

Taco 'Bout Plants: A 6 Plant-Part Garden Party

Key Topics: Plant Parts, Plant Life Cycle, Adaptations, Structure and Function, Cooking

Grade Levels: K-4, MS

Inside or Outside

Lesson Overview:

In this lesson students will gain an understanding of the 6 plant parts and their individual functions through a skit. Students will learn about plant adaptations in the context of their school garden and local environment, and understand that traits can be influenced by environmental factors. The class will then identify, harvest, and eat the 6 plant parts as garden tacos!

Activities:

Option 1 - 6 Plant Part Skit (10 min)

Option 2 - Adaptation Scavenger Hunt and Discussion (20 min)

Option 3 - Harvesting, Preparing, and Eating 6 Plant Part Garden Tacos (20 min)

Learning Objectives by Grade:

- K:
 - K-LS1-1 How do different parts of plants help them survive?
 - K-ESS2-2 How do people and plants change their environment to meet their needs?
- 1:
 - 1-LS1-1 How do different parts of plants help them survive?
 - 1-LS3-1 How are young plants like--but not exactly like--their parents?
- 2:
 - 2-LS4-1 How do different plants survive in different habitats?
- 3:
 - 3-LS3-2/3-LS4-3 How does a plant's habitat affect its physical structure?
- 4:
 - 4-LS1-1 How does a plant's internal and external structure support its survival, growth, and reproduction?
- MS:
 - MS-LS1 How do plants cycle energy and matter in the food chain?



Essential Question(s) that Connect CCCs and SEPs:

- How can I best communicate about the structure of the plant part and the function (large leaves for absorbing sunlight, long stem to transport water and food, many seeds for reproduction)? (Structure and function; Obtaining, evaluating, and communicating information)
- What is already known about the pattern of plants and animals changing to survive in their environment? How can I best communicate about this pattern? (Patterns; Obtaining, Evaluating, and Communicating Information)

- What is the evidence that the environment caused the characteristic in the plant? (Cause and Effect; Engage in Argument from Evidence)

Materials:

Part 1 - Adaptation Scavenger Hunt and Discussion

- [Plant Adaptation Scavenger Hunt Cards](#)

Part 2 - 6 Plant Part Skit

- Root prop: old mop bottom
- Stem prop: large green t-shirt, green blanket, etc.
- Leaf prop: large garden leaves or leaf cutouts from green butcher paper
- Flower prop: flower crown, flower cut out from butcher paper
- Fruit prop: piece of fruit, fruit cutout from butcher paper
- Seed prop: a pack of seeds, seed cut out from butcher paper

Part 3 - Harvesting, Preparing, and Eating 6 Plant Part Garden Tacos

- 3 medium-large strainers
- 6 ft long banquet table (check out from school)
- 10 plastic cutting boards
- 10 kid safe knives
- 5-10 serving bowls of varying sizes to place clean and prepped garden produce into
- Serving utensils (could be plastic forks/spoons)
- 30 or so small paper plates or boats
- 30 or so plastic forks
- Paper napkins
- Sunflower seeds or hummus (for seed component)
- Cheese (for friendly garnish)
- Oranges, etc. (for fruit component if not available in garden)
- Bags/buckets to collect trash and compost into

EG Team Support Needed:

- None

Prep:

This lesson is designed to take place 100% outside. Table space will be your limiting factor. Check out tables from the custodian at your school site to set up in the garden. Alternative options in case of rain: pick a variety of plants that exhibit adaptive traits that you can lay around the classroom. Have students go on the adaptation scavenger hunt inside (they will not be able to look for animals, but they can brainstorm an animal or insect that has the adaptation on their card). Harvest a variety of 6 plant-part produce from the school garden and bring the cooking station inside. Unlike the cooking activity that would take place outside (3 groups harvest and 1 group preps produce), give every child the chance to participate in prepping produce.

- Take a walk through the school garden to know what is available for harvesting from each of the plant part groups! If you are missing any plant parts, supplement from farmers market, the district culinary kitchen, the food bank, or a grocery store.

- Check out tables from the custodian at your school to set up cooking surfaces in the garden.
- Set up cooking station for part 3 of lesson. Wash cooking surfaces well with soap and warm water, rinse, and dry.

Activity Procedure:

Engage:

Begin with a classroom discussion in the seating area in your garden.



Comprehension Check

Write the following question on the board, record answers, and discuss with the class:

What are some of your favorite fruits and vegetables that you eat? (record answers on the board, noting in your head which fruits and vegetables are local to our region and which are imported). Did you know that common components of our diets include roots, stems, leaves, flowers, fruits, and seeds? Take a look at the board. Does anyone see a fruit or vegetable that is a root? A seed? Etc. These are the 6 plant parts, and we can eat things from every category. We are going to do a skit now! I'm going to need 6 volunteers to be the actors, and the rest of you can narrate the story (Gather 6 volunteers).

- 1) I once planted a seed into the dirt. (Have one student curl into a ball. Ask students to narrate what you should do to make the plant grow: water, sunlight, air)!
- 2) Roots first sprouted (let one student wear the mop at the base of their feet, and have students narrate the job of the roots: water and nutrient absorption, anchor in the wind)
- 3) Then leaves and stem (give two students the props, and have others narrate: stem is the elevator for food and water, the leaves absorb sunlight and make food)
- 4) Then a flower formed (give one student the flower prop, and have others narrate: bright colored flower that bees come to pollinate)
- 5) That flower then formed a fruit! (give one student the fruit prop, and have others narrate a story about the delicious fruit)
- 6) But that fruit is ready to eat! Should we pick it or let it drop? What's inside of it? (A fruit is a suitcase for seeds! Mention how melons are fruits, but also cucumbers, tomatoes, etc.) What happens when we plant the seed? The cycle continues!

Lead the class in singing and dancing "Roots, Stems, Leaves, Flowers, Fruits, and Seeds" by the Banana Slug String Band, and speed it up to make it extra silly.



Comprehension Check

Now that we've learned about the 6 plant parts and how each plant part has a job that helps the plant as a whole to survive, grow, and reproduce, we are going to learn about other ways plants ensure their survival in their environment. Refer back to the board of fruits and vegetables students listed in the beginning; write the following question on the board:

Why can we grow some of these fruits and vegetables in our school garden and local farms, but others we have to ship in from far off places? Why aren't we able to grow pineapple? Where is pineapple from? How are the tropics different from our home? I want to share an amazing fact with you guys

about giraffes, and maybe what we learn about the giraffe will help us learn about why our school garden isn't a pineapple farm.

At one time, giraffes came in a variety of neck lengths. Some giraffes had much shorter necks than modern giraffes. (Ask students to brainstorm why short-necked giraffes did not survive. Then offer an explanation of natural selection):

The giraffes with shorter necks couldn't compete with long-necked giraffes. Explain that the giraffes were not in an actual contest that they could win by changing their physical characteristics or behavior; they were unknowing participants in a competition that takes place every day in nature: Food supplies are limited so animals must compete for them with other species and like animals. Unlike the giraffes with long necks, short-necked giraffes couldn't reach leaves and twigs up high as well as the ones closer to the ground. Because many animals could eat the low-lying vegetation, fewer short-necked giraffes got enough to eat. Over generations, giraffes with longer necks grew stronger and healthier. The long-necked giraffes had more and more babies that, like their parents, inherited long necks and were better able to survive when food was scarce; no other animal could reach the high leaves as well as they could. Over time, more and more short-necked giraffes died before they could reproduce more short-necked babies. Eventually, only long-necked giraffes were born. This process of change, called natural selection, happens in all species including plants! (Cause and effect; Patterns)

The long neck giraffes were better suited for their environment. What is our environment like here? (possible answers: hot and dry in the summer, cold and wet in the winter, green and mild in the spring, etc.) The plants and animals that grow well in our area are adapted to these conditions. Does anyone think they understand what the word adaptation means? (the changing traits that allow plants and animals to survive in their environment).

Explore:

Today we are going to go on a plant adaptation scavenger hunt. Then we are going to identify edible plants in our garden from the 6 plant parts and make garden tacos to eat and celebrate!

Action:

1. Explain the scavenger hunt: students will partner up through a game. You will hand each partner pair a scavenger hunt card and it is their job to work together to find the plant or animal with that adaptation. Set parameters on what they may pick to bring back to share with the rest of the group (they may pick small plants, not trees, not certain types of insects, etc.) If they cannot find one of their scavenger hunt items, it is their job to develop an argument for why that plant or animal is not adapted to our garden. Remind students what the callback will be for this lesson (give me 5, silent coyote, chime, etc).
2. Have students work with a partner. Hopping on one foot and playing a game of thumb war is a fun partnering up method. Once partner pairs are paired up and ready to work together, hand them one of the scavenger hunt cards. Give partners ~5 minutes to explore.

Explain:



Comprehension Check

Call back students to the circle and ask partners to share what they found. Who found one of their adaptation scavenger hunt items? What was it, and how is that adaptation suited to our environment

(eg. little hairs on the plant stem help to trap water because we live in a dry area). Who was not able to find one of their adaptation scavenger hunt items? What was it, and why is that plant or animal not adapted for our environment (eg. our garden is not a habitat for large animals with thick hair because it is hot, or the garden has too many people to make it hospitable for wild animals)? (Cause and Effect; Engage in Argument from Evidence)

Elaborate:

We are now moving on to make our 6 plant part tacos! (Review with students what is available to harvest in the garden, having them call out which plant part that vegetable is). Break students into 3-4 groups:

- 1) 10 students who will be the chefs. They will cut up produce that the other groups bring to them.
- 2) 8-10 students to harvest leaves to be taco shells
- 3) 8-10 students to harvest root vegetables and other produce
- 4) 5 students to harvest garnishes (edible flowers, herbs, etc.)

After produce is harvested and prepared, set up the taco bar buffet style and have students form a line to serve themselves. Explain that they are not required to try everything, but it would make you happy to see 6 plant part tacos vs. 1 plant part tacos. Review tasting etiquette. Enjoy!

Evaluation:



Take a hand raising survey of who loved, liked, and tried their 6 plant part taco.

Write on your graphic organizer and fill out as a class: (Patterns; Cause and Effect; Structure and Function; Obtaining, Evaluating, and Communicating Information)

<u>Plant Part:</u>	<u>Function/Job :</u>	<u>Possible Adaptations:</u>
Root	to absorb water, anchor	deep roots for tapping into water beneath the soil
Stem	_____	_____
Leaf	_____	_____
Flower	_____	_____
Fruit	_____	_____
Seed	_____	_____

Also, refer back to the Learning Objectives for your grade level and ensure that they have been met by asking the given learning objective question.

Extension Activities:

- Create-a-Plant: students create a diorama with an illustration and story about a self-invented plant, it's habitat, and adaptations
<http://ilove2teach.blogspot.com/2011/10/create-animal-create-plant-freebie.html>
- Write a story about your 6 plant part taco. What did you use for each plant part? Use your 5 senses to describe your taco.

Tips and Caveats:

Adaptations for K-1 & MS

Rather than K-1 going on the plant adaptation scavenger hunt, create a class 6 plant part scavenger hunt on a piece of butcher paper: pick a leaf, pick a root, pick a stem, ..flower, ..fruit, and seed. Are any of these edible?

Provide more assistance to the younger chefs and harvesters to supervise their cutting and picking.

Middle schoolers want to explore and eat too! Learning recipes, edible plant parts, and tool safety is good practice for being more self-reliant in the kitchen and building better associations with veggies too. Get them to diagram and communicate information on nutrient/energy cycling of matter (inputs and outputs) for a plant and also for a human eating plants.

Cited Curriculum:

LifeLab - The Growing Classroom: [Stem, Root, Leaf, or Fruit?](#)