

lesson topic: **Pass the Plants, Please!**

overview

These lessons teach students about plants and plant parts, and connect these plants with the food we eat.

objectives

Students will learn:

- the parts of the plants.
- how to identify each plant part.
- how our food originates from plants, and the plant part which we use.

resources

Read the content packet:
"Basics of Botany"

Activity One: Grocery Bag Sort

materials

For Activity One, you will need:

- Purchase many different types of store-bought plants, which represent roots, stems, leaves, flowers, fruits, and seeds. See additional page ("Grocery Bag Sort") for suggested plants for each category
- Separate these grocery store items into several groups that equal to the number of student groups. Make sure that each group has a variety of plant parts
- Plant Part Identification (2 pages) for each student
- Grocery Bag Key for each student

learning activity

1. **Begin the lesson** by reviewing the parts of the plant: roots, stems, leaves, flowers, fruits, and seeds.
2. **Explain to the students** that today's lesson will allow them to explore different grocery store items and connect them to plants.
3. **Distribute a collection of grocery store items** to each group. Allow the students to explore the items for a short period of time.
4. **Explain to the students** that they should start a chart in their science notebooks with two columns: Grocery Store Item (plant name); Plant Part (which plant part makes up the item).
5. **They will work in groups and discuss each item**, make an educated guess to identify the plant(s) from the grocery store and then identify which plant part we eat. For example, the students may receive an apple in their group. They would record "apple" for the Grocery Store Item, and then indicate "fruit" for the Plant Part.
6. **Depending on the amount of produce purchased**, students can work with one group and then share their results with the class, or the teachers can continue to rotate the collections of grocery store items until students see all of them.
7. **When complete**, have students reflect on their answers and misconceptions that they may have had about plants and plant parts.

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Plants Parts We Eat

materials

For Activity One, you will need:

- Copies of the sample menus
- Worksheets for students

learning activity

- 1. Begin the lesson** by reviewing the parts of the plant (roots, stems, leaves, flowers, fruits, and seeds) and also discuss how almost all food that we eat originates from plants.
- 2. Explain to the students** that today's lesson will allow them to explore different menu items and connect them to plants and plant parts.
- 3. Distribute the "Plant Parts We Eat – Worksheet"** to each student along with a copy of the "Plant Parts We Eat - Menus". You may have all students work on the same menu or have different menus for each group of students.
- 4. Have students read their menu**, and then start to discuss the possible plants that constitute each item in the menu. Please make sure that students understand that some items are made from several plants. In addition, some foods originate from animals, but that the animals consumed plants.
- 5. Students should make educated guesses** to complete the worksheet. Students could also use the worksheet to conduct an on-line search to check their answers.
- 6. Follow-up with classroom-level discussion** to help them understand their misconceptions.

extending the lesson

- 1. Ask students to conduct the same activity**, but now they will list all of the food that they ate for breakfast or lunch.
- 2. Students can use the "Plant Parts We Eat – Worksheet"** to list each item and then list the plants and plant parts.
- 3. Encourage students to use evidence** from product labels or through web searches to verify their answers.
- 4. Have student examine the foods that they eat.** They may be consuming large amounts of sugar through drinks or large amounts of corn/wheat.
- 5. Use this data** to discuss food production in the United States, and the possible nutrition implications from consuming large amounts of sugar or corn.

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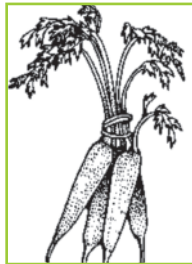
Grocery Bag Sort

The following is a list of some common grocery store plant parts that we eat. Although they are grouped according to root, stem, leaf, flower, fruit, and seed, many of these items are a combination of different plant parts (e.g. a store-bought onion is mostly leaves with a small stem and some roots).

common plant parts

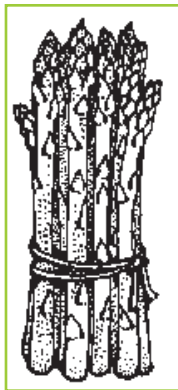
Roots

- beets
- carrots
- radishes
- sweet potatoes¹



Stems

- asparagus
- bean sprouts
- ginger
- white potatoes¹



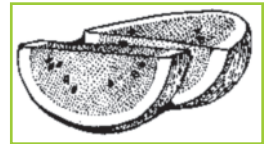
Leaves

- cabbage
- celery (leaf stalk; not a stem)
- kale
- lettuce
- onion (underground storage leaves)
- spinach



Fruits

- apple
- avocado
- cucumber
- eggplant
- grapes
- orange
- peach
- peanut shell
- pea pod / string bean
- pumpkin / squash
- sunflower "seeds"
- tomato



Flower buds

- artichoke
- broccoli "florets"
- cauliflower



'Potatoes are tricky... White potatoes are stems, but sweet potatoes are roots! They have been called "potato" by people because they both are underground, starchy plant parts. You may want to avoid potatoes until students master the concept of plant parts

Seeds

- peas
- black, kidney, lima or pinto beans
- peanut (edible "nuts" inside)




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plant part identification

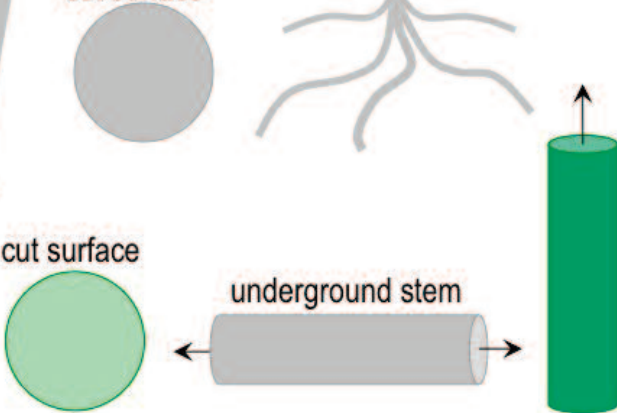
Roots:

- tapers to a point
- grows downwards
- almost always underground




Stems:

- 3-dimensional
- brown or green
- circular when cut
- grows upwards (above ground)
- grows sideways (underground)




Leaves

- flat; 2-dimensional
- green (if aboveground)
- white (if underground)
- stalk is crescent-shaped when cut




Flowers:

- usually has petals
- usually colorful
- has pistils, stamens or both
- if petals missing then brown and tassel-like




animal-pollinated



wind-pollinated


Fruits:

- has 1 or many seeds
- sometimes colorful



Seeds:

- has embryo
- swells if soaked
- seed coat surrounds seed





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plant part identification

Roots:

- tapers to a point
- grows downwards
- almost always underground



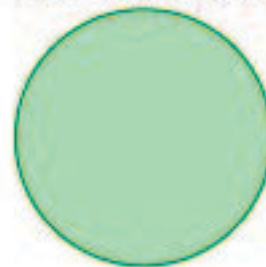
cut surface



Stems:

- 3-dimensional
- brown or green
- circular when cut
- grows upwards (above ground)
- grows sideways (underground)

cut surface



Leaves

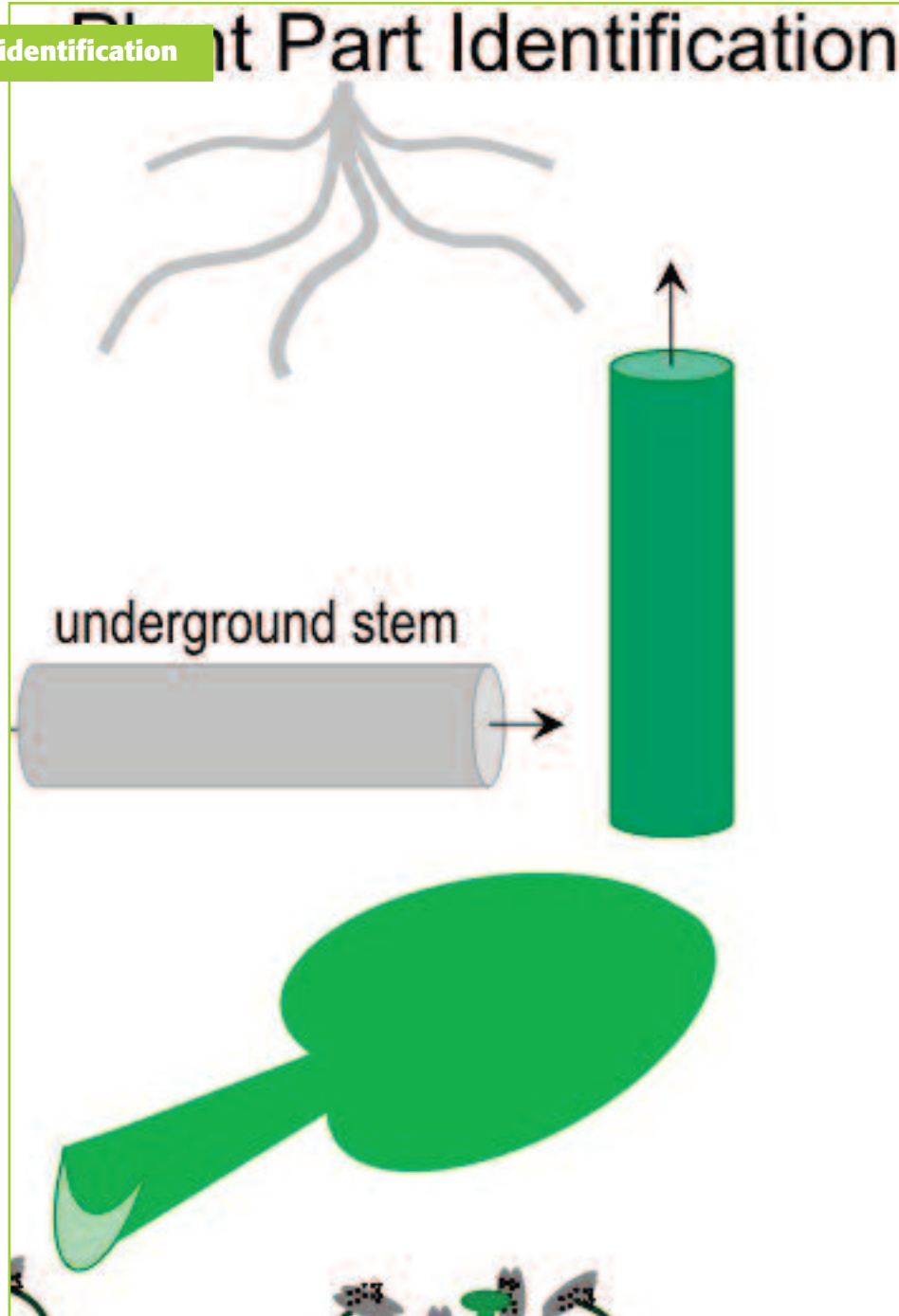
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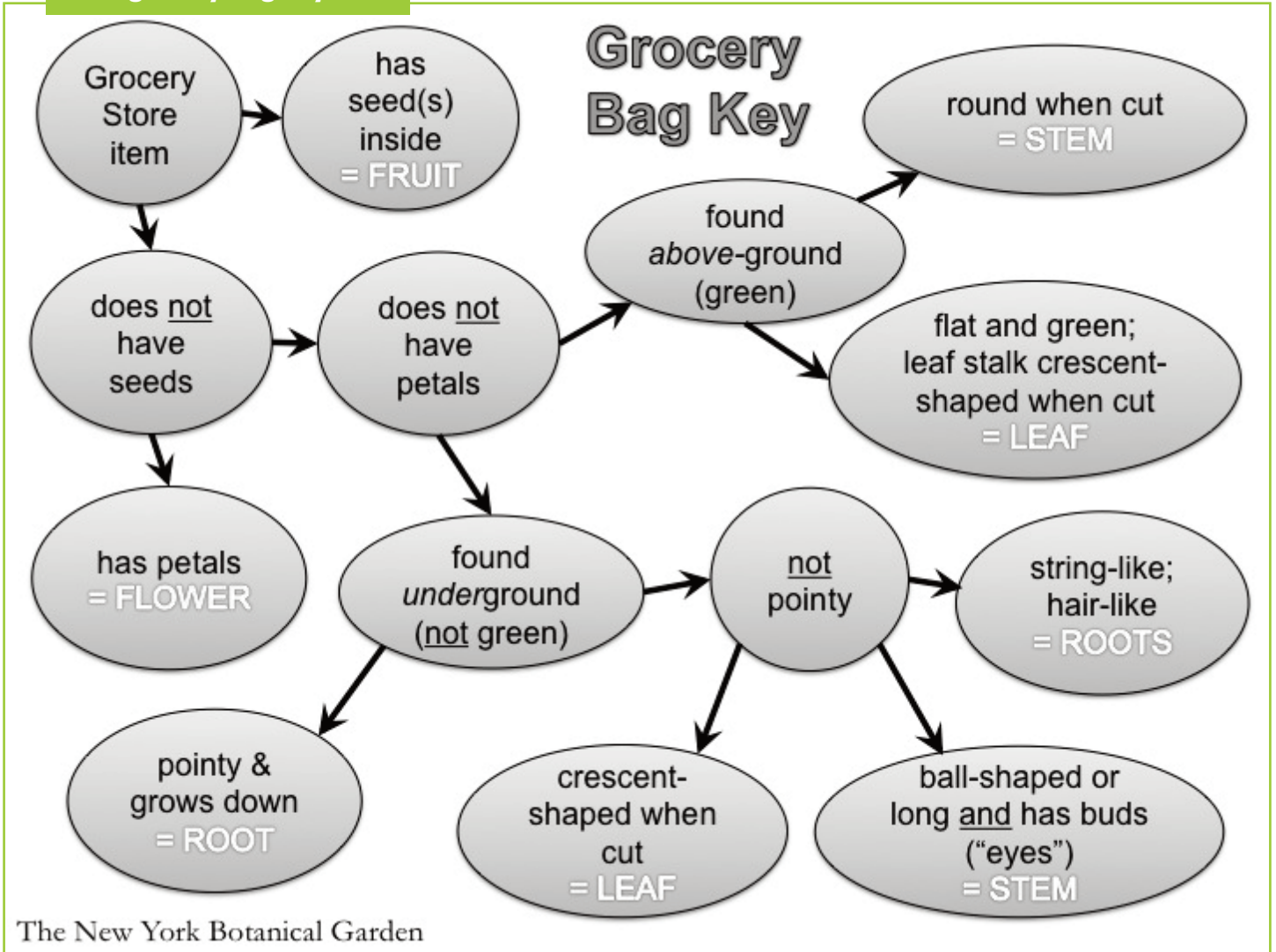
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plant part identification



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grocery bag key



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plant parts we eat – menus

Menu #1

- Large pizza with sauce, cheese, pepperoni, green peppers, onions, mushrooms and olives
- A Pepsi/Coke to drink

Menu #2

- Large salad with lettuce, onions, tomatoes, cucumbers, alfalfa sprouts and blue cheese dressing
- Slice of sesame-seed bread
- Kiwi/Strawberry Snapple to drink

Menu #3

- A couple bites of chocolate cake with frosting and a cherry on top
- A couple bites of warm apple pie with vanilla ice cream
- Cup of regular coffee

Menu #4

- A hamburger on a poppy seed bun with lettuce, tomato, onion, pickle, mustard and relish
- French fries with ketchup
- Iced (sun) tea to drink

Menu #5

- Eggplant Parmesan with red sauce (with spices)
- Small side of spaghetti and 2 meatballs
- Small side salad (greens, tomato, Italian dressing)
- Basket of garlic bread
- Glass of red wine to drink

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plant parts we eat – worksheet

Read the menu provided by your teacher.

1. **Name the plants** that went into each of the food items. (Some foods may come from an animal, but the animal ate what plant?)
2. **Name the plant part** that was used from each plant (root, stem, leaf, flower, fruit, and/or seed)

Food	Plant Name	Plant Part
<i>Example: Ketchup</i>	<i>Tomato</i>	<i>Fruit</i>



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plant parts we eat – example

Read the following menu.

1. Name the **plants** that went into each of the food items. (Some foods may come from an animal, but the animal ate what plant?)
2. Name the **plant part** that was used from each plant (root, stem, leaf, flower, fruit, and/or seed)

Menu #1

- Large pizza with sauce, cheese, pepperoni, green peppers, onions, mushrooms and olives
- A Pepsi/Coke to drink

Food	Plant Name	Plant Part
<i>Pizza crust (flour)</i>	<i>Wheat</i>	<i>Fruits & Seeds</i>
<i>Tomato sauce</i>	<i>Tomato</i>	<i>Fruit</i>
<i>Oregano</i> <i>Basil</i>	<i>Oregano</i> <i>Basil</i>	<i>Leaves & stems</i> <i>Leaves & stems</i>
<i>Garlic</i>	<i>Garlic</i>	<i>Leaves & stems</i>
<i>Sugar</i> <i>Salt</i>	<i>sugar cane</i> <i>Not from a plant</i>	<i>stem</i> <i>Not from a plant</i>
<i>Cheese → Cow →</i>	<i>Grass</i> <i>Grain</i>	<i>Leaves & stems</i> <i>Fruits & Seeds</i>
<i>Green Peppers</i>	<i>Pepper plant</i>	<i>Fruit</i>
<i>Onions</i>	<i>Onion</i>	<i>Leaves!</i>
<i>Mushrooms</i>	<i>Not a plant</i>	<i>Not a plant</i>
<i>Olives</i>	<i>Olive tree</i>	<i>Fruit</i>
<i>Soda</i>	<i>Corn Syrup</i>	<i>Seeds</i>