



CONSERVING RESOURCES BY WATERING EFFICIENTLY

Read the Roots

Collect and rinse clear 2-liter plastic bottles with the labels removed. Use a utility knife to cut the top off the bottles below the spout.

1. Explain that lawns are composed of millions tiny plants that grow from tiny seeds. To have a healthy lawn, or any other plant, it must be watered adequately during dry periods.
2. Divide the students into groups. Instruct each group to fill two 2-liter bottles one inch from the top with potting soil and pack it down firmly. Level the soil surface. Sprinkle two tablespoons of ryegrass seed in a uniform layer over the top of the soil. Cover the seed with two tablespoons of additional potting soil. Use a spray bottle to spray 30 milliliters of water evenly over the surface of each bottle to wet the seed.
3. Place the bottles in a sunny location. After the seed begins to germinate, (about three days) use a permanent marker to label one bottle "less frequent" and the other bottle "more frequent."
4. Use a spray bottle to apply 30 ml of water over the soil in "less frequent." Apply the same amount of water every day for 12 days. Use a spray bottle to apply 120 ml of water over the soil in "more frequent." Apply the same amount of water every four days, for three applications.
5. After 12 days, evaluate the two sections of grass. Instruct students to observe grass thickness, root development and grass color. Challenge students to use their observations to draw a conclusion about watering frequency.

Objective: Students will determine a watering schedule that encourages longer, deeper roots and healthier plants.

California State Board of Education Content Standards

Grade 4: Science: 3b, 6a, 6b, 6d

Grade 5: Science: 2e, 6e, 6f, 6h

Grade 6: Science: 5e, 7b, 7e

This lesson can be easily adapted to meet the educational standards for a variety of grade levels.

Materials:

- 2-liter bottles, two per group
- Tablespoons, one per group
- 100 ml beaker, one per group
- Potting soil
- Ryegrass seed
- Water spray bottles
- Permanent markers
- Water

Vocabulary:

Frequency: the number of occurrences within a given time period.

Germinate: the process whereby seeds or spores sprout and begin to grow.

Irrigation: an artificial application of water to the soil usually for assisting in growing crops.

Ryegrass: a genus of nine species of tufted grasses, often used for lawns or pastures.

This lesson has been adapted from Junior Master Gardener® Program curriculum by California Foundation for Agriculture in the Classroom. For additional educational resources, visit www.jmgkids.us.

