

Materials Plants Need to Grow

A Carolina Essentials™ Investigation

Student Worksheet



Overview

Where do plants get the materials they need to grow? Plants need water and nutrients found in soil. They need carbon dioxide and oxygen from air, and they need sunlight. People can provide plants with necessary nutrients through fertilizer, sunlight through lightbulbs, and water from a sprinkler.

People can also supply what plants need to grow without soil using hydroponics. Growing plants hydroponically takes up less space than traditional growing methods because plants can be stacked in large trays and nutrient-rich water constantly provided to roots. It is easier to control weeds and pests in a hydroponic system. With hydroponics, there is less chance of pollution because there is less water runoff.

How can scientists demonstrate that plants must have air and water to grow?

Essential Question

What materials are required for plants to grow?

Investigation Objective

Demonstrate that plants need air and water to grow.

Activity Procedures

1. Brainstorm ideas for an experiment to show plants need air and water to grow.
2. Write down the ideas.

SAFETY REQUIREMENTS



MATERIALS

These materials will be available for your use:

Radish seeds

Hydroponic growing system

Vacuum seal storage bags, small or medium

Potting soil

Cups

Tap water

Ruler

Paper towels

Light bank

If you need other supplies, ask your teacher.

continued on next page

3. Select the experiment to use.
4. Write the question to be tested.
5. Write a hypothesis.
6. Define the variables (independent, dependent, and controlled).
7. Write a step-by-step procedure.
8. Make a materials list.
9. Create a data table.
10. Describe how you will analyze the data.
11. Get approval from your teacher. Teacher initials _____
12. Conduct the experiment.
13. Write a conclusion based on the data collected.