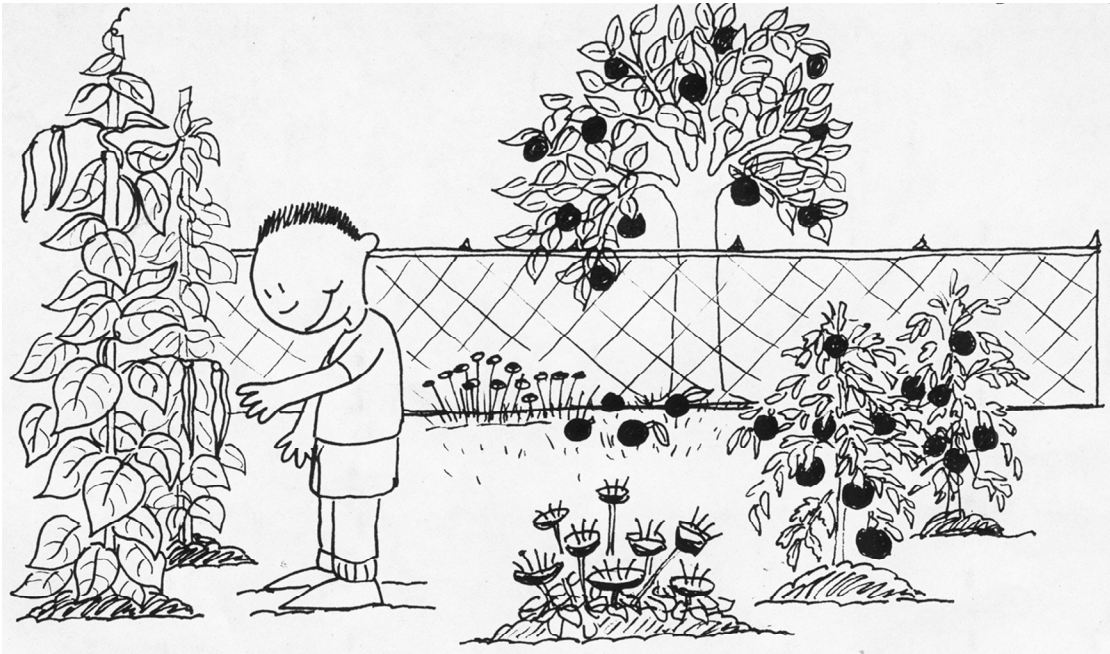


FEELING FINE WITH FRESH FOOD
GARDEN-BASED NUTRITION FIELD TRIPS
LIFE LAB GARDEN CLASSROOM



FEELING FINE WITH FRESH FOOD
FOURTH & FIFTH GRADE NUTRITION EXPLORATION
LIFE LAB GARDEN CLASSROOM



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Teacher Introduction

By now we have all heard the statistics on the changing American diet and the problems caused by lack of exercise and dependence on convenience foods. The good news is that children who are exposed to a healthy diet early on are more likely to develop good eating habits. Educators can increase the likelihood that children will learn to like and choose healthy foods by involving students in preparing meals with fresh ingredients from the garden, and integrating lessons on nutrition into their classroom curriculum.

During their visit to the Garden Classroom, students will experience the pleasure of harvesting and preparing fresh food and sharing a meal together. They will practice building balanced meals, and discover the benefits of eating a rainbow of fruits and vegetables.

You can maximize your class visit to the Garden Classroom by doing the pre-visit activity before your field trip. We have also included some post-visit activities for you to do afterward. After completing the pre- and post- field trip activities as well as the activities during their visit, your students will have a good understanding of healthy foods and how they help us grow and thrive.

Safety Precautions:

- Be aware of any student food allergies before starting this unit. Adapt lessons accordingly.
- Always use close adult supervision when cooking with children. Children can and should be involved with activities such as cutting and stirring, but these activities should be done slowly and carefully to avoid danger.
- Involve children in designing rules for a safe cooking area and review the rules regularly. See page 25 for sample knife safety rules.
- All participants should wash hands well with soap before handling any food products that will be eaten by the group.
- All plant products should be thoroughly washed before use.

Health Standards

The California Health Standards listed below will be addressed in this nutrition unit.

California Health Standards Grade 3

Growth and Development

Standard 1: Essential Concepts

1.3.G Identify major internal and external body parts and their functions.

Standard 5: Decision Making

5.1.G Examine why a variety of behaviors promote healthy growth and development.

Standard 7: Practicing Health-Enhancing Behaviors

7.1.G Determine behaviors that promote healthy growth and development.

Personal and Community Health

Standard 1: Essential Concepts

1.3.P Identify positive health practices that reduce illness and disease.

California Health Standards Grade 4

Nutrition and Physical Activity

Standard 1: Essential Concepts

1.1.N Identify and define key nutrients and their functions.

1.3.N Describe the relationship between food intake, physical activity, and good health.

1.6.N Explain the importance of drinking plenty of water, especially during vigorous physical activity.

Standard 7: Practicing Health-Enhancing Behaviors

7.1.N Practice how to take personal responsibility for eating healthy foods.

7.3.N Identify ways to establish and maintain healthy eating practices consistent with current research-based guidelines for a nutritionally balanced diet.

California Health Standards Grade 5

Standard 1: Essential Concepts

1.1.N Describe the food groups, including recommended portions to eat from each food group.

1.6.N Differentiate between more-nutritious and less-nutritious beverages and snacks.

1.8.N Describe the benefits of eating a nutritionally balanced diet consistent with current research-based dietary guidelines.

1.9.N Explain how good health is influenced by healthy eating and being physically active.

Standard 5: Decision Making

5.1.N Use a decision-making process to identify healthy foods for meals and snacks.

Standard 7: Practicing Health-Enhancing Behaviors

7.1.N Identify ways to choose healthy snacks based on current research-based guidelines.

Resources

Books

Evers, Connie. How to Teach Nutrition to Kids: An integrated, creative approach to Nutrition Education for children ages 6-10. Connie Liakos Evers, 2006.

Sears, William, et al. The Healthiest Kid in the Neighborhood: Ten Ways to Get Your Family on the Right Nutritional Track. Little, Brown and Company, 2006.

Online Lessons and Curricula

Kids Cook Farm Fresh Food (www.cde.ca.gov/ls/nu/he/kidscook.asp) Seasonal recipes, activities & farm profiles that teach ecological responsibility.

Got Veggies? (www.dhs.wisconsin.gov/health/physicalactivity/gotveggies.htm) is a garden-based nutrition education curriculum created with the goal of getting children to eat more fresh fruits and vegetables.

Nutrition to Grow On (<http://www.cde.ca.gov/ls/nu/he/nrttogrow.asp>) An innovative curriculum for grades four through six that offers teachers a direct link between the garden and nutrition education.

Harvesting HEALTH (www.northcoastnutrition.org/GardenBasedNutritionEducation-i-127-109.html) is a compilation of lessons and resources that foster nutrition education through gardening concepts highlighting seasonal produce.

Other Websites

Life Lab www.lifelab.org

California Foundation for Agriculture in the Classroom www.cfaitc.org

California School Garden Network www.csgn.org

Cooking With Kids www.cookingwithkids.net

Harvest of the Month www.harvestofthemonth.com

Nutrition for Kids www.nutritionforkids.com

Fruit & Vegetable Photo Cards

Fresh Fruit and Vegetable Photo Cards. CA Dept of Education, Nutrition Services Division. Set of 142 beautiful color photographs of every imaginable fruit and vegetable. In both English and Spanish. Nutrition information on back. <http://www.cde.ca.gov/re/pn/rc>

Master Materials List For Feeling Fine with Fresh Food

Delectable Drawings

One paper plate per student (no wax coating)
Markers or crayons



Power Plate

Felt board Power Plate (or other large Power Plate display; this can even be drawn on a white board)
Felt food props (or pictures of food cut out of magazines)
White paper, one sheet for each student
Geometry compasses (optional)
Colored pencils/crayons
Model wooden or plastic foods (or pictures of food cut out of magazines)

Eat a Rainbow

Rainbow Color cards (master on page 23).
Butcher paper
Markers representing each rainbow color, plus brown and black
Fresh Fruit and Vegetable Photo Cards (optional, available from the California Department of Education Nutrition Services Division)

Stone Soup

20-25 cups veggie broth
16-20 cups winter vegetables, such as chard, kale, winter squash, carrots, broccoli, spinach, beets, beet greens, kohlrabi, celery, etc., chopped or cubed
1-2 onions, any color, chopped
3 cloves of garlic (or adjust to taste), minced
2 Tablespoons olive or grapeseed oil
2 Tablespoons dried thyme (or fresh herbs from garden, such as sage & oregano)
2 cups dried lentils
Salt and pepper to taste
Stove or hot plate
2-3 colanders
Extra large soup pot
Harvesting basket
Measuring spoons, measuring cup
Wooden spoons
Spoons for taste-testing
Stone Soup by Marcia Brown (optional)
10 cutting boards
10 sharp knives
Bowl and spoon for each student for eating soup

Water You Made Of

One teaspoon salt
Cotton
Rubbing alcohol
Water
One clear drinking glass

Six Plant Parts

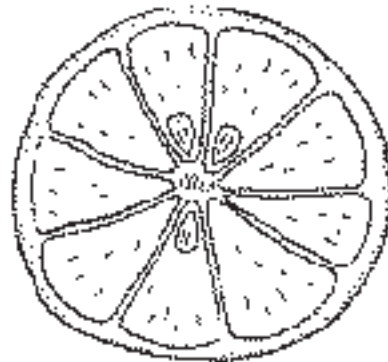
Six Plant Part costume, which includes:
Old mop head or ball of brown yarn, made into a messy tangle
Green sheet, coat, or robe
Two large leaves cut out of green poster board
Large fake flower with stem
Piece of fruit, real or fake

Six Plant Part Salad Bar

5 large bowls or colanders
5 cutting boards
5 knives
1 cup each of edible roots, stems, flowers, fruits, and seeds (see 6 Plant Part lesson for examples)
2 large heads of lettuce
1 jar of salad dressing
1 plate and fork for each student
Clean up supplies (sink, dish soap, sponge, towels)

Celebrating Family Traditions

Recipe card master (p. 24)
Construction paper for book covers
Food ingredients for the meal, including fresh foods from the garden
Cooking and serving utensils
Table decorations
Plates and eating utensils
Napkins
Compost bucket to collect scraps



Delectable Drawings

(Pre-Visit Activity)

Description

This is a pre-assessment activity in which students draw their favorite meal on one side of a paper plate and what they consider a healthy meal on the other side. Students discuss the differences and similarities of their favorite and healthy meals.

Objective

Students begin to think about what they eat and what makes up a healthy meal.

Materials

One paper plate per student (no wax coating), or white paper
Markers or crayons

Activity

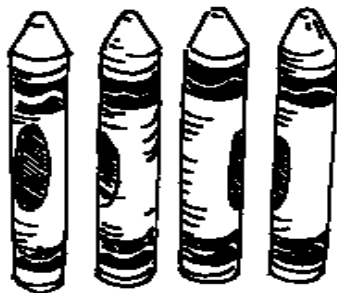
1. Pass out a plate to each student. Ask students to write their names on one edge of their plates.
2. Ask students to draw their favorite meal on one side of the paper plate with markers or crayons. When they are done, ask them to turn the plate over and draw what they think is a healthy meal.
3. Have students share what they drew with their classmates in small groups. Ask for volunteers to share similarities and differences between their favorite and their healthy meals with the class.
4. Collect plates for later use.

Wrap Up

Ask students, What makes a meal healthy or unhealthy? How does a healthy meal help your body function? How did you learn to like your favorite meal? If your favorite meal is different from your healthy meal, could you make it healthier?

Digging Deeper

Repeat this activity at the end of your nutrition unit. Encourage students to use what they have learned about nutrition to create a healthy meal on their plates. After they have drawn both their favorite meal and a healthy meal, pass out their plates from the first time they did this activity. Ask them to compare and contrast their thoughts about healthy eating before and after the nutrition unit. How have their favorite meals changed? How have their healthy meals changed?



Power Plate

(Garden Classroom Activity)

Description

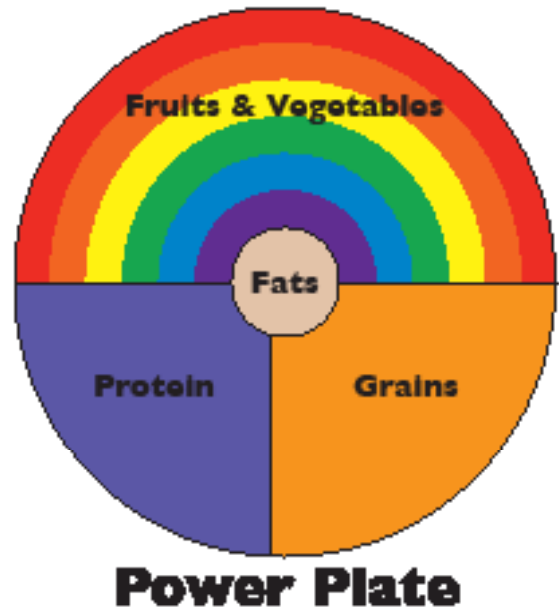
Students practice building nutrient rich, balanced meals and snacks, by first sorting foods into the appropriate nutritional categories (fruits and vegetables, protein, grains, and fat), then creating and filling their own balanced Power Plates.

Objective

To develop an understanding of what makes a balanced meal or snack, and apply this knowledge to real life situations.

Teacher Background

The USDA advises basing daily nutrition decisions on a model called MyPlate. Power Plate is very similar to MyPlate. However, on the Power Plate, the fruit and vegetable groups are combined into one group represented by a rainbow, demonstrating the importance of eating fruits and vegetables of a variety of colors. In addition to the grains and protein categories, Power Plate also includes a small portion of fat, recognizing the importance of moderate amounts of this nutrient in our diets. Power Plate does not have a separate dairy section, placing dairy products in the Protein category (and sometimes also the Fats category, depending on the product), and recognizing that many different foods can be good sources of calcium (such as leafy greens, almonds, beans, dried figs, and anchovies). The recommended real-life size of the Power Plate is approximately seven inches in diameter, the size of a salad plate.



More About the Power Plate's Four Nutritional Categories:

Fruits and Vegetables supply the body with carbohydrates, which give us energy, essential vitamins, minerals, fiber, and phytonutrients, which play a wide range of roles in keeping our bodies healthy. As discussed in the Eat A Rainbow lesson, differently colored fruits and vegetables benefit our bodies in different ways, so eating a rainbow of fruits and vegetables is a good way to ensure that our bodies get what they need.

Protein helps the body grow and repair cells, such as making and maintaining muscles. Sources of protein include nuts, seeds, beans, lentils, soy, eggs, fish, chicken, beef, and dairy products.

Grains supply the body with carbohydrates which give us energy to work, learn, and play. Whole grains provide the most benefit, supplying fiber, vitamins, minerals, and some protein as well as carbohydrates. The grains category includes rice, oats, quinoa, corn, wheat, bread, tortillas, pasta, crackers, and potatoes (though they are not grains, their nutrient profile places them in this category).

Fat allows the brain to function, provides energy, and is a source of essential fatty acids (EFAs), which the body can't produce by itself. EFAs are necessary for metabolism, which involves the break down and use of energy needed to sustain life (for example, for the processes of digestion and respiration). Sources of fats include olive, grapeseed or other vegetable oils, avocado, nuts, seeds, fish, other meats and dairy products. In general, plant fats are more beneficial than animal fats.

Why eat these foods together at each meal or snack? Eating a snack or meal that includes fruits and/or vegetables, grains, protein, and fat together ensures long-lasting energy and steady blood sugar (as opposed to the high and crash of an all-carbohydrate meal or snack). After eating this kind of meal, we feel full longer and are able to work, learn, and play at our best. Including all of these categories each time we eat also ensures that we get the full array of nutrients our body needs for daily functioning and life-long good health.

Materials

Felt board Power Plate (or other large Power Plate display; this can even be drawn on a white board)
Felt food props (or pictures of food cut out of magazines)
White paper, one sheet for each student
Geometry compasses (optional)
Colored pencils/crayons
Model wooden or plastic foods (or pictures of food cut out of magazines)

Class Discussion

Ask your students: What does a healthy meal look like? Which nutritional categories do we need on our plate to make a healthy meal? The Power Plate, which has four nutritional categories (fruits and vegetables, protein, grains, and fat) is one way to make a balanced meal.

Activity

Show students the Power Plate felt board. Ask students to read aloud the name of each nutritional category, and notice how much of the plate each category covers. Ask students what types of foods fit into each category, and about the importance of each category. What do fruits and vegetables do for our bodies? What does protein do? What do grains do? Why do our bodies need fat? Why is it important to eat these foods together? After establishing the importance of each part of the Power Plate, have the class sort felt food props onto the appropriate sections of the felt board Power Plate. Some foods, such as rice, fit neatly into one category; other foods, such as avocado, overlap two categories. Once the display Power Plate is filled, ask students to brainstorm other foods that could fulfill each nutritional category and contribute to a nutrient-rich, balanced diet.

Next, give each student a piece of paper, and ask each student to create his or her own Power Plate, including labeling the four nutritional categories (students can use compasses to draw a 7" circle, and fill in the rest of the plate by hand). Then bring out food models and explain that students can choose foods from each category to "serve" themselves. Have each student fill his or her own Power Plate with model foods to make a balanced meal. Working in small groups, students can discuss their choices and make any adjustments needed to make their meals truly balanced and nutritious. After they are satisfied, students can draw or write the foods they have chosen onto their personalized Power Plate.

Wrap Up

After the students have created their balanced meals, allow time for students to share about the meals they have created, as a class. Then ask them to apply what they have learned to some food questions you have; you can even comically pretend that you are confused and are asking your students for advice. "I like to eat an apple for a snack, but an hour later I am really hungry again! How can I make this a better snack that will keep me full longer?" or "My aunt says she likes her meat and potatoes. What's missing from her favorite meal?" or "I usually have toast for breakfast. How can I make my breakfast more balanced?"

Digging Deeper

After sharing their individual meals, students can create more meals and snacks based on different sets of circumstances. For example, what would be a good balanced snack for after school? What would be a good meal for someone who worked hard on a farm, or ran in a race (larger portions of all categories)? For someone who mostly read books all day (smaller portions of all categories)? For a breakfast on the go? For a lunch that doesn't need to be kept refrigerated?

Challenge students to create a balanced meal from seasonal foods, or from foods their family enjoys.

Eat A Rainbow

(Garden Classroom Activity)

Description

Students go on a scavenger hunt to find fruits and/or vegetables of every color of the rainbow, then discuss how each color of fruits and vegetables specifically helps the body. They create a life-sized drawing of the human body depicting these benefits, then brainstorm ways to include a variety of colorful fruits and vegetables in their diets.

Objective

To introduce the idea that eating a rainbow of colorful fruits and vegetables maintains a healthy body.

Teacher Background

All fruits and vegetables have different combinations of vitamins and minerals. In addition, fruits and vegetables contain phytonutrients, which give fruits and vegetables their colors and play a wide range of roles in keeping our bodies healthy. Because differently colored fruits and vegetables have unique concentrations of nutrients, eating a rainbow of fruits and vegetables directly supports our good health.

How does each color of fruits and vegetables help our bodies?

Red: Promotes heart health, increases memory function (strawberries, tomatoes, bell pepper, cherries, beets, raspberries)

Orange/Yellow: Helps vision, strengthens immune system (oranges, sweet potato, pumpkin/squash, carrots, corn, squash, bell pepper, mango, lemon, apples)

Brown/White/Tan: Promotes heart health, strengthens immune system (cauliflower, onions, garlic, bananas, white corn, potatoes)

Green: Strengthens bones and teeth, helps vision, keeps digestive system healthy (cucumber, kale, lettuce, spinach, collards, chard)

Blue/Purple: Promotes healthy aging, increases memory function (blueberries, eggplant, red cabbage)

Materials

Rainbow Color cards (master on page 23).

Butcher paper

Markers representing each rainbow color, plus brown and black

Fresh Fruit and Vegetable Photo Cards (optional, available from the California Department of Education Nutrition Services Division)

Class Discussion

Ask your students: What are all of the colors of the rainbow? What are some fruits and vegetables that you eat which represent each of those different colors? Just as each color of the rainbow is beautiful in different ways, each color of fruit or vegetable supplies the body with different nutrients in order to keep it healthy in different ways!

Activity

Lead your students on a scavenger hunt to find all of the colors of the rainbow growing in the garden. Give each group of 2-3 students one of the Rainbow Color Cards which identify the specific ways that each color of fruit or vegetable helps to maintain a healthy body. Then ask students to explore the garden in their groups, and let them know that when a group finds a plant that they think is edible and is the color on their card, they should point it out to the you. You can help with identification and, if possible, help the students harvest and enjoy a taste of the plant. After the students have found and possibly tasted a rainbow of edible plants, gather the students back together.

Now that students have identified vegetables and/or fruits of each color in the garden, ask for a volunteer to lie down on a large piece of butcher paper, and outline the student's body in black. Once the outline is finished, the volunteer rejoins his or her group. Then ask each group to share what they found in the garden and the information from their card identifying how their color helps build a healthy body. While each group is sharing, draw on the outline a representation of what that color does for the body, using the corresponding marker color. For example, students in the Red Color Group might report that they found beets in the garden and that red fruits and veggies maintain a healthy heart. You would then draw a heart on the body outline with a red marker and ask students to elaborate on what a healthy heart can do for the body. Each of their answers can be represented on the body outline with the same color; for example, if a student says that a healthy heart pumps blood through the body, you can draw a few blood vessels in red, reaching to the extremities. After the group has discussed all the colors of the rainbow the body will be filled in with a rainbow of drawings representing how a healthy body functions.

Wrap Up

Discuss with your students ideas for eating a variety of colorful fruits and vegetables. How many colors could they fit into a sandwich? A salad or fruit salad? What fruit could turn their oatmeal purple? What are some ideas for a colorful dinner?

Digging Deeper

Your students can use Fresh Fruit and Vegetable Photo Cards to further explore the huge variety of fruits and vegetables of each color. After creating and filling in your outline of the human body, pass out the fruit and vegetable cards to your students and let them take turns placing the cards onto the outline over the drawing representing the benefit of that color; for instance, the carrot card would go on top of the orange drawing of the eyes. You will end up with the drawing completely covered in cards, and the students' eyes opened to the many options they have for a colorful diet.



Stone Soup

(Garden Classroom Activity)

Description

Collectively students harvest, prepare and enjoy a pot of vegetable soup.

Objective

Students experience and enjoy the process of creating a nutritious meal from vegetables growing in the garden.

Teacher Background

Making soup is a simple and tasty way to prepare your school garden's vegetables in the classroom. Soup makes good use of winter vegetables, and nothing tastes better on a cold day!

Materials

- 20-25 cups veggie broth
- 16-20 cups winter vegetables, such as chard, kale, winter squash, carrots, broccoli, spinach, beets, beet greens, kohlrabi, celery, etc., chopped or cubed (pre-bake the winter squash; see Preparation for instructions)
- 1-2 onions, any color, chopped
- 3 cloves of garlic (or adjust to taste), minced
- 2 Tablespoons olive or grapeseed oil
- 2 Tablespoons dried thyme (or fresh herbs from garden, such as sage & oregano)
- 2 cups dried lentils
- Salt and pepper to taste
- Stove or hot plate
- 2-3 colanders
- Extra large soup pot
- Harvesting basket
- Measuring spoons, measuring cup
- Wooden spoons
- Spoons for taste-testing
- Stone Soup* by Marcia Brown (optional)
- 10 cutting boards
- 10 sharp knives
- Bowl and spoon for each student for eating soup

Preparation

Note which, if any, vegetables are ready for harvest in your school garden and purchase other ingredients if needed. Plan ahead to divide the class into three groups, with each group harvesting (optional) and preparing a different set of vegetables. One group at a time will work on the soup while the other groups work on other projects. The first group will prepare the vegetables that need to cook longest, the second group will prepare veggies that cook for a medium amount of time, and the third group will work with quick cooking veggies.

Pre-bake the winter squash so that it is ready to scoop into the soup. This can be done the night before, or up to 3 days ahead of time. Preheat the oven to 350 degrees fahrenheit. Spray a baking pan with cooking

spray, or spread a thin layer of vegetable oil in the pan. Cut each squash in half, scoop out the seeds and stringy stuff, poke the skin a few times with a fork, and place cut edges down in the baking pan. Bake for 30 to 45 minutes, until soft when tested with a fork (it should feel about like a baked potato when it's done). Let cool and refrigerate until ready to make the soup.

About a half hour before the Stone Soup lesson, have an aid or parent volunteer prepare the soup base. Ask him or her to:

Chop the onions.

Place a soup pot over medium heat and add the oil.

Sauté the chopped onions and garlic until the onions are clear, stirring often.

Add the broth and put the lid on. Leave heat on low.

Class Discussion

If using produce from the garden, review with students what they planted and go over expectations in the garden (keep feet on path, don't pick anything until asked to do so).

Activity

1. Divide class into 3 groups. Let students know that each group will spend about a half hour on the soup while the other two groups work on other tasks.
2. If harvesting vegetables from the garden, either bring the entire class to the garden to harvest everything at once, or bring one group at a time to harvest just before preparing their vegetables. The first group should prepare and add the longest-cooking vegetables, such as potatoes, beets, and carrots. They should also add the lentils. The second group should prepare and add vegetables that cook for a medium amount of time, such as chard, collards, kale, or broccoli. The last group should add items that don't need to cook for long, such as fresh herbs, spinach, and pre-baked winter squash.
3. Ask each group to wash their hands and their vegetables before going to the food preparation area.
4. When each group arrives at the food preparation area, before passing out knives, discuss with the group how to use a knife safely (cut slowly, always watch when you're cutting, keep fingers away from the knife). Demonstrate holding a vegetable with a claw-shaped hand while cutting. After passing out knives and getting the students started, watch carefully to make sure they understand. Encourage students to cut vegetables into pieces that fit into a soup spoon. When you leave the food preparation area between groups, collect all knives and put them away. Your last group may not need to use knives at all; they can tear up herbs or spinach, and scoop the winter squash out of its skin in bite-sized pieces using spoons.
5. The soup should be at a low boil or simmer the whole time, not a rolling boil. Turn the heat to medium when the first group arrives at the food preparation area. When vegetables are added the soup will return to a simmer in a couple minutes without any adjustment to the heat. Let each group look at the soup before and after they add their vegetables. Do they recognize the other ingredients? Which colors of the rainbow are present in the soup? What could be added to complete the rainbow?
6. Test a few vegetables by piercing with a fork. If it's easy to poke them, the soup is done! Turn off the heat and let the soup cool to serving temperature.
7. Let students taste the soup; add salt and pepper if needed.
8. Serve and enjoy!

Wrap Up

What do you think of the soup? Can you taste or see the vegetables your group added to the soup? Did anyone taste anything new today?

Where would this soup fit on our Power Plates? Does it cover more than one category? How could we make a balanced meal including our soup?

Digging Deeper

Read *Stone Soup* by Marcia Brown.



Water You Made Of?

(Post-visit Activity)

Description

Students use experiments to demonstrate the significance of water in maintaining a healthy body.

Objective

To introduce water as a nutrient, and learn about its functions and importance.

Materials

One teaspoon salt
Cotton
Rubbing alcohol
Water
One clear drinking glass



Class Discussion

Water is the basic ingredient of the body's transportation system, the bloodstream. It carries nutrients to the cells and carries wastes from the cells. Water also helps to regulate body temperature. When we exercise strenuously or if it's hot outside, body temperature increases. When we sweat, the evaporating water cools our bodies and prevents overheating. Two-thirds of our body weight is water! If you weigh 90 pounds (41 kg), 60 pounds (27kg) is water. Water is in our cells, in our blood, and around our cells, so it is important for us to eat and drink foods that contain water. Water is found in all the food we eat. Especially good sources of water are fruits and vegetables, juices, milk, and of course, water.

Activity

1. To demonstrate how nutrients are dissolved in water, put a teaspoon of salt in the bottom of a glass. Have students observe what happens to the salt. (It stays on the bottom.) Ask them to predict what will happen when water is added. Add water to the salt and stir. Have students observe what happens to the salt. (It dissolves in the water.) Explain that in the same manner, nutrients dissolve in our blood and are carried throughout our bodies.
2. To demonstrate the cooling effect of water evaporating from our bodies, have students rub a little alcohol on their arms with a piece of cotton. How does it feel? (Cooler than the rest of the arm because the alcohol is evaporating- the same effect as sweat.)

Wrap Up

Why is water so important to your body? What would happen if you did not sweat? How do animals that do not sweat cool themselves? (Dogs pant, which lets water evaporate off their tongues. Snakes and lizards seek shade in really hot weather. Birds spread their wings.) What does the water in your bloodstream transport? How do plants use water? Are plants' water needs similar to our water needs?

Six Plant Parts

(Post-visit Activity)

Description

Students identify each of the six plant parts (roots, stems, leaves, flowers, fruits, and seeds) during a presentation in which one student volunteer is dressed up, part by part, in a plant costume. As each new part is added, students are introduced to the function of that plant part, and then they share edible examples. Finally, students participate in Plant Part Aerobics as they sing “Roots, Stems, Leaves” by the Banana Slug String Band.

Objective

To develop an understanding of the function of each plant part, as well as examples of foods we eat from each plant part.

Teacher Background

We can find edible examples of each of the six parts of plants. The part that seems to raise the most confusion, however, is the fruit. In culinary terms, we define sweet crops as fruits; in botanical terms, however, the fruit is the part of the plant that contains the seeds. This means that, botanically speaking, cucumbers, zucchinis, green beans, and tomatoes are all fruits. Knowing this different definition can help your students when they are classifying plant parts.

Materials

Six Plant Part costume, which includes:

- Old mop head or ball of brown yarn, made into a messy tangle
- Green sheet, coat, or robe
- Two large leaves cut out of green poster board
- Large fake flower with stem
- Piece of fruit, real or fake

Preparation

Learn the chorus of Roots, Stems, Leaves, or make up your own tune for singing the six plant parts (lyrics and song download available at <http://bananaslugs.bandcamp.com/track/roots-stems-leaves>)

Activity

1. Ask for one volunteer who will get dressed up as a plant. Bring the volunteer to the front of the class.
2. Give the students clues about the first plant part you will place on your volunteer. I’m going to start by adding the part of the plant that grows underground. This plant part soaks up water and nutrients from the soil and holds the plant in place when the wind blows. Use your hands to wave your plant from left to right. Raise your hand if you think you know which plant part I’m talking about. Call on a volunteer to answer: Roots!
3. Place the old mop head or brown yarn on the feet of your volunteer. These are the plant’s roots.
4. Now brainstorm some edible roots. Great. Now we know what the roots do for the plant. But roots are good for us too. Who can think of a root that we eat? (Carrots, radishes, beets, etc.) Call on volunteers to share answers.

5. Continue in this fashion for each plant part, giving students clues until they guess the part, then adding that piece of the costume on your volunteer, and finally brainstorming examples that we eat.

Plant Part	Function	Edible Examples
Roots (Mop head or yarn)	Hold the plant in place; Gather water and nutrients from the soil	Carrots, beets, radishes
Stems (green robe)	“The elevator of the plant;” carries water up from the roots and sugar down from the leaves	Asparagus, broccoli stems, sugar cane
Leaves (poster board cut-outs, one for each hand)	Collect sunlight and turn it into sugar and energy	Lettuce, kale, chard, spinach
Flowers (place fake flower behind student’s ear)	Attract pollinators and make fruit and seeds	Broccoli, cauliflower, artichoke, nasturtiums
Fruits (give student fruit to hold)	Protect and carry the seeds safely to their destination (often in the belly of an animal!)	Apples, oranges, tomatoes, cucumbers, squash, green beans, peppers
Seeds (point out that these are inside the fruit)	Hold baby plants for the next growing season	Sunflower seeds, rice, wheat, beans, nuts

Wrap Up

Once your volunteer is all dressed up, thank him or her with a round of applause. Then teach your class the chorus of “Roots, Stems, Leaves” by the Banana Slug String Band. You can turn this into Plant Part Aerobics, similar to “Heads, shoulders, knees and toes,” by having students create a movement for each plant part (i.e. touch their toes when they say roots) whenever it is mentioned in the song. Sing it slowly at first and then speed up as students become adept with the movements.

Digging Deeper

Ask the students to look in their refrigerators and pantries at home for examples of each plant part. Ask them to share results the following day in class.



Six Plant Part Salad Bar

(Post-visit Activity)

Description

Students review what they have learned about plant parts. Next, students prepare a Plant Parts Salad Bar and invite another group of students to share the salad with them. Students design labels for each plant part and include a brief description of the function of each plant part.

Objective

Students experience and enjoy harvesting, preparing, and eating a salad including the six plant parts.

Teacher Background

See Background Information for Six Plant Parts lesson.

Materials

- 5 large bowls or colanders
- 5 cutting boards
- 5 knives
- 1 cup each of edible roots, stems, flowers, fruits, and seeds (see 6 Plant Part lesson for examples)
- 2 large heads of lettuce
- 1 jar of salad dressing
- 1 plate and fork for each student
- Clean up supplies (sink, dish soap, sponge, towels)

Preparation

1. Take a walk around your school garden and note which plant parts you have ready to harvest. Refer to the Six Plant Parts Lesson for examples. If you're missing anything, supplement with produce from a farmers' market or grocery store.

Note: For seeds, you can use tomatoes, zucchini, green beans, or the like and point out that, when students eat that food, they are eating fruits and seeds. Or, to add protein and healthy fats to your salad, use sunflower seeds.

2. Prepare 5 cooking stations, each with a cutting board and a large bowl or colander (you'll hand out knives later).

Activity

1. Demonstrate and review thorough hand washing and safe knife handling with your students (cut slowly, always watch when you're cutting, keep fingers away from the knife). Demonstrate holding a vegetable with a claw-shaped hand while cutting.

2. Divide the class into five teams: roots, stems, leaves, flowers, and fruits/seeds. Have each team bring their bowl or colander out to the garden and guide them in harvesting their plant part.

3. Return to your cooking stations and have each team wash their hands and their produce. Monitor to ensure thoroughness.
4. Once teams are at their stations with clean hands and produce, hand out a knife to each group. Ask students to take turns chopping their vegetables into a size that would work in a salad. Ask the Leaf Team to wash and tear or chop the lettuce and place in a large bowl. Then dress the lettuce yourself and have the Leaf Team toss it.
5. Once all vegetables are prepared, have students clean their cooking materials and then return to their stations to create labels for their dish. Labels should include the name of their fruit or vegetable, which plant part it is, and a picture illustrating the function of that plant part (i.e. a root holding a plant in the ground or a flower attracting a pollinator).
6. Have students place each of the bowls on one long table with the labels in front.
7. Hand out plates and forks and allow students to build their own Six Plant Part Salads, piling lettuce onto their plates and topping with pieces of roots, stems, flowers, fruits and seeds from the salad bar they have just created.

Wrap Up

What is your favorite vegetable? What plant part is it? What is your favorite root, stem, leaf, flower, fruit, and seed?

Digging Deeper

Ask students to describe a recent meal in terms of plant parts. For example, a peanut butter and jelly sandwich would be ground and baked seeds (bread), spread with ground seeds (peanut butter) and crushed fruit (jelly).

Plant a 6 Plant Parts Bed.

Celebrating Family Traditions

(Post-visit Activity)

Description

Students plan a celebration of family food traditions using fresh foods from the garden. They take home a blank recipe “card” and record a favorite family recipe that features a food from their school garden or some other seasonal fruit or vegetable, to share with the class. Students design invitations and plan a menu.

Objective

Students gain an awareness of their own and others’ family food traditions, and an appreciation of new ways of eating fruits and vegetables.

Teacher Background

This lesson celebrates family tradition and starts a class tradition — celebrating the school garden by using fresh fruit and vegetables for a class potluck that features family recipes. The lesson culminates with a class family feast.

This activity can be as simple or as grand as you want it to be. What you do will depend on how many volunteers you can recruit, how much time you have, and what you have growing in the garden. Whatever you choose to do, make the atmosphere celebratory. This is your students’ chance to celebrate family recipes and a new class tradition. Involve students in the preparation as well as the celebration. Have students make table decorations, write invitations, design the menu, and help prepare the food.

Materials

Recipe card master (p. 24)
Construction paper for book covers
Food ingredients for the meal, including fresh foods from the garden
Cooking and serving utensils
Table decorations
Plates and eating utensils
Napkins
Compost bucket to collect scraps

Preparation

1. Make at least one copy of the blank recipe card for each student.
2. Post sign-up sheet for parent volunteers.
3. Take a quick walk through the garden and make note of the fruits and vegetables that are ready to harvest.
4. Make a schedule to prepare for the class celebration.
5. Gather materials.

Class Discussion

Conduct a whole class discussion about traditions. What is a tradition? What are some examples of family traditions? Do we all share the same family traditions? Do you think that special meals are a tradition? Can you think of any holiday meals that might be traditional? Make sure students understand that all families have different traditions that are handed down from one generation to another. Check to make sure students understand that it's important to respect the differences in family traditions.

Tell students that the class is going to start a class tradition. Explain that for homework, each student will bring in a favorite family recipe that uses at least one of the fruits or vegetables they are growing in the school garden. Invite student volunteers to describe a favorite family recipe that includes fruit or vegetables. Explain that the class is going to make a class book that includes their recipes. They will leave one copy of the book in the classroom for the next year's students to enjoy.

Activity

1. Make a list of the fruits and vegetables that are available in the garden. You may wish to supplement the list with other local, seasonal produce. Have students copy the list to take home with the recipe card. Distribute the recipe cards. Invite students to illustrate the recipe, but tell them that it is not required.
2. As a class, decide on your guest list. You may wish to include parents, a buddy class, the principal, custodian, or other school staff members.
3. Ask students to tell about ways they help get ready for celebrations in their homes. Discuss invitations and decorations. Plan the menu. Divide students into interest groups or committees to manage the various jobs more easily. Give groups time to work on their tasks. If possible, have an adult helper work with each group to help students complete their tasks. After students have completed the work, give them time to present their completed invitation, menu, clean-up plan, and so forth.
4. Next, invite the class to share ideas about polite behavior and table manners. Make a list on the board. Be sure to include: wait until everyone is served before you start to eat; don't talk while chewing; don't interrupt while others are talking; remember to say "please" and "thank you;" ask someone to pass the food rather than reaching in front of others. Discuss how they will greet their guests, and what they should say if they don't like something (keeping in mind that they are tasting other families' traditional dishes).
5. On the day of the event, assemble adult volunteers. Have them work in small groups with students to prepare the meal, set the table, make the table decorations, clean up, and so forth.
6. Have students greet guests as they arrive and seat them. Let the feast begin!
7. After the celebration, allow plenty of time for clean-up. Remind students to separate materials that can be composted, recycled, or reused.

Wrap Up

After the event is over, invite students to discuss their class tradition. What are we passing on to the next year's class? Is sending invitations part of our class tradition? Is eating fresh fruits and vegetables part of the tradition? Is there anything you would like to tell them about our class tradition?

Assemble the class recipe book. Collect all the recipes and make enough copies so each student will have a recipe book and one extra to leave for the next year's incoming class. Have students use construction paper for book covers.

Digging Deeper

Have students research food traditions in other lands.

Red

helps your heart
and your memory.

Orange

and yellow

help your
vision and your
immune system.

Green

helps your bones
& teeth, and your
digestive system.

Blue and

purple

help your
memory.

Brown, white

and tan

help your
immune system
and your heart.

Recipe: _____

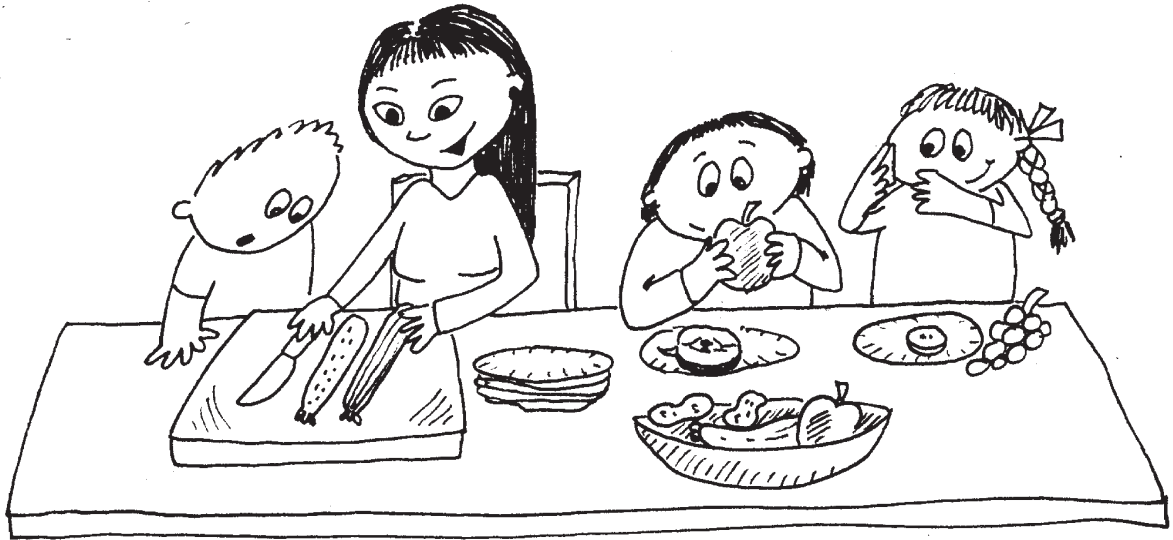
From the kitchen of: _____

Makes _____ **servings**

Ingredients:

Directions:

Sample Knife Safety Rules



- **Give yourself space**
- **Claw and saw**
- **Cut round things in half and then place the flat edge down**
- **Always leave knives at the table**
- **Stay focused**