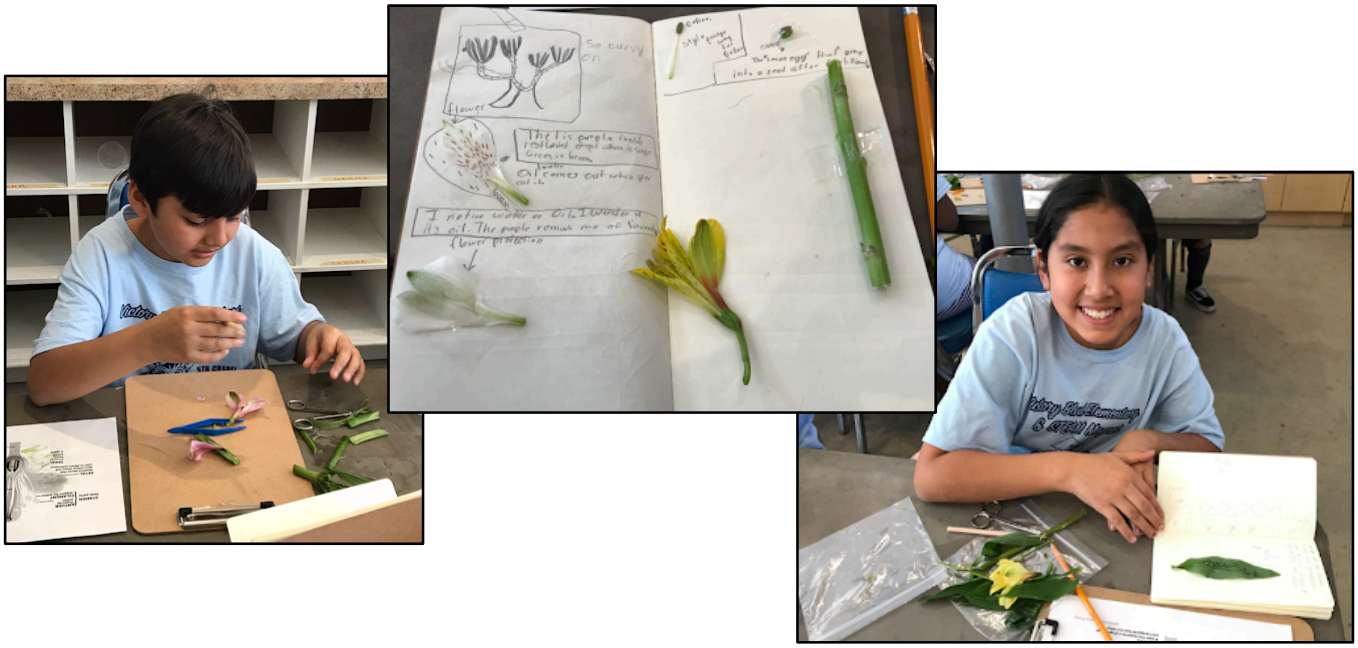
FLOWER DISSECTIONS

We all know flowers are lovely to look at, but they have an amazing purpose far beyond adding beauty to the world! Flower dissections are a great way to take deeper look into the world of these earth-superheroes, and even make connections between our own bodies and those of plants! Perhaps best of all, Flower Dissections are easy, fun, and engaging for all ages, and require no more tools than our hands, fingers, and eyes!

The purpose of Flower Dissections is less about memorizing the names and functions of flower parts and more about having a hands-on opportunity to examine the parts of a flower and make connections. Flower Dissections encourage children to think beyond the pretty presentation of a flower and delve a bit more into how that lovely piece of nature supports an interesting and important function and purpose. Flower Dissections also align with the Next Generation Science Standards, which we will explore more at below.



MATERIALS

Required: hands, fingers, eyes, curiosity!
Optional: scissors, tape, pencil, magnifying glass, cell phone camera

Step 1: Choose your flowers! We recommend choosing 3 different types of flowers if they are available so that you can see the similarities and differences inside of each. This provides a wonderful opportunity to discuss diversity, and how though the flowers look different, they each have a very important function. If you do not have access to different

types of flowers, any flower will do, however flowers such as lilies, daisies, and poppies are ideal.

Step 2: Review the Parts of a Flower diagram. While it is not necessary for children to memorize the names and functions of flower parts, the diagram will serve as an excellent guide for understanding what they are seeing as they move through the dissection.

Step 3: Tell children they are about to become junior botanists! (A botanist is an expert in or student of the scientific study of plants.) Explain that the very first thing any scientist does is simply pay attention, observe, and examine something. There is no right way to dissect a flower- That's what so exciting about this activity. Place your flower on a work surface, and begin your dissection! Often children are afraid to disturb the flower- Encourage them to dissect their flower carefully, but remind them that they don't have to be as gentle as they would with a flower used for decoration. If a child needs a prompt, a good place to start is by pulling the petals apart and away from the base. This is a great opportunity to exercise fine motor skills and practice self-control. While children can use scissors or pencil tips to slice parts like the stem and ovaries open, fingernails work great! The more they take a flower apart, the more they will find things to take a part! They will find that petals can be peeled into thinner layers, tiny eggs can be found inside of the ovary, strands can be found in the stem, moisture pockets can be uncovered, and pigment can be extracted, among other things! Let children dissect the flowers as long and as extensively as they like.

Step 4: Examine and investigate! As your child removes each part from the flower, ask them prompting questions- What did you just find? What do you think that does? Why do you think that's there? How do you think it's related to the other parts of the flower? What do you notice about that part? Can you find that part on the diagram? What's it called? Does it remind you of anything? If you have a magnifying glass available, you can use it to take a closer look at the inner workings of the pieces. If you do not, simply use the camera function on your cell phone to zoom in on a certain part- It will work just like a magnifying glass! Ask children what they notice in the magnified image that they couldn't see with their naked eye.

Additional Explorations: For further engagement, your child can tape the different pieces of their flowers to paper or inside notebooks. They can label these parts, draw detailed pictures, and journal their questions and observations.

Reflections: Talk to children about what they observed! What did they discover? What did they learn? What new questions do they have? What kinds of animals do they think might be drawn to their flower, and why? What kind of pollinator might be drawn to the structure or function of their flower? Refer to the Parts of a Flower diagram, and make connections between their flowers and the functions on the diagram. Discuss how the

petals protect the pistil and stamen, and how the leaves make the stem of the flower stronger. Help children draw connections to their lives and their bodies- Do our bodies have similar parts and functions (i.e. a neck, our skin, etc.). End your activity by discussing pollination, and explaining how and why flowers are earth-superheroes.

NGSS

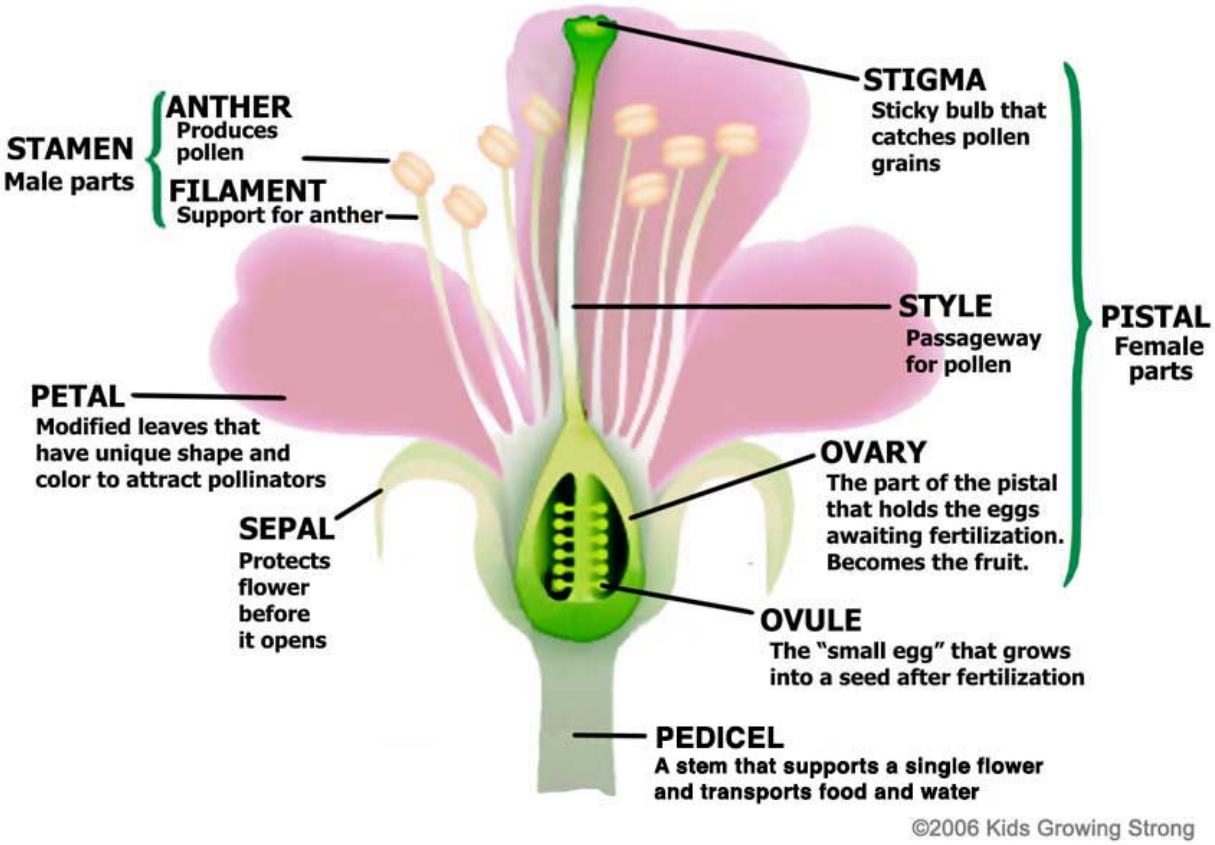
Flower Dissections also support Next Generation Science Standards! During Flower Dissections, children will: *Ask questions; develop and use models, plan and carry out investigations; analyze and interpret data; construct explanations; engage in argument from evidence; and obtain, evaluate, and communicate information. They will also explore: *Patterns; cause and effect; scale, proportion, and quantity; systems and system models; energy and matter; structure and function; and stability and change.

ENJOY YOUR DISSECTIONS!

Be sure to check out the helpful materials below, including the *Parts of a Flower diagram, *Pollination Power, *From Flower to Fruit, *Fun Facts about Flowers, and *Life Cycle of a Flower. Your little ones will never look at flowers quite the same again!

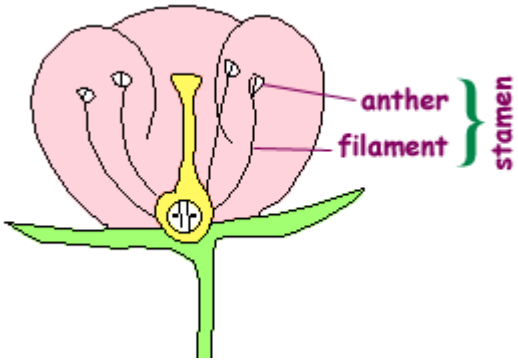
*(*from The University of Illinois Extensions Teacher's Guide: https://web.extension.illinois.edu/gpe/glossary/fruit.html)*

PARTS OF A FLOWER

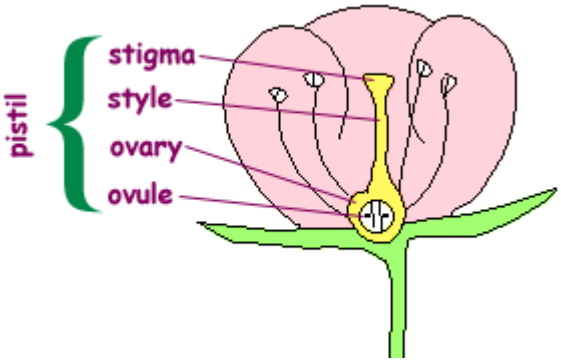


***

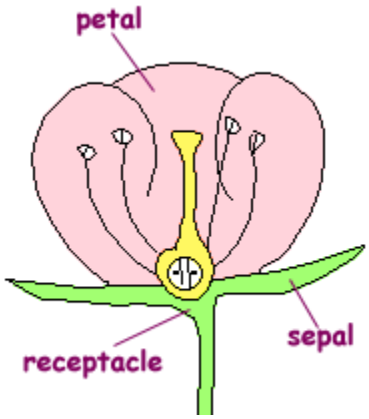
Flowers are important in making seeds. Flowers can be made up of different parts, but there are some parts that are basic equipment. The main flower parts are the male part called the stamen and the female part called the pistil.



The stamen has two parts: anther and filaments. The anthers carry the pollen. These are generally yellow in color. Anthers are held up by a thread-like part called a filament.



The pistil has three parts: stigma, style, and ovary. The stigma is the sticky surface at the top of the pistil; it traps and holds the pollen. The style is the tube-like structure that holds up the stigma. The style leads down to the ovary that contains the ovules.



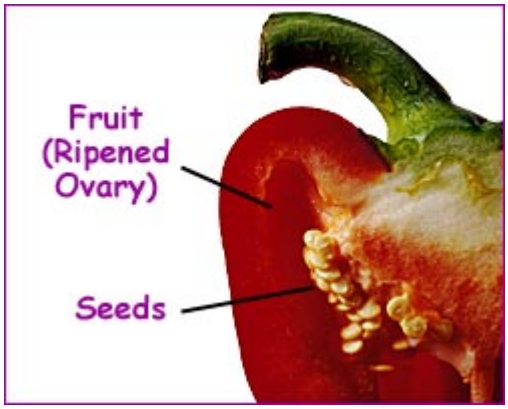
Other parts of the flower that are important are the petals and sepals. Petals attract pollinators and are usually the reason why we buy and enjoy flowers. The sepals are the green petal-like parts at the base of the flower. Sepals help protect the developing bud.

Flowers can have either all male parts, all female parts, or a combination. Flowers with all male or all female parts are called imperfect (cucumbers, pumpkin and melons). Flowers that have both male and female parts are called perfect (roses, lilies, dandelion).

***

Pollination Power

When pollination occurs, pollen moves from the male parts to the female parts. Pollen grains land on the stigma and a tiny tube grows from it and down the style into the ovary. The fertilized ovule becomes the seed and the ovary becomes the fruit.



Since flowers can't move, they need to be able to attract pollinators or be built so that wind is able to pollinate them. Flowers attract pollinators like bees, butterflies, insects, and birds with sweet nectar, bright colors, and shapes and structures. Some flowers open at special times to attract pollinators such as night blooming plants that are pollinated by bats.

***

From Flower to Fruit

When a plant flowers and produces seeds, it also produces something else we all like- Fruit! As you learned, when the ovary ripens, it swells and forms a protective covering around the seeds. This protective covering, or fruit, often finds its way on top of cereal, ice cream, a salad, or just a tasty snack.

What are your favorite fruits? Are there any unique or exotic fruits that you like? Are there any fruits that you've never eaten and would like to try?

Fun Facts about Flowers

- Flowers did not always exist; they first appeared 140 million years ago. Before that, ferns and cone bearing trees dominated the earth.
- Several centuries ago in Holland, tulips were more valuable than gold.
- Broccoli is actually a flower.
- Some plants such as orchids do not need soil to grow-they get all of their nutrients from the air.
- Some plants produce toxic substances that kill other plants around them-the sunflower is an example.
- Carnivorous plants are flowering plants that eat bugs and small animals! For example, the Venus fly trap has leaves covered by little hairs. When a bug lands on the hairs, the trap snaps shut and digestive juices digest the bug. Other carnivorous plants such as pitcher plants have leaves that form pitchers that are full of digestive fluids. Insects, frogs, and other small creatures are attracted to the nectar and bright colors on the pitchers and flowers. Some unfortunate critters fall in, drown, and are digested.
- Not all flowers smell good. One of the world's rarest, largest, smelliest, and strangest looking flower is the titan arum, or the corpse flower. It is called the corpse flower because it smells like a rotting dead body. The bloom is over 8 foot tall and 12 feet in circumference. They smell like rotting flesh in order to attract flies, their preferred pollinator. People have been known to pass out from the smell!
- The largest Flower in the world is the flower of the Puya raimondii, which has a flower stalk 35,000 feet tall and bears over 8,000 white flowers.
- Mimosa punica, or sensitive plant, will actually fold up its leaves when it is touched. It has whitish pink fuzzy flowers that look like little pom poms.
- The Bird of Paradise is a beautiful, oddly shaped plant that resembles a colorful tropical bird.

LIFE CYCLE OF A FLOWER