

Chapter Three

Balloon Plants

PLANTS

SUPPLIES NEEDED

- ✓ copies of Activity Sheet
- ✓ large clear balloons (available at party decoration or paper warehouse stores)
- ✓ markers
- ✓ ribbons
- ✓ funnels
- ✓ measuring cups
- ✓ washcloths or wipes
- ✓ radish seeds
- ✓ sterilized potting soil
- ✓ water

ACTIVITY OVERVIEW

ACTIVITY SUMMARY

Students work in teams to explore what plants need to grow. They fill balloons with potting soil. They drop radish seeds into the balloons, then add water and carbon dioxide and hang their balloons in the sun. They observe their balloons as the seeds sprout.

PREPARATION

It is important that the balloons be easy to inflate because they will contain soil, seeds, and water. You may want to stretch or otherwise prepare the balloons so that they can be easily blown. (Younger students can use large, clear sandwich plastic bags instead of balloons.)



LOCATION

Inside

TIME NEEDED

30 minutes initially; up to two weeks for seedling germination

EDUCATION BENCHMARKS

Collect data from a simple investigation

OBJECTIVES

To understand that living plants need water, soil, sunlight, and carbon dioxide to grow

“This material is derived from the curriculum Oregon Mud, Muck and Other Wonderful Things, 1995 National 4-H Council. (National 4-H Council can be found on the Web at www.fourhcouncil.edu.)”





METHODS

1. Ask the students if they know where plants get their food. Do bushes walk around grocery stores with carts? Do flowers order pizza by phone? Let the students volunteer answers. This will give you an idea of how much your group understands about photosynthesis.
2. Summarize that plants need water and sunlight to make food. They also need a gas in the air called carbon dioxide. Animals let this gas out of their lungs when they breathe. Ask the students to take a deep breath. Now ask them to blow hard, holding their hands in front of their mouths. The air that is coming out is carbon dioxide. Plants need this air to grow. (Be sure they don't confuse this gas with the type they put in their cars. Carbon dioxide is

- invisible; gasoline is not.)
3. Explain that the group members are going to be scientists. They will test whether plants need water, sunlight, and carbon dioxide to grow.

Plants need water and sunlight to make food. They also need carbon dioxide.

4. They will do this by growing balloon plants! Break the students into teams of two. Give each team a clear balloon, 1/2 cup of potting soil, several radish seeds, a small quantity of water, a ribbon, and copies of the Activity Sheet. Help them prepare their balloon plants using the instructions from the sheet. For students younger than seven, give verbal step-by-step directions. Older students

- should be able to follow the written directions, although they will still need adult or teen guidance. It's best to have an adult or teen helper for every team to ensure that the balloon is not jostled or turned upside down during the preparation.
5. After they have finished, ask the students what they gave the plants to help them grow (sunlight, water, and carbon dioxide. The soil anchors the plants and provides nutrients. Soil does not provide food to plants — food is defined as energy, and nutrients do not provide energy. Plants make the only food they can use with water, carbon dioxide, and energy from the sun.) Do they think the balloon plants will grow?
6. Be sure to answer any questions the students have about plants and



METHODS

- food making. If you aren't sure of the answer, become a learner! Find the answer from a nature guide, science text, or other resource together.
7. In a few days, have teams check the balloons. Have any of the seeds sprouted? After about five to ten days, have teams chart the progress of their seeds. They should observe that plants are beginning to grow.
 8. Ask students where plants outdoors get water. Do they get sunlight? Where do they get carbon dioxide? How big do you think the plants in the balloons could get? Could they grow in the balloons forever? Will they run out of carbon dioxide or water? Does anyone have plants at home? What would happen if you forgot to water them? Give them sunlight?
 9. Evaluate the activity by asking students: Where do plants get food? Where do plants get carbon dioxide? Do plants need water to survive? If you breathed on all of the plants in your home, would they grow better? (Probably not, since there is plenty of carbon dioxide in air.) Can you name the living things within the balloon? Non-living things?

EXTENSIONS AND ADAPTATIONS

Let each team try one of the following experiments on a new balloon plant. Follow the directions given except:

- Don't add water. Do the seeds germinate?
- Use helium to blow up balloon. Can plants use helium to grow?
- Put the balloon in the dark. Do the plants grow?
- Don't add soil. Do the seeds germinate? Do the plants grow?

