K-2 Science Edible Plant Parts

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Overview:

This lesson extends students' knowledge about the plant parts to the fruits and vegetables that they eat. Students will be challenged to match an image of a familiar fruit or vegetable to how it grows on the full plant. This will help them discover the function of the plant part that we consume. The lesson is extended by creating a plant parts salad or by playing a plant parts relay game.
(Time Needed: 20 minutes + optional extended time)

Georgia Performance Standards:

- Life Science:
  - Kindergarten
    - SKL1c. Students should be able to group plants according to their observable features such as appearance, size, etc.
  - 1st Grade
    - S1L1a. Students should be able to identify the parts of a plant: root, stem, leaf, flower.

Objectives:

- Students will be able to match the food we eat to the plant it grows on.
- Students will be able to identify which part of the plant we most commonly eat.
- Students will be able to group plants according to the plant part that we most commonly eat.

Materials:

From Kitchen:

- Large salad bowl
- Tongs
- Bowls and forks (1 for each student)
- *Other items dependent on teaching method*

From Grocery Store:

- Root—Carrots or Radishes
- Stem—Celery
- Leaf—Leafy Greens
- Flower—Broccoli
- Fruit—Green Beans, Tomatoes, Cucumbers, Oranges, or Berries
- Seed—Peas, Corn, or Sunflower Seeds

K-2 Science Edible Plant Parts

Reproducibles:

- 1 set of Fruit and Vegetable cards
- 1 set of Full Plant cards
- 1 Plant Parts Cheat Sheet
- 1 set of Plant Part Purpose posters

Outline:

- Engage: Match edible plant parts to the full plants
- Explore: Sort edible plant part / full plant matches by plant part name
- Explain: Brainstorm plant part purpose for plant, Sing “Roots, Stems, and Leaves”
- Extend: Make plant parts salad and/or play plant parts relay

Lesson Plan:

- Engage (whole group / moving throughout room) - 5 minutes
    - Activate students’ prior knowledge by distributing a card from the Fruit and Vegetable deck to each student. Then scatter the cards from the Full Plants deck across the tabletops. When instructed, students are tasked with finding the image of the full plant that matches their edible plant part.
    - When students have found their matches, share cards that show the images of the edible plant part and the matching full plant throughout the class to ensure accuracy.
- Explore (independently / moving throughout room) - 5 minutes
    - Challenge students to use what they know about the plant parts (root, stem, leaf, flower, fruit, and seed) to determine how to classify their edible plant part. Specifically recognize that the fruit is a casing for a seed since many students will be familiar with the culinary definition of a fruit but may miss vegetables that fit that botanical definition of a fruit like green beans.
    - Allow students to move around the room to find other students whose plants have the same edible plant part. This will allow them to compare and contrast against each other and to self check.
- Explain (small group / throughout room) - 10 minutes
    - When students have organized themselves by edible plant part, allow the small groups to think independently, discuss with their small group, then share with the class what purpose they think that plant part serves for the plant (specify that this is not the purpose it serves for humans which will likely be to eat, but rather how it serves the plant before we harvest it)!

- After the small groups share their answers, the teacher can provide them with their Plant Part Purpose poster so they can sing their verse of the song “Roots, Stems, and Leaves” and see if they were correct!
  - Roots:
    “The roots hold the plant in the ground,
    They gather up the water that falls around.
    And there’s a root inside of me,
    Because carrot is a root that I eat.”
  - Stems:
    “A stem is an elevator growing up from the ground.
    The water goes up and the sugar back down.
    And there’s a stem inside of me,
    Because celery is a stem that I eat.”
  - Leaves:
    “The leaves are the kitchens where the food is done.
    They breathe the air and catch rays from the sun.
    And there’s a leaf inside of me
    Because lettuce is a leaf that I eat.”
  - Flowers:
    “The flowers are dressed so colorfully,
    They hold the pollen and attract the bees.
    And there’s a flower inside of me
    Because cauliflower is a flower I eat.”
  - Seeds:
    “The seeds get buried in the earth,
    And the cycle starts again with a new plant’s birth.
    And there are seeds inside of me
    Because sunflower is a seed that I eat.”
  - Fruit:
    “The fruit gets ripe, then falls on down
    It holds the seeds and feeds the ground.
    And there’s a fruit inside of me,
    Because an apple is a fruit I eat.”

- Extend
  - Make and Taste a Plant Parts Salad (whole group / in seats) - 25 minutes
    - Ingredients (one of each):
      - Root—Carrots, Radishes, Beets
      - Stem—Celery, Asparagus, Broccoli
      - Leaf—Lettuce, legumes, Baby Chard, Baby Kale, Arugula
      - Flower—Broccoli, Cauliflower
      - Fruit—Green Beans, Tomatoes, Cucumbers, Oranges, Berries
      - Seed—Peas, Corn, Sunflower Seeds
    - Resources:
      - Legumes Recipes for Classrooms (see website) (including Plant Parts Salad)
      - Dressing Recipes for Classrooms
      - Taste Test Best Practices for the Classroom
  - Plant Parts Relay (whole group / outside) - 25 minutes
    - Place the Plant Part Name cards in a line across the field.
    - Divide the class in half and instruct each team of students to form a line across the field from the Plant Part Name cards.
    - Distribute the Fruit and Vegetable cards - half to one group of students, half to the other group of students and when instructed the first student in the line can run across the field with the first card of the deck to place the card on the Plant Part Name that corresponds to the fruit or vegetable shown on their card.
    - When they return back to their team, they hand over the deck to the second student in line and then move to the end of the line so the game can continue until one team runs out of cards.

- Evaluate

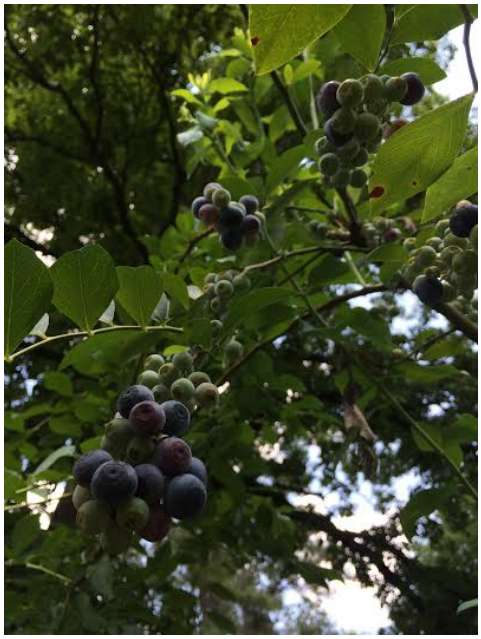
Example Participation Evaluation

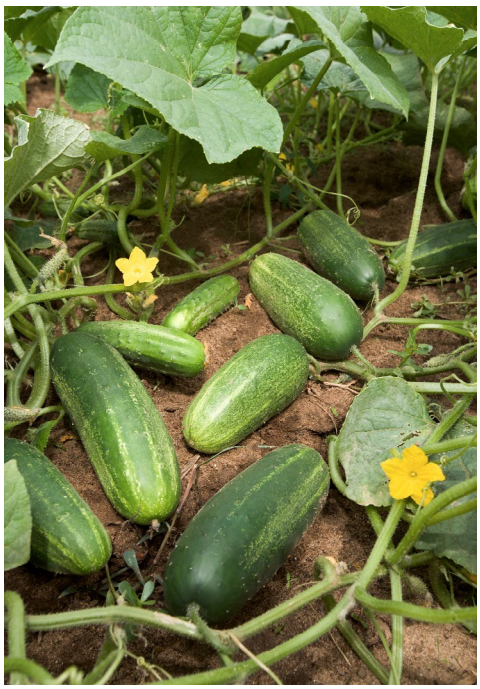
Engage (SKL1c.)	Student participated in matching their individual Fruit or Vegetable card with their Full Plant card.	___/25
Explore (S1L1a.)	Student participated in working with classmates to group the plants by the edible plant parts.	___/25
Explain	Student actively participated in discussion of the purpose of the plant part and singing "Roots, Stems, and Leaves" to confirm hypothesis.	___/25
Extend	Student was actively engaged in the extension activity.	___/25
	TOTAL:	___/100

Plant Cards Set 1

Make Room for LEGUMES

October Farm to School Month | #MakeRoomforLegumes





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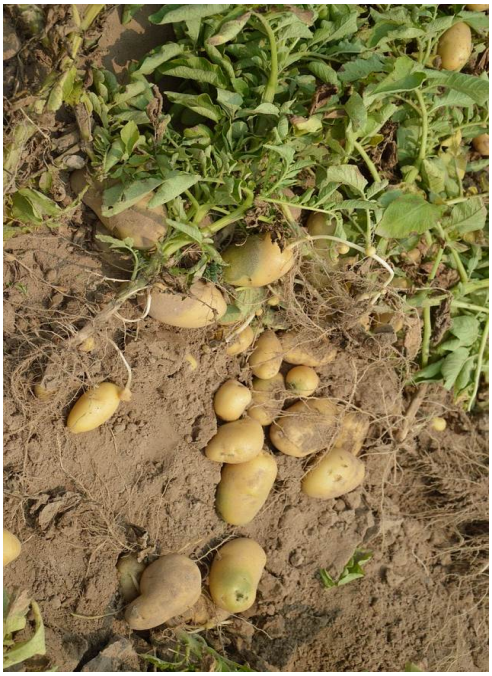

GEORGIA ORGANICS | Elementary School | GA Standards | 70 min

farmtoschool.georgiaorganics.org #makeroomforlegumes

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GEORGIA ORGANICS | Elementary School | GA Standards | 70 min

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Plant Cards Set 2

Make Room for LEGUMES

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Make Room for LEGUMES

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Plant Parts Poster

The roots hold the plant in the ground,

They gather up the water that falls around.

And there’s a root inside of me,

Because a carrot is a root that I eat.

That’s six plant parts, six parts, six plant parts that people need.

Plant Parts Poster

A stem is an elevator growing up from the ground.

The water goes up and the sugar back down.

And there’s a stem inside of me,

Because celery is a stem that I eat.

Plant Parts Poster

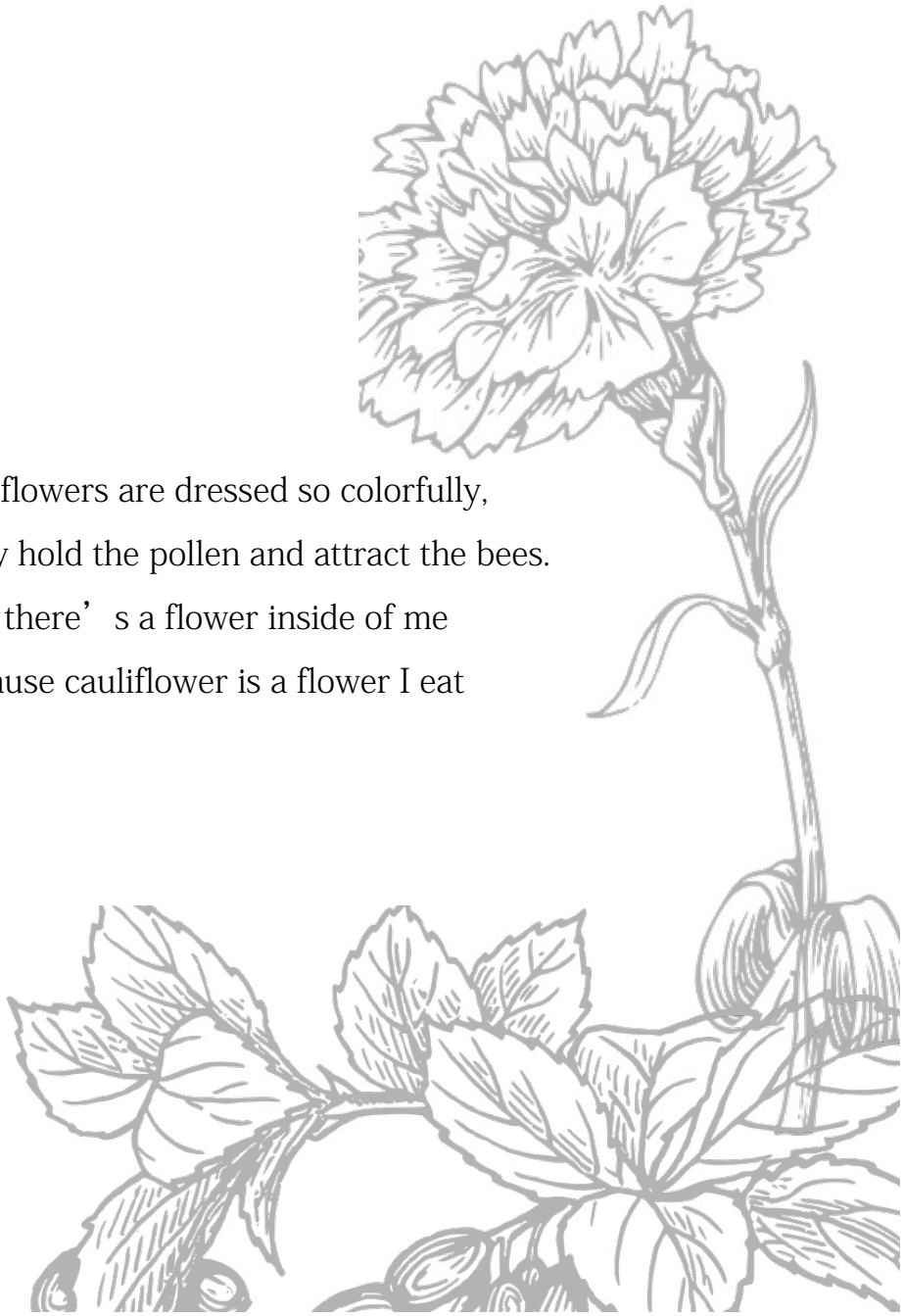
The leaves are the kitchens where the food is done.

They breathe the air and catch rays from the sun.

And there’s a leaf inside of me,

Because lettuce is a leaf that I eat.

Plant Parts Poster



The flowers are dressed so colorfully,
They hold the pollen and attract the bees.
And there's a flower inside of me
Because cauliflower is a flower I eat

Plant Parts Poster

The fruit gets ripe, then falls on down
It holds the seeds and feeds the ground.
And there's a fruit inside of me
Because an apple is a fruit that I eat.

Plant Parts Poster

The seeds get buried in the earth,
And the cycle starts again with a new plant’ s birth.
And there are seeds inside of me
Because a garden salad is what I eat.

Plant Parts
Cheat Sheet

Plant Part	Descriptions/Definition	Examples
Seeds	Fertilized ovules grow and swell to form seeds after pollination has occurred. A seeds contain an embryo (which has all the necessary genetic information to create a new plant) and endosperm (the food required to sustain early growth) and a seed coat (which protects the seed from disease)	Shell peas, peanut butter, coffee, oats, wheat product, cashews, blueberries, strawberries, blackberries, green beans, grapes, corn
Roots	Usually forms below ground, acts as an anchor for the plant, absorbs water and minerals, and provides physical support and food storage. Bulbs, such as onions, are another type of underground stem.	Carrots, radish, beets, parsnips, sweet potatoes, rutabaga, onion
Stems	Provides support for the buds and leaves, and gives the plant its form. Serves as a conduit for water, minerals, gases and sugars. Tubers" are the swollen part of the underground stem. Roots sprout of the tuber and tubers have nodes and "eyes."	Potatoes, Celery, asparagus, onions, kohlrabi
Flowers	The structure that contains the organs for sexual production. Also, the site where pollination occurs.	Broccoli, cauliflower, artichokes, nasturtiums, chamomile, hibiscus, squash blossoms
Fruits	The enlarged ovary surrounding the newly developed seed is the true fruit of the plant. The fruit holds and protects the seed.	Pumpkins, tomato, snap peas, green beans, avocadoes, peaches, grapes, cantaloupe, cucumber, butternut squash, orange, pumpkin, zucchini, persimmons, peppers, eggplant, pineapple
Leaves	The part of the plant involved in photosynthesis and transpiration. Leaves include: stoma, guard cells, epidermis, cuticles, veins, chlorophyll, and chloroplasts.	Parsley, onions, lettuce, mint, chives, garlic, tea, kale, Brussel sprouts, spinach

*** Some publications also include "bud" as a separate plant part. This is an undeveloped shoot from which leaves or flowers grow. Examples: Broccoli, Brussel sprouts, artichokes.*