

Title: Flower & Fruit Functions

Grade: 4th	Date of Delivery: 9/19/17
Unit: Botany 401	Time: 45min (number of lessons and minutes. E.g. 2 days/50 min periods)

Unit overview and background information:

In 4th grade botany, scholars will focus on pollination and photosynthesis. Having so many years in the garden, most students have a pretty firm grasp on what stems and roots do for a plant, but are muddled around photosynthesis and pollination. Scholars will gain a deeper understanding of photosynthesis and how integral the process is to life on Earth. Scholars will also dive into pollination as the driving force behind a plant's life cycle, and the various parts of a flower that enable this process.

ESYNOLA Garden Core Concepts:

- Plant part functions
- Habits of a Scientist

Unit Objectives:

SWBAT:

- explain the function of all six plant parts and identify edible examples in the garden.
- compare structures (e.g., roots, leaves, stems, flowers, seeds) and their functions in a variety of plants (LS-E-A3)
- describe how plant structures enable the plant to meet its basic needs (LS-E-A3)

Daily Objectives:

Day 1

SWBAT identify the petal, stamen, pistil, and sepal of a flower

SWBAT explain the role of insects in pollination

Academic component:

Familiarize yourself with the location of different edible plant parts during this season. Also familiarize yourself with the function of each part, and be prepared to give analogies to the human body when helpful.

The basic plant parts (roots, stems, leaves, flowers, fruits and seeds) are found consistently across most plants that we encounter in our garden. Each part serves a vital and specific **function** for the plant. These functions can be likened to function in our own human body (veins in leaves and stem to our own system of vessels; structure provided by the stem is like our skeleton, etc).

Flower: Flowers are the way some plants **reproduce**. They make the seeds that grow into plants.

Fruit: Fruit is the result of **pollination**. They carry and protect the seed.

Key Academic and Culinary Vocabulary (intentionally taught)	Secondary Vocabulary (language used in other classes; increase exposure)
<p>Pollination- the transfer of pollen from the anther to the pistil, this enables the plants to make seed</p> <p>Pistil - the part of a flower that receives pollen to make a seed</p> <p>Stamen - the part of a flower that produces pollen to make a seed</p> <p>Petal - colorful flower parts that attract pollinators</p> <p>Pollen - yellow powder used to make seeds</p>	<p>Reproduce</p> <p>Petal</p>

Key Preparation/Materials:

- Q-tips for every student to pollinate flower with
- Green peppers to explore at start of class
- Butcher paper and flower parts for each scholar to color
- Tape or glue for each scholar to paste down on butcher paper

Lesson Flow

Driving Question: Where do seeds come from?

Lesson Intro - Engagement/Inquiry: (10min)

Pass out scholars a piece of a pepper. ASK - Does anyone know what this is? What part of the plant would you call this?

Move to x bench if you think this is a fruit, move to another bench if you think this is another part of a plant.

Gauge scholars understanding of what makes something a fruit or something else.

ASK - Where to fruits come from? How do seeds get into a fruit?

Body - Exploration: (25min)

Exploration

Go out into the garden. Find flowers and **try** to identify their parts (magnifying glasses may help).

After a few tries, gather group to discuss findings. Was this easy? What are we noticing about the flowers?

Ask spectrum question: how challenging was it to find the individual pieces to a flower?

Have scholars share out why it was/wasn't hard to identify pieces.

Flower Sculpture

Pass out different flower parts to scholars, explaining that a flower has different pieces to it that allow it to make seeds for the plant, some of which are in fruits. We will work together to color in these different pieces, and then make a large model of a flower for us to enjoy together.

Pass out flower pieces (petal, pistil, stamen, pollen, pollinator), and have students color and cut out pieces.

When most scholars have finished coloring and cutting, assemble a large flower and pollinator on butcher paper. Have kids move the pollinators around, visualizing the pollen moving and the flower creating seeds.

Pollination

Move back into the garden. Check to see on different flowers if they have been pollinated. If not help them using q-tips.

Guide the discussion toward pollination. (define the term if necessary).

CHALLENGE: Find flowers that are making seeds or fruits.

Show off examples of flowers that are making fruits and making seeds. Have all students harvest two for seed-saving if possible.

Pair-Share: How did this flower make seed/fruit? Who may have helped it?

Closing - Final check for Understanding/Summarization: (10min)

Return to seating area.

Have scholars record in their journals a detailed drawing of a flower, using a word bank to remind them of the different parts. Label their drawing if possible.