

Botany Male or Female Flowers —



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Overview: This lesson will challenge students to explore plant life and identify characteristics that make flowers male or female.

(Time Needed: 1-2 class periods plus time for flowers to fruit.)

Standards:

- SBO3. Students will explore the structures and processes necessary for the mutual survival of plants and animals.
 - a. Describe and relate plant structures (organs, tissues, cells, organelles) to plant processes (photosynthesis, respiration, transport, growth, reproduction, dispersal).
 - b. Explore how flowering plants and animals have co-evolved in pollination, which confers genetic and evolutionary advantages.
 - c. Explore how fruit and seed adaptations help promote dispersal, which prevents competition between plants and helps in colonization.

Objectives:

- Students will understand that flowers are either male or female.
- Students will evaluate what makes the flowers different.
- Students will draw and label the flowers and their parts.

Materials:

- Squash plants in bloom in the school garden or at a local farm.

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- Diagram of male and female squash blossom - https://www.apiservices.biz/htm/pollination_handbook/pumpkin000000000307A1F5.html
- Good images for male and female flowers - https://www.scienceofcooking.com/difference_male_female_zucchini_blossom.htm
- Interesting technique for hand pollination - <https://www.seedsavers.org/site/pdf/squash-hp.pdf>
- Paper, clipboards, colored pencils.

Outline:

- Engage: Students will draw the squash flowers.
- Explore: Students will explore the differences they see.
- Explain: Teacher will explain the parts of the flower and how they aid in reproduction.
- Extend: Students can examine how to hand pollinate.

Lesson Plan:

- Engage: Start by taking students into the garden to draw the squash flowers. Have students choose a flower and draw it with all the detail they can. Provide color pencils, paper, and clipboards outside.
- Explore: Let the students explore the parts of the flower. Let them brainstorm what they think each part is called. Keep a running list on the board. Ask them to compare their drawings with their neighbor's. What differences do they see? Are all the flowers the same?
- Explain: Teacher will explain the parts of the plants using either the textbook or the resources above. Students will label their flower parts. The teacher will then teach the difference in the male and female flowers and their role in reproduction. They will label their flower as male or female. They will then draw the other flower and label its part.
- Extend: Students can read the Seed Saver guide to hand pollination. They can go back out the garden and hand pollinate some plants. They leave one plant naturally pollinated.
- Evaluate: Students will monitor squash production to evaluate which plants were most productive, hand or open pollinated. They will present their findings on a graphic with an explanation of the process along with a diagram of the flowers in the hallway or garden.