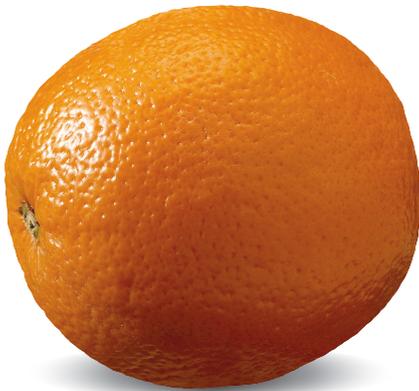


Harvest of the Month



Network for a Healthy California



Nutrition Facts

Serving Size: ½ cup orange, sections (90g)

Calories 42 Calories from Fat 0

% Daily Value

Total Fat 0g 0%

Saturated Fat 0g 0%

Trans Fat 0g

Cholesterol 0mg 0%

Sodium 0mg 0%

Total Carbohydrate 11g 4%

Dietary Fiber 2g 9%

Sugars 8g

Protein 1g

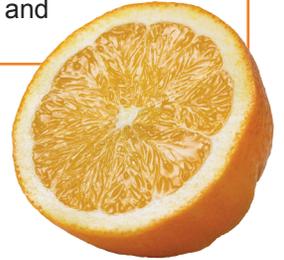
Vitamin A 4% Calcium 4%

Vitamin C 80% Iron 1%

ORANGES

Health and Learning Success Go Hand-In-Hand

Studies show a relationship between good nutrition and improved behavioral performance in the classroom, particularly among students with poor nutritional status. *Harvest of the Month* connects with core curricula to give students the opportunity to explore, taste, and learn about the importance of eating fruits and vegetables. It links the classroom, cafeteria, home, and community to motivate and support students to make healthy food choices and be physically active every day.



Exploring California Oranges: Taste Testing

What You Will Need (per student group):

- One Navel and one Valencia orange, quartered with peels
- Orange juice in small paper cups; ¼ cup per student
- Paper, rulers, and pencils

Activity:

- Make four columns on a piece of paper with the headings: 1) characteristics, 2) Navel, 3) Valencia, 4) orange juice.
- Write the following words, one per line, in the first column (under characteristics): 1) taste, 2) color — flesh, 3) color — peel, 4) texture — flesh, 5) texture — peel, 6) smell — flesh, 7) smell — peel.
- Taste a slice of the Navel orange and note observations in the second column next to the corresponding characteristic.
- Repeat exercise with the Valencia orange and orange juice in the third and fourth columns (enter N/A where applicable for the orange juice).
- Have a class discussion on the similarities and differences in characteristics.

For more ideas, reference:

School Foodservice Guide – Successful Implementation Models for Increased Fruit and Vegetable Consumption, Produce for Better Health Foundation, 2005, pp. 39-42.

Cooking in Class: Breakfast Fruit Cup

Makes 32 tastes at ¼ cup each

Ingredients:

- 8 oranges, peeled, seeded, and sliced into bite size pieces
- 4 bananas, peeled and sliced
- 4 tablespoons raisins
- 1½ cups lowfat vanilla yogurt
- 2 teaspoons cinnamon
- Paper bowls or cups; plastic spoons

In a large bowl, combine fruit, then divide equally into small bowls. Put one tablespoon of yogurt over fruit in each bowl and sprinkle with a dash of cinnamon.

Nutrition information per serving:

Calories 45, Carbohydrate 10 g, Dietary Fiber 1 g, Protein 1 g, Total Fat 0 g, Saturated Fat 0 g, Trans Fat 0 g, Cholesterol 1 mg, Sodium 7 mg

Adapted from: *Everyday Healthy Meals, Network for a Healthy California*, 2007.

For more ideas, reference:

Kids Cook Farm-Fresh Food, CDE, 2002

Reasons to Eat Oranges

A ½ cup of orange sections provides:

- An excellent source of vitamin C.
- A source of fiber, B-vitamins, thiamin, and folate*.
- A source of potassium and thiamin.

*Learn about folate on page 2.

Champion Sources of Folate:

- Asparagus
- Avocados
- Blackeye peas
- Broccoli
- Okra
- Oranges
- Pinto beans
- Spinach

For information, visit:

www.nal.usda.gov/fnic/foodcomp/search (NDB No: 09200)



What is Folate?

- Folate is a type of B vitamin that is water-soluble.
- It helps make healthy red blood cells and produce DNA.
- It also helps lower a woman's risk of giving birth to a child with certain birth defects.
- Folate works with vitamin B₁₂ (cobalamin) and vitamin C to use and create new proteins.
- Folate is being studied for its ability to help protect against heart disease.
- Your body needs a continuous supply of folate since it does not store it.
- Folate deficiency may cause poor growth, swollen tongue, and certain types of anemia.

Sources:

www.nlm.nih.gov/medlineplus/folicacid.html
www.eatright.org

How Much Do I Need?

A ½ cup of orange sections is about the size of one small orange. The amount of fruits and vegetables that is right for each person depends on age, gender, and physical activity level. Make a chart to display how many cups your students should eat every day. Remind students all forms count towards their daily amount – fresh, frozen, canned, dried, and 100% juice. Take time each week to review the chart and assess goals.

Recommended Daily Amount of Fruits and Vegetables*

	Kids, Ages 5-12	Teens and Adults, Ages 13 and up
Males	2½ - 5 cups per day	4½ - 6½ cups per day
Females	2½ - 5 cups per day	3½ - 5 cups per day

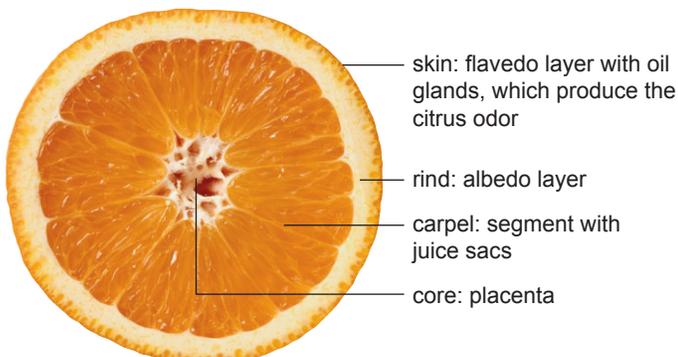
*If you are active, eat the higher number of cups per day.
Visit www.mypyramid.gov to learn more.

Student Champions

- Plant citrus trees on your school campus. Contact local nurseries and service clubs for donations.
- Encourage students to research food handling and safety tips from the FDA. Design a Food Safety Campaign for your school and community. Create posters to send to restaurants, hospitals, soup kitchens, grocery stores, etc., that promote safe food handling.

For more information, visit:

www.fda.gov/food/resourcesforyou/consumers/kidsteens/



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Botanical Facts

Pronunciation: ôr`inj

Spanish name: naranja

Family: Rutaceae

Genus: *Citrus*

Species: *C. sinensis*



Orange refers to the citrus tree, *Citrus sinensis*, and the fruits of this tree. Belonging to the Rutaceae family, oranges are a kind of *hesperidium*, or berry, because they have many seeds, are fleshy, soft, and derived from a single ovary. All citrus trees are of the single genus *Citrus* and are interbreedable, meaning that there is only one "superspecies," which includes lemons, limes, and oranges.

Originating in ancient times in Southeast Asia, the orange is a hybrid fruit, possibly between the pummelo, *Citrus maxima*, and tangerine, *Citrus reticulata*. Compared to modern cultivars, the original fruit was bitter and referred to as the "sour orange". The sweet orange was first grown in Spain and has become the most popular variety worldwide. The Navel orange, a sweet orange, was the result of a single mutation in an orchard in Brazil.

For more information, visit:

www.fruitsandveggiesmatter.gov/month

How Do Oranges Grow?

Oranges grow on evergreen trees, which thrive in warm, subtropical to semitropical climates. The tree's leaves are oval and glossy and the flowers are white and fragrant. Orange trees produce leaves, flowers, and fruit all at the same time, making them very fragrant in full bloom.

Oranges will grow in almost any kind of soil as long as it drains well, but protection from frost is critical. Growers in California place fans above trees to circulate warmer air above the grove with colder air near the ground. Commercial growers propagate oranges by grafting or budding to ensure they always get the same high-quality fruit. To graft, a single bud is taken from the branch of a high-quality tree and inserted into the bark of a seedling. This bud becomes the part of the tree that produces fruit.

Orange trees usually flower in the spring. Large, white, fragrant flowers appear on short stems. The flowers are self-fertile or can be pollinated. It takes between eight and 18 months for the fruits to grow and ripen. Citrus is one of the few fruit trees that does not require regular pruning and can also be left on the tree without becoming overripe.

For a growing chart of citrus trees, refer to the *Mandarins Botanical Image* on www.harvestofthemoth.com.

For more information, visit:

www.cfaitc.org

Student Sleuths

- 1 What is folate? Describe how it functions in the body. Why is folate important for women?
- 2 What major parts of the body does thiamin support? What are the effects of thiamin deficiency?
- 3 With more than two grams of fiber per ½ cup, oranges are a source of dietary fiber. List the health benefits of fiber and brainstorm a list of foods that are good or excellent sources of fiber*. Encourage students to incorporate these foods into their daily meals.
- 4 Among other important functions, zinc plays a role in the acuity (sharpness, clarity, and distinction) of two major senses. What are those senses?
- 5 Ninety percent of Florida's oranges go into making juice. How much of the oranges harvested in California go into processed foods and juices? How much are available to be sold whole/fresh?

*Excellent sources provide at least 20% Daily Value. Good sources provide 10-19% Daily Value.

For information, visit:

www.cacitrusmutual.com/index.shtml
www.fruitsandveggiesmatter.gov/month/orange.html

School Garden: Indoor Growing

If your school has a garden, here is an activity you may want to implement. Look for donations to cover the cost of seeds, tools, irrigation systems, electric pumps, and any salary incurred by garden educators or others.

Orange plants are one of the easiest plants to grow from seed (but they may take a while to produce fruit) — all you need is water and some direct light.

Materials:

- Mature orange seeds
- Potting soil
- Plant containers (e.g., milk cartons, glass jars)

Getting Started:

- Use seeds from the *Adventurous Activities* (Research and Problem Solving) on page 4, or have students ask the produce manager at their local grocery store or nursery.
- Make sure students use full-size or mature seeds.
- Plant containers need to hold at least four inches of soil. Make drainage holes in containers.
- Plants grown under lights dry out quickly and should be checked regularly and kept moist.
- Plants grown indoors require temperatures between 60-80 F during the day and about 15 degrees cooler at night. Plants should not be set on the heater.

Indoor Growing:

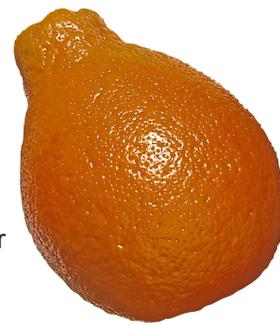
- Make a window sill garden with each container labeled according to the orange variety and date planted.
- Plant some seeds in a transparent container so students can watch them germinate.
- Experiment by altering the growing conditions for some of the plants and charting the resulting differences.

Note: It will take about two weeks for the first seedling to appear.

Adapted from: *Gardening Tips from Life Lab's Garden Activity Calendar.*

Just the Facts

- Almost 40 percent of the orange crop in the United States is used for making frozen concentrate.
- After chocolate and vanilla, orange is the world's favorite flavor.
- Navel oranges are the most popular "eating" orange in the world. They got their name because the bottom looks like a bellybutton or navel.
- As Valencias ripen on the tree, they go from green to yellow-orange. When the weather becomes warm the oranges regain a little green tinge starting at the stem end as a result of the chlorophyll returning to the peel. This process is called "re-greening."
- Unlike many fruits, citrus does not continue to ripen after being picked.



For more information, visit:

www.hort.purdue.edu/newcrop/morton/orange.html

Cafeteria Connections

Have your class plan a healthy menu that includes a colorful variety of foods and meets the cafeteria's meal requirements. Include foods from each of the main food groups. Share menu with school nutrition staff. (Hint: Use the Lunch Menu Planner and the Promotion Planning Worksheet found in *Fruits and Vegetables Galore* for ideas.)

For more ideas, reference:

Fruits and Vegetables Galore, USDA, 2004.

Physical Activity Corner

It is important to help students engage in at least 60 minutes of physical activity every day to stay healthy and fit. Take time during the school day to play a different game or activity in or out of the classroom.

Graphing Heart Rates:

- Divide class into three groups. Assign each group one of these activities: standing still, walking, running in place.
- After two minutes of each activity, students measure their heart rates by taking their pulses:
 - Turn left hand palm-side up, then place the first two fingers of right hand along the outer edge of left wrist just below where the wrist and thumb meet.
 - Slide fingers toward the center of wrist. Feel the pulse between the wrist bone and tendon.
 - Press down and feel pulse for 1 minute.
- Graph results by group activity. Compare and discuss results.
- Have students brainstorm ways to increase their heart rates throughout the day.

Fitness Breaks:

- Take a two-minute fitness break between lessons.
- Ask students to lead the break with stretches.
- Play a popular dance song and let students dance.

For more ideas, visit:

www.cdc.gov/HealthyYouth/physicalactivity

Home Grown Facts

- Navels and Valencias are the two main orange varieties grown in California. The major Navel- and Valencia-producing areas are the San Joaquin Valley region and coastal area from Santa Barbara down to the San Diego/Mexico border. These regions are also top producers of other citrus varieties, including lemons, grapefruits, and tangerines.
- The first three Navel orange trees were brought from Brazil and planted in Riverside, California in 1873. When the trees started producing fruit in 1878, the quality was so superior to any other orange grown in California that it quickly became the most popular variety. Today, one of the original trees is still alive and producing fruit.
- California oranges are rated the finest eating or table oranges (in other words, the best looking and least messy to eat). They usually have a full orange color (due to drier climate and cooler nights), with a thicker skin and are less juicy than the Florida fruit.

For more information, visit:
www.citrusvariety.ucr.edu/citrus/index.html

Adventurous Activities

Science Exploration

Have students name their favorite fruits and vegetables and list them on the board. When complete, identify and discuss which part of the plant these fruits and vegetables represent.

Examples:

- **Root:** carrot, onion, turnip, yam, beets
- **Stem:** asparagus, rhubarb, celery, fennel
- **Leaf:** spinach, chard, cabbage, lettuce, collard greens
- **Flower:** broccoli, cauliflower, artichoke
- **Fruit:** apple, citrus fruits, squash, tomato
- **Seed:** beans, corn, peas, soy beans

Research and Problem Solving:

- Estimate what's in one orange: how many sections, seeds, tablespoons of juice, etc.
- If using several different types of oranges, make a comparison chart with the results from each variety.
- Chart observations and discuss research findings:
 - Does the circumference relate to the number of sections?
 - Does the number of seeds relate to the number of sections?
 - Does the amount of juice relate to the size of the orange?

For more ideas, visit:
www.nal.usda.gov/kids
www.agclassroom.org

A Slice of Orange History

Oranges are first mentioned in history more than 4,000 years ago and were once considered a luxury among Italian nobility. Oranges arrived in the New World in 1493 when Columbus brought a variety of citrus fruits over on one of his voyages. As early as the 1700s, it was reported that orange seeds were being successfully grown at Spanish missions in southern Arizona.

With the founding of the first Spanish mission in San Diego in 1769, oranges and lemons were introduced into California from Mexico. But it was the California Gold Rush that created a demand for this nutritious fruit. When 200,000 miners and their families headed west, they faced a serious lack of fresh foods, particularly those rich in vitamin C. In fact, the effects of their vitamin-deficient diet caused scurvy. A doctor named Lewis Gunn made a small fortune treating miners for scurvy — his son later became one of San Diego's leading citrus growers.

In the pueblo of Los Angeles, William Wolfskill planted his first orange grove in 1841. The first load of oranges was shipped by rail from Wolfskill's orchard to St. Louis in 1877. Once the proud possession of kings and noblemen, citrus fruit is now available to everyone.

Today, the United States is the third leading citrus-producing country in the world and the second-leading producer of oranges, behind Brazil. There are many varieties of oranges, but the most popular include the sweet orange, sour orange, and mandarin orange, or tangerine. The United States produces the sweet variety, including the Blood, Hamlin, Jaffa, Navel, Pineapple, and Valencia.

Literature Links

- **Primary:** *An Orange in January* by Dianna Hutts Aston, *Oranges (What's for Lunch)* by Claire Llewellyn, *Oranges on Golden Mountain* by Elizabeth Partridge, *The Perfect Orange* by Frank Araujo, and *The Strange Egg* by Mary Newell DePalma.
- **Secondary:** *What's Growin' On in California?** by the California Foundation for Agriculture in the Classroom and *The Interrelationship of Soil, Water, and Fertilizers and How They Affect Plant Growth** by Pamela Emery.

*Available at www.cfaitec.org.

