

# All About The Earth

Investigation Data Sheet



## Build a Biosphere in a Bottle

Planet Earth is an enclosed environment that uses sunlight and an atmosphere containing air, water and soil to sustain life.

### Objective

Make a model of the Earth and observe the closed system over time.

### Materials

- garden soil
- small amount of water
- fast-growing seeds, like grass seeds
- roll of clear packing tape
- an empty two-liter bottle, cut in half, with the cap on

**Safety Notice:** All applicable laboratory safety rules must be followed. Students should not perform any experimental activity without the teacher's supervision and express permission. Students must follow safety guidelines and wear appropriate protective gear.

### Procedure

1. Fill the bottle about one quarter full with soil.
2. Spread some seeds on top of the soil and add a small amount of water.
3. Seal the bottle with clear packing tape.
4. Place the completed biosphere on a windowsill in the sunlight.
5. Check your biosphere every few days. Has anything happened? Write down your observations about the soil and water in your biosphere.
6. Measure any plant growth with a ruler and record any changes in the data table.

### Conclusions

- What do all living things need to stay alive?

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- Your biosphere is sealed so no air can get in or out. How do the plants stay alive?

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- Why don't you need to water the plants in the biosphere?

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- What do you think would happen to your biosphere if you placed it in the dark for a long period of time? If you left it in the hot sun for a long time?

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- What do you think would happen to your biosphere if you added some plant-eating insects?

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### Extension

Create another closed biosphere, but in addition to water and soil, add twigs, a number of low-growing plants, small rocks and invertebrates such as crickets and worms.

	Day 1	Day 3	Day 5	Day 7
Observations				