What part of the plant do I like to eat?

MY OWN FOOD CHAIN PROGRAM (K-2)

Plant Parts Discovery

(ILS 12A, 12B)

Overview

This curriculum explores the relationship between people and the food they eat. It aims to give children in grades K-2 a basic understanding of the flow of energy through the food chain, and the place of people in the food chain. If teachers complete the entire curriculum, their classes will explore food chains in nature, focusing on its individual links and looking at the flow of energy as a whole. Students will then look at the place of people in the food chain, and discover how people have appropriated nature's systems in agricultural practices – making the food chain our own. Classes will compare traditional and sustainable agricultural practices.

Sustainable Agriculture, for the purpose of this curriculum, shall be defined as "a system of food production, supported by consumers, where farming operations, practices and technologies work in harmony with the natural systems that sustain life on earth."

Suggested Grade Level

This curriculum is designed for kindergarten through second grade levels. The topics covered can be built upon in complexity throughout that age range.

Approximate Time

Session 1 requires approximately 30 minutes; session 2 approximately 60 minutes.

Objectives

1. The students will learn the parts that most plants have in common.
2. The students will be able to describe the function of these plant parts.
3. The students will discover what parts of the plant they like to eat as they explore fruits and vegetables.

Activity Abstract

In session one, the students will learn about the parts that all plants have in common by studying and comparing different plants. They will dress a classmate up as a plant to review/assess their observations. They will discuss the functions of the parts of a plant. In session 2, the students will look at some common plant foods and try to discover what parts of the plant these foods are.

Background Information

This chart contains information about the plant parts you are likely to encounter.

	Functions	Identifying Characteristics	Edible Examples
ROOT	• Absorbs water and nutrients • Anchors / supports plant • Can store carbohydrates for food	• Root hairs • Generally underground • Often whitish in color	Carrots, Beets, Radishes, Sweet Potato, Turnip, Rutabaga
STEM	• Supports leaves • Transports water/food through plant • Xylem moves stuff up • Phloem moves stuff down	• Can be above or below ground • Buds, flowers, branches, leaves, roots, etc., come off of stems.	Celery, Rhubarb, Potato, Asparagus
LEAVES	• Photosynthesis – leaves make food from water and carbon dioxide using sunlight. • Exchange gases through holes called stomata. • Produce Oxygen as byproduct of photosynthesis	• Generally thin and flat • Often green. • Veins run through leaves	Lettuce, Spinach Cabbage, Artichoke, Onion, Cilantro, Brussel Sprouts
FLOWER	• Reproductive parts – contain eggs and/or pollen to make seeds • Petals may be bright to attract pollinators • Eggs in ovary • Pollen (dust-like) on stamen	• Petals may be colorful • Vary in size	Broccoli, Cauliflower, Nasturtuims
FRUIT	• Ripened ovary • Protects seeds • Aids in seed dispersal	• Fruits contain seeds • Can be fleshy, fruity or dry (as in a peanut shell)	Tomato, Apple, Cucumber, Pepper, Avocado, Blueberry, Banana
SEED	• Produces a new plant • Provides start-up food for a young plant	• Often very nutritious, due to food stores	Peanut (not the shell), Green bean, Pinto Bean, Sunflower seed, Corn, Wheat

Materials

- Various plants (potted, picked, etc.) to study and learn parts. Home Depot sells small ones cheaply.
- Plant costume that includes roots, stem, leaves, flower, fruit, seed. The costume can be sewn, or made of construction paper and other temporary materials. String/rope makes great roots, a hat with petals affixed makes a great flower, etc.
- Various fruits and vegetables that are pretty easy to identify in terms of plant part, such as apple, grapes, lettuce, carrot, radish, cucumber, sunflower seed, sprout, etc. Do NOT use potatoes, onions, artichokes, strawberries or other really hard ones for this age group.
- Plates for each student.

- Extra veggies to eat.
- Dip (optional).
- Paring knife.
- Cutting board.

Procedure (Session 1)

1. Announce that today we're going to start looking at one very important part of all food chains – the green plants. And in order to really understand plants, we have to know what makes a plant a plant. The best way for us to find that out is to turn one of you into a plant.
2. **Hands-on experience.** First, you all need to get familiar with plants. Split class into groups of about 3. Give each group several living plants to look at. Have each group try to figure out what parts all plants have, and what's different about them.
3. **Relate experience and scientific principle.** Tell class, now that you've looked at the plants up close, I want to use what you've observed to turn (choose volunteer) into a plant. Have volunteer come to the front of the classroom.
4. Ask class what they need to add to volunteer to make her more like a plant and less like a person. As they suggest parts, add that part of the costume. Talk about why a plant has that part; ask if all the plants they observed had that part? If not, why not? (Wrong season?)
5. **Conclusion/Wrap-up.** Review parts and functions by undressing volunteer one part at a time.
6. Since all kids will want to be dressed as a plant, explain that we can't do that… everyone will get to become close to a lot of plants, so don't worry!

Procedure (Session 2)

1. **Tap prior knowledge.** Ask the class, what are some plants you eat? Write or draw answers on board.
2. Review the plant parts from session 1.
3. **Hands-on experience.** Break students up into groups of about 3. Give each group a plate of fruits and vegetables, making sure their plate has at least one of each part. Each group does not need to have the same foods.
4. Based on observations and discussion, have groups figure out which plant parts they have in each of their foods. Go from group to group with the knife, showing groups cross-sections and slices.
5. **Relate experience and scientific principle.** Chart results on board and discuss different groups' choices.
6. **Conclusion/Wrap-up.** Eat fruit and veggie snack!

Extensions (optional)

Have students describe their favorite meal in terms of plant parts.

References

"Anatomy of a Snack" Life Sciences series, Grade 1. 1992. Video Discovery

"Stem, Root, Leaf or Fruit?" Jaffe, R. and Appel, G. 1990. The Growing Classroon: Garden-based Science. Addison-Wesley Publishing Co, Menlo Pk, CA.

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