



# Children's Museum of Houston

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## Pre/Post Classroom Activities

### Parts of Flowering Plants

#### Rationale

*EcoStation* is an active, outdoor/indoor environmental exhibit where visitors engage in ecological studies and explore environmental issues by visiting a native plant garden, a woodland area, the bayou table, the pond and a research pavilion. Through these and several other exhibit areas, visitors can participate in diverse hands-on activities such as stream bed creation, insect collecting, tree rubbings, footprint identification, and more!

#### TEKS Objectives (Science)

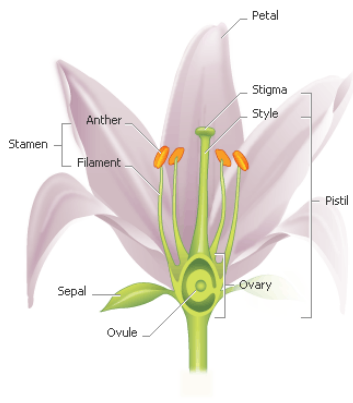
- 2.1, 3.1, 4.1, 5.1: The student conducts field and laboratory investigations following home and school safety procedures and environmentally appropriate and ethical practices.
- 2.2, 3.2, 4.2, 5.2: Gather information using simple equipment and tools to extend the senses.
- 2.6C: Observe and record the functions of plant parts.
- 2.9A: Identify the external characteristics of different kinds of plants that allow their basic needs to be met.
- 3.9, 4.9, 5.9: The student knows that species have different adaptations that help them survive and reproduce in their environment.
- 3.10, 4.9, 5.10: The student knows that many likenesses between offspring and parents are inherited from the parents.

#### Background

In this lesson plan, children become familiar with the parts of a flowering plant's reproductive system, and explain how flowering plants depend of pollinators for survival. The flower is the reproductive unit of some plants. Parts of the flower include petals, sepals, one or more carpel (the female reproductive organs), and stamens (the male reproductive organs). Some flowers (called perfect flowers) have both male and female reproductive organs; some flowers (called imperfect flowers) have only male reproductive organs or only female reproductive organs. Some plants have both male and female flowers, while others have males on one plant and females on another. Complete flowers have stamens, a pistil, petals, and sepals. Incomplete flowers lack one of these parts.

Image below from:

<http://images.encarta.msn.com/xrefmedia/aencmed/targets/illus/ilt/T012547A.gif>



Although the model above displays all the potential 'parts' of a flower, many specialized species may not contain all structures in a single flower or may in cases fuse parts to increase the probability of pollination.

### Vocabulary

Flowering plants

Flower

Petal

Sepal

Stamens

Anther

Filament

Pollen

Pistil

Stigma

Style

Ovary

### Materials (per group of students)

- Various flowering plants with flowers (roses, lilies, dandelion, sunflower, watermelon, etc.)
- Hand lenses and/or microscopes
- Science journals
- Colored pencils
- Note: If available, Scope-on-a-Rope (or other microscope technology that connects with a computer), computer and projector with screen would be great for allowing students to be able to see what you are seeing at a large scale.

### Procedure

After an introduction to the difference between flowering and non-flowering plants, students will be ready to explore, identify, and describe different reproductive parts of flowering parts and distinguish between them. This activity is best if completed in small groups of 2-4 students.

1. Prepare lesson by setting up stations with each of the different types of flowering plants (make sure all plants are labeled), hand lenses, and colored pencils.
2. If available, set up the Scope-on-a-Rope with computer connection and projector.
3. First ask students to take a look at the two groups of flowering plants (perfect/imperfect) and describe how the plants are different.
4. Go over the different plants of both types of flowering plants using the Scope-on-a-Rope. Ask students to find these same parts on the plants at their stations.
5. In their science journals, students will make two columns - imperfect flowering plants and perfect flowering plants.
6. Students will draw a picture of these two types of flowering plants in the appropriate columns and label the parts of the male and female organs. Under each drawing, students will create a list of plants that fall under each of the categories. (Remind students to use colored pencils to highlight the different parts.)

### Questions to ask

- What is a perfect flowering plant? Imperfect flowering plant?
- What are some examples of perfect flowering plants? Imperfect flowering plants?
- What do you think are some advantages that perfect flowering plants have over imperfect?

## Extensions

Ask students to take a walk in a local park or neighborhood and create a journal of the different types of perfect and imperfect flowering plants that they find.

## Resources

- Eyewitness: Plant by David Burnie, Andrew McRobb. See the biggest flower in the world, where a seed develops, what the inside of a plant stem looks like, and more!
- The Usborne Internet-Linked Library of Science: World of Plants by Laura Howell, Kirsteen Rogers, Corinne Henderson. Discover how plants reproduce and survive in many environments.
- The Reason for a Flower by Ruth Heller. Explains plant reproduction and the purpose of a flower and present some plants which don't seem to be flowers but are.
- Plant Life by Theresa Greenaway . Explains the growth and reproduction of plants, how dead plant matter is recycled, and how human actions affect plant life.
- Plants by Jackie Ball, Denise Vega, Uechi Ng. Describes the appearance, life-cycle, pollination, food, and development of the amazing plants all around us.
- Eye Wonder: Plant by DK Publishing, Fleur Star. Examine what a plant is, find out how plants support all other life on the planet, and discover their tricks of attracting pollinators and the secret weapons they use to keep predators at bay.
- The Magic School Bus Plants Seeds by Joanna Cole, Bruce Degan, Patricia Relf. While on their adventure, Ms. Frizzle's class learns about the parts of a flower and how a seed is made.

## Websites

- Tree of Life Web Project: [www.tolweb.org/angiosperms](http://www.tolweb.org/angiosperms). Great teacher resource for background information about flowering plants.
- The Great Plant Escape: <http://www.urbanext.uiuc.edu/gpe/case4/facts.html>. This interactive website allows your students to be a detective and determine the type of flower they are studying.
- Enchanted Learning:  
<http://www.enchantedlearning.com/subjects/plants/printouts/floweranatomy.shtml> Enchanted learning is a website that provides teacher friendly handouts about various topics. This particular link is a handout for identifying the parts of a flower.

