

Color Changing Flowers

Overview: This lesson can be used as part of a sequence of investigations of the structures of typical plants and the function of those structures, as it focuses on the function of the stem in flowering plants. At the end of this lesson, students should be able to identify and describe how the stem of typical plants transports water, minerals, and nutrients to the flower and the rest of the plant.

Procedure: Present students with an example of a typical flower and focus their attention on the stem of the plant. Have students touch and feel the structure of the stem and use the vocabulary word “stem” to identify/label the part through their primary means of communication (verbally, AAC, ASL, etc.). During this investigation, describe how the stem provides support for the flowers and leaves of the plants and also transports water and nutrients from the roots to the other parts of the plant.

In order to visually illustrate for students that a stem transports water and nutrients to the other parts of a plant, fill a plastic container with water and place a few drops of food coloring into the water. Mix the coloring in until the water is fully dyed. Cut a small piece of the stem off of the flower and place the flower stem down, supported in the plastic container with the bottom of the stem in the dyed water.

Over the course of the next few hours check back on the flower. The colored water will begin to be visible in the stem of the plant, working its way up towards the flower. By the end of the day, the white flower will begin to change to the color of the water. Use this visual to illustrate to students how the stem transports nutrient to the other parts of the flower.

ASOL Covered in this Activity:

5S-LPS1: The student will investigate and understand basic plant anatomy and life processes. Key concepts include:

a) the structure of typical plants and the function of each structure.

5S-SI 1 The student will demonstrate an understanding of scientific reasoning, logic and the nature of science by planning and conducting investigations in which

d) appropriate instruments are selected and used to measure elapsed time.

Materials Needed:

- White flowers, such as carnations.

- Food coloring
- Water
- Plastic Container
- Scissors

Instructional Setting: Classroom.

Community Connections and/or Peer Interaction: Have students use their newfound understanding of the function of a plant's stem to color and arrange flowers that could be displayed in the school office, shared with peers, or sold to raise money for class field trips.

Functional Activity/Routine: Students can practice measurement skills throughout this lesson. Opportunities include measuring the amount of stem to be trimmed before coloring flowers and measuring the elapsed time required to color a flower using this method.

Strategies to Collect Evidence:

Create a visual matching assessment where text and/or images of stems and other plant functions are to be matched with descriptions of the plant structure functions.

Present students with a model of a typical plant and ask them to identify the stem (which they could then point to or touch) and/or ask them to identify the part of the plant that supports the other structures and transports nutrition. Collect data on correct versus incorrect answers.

Present students with an illustration of a typical plant and have them circle the structure responsible for support and nutrition transport.

Specific Options for Differentiating this Activity:

Students with significant physical disabilities can participate in this activity with the support of a peer in a small group setting.

Students with significant physical disabilities can use communication devices to give small group step by step directions to complete the activity.

Students with visual impairments should be provided with audible descriptions of the process of the dyed water traveling up the stem of the flower, in addition to tactile markers.

Create a time-lapse video of the progress of the dyed water up the stem of the plant for visual learners to review.

Extension Ideas:

Using Model Magic or another type of modeling clay, have students assemble their own plant examples/models; coloring the different structures including flowers, seeds, stem, leaves, and roots.