



# Lesson #6 Rainbow of Color

## MATERIALS

### **PROPS:**

- Apple corer
- Recyclable bag
- Hand Sanitizer
- Cleaning wipes

### **DISPOSABLES:**

- Poly food prep gloves (latex-free) (24)
- Plastic knives (10)
- Plastic forks (1/student)
- Paper food trays (1/student)
- Garbage bag (1)
- Two 2-gallon plastic bags
- Paper towels (10 sheets)
- Paper plates (10)
- Salad Ingredients: spinach, shredded carrots, apples, yellow raisins, sunflower seeds, dried cherries, cranberries or blueberries, red pepper, lemon
- 2 disposable cups w/

## LESSON PREP

- Write vocabulary words on board
- Write vitamin and mineral chart on board
- Review Nutrition 101 (in binder)
- Use the wipes to clean all surfaces used for salad

## LESSON OUTLINE

1. **Warm-Up/Reflect** (2 min.)
2. **MyPlate Review Discussion** (5 min.)
3. **Vitamins & Minerals Chart Activity** (7 min.)
4. **Rainbow of Color Salad Activity** (12 min.)
5. **Wrap-Up** (1 min.)

## VOCABULARY

vitamin, mineral, iron, phytochemical, locavore

## **PHS OVERARCHING ESSENTIAL QUESTIONS**

- *What does it mean to eat healthfully and be physically active, and why is it important?*
- *How do culture, experience and environment affect one's health?*
- *What goals do I have to improve my health?*

## GUIDING QUESTIONS AND CONCEPTS

1. It is important to eat a variety of fruits and vegetables for maximum health.
  - What specific health benefits do I receive from fruits and vegetables?
2. There are creative and tasty ways to include fruits and vegetables at every meal.
  - How can I include more fruits and vegetables into my daily diet?

## LESSON GOALS

Students will be able to...

1. Understand that a variety of fruits and vegetables provide health benefits.
2. Understand that fruits and vegetables provide vitamins and minerals.
3. Define phytochemical and locavore.



# Lesson #6 Rainbow of Color

## LESSON RATIONALE AND PURPOSE

In this lesson, students will learn why fruits and vegetables are important for their bodies and why it is important to include a variety of produce in their diets. Students will decode difficult vocabulary words like phytochemical and locavore using Greek and Latin affixes and roots as clues. The lesson culminates with a cooking demonstration to show students how they might create their own nutrient-dense meals that feature fruits and vegetables.

## COMMON CORE STANDARDS ADDRESSED

CCSS.ELA-Literacy.L.6.4b Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *audience*, *auditory*, *audible*).

### BACKGROUND INFORMATION

Most Americans do not receive the daily suggested amount of fruits and vegetables, and need assistance finding creative ways to include the proper amount into their diet. According to the recommendations from the USDA, middle school aged youth should eat 1.5 cups of fruit and 2.5 cups of vegetables each day. This means that half of MyPlate should be made up of fruits and vegetables. This lesson encourages youth to eat many different colors of fruits and vegetables in order to ensure that they receive the full range of essential vitamins and minerals. It is important to demonstrate that eating fruits and vegetables can be easy, fun, and delicious.

### RESOURCES

1. Choose MyPlate  
[www.choosemyplate.gov/](http://www.choosemyplate.gov/)
2. Fruits & Veggies– More Matters  
[www.fruitsandveggiesmorematters.org](http://www.fruitsandveggiesmorematters.org)
3. Harvest of the Month  
[www.harvestofthemonth.com](http://www.harvestofthemonth.com)
4. Nutrition 101

### LESSON EXTENSIONS

Available at the end of the lesson:

1. **Vitamin Chain** Activity (15 min.)
2. **Rainbow of Color** Discussion (5 min.)
3. **Vitamin Discussion** Discussion (5 min.)



# Lesson #6 Rainbow of Color

## LESSON OUTLINE

### **WARM-UP/REFLECT** (2 min.)

- Welcome! Who can tell me what we learned during our last PHS lesson?
  - Answer: The heart is a muscle that we can make stronger through exercise to keep us healthy; heart rate measures how fast our heart beats; the faster our heart beats the stronger we make our heart; get 60 minutes of activity per day; heart rate is a measurement of aerobic activity.
- Let's get refreshed and our hearts pumping with a brain break! *Lead the class in 30 seconds of one of the following movements or ask a student to lead* (jump up and down; jumping jacks; shoot baskets in-place; run in-place; swing a bat; do squats).
- Everyone have a seat and let's get started!

### **MYPLATE REVIEW** Discussion (5 min.)

CCSS.ELA-Literacy.L.6.4b

- Think back to our discussion a few lessons ago about MyPlate. How much of MyPlate is fruits and vegetables?
  - Answer: Half of the food you eat in a day should be fruits and vegetables.
- Why is it important to eat fruits and vegetables?
  - Answer: good for our body, they contain vitamins and minerals, make us strong, give us nutrients
- Who has heard of vitamins and minerals?

**Vitamins and Minerals:** substances that our body needs in order to function, that it cannot make and we have to get from our environment.

- Vitamin C is an example of a vitamin that many of you may have heard of before.
- Raise your hand if you have ever heard of phytochemicals.
- Let's try to figure out what the word means by breaking it down. Does anyone recognize a part of the word phytochemical that might help us figure out what it means?



# Lesson #6 Rainbow of Color

## LESSON OUTLINE

*Students will most likely answer “chemical”—circle the word chemical.*

- Does anyone know what the prefix phyto means? *Wait for student response.* Phyto is a Greek word that means plant. So if I put the two words together what do I get?
  - Answer: Plant chemicals

**Phytochemicals:** little chemical substances found in plants that help protect our bodies from disease. There are thousands of different phytochemicals, and the only way to get them is by eating a variety of fruits, vegetables, and whole grains.

- One piece of fruit may contain up to 900 different phytochemicals. In order to get all the thousands of phytochemicals we need, we have to choose a variety of different fruits and vegetables.
- The brighter the color, and fresher the produce, the more phytochemicals.

### **VITAMINS AND MINERALS CHART** *Activity (7 min.)*

*In this section you will complete the chart with students, and help them to understand the health benefits of the different fruits and vegetables they will be trying in the next section. Write out chart prior to lesson starting with all words in bold filled in. For additional information on vitamins and minerals, please see Nutrition 101 located in your binder.*

- What fruit or vegetable provides us with Vitamin C?
  - *Students may respond with oranges.*
  - Answer: Oranges are a great example; red bell peppers are also a great source of Vitamin C. Other sources of Vitamin C include: berries, kale, broccoli, cantaloupe, tomatoes, peas, and collards .

*Fill in red bell peppers on chart.*

- What does Vitamin C do for our body?
  - Answer: Helps heal wounds.

*Fill in helps heal wounds on chart.*

- Can anyone tell us what carrots do for your body?
  - Answer: Helps us see.



# Lesson #6 Rainbow of Color

## LESSON OUTLINE

Fruit or Vegetable	Vitamin or Mineral	Health Benefit
<i>Red Bell Peppers</i>	<b>Vitamin C</b>	<i>Helps heal wounds</i>
<b>Carrots</b>	<i>Vitamin A</i>	<i>Helps you see</i>
<i>Spinach</i>	<b>Iron</b>	<b>Makes you strong</b>

*Fill in helps you see on chart.*

- What vitamin is in carrots that helps us see?
  - Answer: Vitamin A
  - Other foods rich in vitamin A include leafy greens, sweet potatoes, asparagus, peaches, broccoli, apricots, and garlic.

*Fill in vitamin A on chart.*

- Does anyone know a fruit or vegetable that provides our body with the mineral iron and makes us strong? (Hint: If students don't come up with spinach, ask them to think about Popeye.)
  - Answer: Spinach, other foods rich in iron include: string beans, collards, broccoli, strawberries, watermelon, prunes, figs, raisins, and artichokes.

**Iron:** a mineral that helps to carry oxygen through the body

*Fill in spinach on chart.*

- As this chart shows, we have 3 different fruits or vegetables, vitamins and minerals, and health benefits. The important thing to remember is that variety is key. The more variety in our fruit and vegetable choices, the more vitamins, minerals, and health benefits we are getting. Each color includes its unique combination of vitamins and minerals. Red, orange, and dark leafy green vegetables are among the most vitamin and mineral rich foods available.
- Now we are going to use these three fruits and vegetables, in addition to others, to create a rainbow super salad.

**RAINBOW OF COLOR SALAD** Activity (12 min.)

CCSS.ELA-Literacy.L.6.4b

*(Materials: salad ingredients, plastic gloves, cleansing wipes, plastic knives, paper towels, paper food trays, forks, apple corer, paper plates, two 2-gallon bags (for mixing the salad), 2 small disposable cups with honey and oil, hand sanitizer)*



## Lesson #6 Rainbow of Color

### LESSON OUTLINE

- Does anyone have any food allergies? The items in today's salad include: spinach, shredded carrots, apples, yellow raisins, sunflower seeds, dried cherries, cranberries or blueberries, red pepper, honey, lemon, olive oil. *If anyone has any allergies to an ingredient, remove a serving of salad from the bag without specified ingredient before adding remaining ingredient(s).*

*Pass around bottle of hand sanitizer so that all students clean their hands. Use the cleansing wipes to clean all surfaces used for salad preparation and eating.*

*Ask for student volunteers. The goal is to involve all students. Use the two 2-gallon bags for easy mixing; you will have 2 complete bags of salad when you finish. Each item should be added to the bags separately so students can visually see all the colors of the rainbow being added into the salad.*

*Suggested ways to divide the salad preparation:*

- **Cutting the apple and red pepper** (4-6 students): *Have students who are handling the apple and red pepper wear plastic gloves. They should use paper plates as cutting boards and dice the items into small (1cm x 1 cm) pieces. The instructor should save 1 pair of gloves to serve salad.*
- **Adding spinach** (2 students): *Open spinach and add 1/2 spinach to each of the two 2 – gallon bags.*
- **Adding other ingredients** (5-10 students): *Divide additional ingredients evenly and add 1/2 of each to the two bags of salad. Include the dried cherries,/cranberries/blueberries, sunflower seeds, shredded carrots, and yellow raisins.*
- **Preparing the dressing** (2-6 students): *Squeeze lemon into each of the containers with oil and honey; cover and shake to mix or use a fork to stir. Pour 1 dressing container into each of the two bags of salad.*
- **Mixing** (2-4 students): *Seal each bag tightly and shake to mix all the ingredients together.*
- **Setting out trays and forks** (2-4 students): *Students may set out the paper trays and forks on a central table or to pass out to the class.*



# Lesson #6 Rainbow of Color

## LESSON OUTLINE

Use a gloved hand to distribute salad into bowls and pass out to students with forks for taste testing. Instruct them to wait to try it until everyone has a tray.

- Please give the rainbow super salad a try. You don't have to eat it all, but at least taste it. Please do not comment on the salad right now. I will ask you to vote on the taste at the end of the lesson.

While students are eating the salad, ask some of the following questions:

- Raise your hand if you eat a fruit or vegetable at breakfast, lunch or dinner.
- What is your favorite fruit or vegetable?
- What are some creative ways to add fruits or vegetables to your meals?
  - Examples: smoothies, vegetable stir fries, kabobs
- Raise your hand if you sampled a new fruit or vegetable today.
- Raise your hand if you have visited a farmer's market or have a garden at home.
- Why is it important to eat food that is in season or locally grown?
  - Answer: fuel costs, produce more fresh, supports local farmers
- Has anyone heard of the word "locavore" before?
- Just like we broke down the word phytochemical, let's try to figure out what locavore means. *Circle "loca" and "vore"*
- Let's start with "vore" what other words do you know that end in "vore?" Think back to your science class.
  - Answers: carnivore, herbivore, omnivore
- What do those words mean?
  - Answer: carnivore means animals that eat meat and herbivore means animals that eat plants.
- So what does vore mean then?
  - Answer: to eat



# Lesson #6 Rainbow of Color

## LESSON OUTLINE

- Now let's look at the prefix "loca." What word does it remind you of?
  - Answer: local (this also may remind students of other words like locomotive, location—ask them what these words mean and have in common)
- Tell students to put the two words together. What do they mean together?

**Locavore:** To eat food from a near-by location.

- Locavores try to eat food within a 100-mile radius of their homes.
- Why is it important to buy and eat locally grown food items?
  - Allow students to explore this topic as they clean up.

*Clean up. Scrape all leftovers in garbage or offer remaining salad to staff. If sink is available, wash and dry apple corer.*

*Take a "thumb poll" and ask students how they liked the rainbow super salad (up for liked it, sideways for kind of liked it, down for disliked it).*

### **WRAP-UP** (1 min.)

- What is something you learned today that you will take home and share with others?
  - Example: A variety of fruits and vegetables provide a health benefits; fruits and vegetables give us important vitamins and minerals; try new foods; importance of including a rainbow of color.
- Which PHS goal(s) relates to what we learned today? *Let students share what they learned and how it connects with any of the PHS goals.*
  - Example: "Eat more fruits and vegetables"
- Try to work on this goal(s) between now and the next lesson, where we will learn about eating a nutritious breakfast each day.



## Lesson #6 Rainbow of Color *Extensions*

### **VITAMIN CHAIN** Activity (15 min.)

*(Materials: vitamin chain pictures, pipe cleaners)*

*Divide students into groups of 4 and give them each 3 vitamin descriptions, a set of vitamin effect pictures, food pictures, and 9 pipe cleaners.*

- We need to eat a wide variety of fruits and vegetables to get the vitamins we need. In PHS we like to say Eat The Rainbow.
- In your groups you have 3 vitamin descriptions. Read the descriptions and match your vitamin to the foods it is found in and the effect it has on our bodies. Once you have decided which images your vitamins are related to, link them together using the pipe cleaners.
  - Note: The students will use the pipe cleaners to link the different pictures together. Each image and description has a hole on each side to thread a pipe cleaner through. Every chain should contain one description, one vitamin effect, one food picture and two pipe cleaners.

*Give students about 10 minutes to complete. Allow each group to share one of their chains with the class.*

### **RAINBOW OF COLOR** Discussion (5 min.)

*Write ROYGBV on the board.*

- Who can tell me a fruit or vegetable that is one of the different colors of the rainbow?
  - Answer: Red - red pepper, red apple, Orange - orange, carrot, etc.

*Try to get students to brainstorm a variety of different fruits and vegetables in all the different colors of the rainbow.*

### **VITAMIN DISCUSSION** Discussion (5 min.)

*Facilitate a discussion using the "Vitamin and Mineral Information Sheet" located in your binder about different vitamins and minerals and the health benefits each provides to us. It is important to highlight that we are able to get more vitamins and minerals, but including a variety of different fruits and vegetables because they each provide us with something different.*