



Growing a Rainbow of Healthy Foods

Grade Kindergarten

Standards

GPSS SKL1; SKL2
GPSH HEK1a; HEK2c
NGSS K-LS1.C; K-LS1.1

Time

2 45-minute sessions

Supplies

For the class

- Garden beds, amended soils
- Flowers from the garden or from home
- Fruits and vegetable seeds to plant and taste-test
- Book: “Planting a Rainbow” by Lois Ehlert
- Smartboard or internet connected computer and LCD projector
- Old magazines likely to have pictures of fruit (optional)

For each student

- Utensils and plate for taste-testing a rainbow of fruit (consider using non-plastic)
- Rainbow booklet (copy)

Garden Connection

Students will look for colored flowers and plant colored fruit or vegetables in the garden.

Overview

Students will listen to a book about colors of the rainbow in a garden, create rainbow fruit and vegetable booklets, and sing rainbow songs to remember the order of colors in a rainbow, search for different colored flowers. They will also discuss the fact that many of our foods come from plants, and that a healthy diet includes plants of different colors every day, because each plant or food brings us different nutrients. Students will plant, harvest and taste-test colorful fruits and vegetables.

Essential Question

How do I know whether I am eating healthy foods?

Engaging Students

Students will listen to a book, sing a rainbow song, and walk in the garden to search for different colors of flowers.

Exploration

Students will create a rainbow fruit and vegetable booklet, take apart flowers to decorate the booklet, plant colorful fruits and vegetables in the garden, harvest and taste-test them, and model the process of choosing to eat five differently colored fruits each day in an effort to consume a wide variety of nutrients from diet.

Explanation

Students should be able to name a fruit or vegetable for every color of the rainbow and articulate why it is healthy to eat a variety of colored foods.

Environmental Stewardship

In the process of growing colorful flowers, fruits and vegetables, students can create a garden that also attracts and provides habitat for pollinators and provides nutritious food for students.

Evaluation

A rubric is provided to assess student proficiency in this lesson.

Standards

Georgia Performance Standards in Science

Life Science

SKL1. Students will sort living organisms and non-living materials into groups by observable physical attributes.

- c. Group plants according to their observable features such as appearance, size, etc.

SKL2. Students will compare the similarities and differences in groups of organisms.

- b. Explain the similarities and differences in plants. (color, size, appearance, etc.)

Georgia Performance Standards in Health

HEK.1: Students will comprehend concepts related to health promotion and disease prevention to enhance health.

Description: Students will acquire basic personal health concepts that help maintain healthy behaviors and prevent disease. Kindergarten students will identify healthy behaviors.

Elements:

- a. Name healthy behaviors.

Examples: Identify healthy food choices

HEK.2: Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors.

Description: Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors. Kindergarten students will recognize and identify external factors that influence their personal health.

Elements:

- b. Identify what the school can do to support personal health practices.

Examples: Identify the kinds of healthy foods served by the school cafeteria.

Next Generation Science Standards

K.LS1.C: Organization for Matter and Energy Flow in Organisms

All animals need food in order to live and grow. They obtain their food from plants or from other animals.

K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.

Teacher Background Information

This article from *Today's Dietician* explains the rationale behind a multi-colored diet as a strategy for choosing foods with a variety of phytochemicals and nutrients: <http://www.todaysdietitian.com/newarchives/110308p34.shtml> Note that even researchers who caution against oversimplifying by identifying a particular phytochemical with a certain color fruit (because plants contain multiple phytochemicals, not just one predominant phytochemical that influences fruit or vegetable color, and phytochemicals such as flavonoids are colorless) agree that there is widespread support for the use of varied colors as a strategy for choosing foods with a variety of nutrients, which contributes to a healthy diet. Also, bland-colored foods (beige or white) are associated with starches, fats, sweets and processed foods with less nutrient value than colored foods. Selecting foods with a variety of colors to eat every day is a healthy habit but research has not yet shown the optimal proportion of each phytochemical. Kathy Hoy, EdD, RH, says in the referenced article, "Epidemiological research suggests that food patterns that include fruits and vegetables are associated with lower risk for some diseases, and a recent article suggested that more variety in fruit and vegetable intake was associated with a lower risk for (certain) cancers."

Teacher Preparation

Obtain materials – including plants and fruit - in advance. Send a letter home to parents asking for one fruit and one vegetable, if necessary.

PROCEDURES FOR LESSON ACTIVITIES

Day 1

Engagement

Read the book: Planting a Rainbow by Lois Ehlert. Show students the video: “The Colors of the Rainbow” song and repeat it several times, encouraging students to sing along to learn the rainbow colors in order: http://pbskids.org/video/?category=Sid+the+Science+Kid&pid=gC_BF6d0JCVH2nooD0rcBh6PVJxZOgST (Rainbow order can be remembered by the mnemonic ROY-G-BIV: Red Orange Yellow Green Blue Indigo Violet). The class will then visit the school garden to gather flowers, searching for as many colors as possible. Depending on what is blooming, it might be helpful to supplement schoolyard flowers by asking each student to bring in a flower from home.

Day 2

Exploration

- Create a rainbow fruit and veggie booklet using this free online template. Ask students to illustrate each page with a fruit or vegetable of the same color. Students could cut pictures from old magazines and glue them in the booklet, draw pictures, or print out images from the internet. <http://www.classroomfreebies.com/2013/03/easy-reader-lets-color-rainbow-booklet.html>
- Engage students in a discussion about different nutrients that edible plants offer, and note that plant colors sometimes indicate which particular nutrient is in a plant. To be healthy, we should eat as many different colors as we can each day, with a goal of five fruits or veggies, ideally each a different color.
- Challenge students to track foods they eat at lunch and note how many different fruits and veggies and how many colors, using the attached chart. Five servings of veggies, ideally of different colors, is ideal.
- Note that only natural colors count, and that sometimes food is artificially colored to make it more attractive. For instance, a green apple counts but a green candy does not. (Artificial colors are listed on the labels of processed food).

Explanation

Students will keep track of the number of colors of food they eat each day, and can explain that a variety of different colors (different fruits and vegetables) indicates that they are getting a variety of different nutrients. In general, the greater variety of nutrients, the healthier the eating habits. As a rule of thumb, students should eat five servings of fruits and vegetables a day, and if each is a different color that is even better.

Environmental Stewardship

Students can plant a rainbow flower or fruit and veggie garden. Growing a flower garden can benefit pollinators such as bees and birds, and restore native habitat. Flowers such as nasturtiums and pansies are also edible. Growing fruits and vegetables of different colors contributes healthy foods to the diets of students who taste-test them. For lists of fruits by color, check out this web site:

<http://www.nextlevelnutritionist.com/do-you-eat-according-to-the-rainbow-let-me-show-you-how/>

Evaluation

Students will be assessed in terms of their ability to distinguish natural from artificial colors (red apple vs red cupcake) and recognition that healthy eating includes fruits and vegetables of different colors.



Eating a Rainbow of Fruits and Vegetables

Name: _____

	Monday	Tuesday	Wednesday	Thursday	Friday
Red					
Orange					
Yellow					
Green					
Blue					
Indigo					
Violet					
Ate 5 fruits or veggies today?					
Ate 5 <i>different color</i> fruits veggies					



Assessment for Grow a Rainbow of Healthy Foods

Student Name(s): _____ Date: _____

<p style="text-align: center;">Level of Mastery</p> <p style="text-align: center;"> </p> <p style="text-align: center;">Benchmark or Performance Measure</p>	<p style="text-align: center;">  EMERGING Not yet proficient 1 point </p>	<p style="text-align: center;">  COMPETENT Partially proficient 4 points </p>	<p style="text-align: center;">  PROFICIENT Mastered task 5 points </p>	<p style="text-align: center;">TOTAL POINTS</p>
<p>Student can sing the rainbow song and identify all the colors of the rainbow (red, orange, yellow, green, blue, indigo, violet)</p>	<p>Student can sing some of song.</p>	<p>Student can sing some of song and name colors in song.</p>	<p>Student can sing song AND name colors of the rainbow in order, by remembering song without singing out loud.</p>	
<p>Student created a rainbow booklet and illustrated each color with an edible fruit, vegetable or flower of the same color.</p>	<p>Student created a booklet and completed most of the words and illustrations.</p>	<p>Student created a booklet and completed all of the words and illustrations, but cannot name all of the fruits and veggies in booklet.</p>	<p>Student created a booklet and completed all of the word and illustrations, and can name all of the fruits and veggies in booklet.</p>	
<p>Student helped plant, tend, and/or harvest vegetables and taste-test them.</p>	<p>Student helped plant, tend, and/or harvest vegetables and taste-test at least one.</p>	<p>Student helped plant, tend, and/or harvest vegetables and taste-test at least two.</p>	<p>.Student helped plant, tend, and/or harvest vegetables and taste-test at least three.</p>	
<p>Student tracks colors of fruits and veggies eaten in school lunch and during the day and aims for total of five colored vegetables, and preferably different colors, each day.</p>	<p>Student tracks fruits and veggies eaten.</p>	<p>Student tracks fruits and veggies eaten and consumes five fruit or veggie servings a day.</p>	<p>Student tracks fruits and veggies eaten and consumes five fruit or veggie servings a day, including five different colored fruits or veggies.</p>	