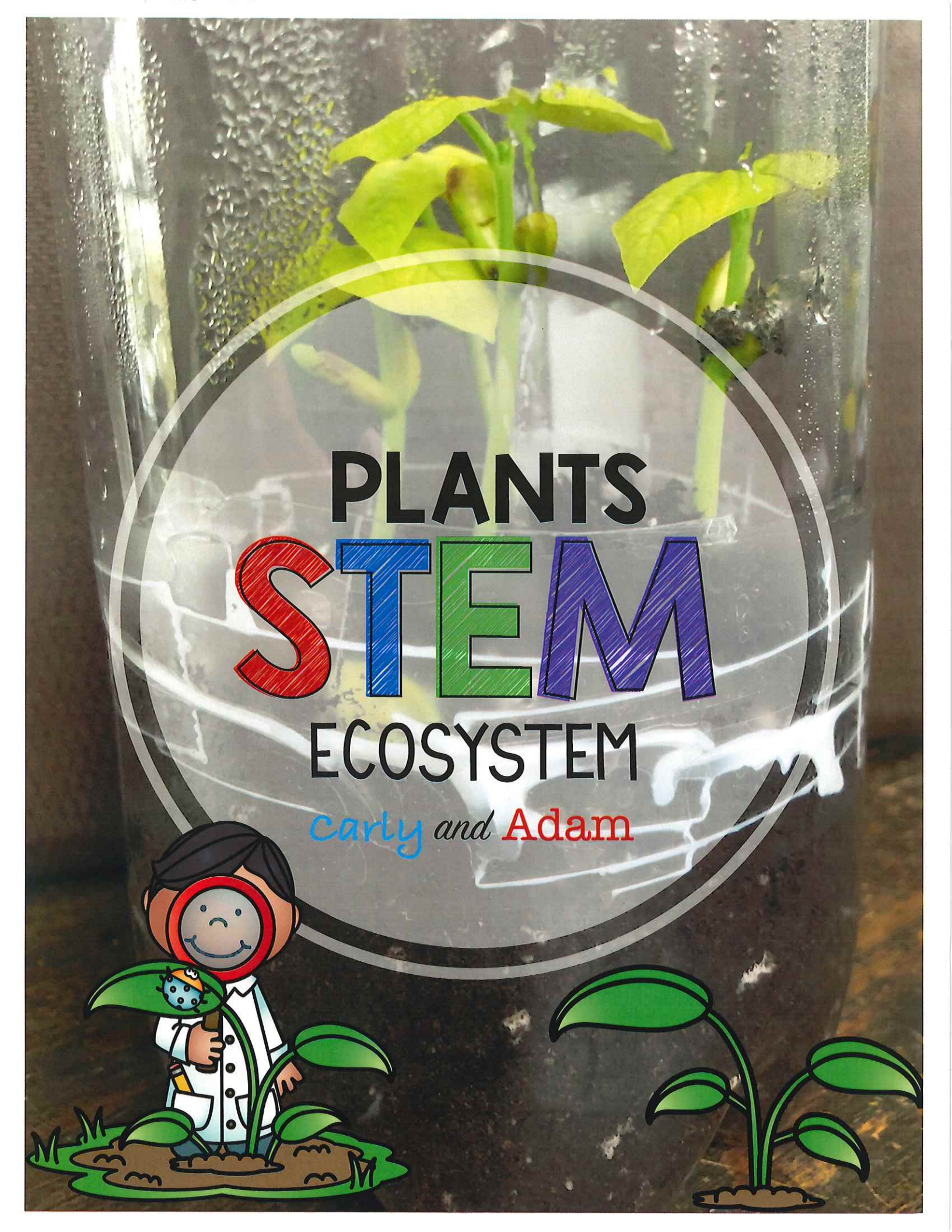
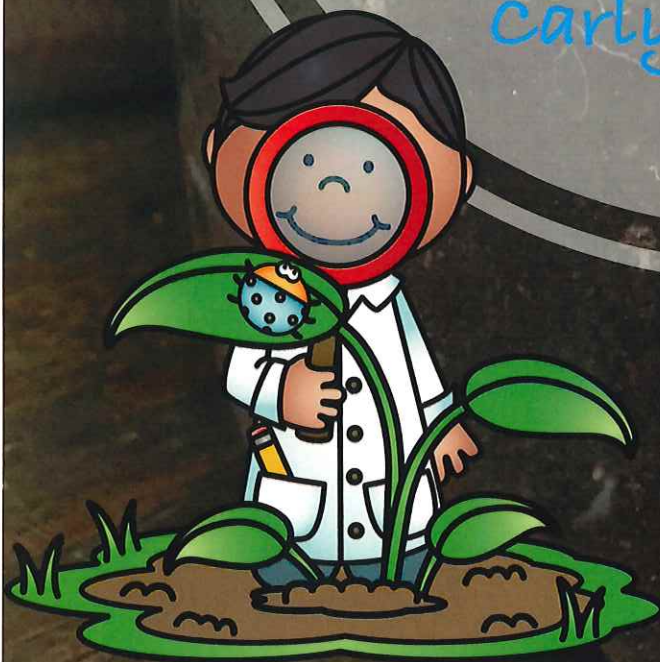




PLANTS STEM ECOSYSTEM

Carly and Adam



PLANT ECOSYSTEM

Teacher Instructions

Materials for each group of 2-3 students:

- 1 clear plastic bottle (2 liter)
- 3-5 bean seeds (bush beans)
- soil
- water
- tape
- scissors

Instructions:

- Show students the parts of a seed and parts of a plant diagrams and discuss each part and why it is important.
- Talk with students about what they think plants need to survive.
- Explain that they will be doing an experiment to see what plants need in order to grow.
- Before beginning the experiment cut the clear plastic bottles in two pieces. The bottom piece should be approximately 4in tall.
- Have students fill the bottom piece of the 2 liter with soil leaving approximately 1in of space at the top.
- Place 3-5 bean seeds around the outer rim of the terrarium. Keep in mind that the closer the seeds are to the outer plastic the better view students will have of the growing plant.

PLANT ECOSYSTEM

Teacher Instructions (Continued)

- Have students record their observations the second and third weeks as well in their plant journals. For each week students should be recording their observations and drawing a picture of the seeds with the labeled parts that they observe.
- Also have students observe and discuss the terrariums with no water and varying amounts of sunlight each week.
- At the end of week three talk with students about what they observed and about what they think is the best environment for plants to grow.
- Students should come to the conclusion that plants need sunlight and water to grow.

Materials Needed



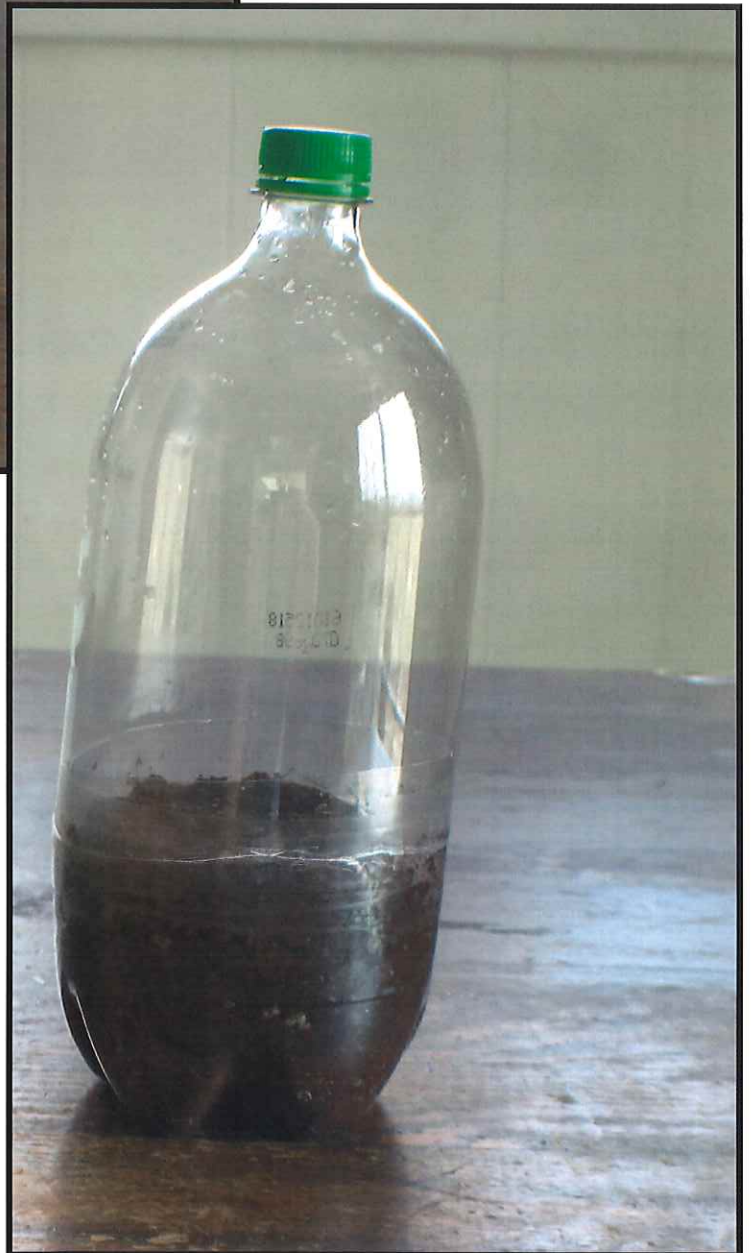
PLANT ECOSYSTEM

Teacher Instructions (Continued)

- Follow the instructions on your seed package for how far down in the soil to place the seeds.
- Pour enough water into the soil so that it is damp.
- Place the top of the bottle on the bottom piece and tape the pieces back together. Be sure that the tape seals the two pieces together and that the bottle cap is on tightly
- Place the terrariums in a light and warm place that is not in direct sunlight. If the terrarium gets too warm the water will evaporate.
- The terrarium is self-sustaining and the water will continue to cycle through the ecosystem without needing any additional watering.
- If students are learning about what plants need to survive you may want to create some terrariums without water. As an added variable you could place the terrariums in different places around the room with varying amounts of sunlight to see which amount of sun is best for growing plants.
- Have students make predictions about which terrariums will have the best growth and why.
- After setting up their terrariums have students make their first observations and record them in their plant journals.

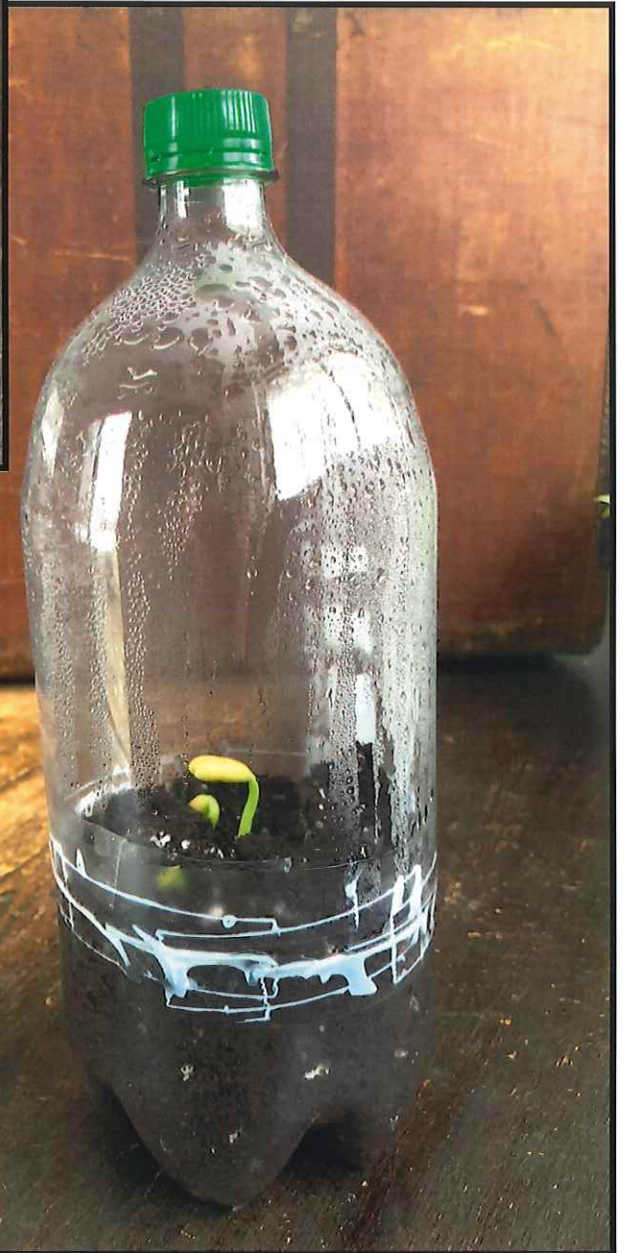
PLANT ECOSYSTEM

Teacher Instructions: Week 1 Example



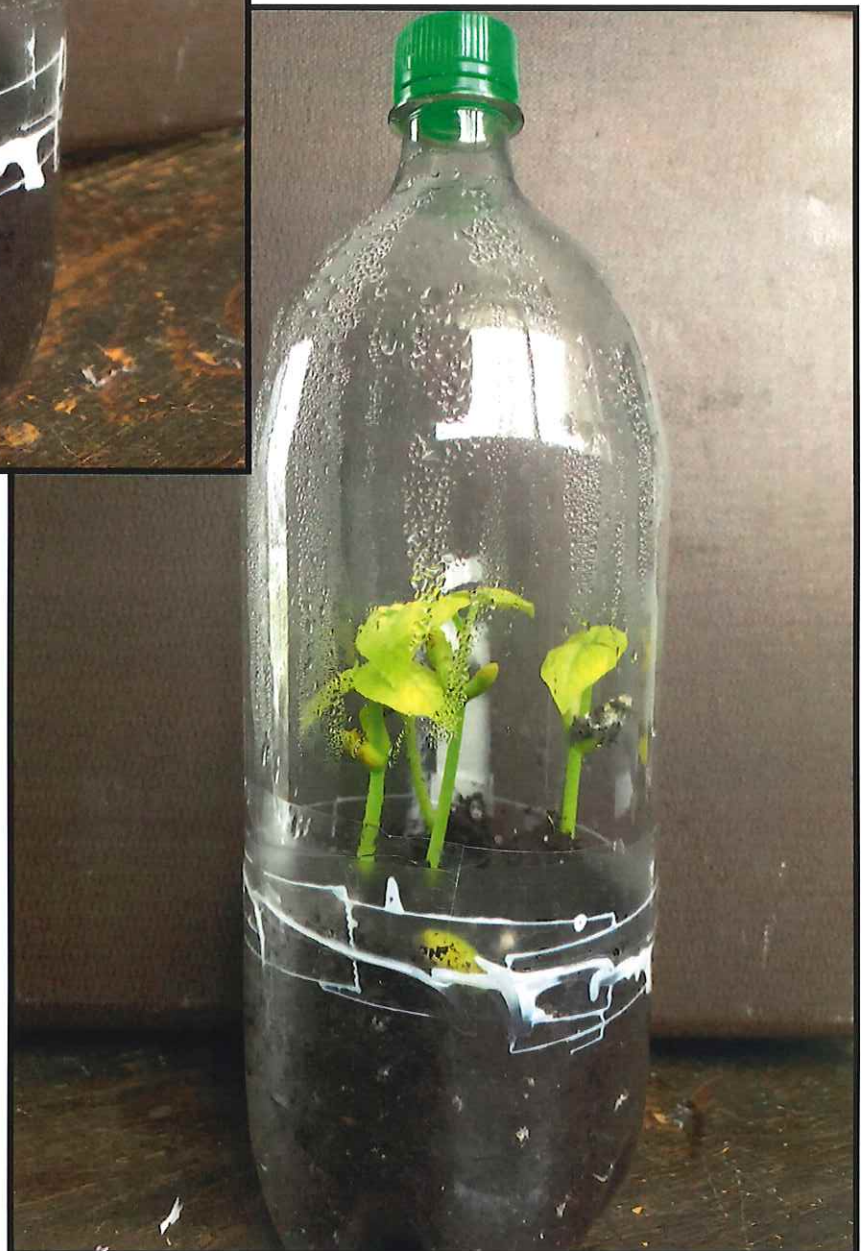
PLANT ECOSYSTEM

Teacher Instructions: Week 2 Example

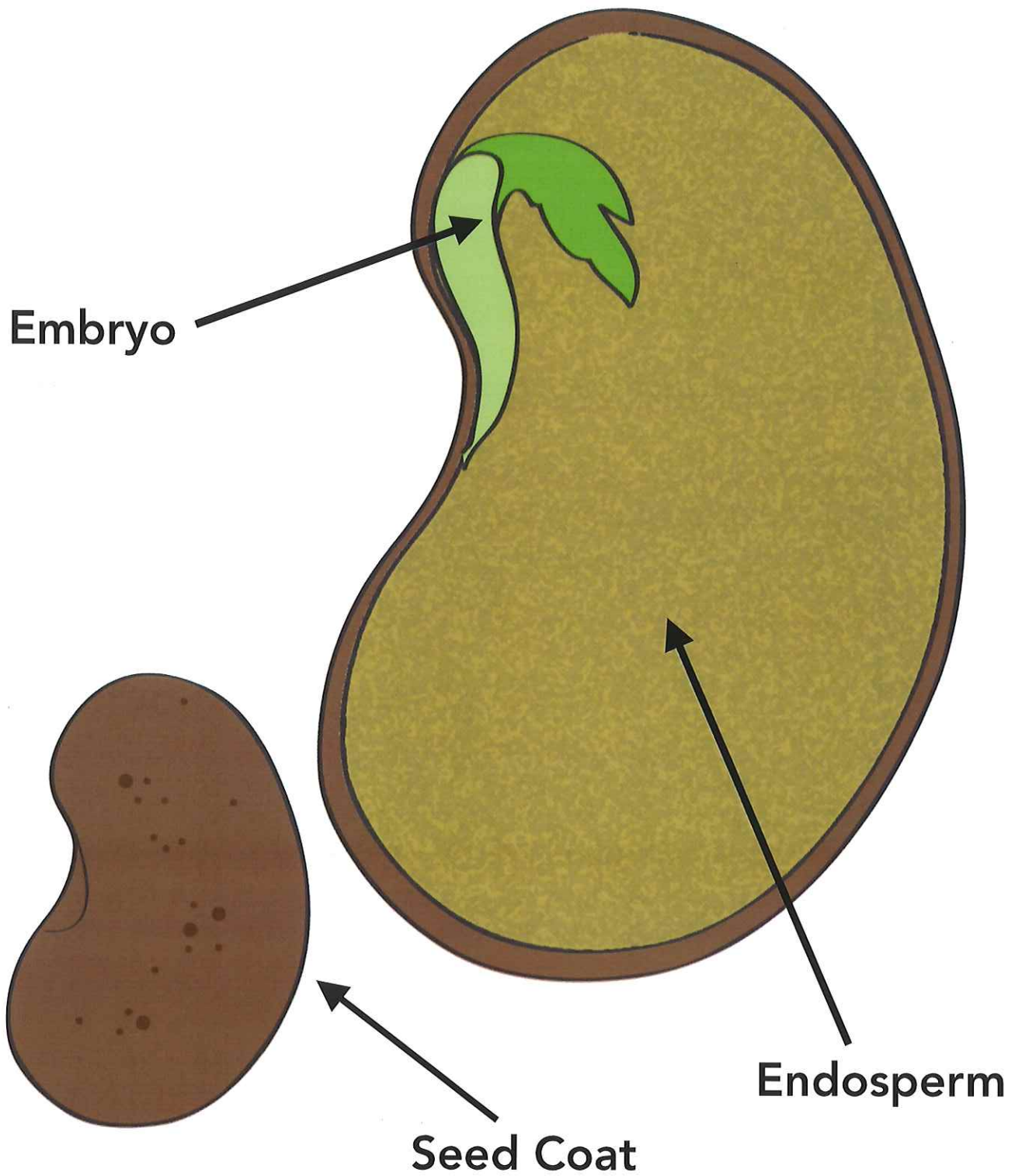


PLANT ECOSYSTEM

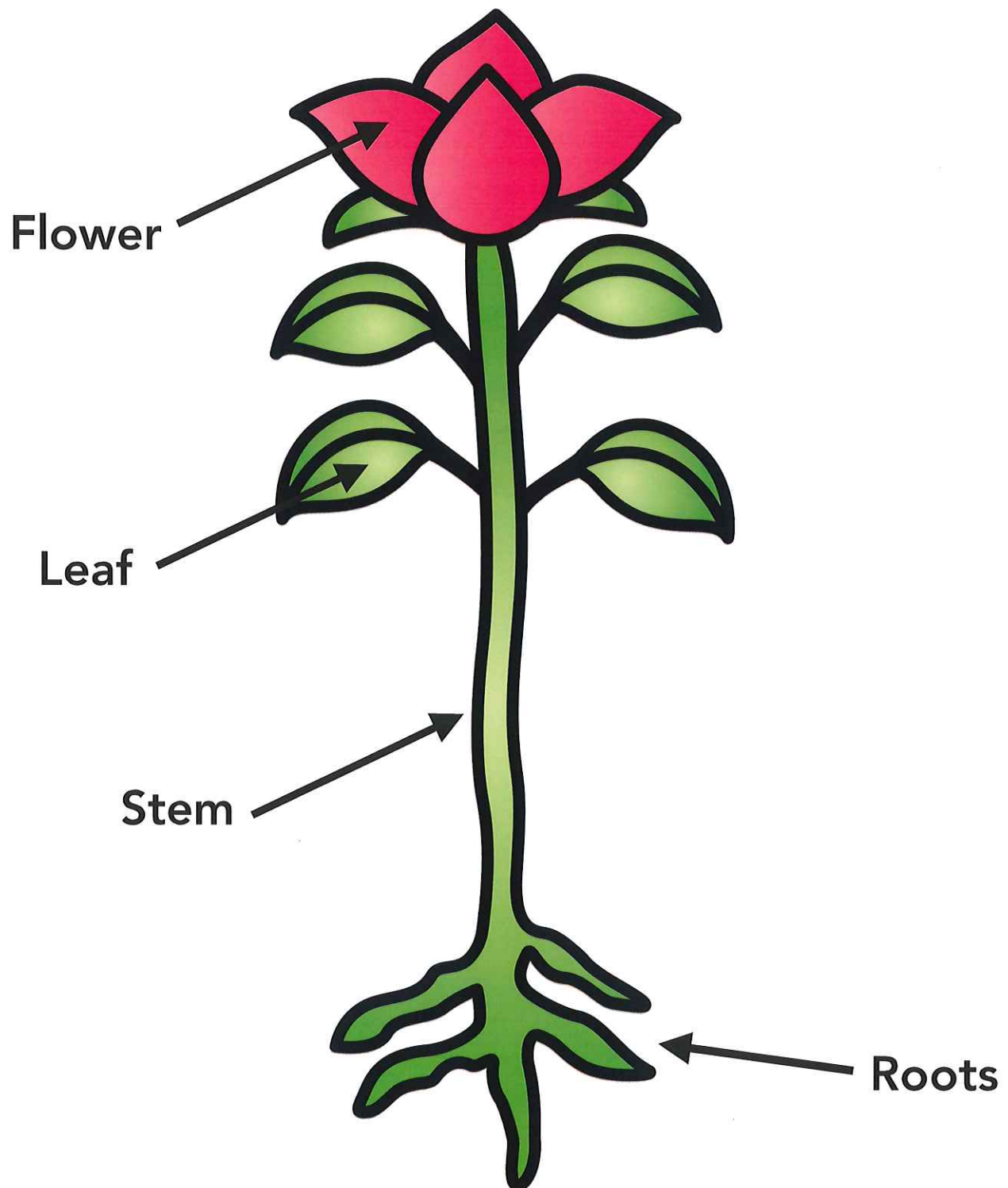
Teacher Instructions: Week 3 Example



The Parts of a **Seed**

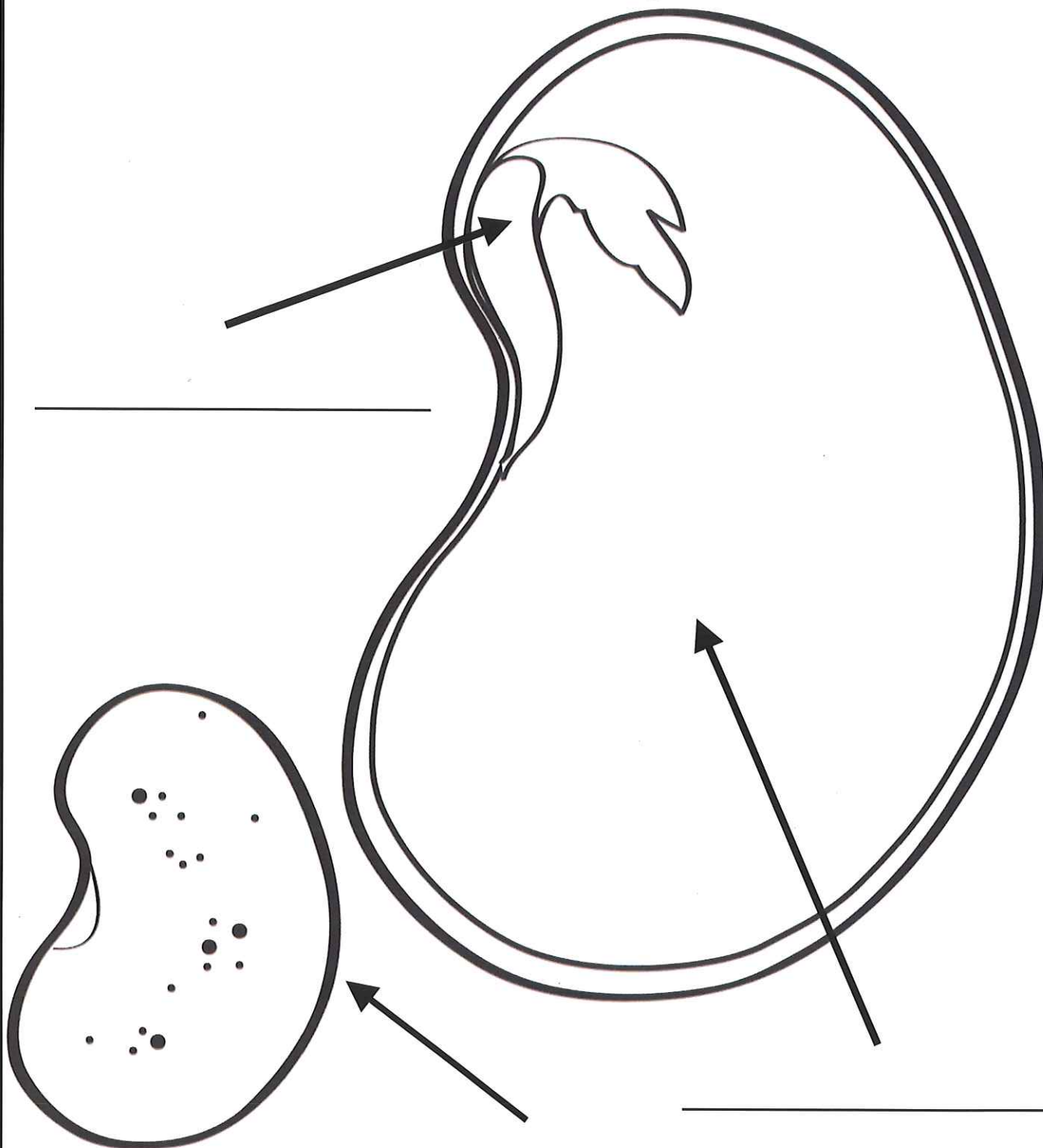


The Parts of a **Plant**



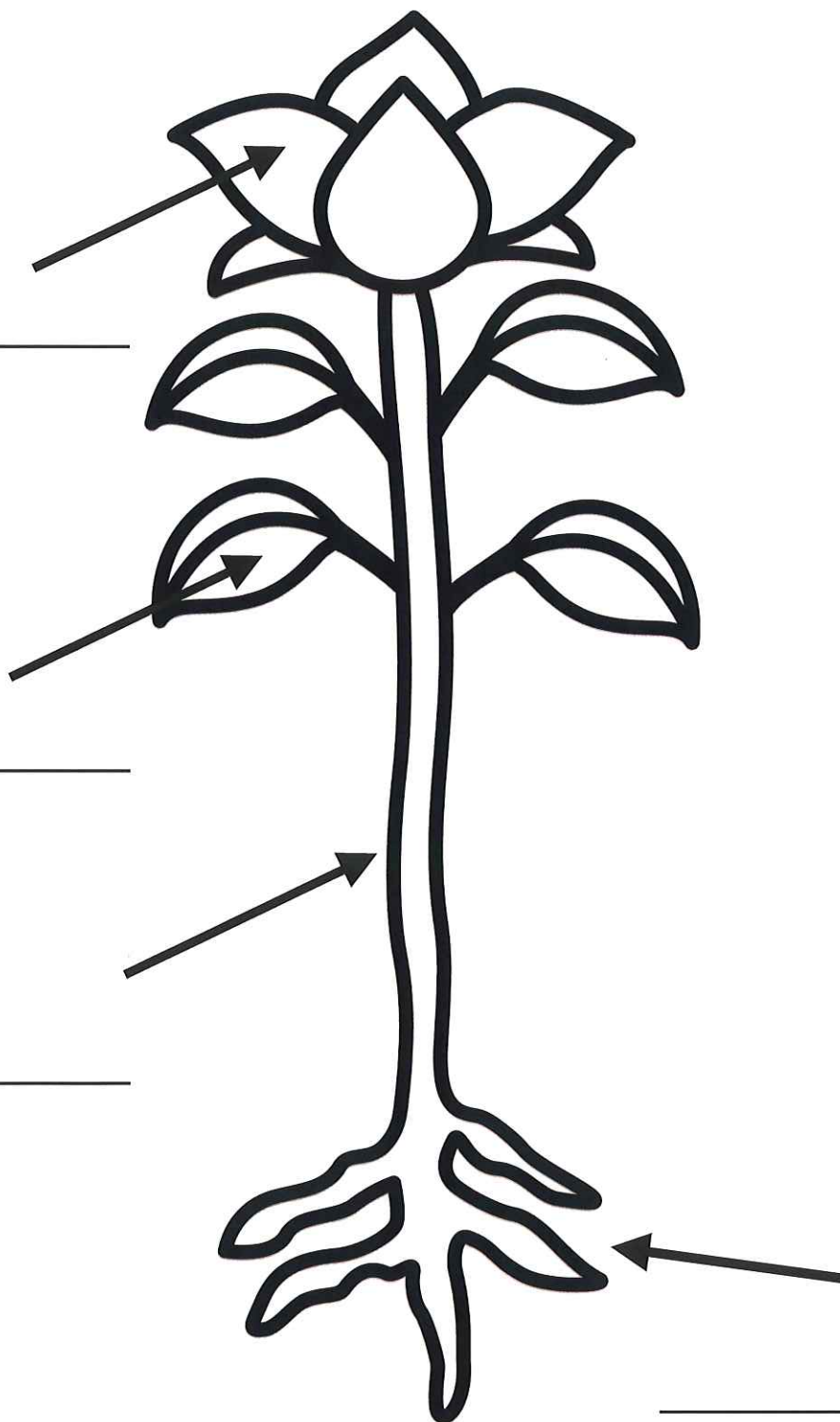
Name: _____

The Parts of a **Seed**



Name: _____

The Parts of a **Plant**



Name: _____

Week 1

Picture

Observations and Predictions

Week 2

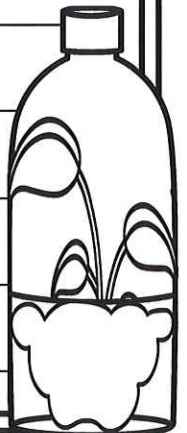
Picture

Observations and Predictions

Week 3

Picture

Observations and Predictions

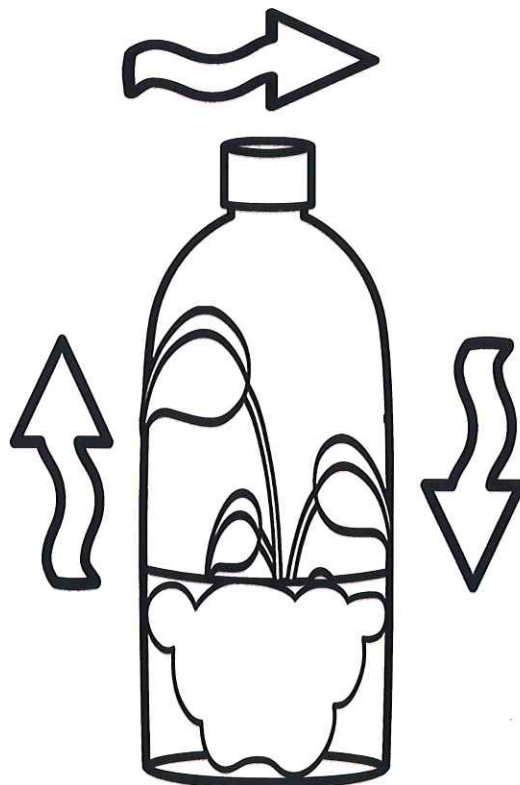


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How Does the Ecosystem **Work?**

The plant terrarium is a self-sustaining ecosystem. That means that the plants in the terrarium will continue to grow without any outside help. The terrarium is a simulation of the water cycle that happens in the real world.

During the day a process called **transpiration** occurs in plants. During transpiration water travels up through the roots of the plant and escapes as water vapor through the leaves. In the outside world this water vapor forms clouds, but in the terrarium the vapor becomes droplets on the inside of the bottle. The water drips down into the soil, like rain, and the cycle starts all over again.



Plants and the **Water Cycle**

Water vapor escapes through small holes in the leaves, forming droplets.

Water travels up the stem and to the leaves.

Water drips down the sides of the bottle and the droplets are absorbed by the soil.

