## Plant Parts & Our Bodies

### 3rd & 4th Grade

Students discuss the plant lifecycle and plant part functions. Students learn about the nutrients that plants provide our bodies.

**20-30 min.**

### Lesson Objectives:
- Students are able to name the six plant parts and provide examples of plant parts that we eat.
- Students identify and categorize vegetables based on plant parts
- Students express excitement and/or interest in identifying plant parts

### What You Need

<table>
<thead>
<tr>
<th>What To Do</th>
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<tbody>
<tr>
<td><strong>Flip chart or paper and clipboard to plant lifecycle (optional)</strong></td>
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<tr>
<td>Start by passing out the vegetable cards. Lead a discussion about the plant lifecycle by talking about the plant parts. When you introduce a plant part, ask students to raise their hand if they think they have an example in their hand. Ask students to think of other things we eat that represent each plant part. You may want to draw each part as you discuss or ask the students “what grows first from the seed?” whoever guesses correctly (root) gets to draw the root, then ask “what grows next? (stem) and have a student draw that part. As they draw, discuss the function of the plant part and have them offer examples from their cards or elsewhere of things we eat that are that particular plant part:</td>
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<tr>
<td><strong>Hoola Hoops</strong></td>
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<tr>
<td><strong>Plant Part Cards (2 sets)</strong></td>
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<td><strong>Vegetable cards</strong></td>
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### What To Do

**Root:** The root has two main jobs, to deliver water and nutrients to the plant and to help stabilize (hold up) the plant. (Roots we eat: carrots, radish, turnip—be careful, potatoes are not roots, they are tubers which are underground stems storing up energy for the plant)

**Stem:** The stem’s main task is to provide stability and to transport water and nutrients throughout the plant. You may want to mention that xylem (water transport) and phloem (food transport) are the main highways in the stem, like our veins in our bodies. (Stems we eat: celery, asparagus, broccoli, chard, kale)

**Leaf:** Leaves soak up sunlight and are the places where sunlight is
transformed into food for the plants. This is called photosynthesis. (Leaves we eat: spinach, lettuce, cabbage)

**Flower:** Flowers have very important jobs; they attract pollinators to insure that a viable seed is made. (Flowers we eat: nasturtiums, broccoli, calendula)

**Fruit:** A fruit is technically seeds contained in a fleshy body. This means that many vegetables we eat are technically FRUIT. Can you think of some examples? (Fruits: zucchini, tomato, peach etc)

**Seeds:** A seed consists of 3 parts: a **coat** (for protection), a **plant embryo** (baby plant) and **food** for the embryo to use to grow until it can emerge from the soil and begin to make food for itself from the sun! You may want to draw a seed and label the parts. Pass out soaked bean seeds (if you have them) and let them split them open and see the beginning of the root and leaves, have them peel off the seed coat. Explain that the size of the seed helps a farmer know how deep it can be planted, the bigger the seed, the more food it has and so it can survive longer underground before it needs the sun, therefore these seeds can be planted deeper. (Seeds we eat: peas, beans, corn, wheat)

Now have the students turn their cards over and look at the nutrition information on the back. Discuss what some of the nutrients provide our bodies” As you discuss each nutrient have students raise their hand if they think they have the highest amount of that particular nutrient.

**Carbohydrates** are one of the main types of nutrients. They are the most important source of energy for your body. Your digestive system changes carbohydrates into glucose (blood sugar). Your body uses this sugar for energy for your cells, tissues and organs. It stores any extra sugar in your liver and muscles for when it is needed. Carbohydrates are called simple or complex, depending on their chemical structure. Simple carbohydrates include sugars found naturally in foods such as fruits, vegetables, milk, and milk products. They also include sugars added during food processing and refining. Complex carbohydrates include whole grain breads and cereals, starchy vegetables and legumes. Many of the complex carbohydrates are good sources of fiber.
Dietary Fiber is only found in plants. It is the part of the plant that is not digested, most of the fiber you eat passes through your intestines undigested and helps to keep your digestive system cleaned out and working well. 25-30 grams of fiber are recommended daily.

Vitamin A contributes to healthy eyesight as well as cellular functions.

Vitamin C our bodies cannot make or store vitamin C, so it important to eat some each day. Vitamin C is needed for the growth and repair of tissues in all parts of your body, it helps heal wounds, and build and repair skin, tendons, ligaments, blood vessels, cartilage, bones and teeth. It also fights “free radicals” which contribute to cancer, heart disease and arthritis. Children 9-13 years old should consume 45 mg/day.

Thiamin, Riboflavin and Niacin are all B vitamins and are considered essential nutrients because humans cannot make or store them, we must get it from eating plants. All B vitamins help the body convert food (carbohydrates) into fuel (glucose), which is used to produce energy These vitamins contribute to healthy skin, hair, eyes and liver. Recommended consumption for each of these nutrients for 9-13 year-olds: 0.9 mg/day.

Folate helps produce and maintain new cells. It is needed to make DNA and RNA, the building blocks of cells. It is especially important during pregnancy and infancy. It prevents anemia and cancer.

Calcium You have more calcium in your body than any other mineral. Calcium has many important jobs. The body stores more than 99 percent of its calcium in the bones and teeth to help make and keep them strong. The rest is throughout the body in blood, muscle and the fluid between cells. Your body needs calcium to help muscles and blood vessels contract and expand, to secrete hormones and enzymes and to send messages through the nervous system.

Iron is a mineral that our bodies need for many functions. The body needs iron to make the proteins hemoglobin and myoglobin. Hemoglobin is found in red blood cells and myoglobin is found in muscles. They help carry and store oxygen in the body. Iron is also part of many other proteins and enzymes in the body.
Potassium is a mineral that the body needs to work normally. It helps nerves and muscles communicate. It also helps move nutrients into cells and waste products out of cells. A diet rich in potassium helps to offset some of sodium's harmful effects on blood pressure.

Ask if students think there are more or less nutrients in fresh vegetables than processed?

Ask some final questions about plant parts—what plant part do you think we eat the most of? Think of your favorite food, what plant parts are included? Describe your breakfast using plant parts: “I had flattened seeds with sap from a tree, and berries” (oatmeal with maple syrup & berries)
NOTES AND EXTENSIONS

Age Appropriateness Tips:

1-3/4 grade  4/5-6th grade

Vocabulary:

<table>
<thead>
<tr>
<th>1-3/4 grade</th>
<th>4/5-6th grade</th>
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<tbody>
<tr>
<td>seed coat</td>
<td>seed coat</td>
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<tr>
<td>seed baby/embryo</td>
<td>endosperm</td>
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<tr>
<td>seed food</td>
<td>embryo’s primary root</td>
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<td></td>
<td>cotyledon</td>
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<td></td>
<td>embryonic leaves</td>
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*draw cartoony and/or picture with labels for vocabulary

Things plants need:

Have a hints drawn on paper       No hints

Seed = plant: Make connection that 1 seed makes an entire plant,
Example – tomato, how many seeds does a tomato have? 1? Many? 100s? So how many tomato plants does that make? . . . its AMAZING