

Flower Parts and Pollination

A garden science lab for grades 6 to 8

Name _____ Class _____ Date _____

Background. Flowers are how many plants make seeds. The **stamens** are the male parts: each has a thin stalk, the **filament**, topped by an **anther** that makes pollen. The **pistil** is the female part: a sticky **stigma** on top, a stalk called the **style**, and the **ovary** at the bottom. When pollen reaches the stigma, the flower can be fertilized. The ovules inside the ovary become seeds, and the ovary grows into the fruit. **Petals** attract pollinators, and green **sepals** protect the flower bud.

Squash plants are special: each plant has separate **male** and **female** flowers. A female flower has a tiny squash, its ovary, just below the petals.

Part 1. Take a flower apart

Use a large, simple flower such as squash, lily, tulip, or alstroemeria (ask a florist for older flowers). Carefully pull off each part, lay the parts on white paper, and use a magnifying glass. Count the parts of two different flowers.

Part	Flower 1: _____	Flower 2: _____	Job of this part
Sepals			
Petals			
Stamens			
Pistils			

1. Did each flower have both stamens and a pistil, or only one kind? How could you tell a male squash flower from a female one?

Sketch flower 1 and label the parts.	Sketch flower 2 and label the parts.

Part 2. Match the flower to its pollinator

Flowers and their pollinators fit together. Use the clues to write the most likely pollinator: **bee, butterfly, hummingbird, moth,** or **wind**.

Flower clues	Pollinator
Blue, purple, or yellow; sweet smell; a landing platform; lines that point to the nectar	
Bright red, long tube shape, plenty of nectar, little or no smell	
White or pale, opens at night, strong sweet smell	
Bright orange, pink, or red; flat clusters of small flowers to stand on	
Small, green, no petals, no smell, lots of light, dusty pollen (like corn tassels)	

Part 3. Think like a gardener

2. A gardener's squash plants make lots of flowers, but the tiny squash turn yellow and fall off. What is the most likely reason?

3. How could the gardener fix this problem by hand? Describe the steps.

4. Corn is pollinated by wind. Why do gardeners plant corn in a block of short rows instead of one long row?

5. List two things a gardener can do to bring more bees and other pollinators to a vegetable garden.

6. Most vegetables we eat as "fruits" grew from a flower's ovary. Name three vegetables that are really fruits.

Flower Parts and Pollination: Teacher Page and Answer Key

Standard: NGSS MS-LS1-4: Use argument based on evidence to explain how animal behaviors and specialized plant structures affect the probability of successful reproduction.

Good flowers to use: squash and pumpkin flowers in late summer, or lilies, tulips, and alstroemeria from a florist. Lilies have large, easy parts (6 tepals, 6 stamens, 1 pistil); warn students that lily pollen stains clothing, and that lilies are poisonous to cats. A female squash flower has a pistil and no stamens; a male has stamens and no pistil.

Part 1, jobs: sepals protect the bud; petals attract pollinators; stamens (anther and filament) make and hold pollen; the pistil (stigma, style, ovary) catches pollen, and its ovary becomes the fruit with seeds inside.

1. Lilies, tulips, and most garden flowers have both stamens and a pistil. Squash flowers have only one kind. A female squash flower has a tiny squash (the ovary) just below the petals and a pistil in the center; a male flower sits on a long thin stem, with no tiny squash, and has stamens covered in pollen.

Part 2: bee; hummingbird; moth; butterfly; wind.

2. The female flowers were not pollinated, so the tiny fruit stopped growing. This happens when there are few bees, in cool or rainy weather, or early in the season when the plant has made female flowers but few male flowers.

3. In the morning, find a male flower (thin stem, no tiny squash) and a female flower (tiny squash below the petals). Use a small paintbrush or cotton swab to pick up pollen from the male anther, or remove the male petals and use the whole flower, and gently brush the pollen onto the center (stigma) of the female flower.

4. Wind carries pollen from the tassels at the top to the silks on the ears. In a block, pollen from neighboring rows falls on the silks; in one long row, much of it blows away, and the ears come out with missing kernels.

5. Examples: plant flowers such as sunflowers, zinnias, borage, and herbs nearby; let some herbs bloom; avoid spraying pesticides, especially on open flowers; provide a shallow water dish.

6. Examples: tomatoes, peppers, cucumbers, squash, pumpkins, eggplant, beans, peas, okra, corn, and melons.