

Self-Guided Visit: *Flower Mystery*



TEACHER GUIDE

Welcome to The New York Botanical Garden! *Flower Mystery* explores a vital component of plant life cycles—the process of pollination. This visit and the accompanying reproducible student activity sheets are recommended for use with 2nd–5th grades. The activity sheets for *Flower Mystery* address New York State Science Standards 1 and 2 and New York City Science Performance Standards 2a, 2c, 5a, 5b, and 5f.

ALL ABOUT FLOWERS

What is the job of flowers?

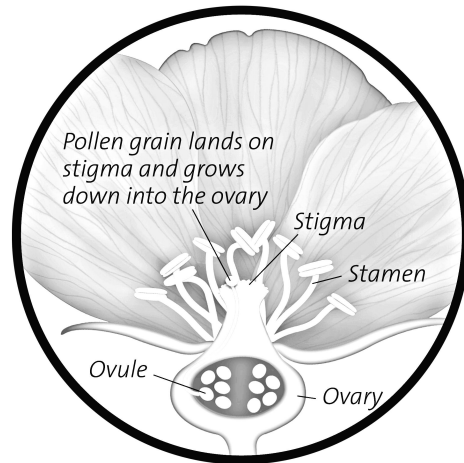
Flowers come in all shapes, sizes, and colors. Although they may look different from each other, flowers have the same job: to make seeds. To make seeds, flowers must first be pollinated.

What is pollination and what makes it happen?

Pollination is the movement of pollen. Although flowers produce pollen, many flowers need pollen from another flower to make seeds. With the help of wind, or with the help of animal pollinators, such as birds and insects, pollen is moved from flower to flower. As the animals visit a flower in search of sweet nectar to eat, they brush against the pollen-covered stamen, and become dusted with pollen. At their next flower stop, they rub against the sticky stigma, spreading the pollen.

How do flowers make seeds?

From the stigma, the pollen makes its way down into the ovary. There it combines with the ovules to make seeds. Meanwhile, the petals die, and the ovary swells and grows into a fruit, with seeds inside.



BEFORE YOUR VISIT

Bring copies of the three *Flower Mystery* student activity sheets for each student. Each student will also need a pencil and something to lean on (such as a clipboard) while they write.

Review your goals and students' expectations several days before the trip and again the day before. Remind students to dress appropriately for spending time outdoors.

Use the School Group Map to plan your visit. Choose which areas of the Garden's 250 acres you would like to see.

AT THE GARDEN

When you enter the Botanical Garden, give your students their mission: Find out who is taking nectar from the flowers.

1. Activity Sheet #1: The Investigation

Locate an area (such as the Irwin Perennial Garden) with plenty of flowers in bloom to begin your explorations. Direct students to look for animals they think may be pollinating the flowers. If they see any unlisted animals, they should write or draw what they see in the space marked "other." They should then draw a picture of their "main suspect" (who they think is participating in pollination) in the space provided. Students might suspect animals that are not usually pollinators. Pollinators are most active on sunny days, so on overcast days students must watch carefully.

2. Activity Sheet #2: In Hot Pursuit

For this activity, you may want to explore a different area of the Garden. Explain that students are to sketch a flower near the ground, one on a tree, and another on a bush. For

each flower they sketch, they should circle a pollinator “suspect” that they observe.

3. Activity Sheet #3:

Flower Stakeout

Have each student or small teams of students select a single flowering plant to observe. Remind students to keep a distance from their flower, or they may scare their suspect away. While waiting to observe the pollinator in action, students should record their observations about flower color, scent, petal number, and shape.

4. Discuss the role pollinators play in the life cycle of plants. You might also have students search for flowers that have begun to produce fruits and seeds.

AFTER YOUR VISIT

Read a mystery story to your class. Using that story as a model, encourage students to write stories about their own flower mystery adventure at the Botanical Garden.

A flower’s shape, color, smell, and the promise of sweet nectar attract pollinators. Challenge students to make advertisements

as if they were flowers, giving reasons why a pollinator should visit them.

Make a class mural of the flowers you saw at the Garden. How many shapes, sizes, and colors can you include in the mural?

Have students dissect flowers such as lilies and tulips (which have clearly defined parts, unlike carnations, daisies, or chrysanthemums). Guide students through the process of taping and labeling the flower parts on paper. Florists and funeral homes may be willing to donate leftover flowers.

RECOMMENDED TEACHER RESOURCES

Hunken, Jorie. *Botany for All Ages: Discovering Nature Through Activities for Children and Adults.* Old Saybrook, CT: The Globe Pequot Press, 1993 (2nd ed.). This selection of straight forward plant-based activities makes it easy to introduce a wide range of botany concepts to students of all ages.

Taylor, Barbara. *Incredible Plants (Inside Guides).* New York, NY: DK Publishing, 1997. Colorful, detailed illustrations and clear text describe many aspects of plant life.

RECOMMENDED BOOKS FOR CHILDREN

Hauth, Katherine B. *Night Life of the Yucca: The Story of a Flower and a Moth.* Boulder, CO: Harvinger House, 1996. Poetic text and lush pencil drawings describe the unique relationship between the yucca plant and its pollinator, the yucca moth.

Heller, Ruth. *The Reason For a Flower.* New York, NY: Penguin Putnam Books for Young Readers, 1999. Intricate pictures and clear prose illustrate the life cycle of plants, and interweave connections between plants, animals, and people.

Gibbons, Gail. *From Seed to Plant.* New York, NY: Holiday House, 1991. This boldly illustrated book describes seeds and plant development in kid friendly language.

Botanical Garden Location	April	May	June	July	August	September	October
Ladies' Border		*	*	*	*	*	*
Irwin Perennial Garden			*	*	*	*	*
Daylily/Daffodil Walk	*	*		*	*	*	
Azalea Way	*	*					
Rockefeller Rose Garden		*	*	*	*	*	
Lilac Collection		*					
Magnolia Collection	*	*					
Cherry Collection	*	*					