

Carbon Dioxide in Plants**Topic or Concept**

Carbon dioxide (CO₂) is a non-flammable gas produced as a by-product of photosynthesis.

Objective

Student will be able to detect carbon dioxide given off by plants.

Materials Available from Region 20 Living Science Materials Center	Enrichment Activity
LM-71 Geraniums LM-72 Coleus	Problem How can you test for the presence of carbon dioxide given off by plants?
Not Available from Region 20 Living Science Materials Center	Procedures
Small Styrofoam or paper cups Potting soil Bromthymol blue Plastic bags (big enough to hold several cups)	<ol style="list-style-type: none"> 1. Fill six test cups half full of water. Add six drops of bromthymol blue to each cup. 2. Label the cups 1, 1A, 2, 2A, 3, 3A. 3. Put the first two cups in plastic bags and seal them tightly. 4. Put the second set of two cups in bags and add a pot (without any plants) to each; then seal them tightly. 5. Put the third set of two cups in plastic bags and add (a coleus to one and a geranium to the other); then seal them tightly. 6. Place all six bags in the dark and leave undisturbed overnight. 7. The next day hold a burning splint or match over the opening as you carefully open each bag. 8. Record observations. 9. Now place all six bags in sunlight and leave all day. 10. At the end of the day test all the bags again with the burning splint or match. Questions <ol style="list-style-type: none"> 1. Did the flame continue to burn as the gases escaped from each bag after being in the dark? In the light? 2. Besides heat and fuel, what else does a fire need? 3. What was the color of the solution in each of the test cups? If there was a change in color of the test solutions, which changed color the most?

Carbon Dioxide in Plants (cont)

Materials	Enrichment Activity
	<p data-bbox="824 291 1047 323">Questions (cont)</p> <ol data-bbox="873 327 1503 724" style="list-style-type: none"><li data-bbox="873 327 1503 394">4. From what you observed, what do you think happened overnight?<li data-bbox="873 401 1503 541">5. Gasses are produced as plants live and grow. Are different gasses produced when a plant is in light than those produced when they are in the dark?<li data-bbox="873 548 1503 615">6. What conclusions can you come up with as a result of your experiments?<li data-bbox="873 621 1503 724">7. Was any difference detected between tests on the bag with coleus compared to the bag with the geranium? <p data-bbox="824 766 959 798">Extension</p> <ol data-bbox="873 802 1520 1014" style="list-style-type: none"><li data-bbox="873 802 1520 945">1. Read about testing carbon dioxide and oxygen. See if you can revise some steps in this experiment to use different ways of testing for carbon dioxide and/or oxygen.<li data-bbox="873 951 1520 1014">2. Set up a similar experiment to test different types of plants.