Science of Summer
Family Activities

Sponge Seedlings: Growing sprouts out of thin air?

Overview

This basic activity is a fun way to examine plant science up close. It also helps clear up some widespread misconceptions. Many students of all ages—and adults—do not understand how plants get food. The most popular misconception is that plants get their food from soil, not from photosynthesis. Breaking down plant science to its most basic level helps build understanding from the ground up.

Materials

- O-Cel-O™ sponges (various sizes)
- large bowl
- water
- plate
- seeds*
- popsicle or craft sticks
- Post-it® Notes
- Scotch® Packaging Tape
- marker
- scissors

** Choose seeds that are fast-growing; annuals and vegetables tend to grow more quickly than perennial flowers. Try cosmos, nasturtiums, sweet peas, green beans, cucumbers or radishes. Or do some research of your own to choose the best seeds.*

Thought Starters

Ask these questions before you begin:

- *What do seeds need to grow?*
  - *A: Water, air and sunlight*
- *Can seeds grow without soil?*
  - *A: Yes*
- *Does a plant get its food from the soil?*
  - *A: No*
- *How does a plant get food?*
  - *A: It makes its own food.*
- *How does it make its own food?*
  - *A: Through photosynthesis—using water, air and sunlight.*

Activity

- Fill the bowl with water and soak the sponge for a few minutes. Squeeze the sponge so that it's moist but not dripping wet.

- Put the sponge on a plate and open your packet of seeds. Using steady fingers or tweezers, stick a handful of seeds into the holes of the sponge, spreading them out evenly.
    - *Seeds are more self-sufficient than many people think. All they need to germinate is water, air and sunlight. They don't need soil to start growing.*

- Now place the plate on a sunny windowsill, countertop or table near a window.

- Check your seedlings daily to see how they sprout and progress. Add water to the base of the sponge, a tablespoon at a time.

- When your seedlings start growing leaves and roots, talk about the role of different parts of the plant.
    - *The roots stabilize the plant and suck up water from the soil.*
    - *The leaves capture energy from sunlight. The plant uses this energy to produce its own food through photosynthesis.*

- Now transplant your seedlings outdoors in a garden, or indoors in a pot with soil.

- Identify the different plant types with handmade garden markers:
    - Write names of your flowers and/or vegetables on Post-it® Notes, making sure the sticky side runs vertically on the left.
    - Stick the notes onto the popsicle or craft sticks at the top end, to look like a flag.
    - Cut off a piece of packaging tape, making it at least twice as wide as the Post-it® Note.
    - Position your garden marker to be flush right on the tape, then fold the left half over on top.
    - Press firmly to seal, then trim the extra tape with scissors.

Discussion points

- During photosynthesis green plants make their own food and release oxygen. Only three things are required for photosynthesis: water, air and sunlight. Many people assume plants need soil to photosynthesize, but that's not true. Here's how it works:
    - Green plants capture energy from sunlight.
    - They also absorb water from their roots and carbon dioxide from the air.
    - They use these three things—sunlight, water and carbon dioxide—to make their own food (plant sugar).
    - During photosynthesis, they also release oxygen into the air.