

Panoply of Peppers

Health/Nutrition/Life Skills



Overview

Students will be introduced, through a taste test, to a variety of raw, pickled, and cooked (if facilities are available) organic bell peppers (other varieties may be included) and the different ways to prepare and enjoy them. Students will explore peppers' nutritional value and easy, healthy methods of food preparation.

Goals

To introduce students to a variety of peppers and different ways to enjoy them, including a variety of colors, flavors, cooking methods, and nutritional value. To introduce easy & healthy food preparation.

Activities

Sample different varieties of peppers. Research and explore nutritional content with online and printed resources. Compare and contrast flavor and nutrition of different colored varieties. Measure ingredients.

Recipes

Easy Pickled Peppers and Stuffed Peppers

Materials for Taste Test

- Green, yellow, orange, and red bell peppers (Organic recommended, if possible, to avoid pesticide residues), and possibly banana peppers and *jalapeno peppers (*Any hot peppers used for taste test or food prep should be approved by school wellness personnel and parents of students involved.)
- An assortment of veggie dips such as hummus, ranch dip, blue cheese, etc. and dipping spoons
- Enough of the following materials based on the number of students and size of groups:
 - cutting boards or large paper plates
 - paring or serrated knives
 - napkins
 - small paper cups or small paper plates

Materials & Ingredients for Pickling

- *mason jars (small or large) with lids
- sharpie marker
- 1 cup rice vinegar (or plain white vinegar) per mason jar
- kosher salt (1-2 tsp per jar)
- 1 cup water per jar
- 2-cup Pyrex measuring cup (or other microwave-safe, sturdy container for heating water) with 2-cup capacity
- wooden or plastic spoon for stirring
- microwave access & refrigerator access (Could also use a pot for boiling water where a stove is available)
- Optional: cloves of fresh garlic, sprigs of dill, thyme, black peppercorns, etc... (These will offer more variety of flavors in the pickled peppers but are not necessary.)

*Number of mason jars may vary based on whether pickled peppers are to be shared, or (if smaller jars were used) each student will take one home.

Time Needed

One to three class periods of 45 minutes or longer for all food prep, sampling, and research. One class period for raw pepper prep, tasting and pickling. Pickled peppers need to be stored overnight in a refrigerator and tasted on the second day. Stuffed pepper extension will need 60-90 minutes for prep and baking/roasting in oven (or air fryer) and additional ingredients.

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Georgia Standards

- HE6.5.e Study the potential short-term consequences of healthy and unhealthy alternatives on self and others. (Nutrition and personal food choices)
- HE6.7.b Demonstrate healthy behaviors that will maintain or improve the health of self and/or others. (Choosing healthy foods)
- HE6.7c Model practices to avoid or reduce health risks to self and/or others. (Healthy eating)
- HE6.8.c Collaborate with others to advocate for healthy lifestyles and/or choices.
- HE7.1.e Explain ways to reduce or prevent health risks among adolescents. (Nutrition choices)
- HE7.3.c Investigate the accessibility of products that enhance health (Fresh fruits and vegetables)
- HE7.5.e Select healthy alternatives over unhealthy alternatives when making a decision. (Healthy versus unhealthy snacks)
- HE7.6.b Select a personal health practice goal to improve personal health practice. (Healthy eating choices)
- HE7.7.b Create personal examples of healthy behaviors that will maintain or improve the health of self and/or others. (Choosing healthy foods)
- HE8.1.i Understand the relationship between key nutrients in food sources to promote health and prevent chronic disease. (Vitamins and Antioxidants promote health and prevent disease)
- HE8.5.c Discuss healthy options to promote well-being and prevent disease. (Nutritional choices)
- HE8.5.e Support choosing a healthy option when making a decision. (Healthy snacks)

Objectives

To increase awareness of organic peppers, their high nutritional value, and ease of access to students. To give students opportunities to research, gather information, compare and contrast, measure ingredients, prepare healthy snacks, and discover new vegetables to enjoy.

Outline

Engage: Guide students in preparing peppers for eating by washing the peppers, slicing them, removing seeds, and taste testing four to six different raw peppers.

Explore: Explore ways to prepare peppers that enhance flavor and maintain nutritional value, including raw, with healthy dips such as hummus, ranch, blue cheese, or others. Discover the nutritional value of peppers through guided information gathering from scientific articles.

Explain: Why this nutrition is important. The benefits the vitamins and minerals contained in peppers have for our health. (Could also be combined with research from Peppery Prose Lesson.)

Extend: Pickling peppers to preserve and enjoy as a snack or on salads. Optional (where kitchen facilities are available) cooking stuffed peppers to prepare a balanced meal.

Evaluate: How could you incorporate eating organic peppers in your weekly diet and how would that benefit you?

Lesson Plan

Engage: Have students wash all food prep surfaces with cafeteria-approved food surface sanitizing cleaner.

Have them wash hands thoroughly with antibacterial soap, reminding them of the importance of these two steps to prevent contaminating food with germs. Students should wear gloves in accordance with school rules for food prep. (Keep all cell phones, devices, writing materials, etc. in a separate space from food prep areas!)

Divide students into small groups, 2-4 students per cutting board. Distribute peppers and have students wash peppers with water (and food-safe organic produce wash if desired). Demonstrate proper knife technique — reminding students to cut away from fingers — and slice peppers in half, removing the seed-containing centers and stems. Remove all seeds. Slice the walls of the pepper into long thin slices. (Use discernment for which students are able to perform this part of the lesson. Slicing could be completed by adult volunteers or staff assisting students for safety.)



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Middle School 6th-8th

Health



1-4 class periods

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Lesson Plan continued

Explore: After raw peppers are prepped, distribute some green, yellow, orange, and red bell peppers to each student on paper plates for tasting. Distribute a sampling of dips such as hummus, ranch, and blue cheese dressing. Have students explore and discuss combinations they like best. (If including banana peppers and jalapeno peppers in taste testing, warn students about the heat level of some peppers and how oils from hot peppers can burn skin and eyes. Have hand washing station and milk or crackers available to diffuse the heat.) Distribute links or printed articles containing information about nutrition and the effect of food preparation methods on nutritional value. Be sure to include those detailing vitamin and mineral content, anti-inflammatory properties, iron-absorption (which combats anemia), and eye health. Introduce vocabulary as appropriate for students' level: vitamin, mineral, fiber, calorie, antioxidant, anti-inflammatory, immunity, polyphenols, quercetin, carotenoids: lutein, beta-carotene, capsanthin, and zeaxanthin. Resources listed at the end of this lesson plan. Allow 15 to 20 minutes to have students work in groups with research guides to discover information about peppers. As students read articles and find information about the nutritional content of peppers, they record the information on their questionnaire.

When the time is up, reconvene as a class to discuss what they found. Let each group share what they discovered about the nutritional benefit of peppers.

Explain: Peppers are an extremely healthy food to eat. They contain very few calories but have high nutritional value. They are excellent sources of vitamins A and C, potassium, folic acid, and fiber. Vitamin A is important for good vision, healthy immunity, and cell development. Vitamin C promotes immunity, absorption of iron, skin health, healing, collagen production, and maintaining healthy cartilage, bones, and teeth. Peppers are part of the capsicum family contain capsaicin, an analgesic and anti-inflammatory compound, believed to be beneficial for heart health and used in pain relief. Certain nutrients vary depending on the color of the pepper. Red peppers are generally the sweetest tasting pepper, and also contain a high vitamin C content.

Extend: Divide remaining sliced peppers into mason jars for pickling. (May add additional flavored herbs such as dill, garlic, etc.) Place as many pepper slices as will fit into each jar. For the brine, combine the following ingredients in Pyrex measuring cup, stir, and microwave for 2-2.5 minutes (or heat in pot) Amounts below will fill 1-2 mason jars, depending on size. Do not boil. Heat until salt dissolves. When salt dissolves, stir brine and pour over veggies. Seal jars and place on counter away from activity to cool. When jars are mostly cooled, transfer to refrigerator overnight. Pickled peppers will be ready to eat in 1-2 days, flavor increasing after more days.

- 1 cup of water
- 1 cup of rice or white vinegar
- 1-2 teaspoons of kosher salt
- Optional: cloves of fresh garlic, sprigs of dill, thyme, black peppercorns, etc... (These will offer more variety of flavors in the pickled peppers but are not necessary.)

Evaluate: When pickled peppers are ready to eat, sample and compare them with the raw ones tasted earlier. Discuss the following questions and any students may have.

- How do they differ?
- Which do students prefer?
- What are the benefits of pickling the peppers? (Preservation, flavor, nutrition, etc...)

*Other peppers can be used for this lesson including banana peppers, pepperoncini, jalapenos, etc.... Just be aware of the heat of peppers before purchasing. Hot peppers can burn skin and eyes. Students handling hot peppers in food prep should wear gloves. For further extension, stuffed peppers can be prepared with the recipe below or a similar one.

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Stuffed Peppers Recipe

Ingredients: (Quantities vary depending on the number of students. Allow 1 half pepper per student with ¼ to 1/5 lb. meat)

- Large bell peppers, sliced in half, with seeds and centers removed
- Ground beef or turkey
- Water
- Salt
- Pepper
- Onion powder
- Garlic powder
- Paprika
- Dill
- Sundried tomatoes or ketchup
- Mustard
- Beef bouillon or Worcestershire sauce
- Shredded Cheese for topping

Directions:

1. Preheat oven to 375 degrees F.
2. Brown ground meat in a skillet over medium heat, using spatula to stir. Brown until no pink is left and juices run clear.
3. Soak sundried tomatoes in water to soften.
4. Drain excess grease (Adult should do this step.)
5. Return meat to skillet and skillet to stove. Add enough water to cover the surface of meat. Turn the stove to simmer.
6. Dice sundried tomatoes and add to skillet.
7. Add spices: salt, pepper, onion powder, garlic powder, paprika, dill
8. Add mustard, and bouillon or Worcestershire sauce.
9. Allow meat to simmer in water, stirring frequently. When water has cooked away, meat is ready to stuff into the halved peppers.
10. Line 9x13 baking pan with parchment paper or spray with organic oil to prevent sticking. Place pepper halves in pan.
11. Using a large spoon, stuff meat into pepper halves. Top with shredded cheese.
12. Bake in oven on 375 for 25-35 minutes (depending on oven cook speed and quantity. A full over cooks slower.) Stuffed Peppers are done when peppers are tender and cheese is melted.



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Online Articles

<https://www.webmd.com/diet/peppers-health-benefits>

<https://www.healthline.com/nutrition/foods/bell-peppers>

<https://www.medicalnewstoday.com/articles/bell-peppers#vitamin-c>

Additional GA State Standards

HE6.1.c Examine how one's surroundings impact personal health and well-being. (Available healthy food options)

HE6.2.i Compare how choices influence healthy and unhealthy behaviors.

HE6.6: Students will demonstrate the ability to use goal-setting skills to enhance health.

HE6.6.a Assess personal health practices. (Eating habits)

HE6.7: Students will demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks.

HE6.8: Students will demonstrate the ability to advocate for personal, family, and community health.

HE7.1: Students will comprehend concepts related to health promotion and disease prevention to enhance health.

HE7.1.d Analyze how the environment can impact personal health. (Healthy food availability)

HE7.3: Students will demonstrate the ability to access valid information, products, and services to enhance health.

HE7.5: Students will demonstrate the ability to use decision-making skills to enhance health.

HE7.5.c Differentiate between healthy and unhealthy alternatives to health-related issues or problems. (Nutritional choices)

HE7.7: Students will demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks.

HE7.7.c Demonstrate behaviors to avoid or reduce health risks to self and/or others (Healthy eating)

HE8.1: Students will comprehend concepts related to health promotion and disease prevention to enhance health.

HE8.1.c Analyze how the environment affects personal health. (Available healthy food)

HE8.5: Students will demonstrate the ability to use decision-making skills to enhance health.

HE8.7.c Analyze and apply behaviors that eliminate or reduce health risks to self and/or others (Healthy eating)



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Research Guide for Panoply of Peppers Lesson

List several of the healthy components (vitamins, minerals, antioxidants) peppers contain:

Choose 3-5 pepper types and 3 vitamins/minerals contained in peppers to explore. Write them in the chart below.

Research how much of the following components can be found in various peppers and record.

Pepper Type	Fiber	Vitamin/Mineral	Vitamin/Mineral	Vitamin/Mineral

For one of the components above, explore the health benefits, (including possible disease prevention.) Record at least three to five benefits on the lines below. Prepare to discuss.