

# Harvest of the Month



Network for a Healthy California



## Nutrition Facts

Serving Size: ½ cup blueberries (74g)  
Calories 42      Calories from Fat 0

	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 1mg	0%
Total Carbohydrate 11g	4%
Dietary Fiber 2g	7%
Sugars 7g	
Protein 1g	
Vitamin A 1%	Calcium 0%
Vitamin C 12%	Iron 1%

# BERRIES

## Health and Learning Success Go Hand-In-Hand

Family wellness impacts children at school and home. Research shows that children of families who eat together several times a week do better in school. Encourage students and parents to cook and eat healthy meals and snacks, and be physically active together. *Harvest of the Month* focuses on helping students and their families develop healthy habits.

## Exploring California Berries: Taste Testing

### Getting Started:

- Partner with school nutrition staff and suggest adding berries to the menu or doing lunchtime taste tests.

### What You Will Need (per group):

- ¼ cup each of blueberries, blackberries, and raspberries
- Napkins and paper plates
- Printed Nutrition Facts labels for blueberries, blackberries, and raspberries\*

\*Download from [www.harvestofthemoth.com](http://www.harvestofthemoth.com).

### Activity:

- Explore differences in colors, textures, shapes, smells, and tastes for each berry. Record observations in a sensory chart.
- Compare calories, vitamin C, and fiber content using the Nutrition Facts labels. Record observations.
- Report observations to class and discuss similarities and differences.
- Survey class to determine which is the favorite. Have students create a graph to show the results, then share with school nutrition staff.
- For more in-depth exploration, add frozen varieties. Discuss differences and similarities in taste and texture; research the nutrient content of frozen berries and share findings.

For more ideas, visit:

[www.okfarmtoschool.com/pdf/Taste-testing-new-foods.pdf](http://www.okfarmtoschool.com/pdf/Taste-testing-new-foods.pdf)

## Cooking in Class: Banana Berry Smoothie

Makes 20 servings at ¼ cup each.

### Ingredients:

- 1 large banana, peeled
- 1 cup 1% lowfat or nonfat milk
- 1 cup 100% orange juice
- 2 cups unsweetened frozen berries (strawberries, blueberries, and/or blackberries)
- 20 small cups

- Place first three ingredients in a blender container. Put lid on tightly and blend until smooth.
- Add frozen berries and blend again.
- Pour immediately into cups and serve.

Adapted from: *Kids...Get Cookin'*, Network for a Healthy California—Children's Power Play! Campaign, 2009.

For nutrition information, visit:

[www.harvestofthemoth.com](http://www.harvestofthemoth.com)

## Reasons to Eat Berries

A ½ cup of most berries is:

- A good source of vitamin C, fiber, and manganese.
- Rich in phytochemicals.

For information, visit:

[www.nal.usda.gov/fnic/foodcomp/search](http://www.nal.usda.gov/fnic/foodcomp/search)

### Phytochemical Champions\*:

- Berries
- Grapefruit, limes, kiwifruit
- Onions, garlic, cauliflower
- Carrots, sweet potatoes, pumpkin
- Broccoli, collard greens
- Whole grains, nuts

\*Champion foods are rich in phytochemicals.

Source: [www.cafoodguide.ca.gov](http://www.cafoodguide.ca.gov)



## What are Phytochemicals?

- Phytochemicals (also known as phytonutrients) are naturally occurring compounds found in plants. Plants develop these chemicals to protect themselves but now research has found that these chemicals also have protective factors for humans.
- Foods that contain phytochemicals are also described as “functional” because they provide more than just nutrients.
- Phytochemicals function as antioxidants, promote immunity, increase communication with cells in the body, and help repair damage to DNA.
- Phytochemicals are grouped by their possible protective function and biochemical characteristics. They are classified as: carotenoids, phenolics, alkaloids, nitrogen-containing compounds, and organosulfur compounds.
- More than 2,000 phytochemicals are plant pigments and contribute to the variety of colorful fruits and vegetables. These include lycopene (red), anthocyanins (red, blue/purple), phenolics (blue/purple), lutein (green), indoles (green or white and from the crucifer family), beta carotene (orange), bioflavonoids (orange/yellow), and allacin/allium (mostly white members of the onion family).

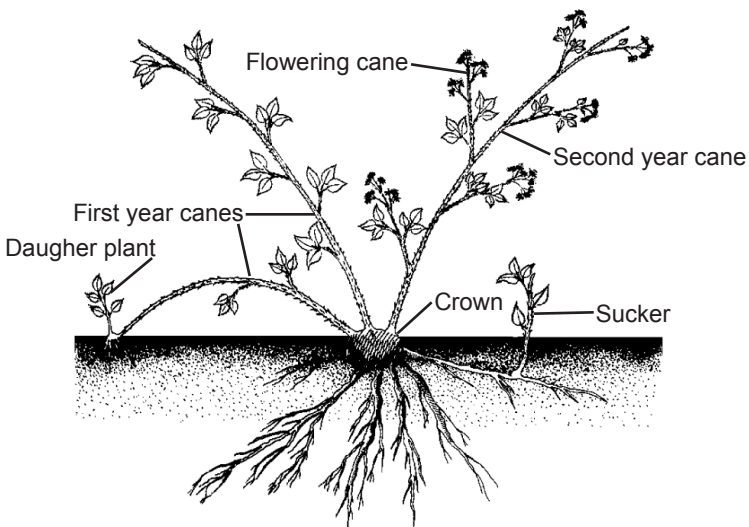
For more information, visit:

[www.pbhfoundation.org](http://www.pbhfoundation.org)

<http://www.ific.org/publications/factsheets/antioxidantfs.cfm>

## How Much Do I Need?

A ½ cup of berries is about one cupped handful. The amount of fruits and vegetables you need depends on your age, gender, and physical activity level. All forms of fruits and vegetables count toward your daily amounts – fresh, frozen, canned, dried, and 100% juice! Remind students to eat a variety of colorful fruits and vegetables throughout the day. Encourage them to set goals to help them reach their recommended daily needs.



Source: Landcare Notes: Biological control of blackberry with blackberry leaf rust fungus, Keith Turnbull Research Institute, State of Victoria, 1999.

## Botanical Facts

Name	Blackberry	Raspberry	Blueberry
Pronunciation	'blak-ber-ē	'raz-ber-ē	'blū-'ber-ē
Spanish name	zarzamora	frambuesa	arándano
Family	Rosaceae	Rosaceae	Ericaceae
Genus	<i>Rubus</i>	<i>Rubus</i>	<i>Vaccinium</i>
Species	<i>Rubus fruticosus</i>	<i>Rubus idaeus</i>	<i>Vaccinium corymbosum</i>

Blackberries and raspberries are members of the rose family. They are called *aggregate fruits* because each berry is a cluster of tiny fruits called *drupelets*. Each drupelet has a seed. Raspberries have a hollow center when picked since the receptacle remains on the cane. Blackberry drupelets remain centered around the core even after the berry is picked. When we eat a blackberry fruit, we consume the receptacle of the inflorescence (or cluster) called a *torus*.

Blueberries are members of the heath family, which includes azaleas, rhododendrons, and cranberries. Blueberries grow wild around the world and include more than 450 species. There are three main blueberry bush types: low bush, high bush, and rabbit-eye.

For more information, visit:

[www.uga.edu/fruit/rubus.html](http://www.uga.edu/fruit/rubus.html)

<http://edis.ifas.ufl.edu/HS104>

## How Do Berries Grow?

Raspberries and blackberries are perennial fruit-bearing brambles with biennial canes. The plants produce canes (“suckers”) from buds on the crown and on underground lateral stems. These canes grow during the first season and produce fruit during the summer of the second year, while new canes emerge to provide a crop for the next year. Second-year canes die shortly after fruiting. First-year canes have green stems, while second-year canes have a thin, brown bark covering them.

Blueberries are a bush-type perennial that can grow up to 12 feet tall. Harvesting is done two to five times during the season since all berries do not mature at the same time. Blueberry bushes take about two to three years to establish, with harvesting starting about the third or fourth growing season and continuing for more than 20 years.

For a chart with growing information for blueberries, blackberries, and raspberries, refer to *Berries Botanical Images* on [www.harvestofthemoonth.com](http://www.harvestofthemoonth.com).

For more information, visit:

[www.uga.edu/fruit/rubus.html](http://www.uga.edu/fruit/rubus.html)

<http://ceventura.ucdavis.edu/Agriculture265/Blueberries.htm>



## School Garden: Weed Control

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.

Weeds are unwanted in gardens because they compete with crops for light, moisture, nutrients, and space.

### Activity:

- Research weeds found in gardens. What do they look like? How can they be managed?
- Form teams and select a garden area.
- Spend 10 minutes looking for and gathering weeds.
- Identify as a class the weeds found in garden.
- Create and implement an environmentally friendly weed control strategy.
- Observe results. Determine if plan was successful. If not, develop a new approach and test it out.

Adapted from:

[www.kidsgardening.com/Dig/DigDetail.taf?ID=1906&Type=Art](http://www.kidsgardening.com/Dig/DigDetail.taf?ID=1906&Type=Art)

For more ideas, visit:

[www.garden.org](http://www.garden.org)

## The Seeds of Berry History

- Believed to be native to Asia, wild raspberries have been eaten since prehistoric times.
- Cultivation of raspberries began in England and France during the 1600s.
- The Evergreen blackberry is native to England and appeared in Oregon around the mid-1800s.
- The Northeast Native American tribes revered blueberries. The calyx forms the shape of a perfect five-pointed star; and the tribe's elders told how the Great Spirit sent "star berries" to relieve children's hunger during a famine.
- Colonists learned from Native Americans how to gather blueberries, dry them under the summer sun, and store them for winter.
- Native Americans, settlers, and animals all took part in bringing berries from the Northwest down to California.

For more information, reference:

*Fruit and Tree Nuts*, Economic Research Service, USDA, 2009.

## Student Champions

Biking is a great way to be active and healthy. It also helps the environment by reducing carbon emissions and traffic congestion. Encourage students to get involved in National Bike Month in May.

### Activity:

- Research bike lanes and trails in your area. Prepare bike maps for other students and faculty. Include flyers with bike safety rules and benefits of bike riding.
- Write a letter to your Mayor or City Council about the benefits of riding bikes and the importance of having safe sidewalks and accessible bike routes in your city.
- Develop a proposal for your school to become involved in National Bike Month. Include ways to involve parents and community members.

Adapted from: [www.bikeleague.org](http://www.bikeleague.org)

For more information, visit:

[www.bikesbelong.org](http://www.bikesbelong.org)

## Student Sleuths

- 1 Raspberries are an excellent source of manganese. What is manganese and what does it do for the body?
- 2 Berries are a leading source of antioxidants, which neutralize free radicals in our bodies. What are free radicals and why is it important to neutralize them?
- 3 Blackberries and raspberries are called *aggregate fruits* with *drupelets*. What is an aggregate fruit? What are drupelets?
- 4 Berries are used to make jellies, jams, and sauces (e.g., strawberry jam, cranberry sauce). What is the main ingredient added to the berries to make jam or sauce? How does it change the food's nutrient profile?



For information, visit:

[www.eatright.org/cps/rde/xchg/ada/hs.xsl/home\\_4079\\_ENU\\_HTML.htm](http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/home_4079_ENU_HTML.htm)

[www.ific.org/publications/factsheets/antioxidantfs.cfm](http://www.ific.org/publications/factsheets/antioxidantfs.cfm)

[www.uga.edu/fruit/rubus.html](http://www.uga.edu/fruit/rubus.html)

## Home Grown Facts

- California leads the nation in production of fresh raspberries.
- In Northern California:
  - Raspberries are harvested during May and September/October.
  - Blackberries are harvested from late July through September.
  - Blueberries are harvested in May through early August.
- In Southern California:
  - Raspberries and blackberries are harvested August through October.
  - Blueberries are harvested from mid-March through October.

### Student Activity:

- Research berry varieties grown in California. Find the location of berry farms. Why do you think different berries are grown in one area versus another?
- Research berry varieties grown outside of California. Compare the distance the produce travels from outside California versus from local farms. How does this affect the environment?

For more information, visit:

[www.ers.usda.gov](http://www.ers.usda.gov)

[www.cdffa.ca.gov](http://www.cdffa.ca.gov)

[www.agmrc.org](http://www.agmrc.org)

## Literature Links

- Talk to your school librarian about leading an activity from the *Adventurous Activities* or *Student Sleuths* sections.
- Ask librarian to feature a book about the *Harvest of the Month* produce items every month.

For a list of book ideas, visit:

[www.harvestofthemonth.com](http://www.harvestofthemonth.com)

## Adventurous Activities

Blueberries get their blue pigment from a phytochemical called *anthocyanin*. The color of anthocyanins are affected by the level of acidity, or pH level, in a particular substance or food. Anthocyanins are red at low pH (indicating greater acidity) and are blue to purple at higher pH (more basic).

### Materials:

- 1 pint of fresh or frozen blueberries
- ½ cup water
- ½ cup lemon juice
- ½ cup vinegar
- 1 small box of baking soda
- 3 glass jars

### Activity:

- 1 Simmer blueberries in water over medium heat until water is deep blue.
- 2 Strain blueberry skins with a tea strainer.
- 3 Let solution cool. Pour into three jars.
- 4 Add lemon juice to first jar. Record color.
- 5 Add vinegar to second jar. Record color.
- 6 Add baking soda to third jar. Record color.
- 7 Discuss results. Based on what you know about anthocyanins, which substances added to the jars were acids? Which were bases?

Adapted from: [www.umaine.edu/nsfgk-12/images/PDFs/natdye.pdf](http://www.umaine.edu/nsfgk-12/images/PDFs/natdye.pdf)

For more ideas, visit:  
[www.harvestofthemonth.com](http://www.harvestofthemonth.com)

## Cafeteria Connections

Team up with your school nutrition staff to develop a lunch recipe that features *Harvest of the Month* produce items. Ask students to design ads that market the new recipe to students and teachers.

### Activity:

- Research the health benefits of eating the featured produce.
- Conduct market research and determine:
  - Who is your audience?
  - What do you need to know about your audience to help pitch your product to them?
  - How can you get this information?
- Develop a poster or magazine ad(s) that includes nutrition information.
- Display ads in the cafeteria.

Adapted from:  
[www.kidsgardening.com/Dig/DigDetail.taf?ID=2115&Type=Art](http://www.kidsgardening.com/Dig/DigDetail.taf?ID=2115&Type=Art)

### For more ideas, reference:

*The Power of Advertising, School Idea & Resource Kits, Network for a Healthy California—Children's Power Play! Campaign, 2009.*  
[www.cdph.ca.gov/programs/cpns/Pages/PowerPlayResources.aspx](http://www.cdph.ca.gov/programs/cpns/Pages/PowerPlayResources.aspx)

UC CalFresh Nutrition Education  
Stanislaus & Merced Counties  
(209) 525-6800

## Just the Facts

- Blueberries are the second most popular berry among Americans after strawberries.\*
- The tayberry, loganberry, and boysenberry are hybrids of blackberries and raspberries.
- The boysenberry, a type of trailing blackberry, was cultivated in California by horticulturist Rudolph Boysen. Walter Knott began selling it at his roadside fruit stand in the mid-1930s.
- There are four colors of raspberries: gold, black, purple, and red.
- Cranberries are related to blueberries and grow on long vines in bogs and marshes.

\*For more information, refer to the *Strawberries* newsletter.

For more information, visit:  
[www.healthyla.usd.net](http://www.healthyla.usd.net)

## Physical Activity Corner

Children need at least 60 minutes of physical activity daily, even 10 minutes at a time throughout the day. Do this two-minute exercise break with students to keep their minds sharp and increase cardiorespiratory endurance.

### Equipment:

- 4 cones
- Stopwatch (or wristwatch with a second hand)

### Activity:

- Set up four "stations" in a square shape, placing cones in the corners. Make signs to post at each station:
  - 1 Run in place
  - 2 Squat up and down
  - 3 Regular/modified pushups (modified = on knees)
  - 4 Jump up and down
- Divide students into four groups:
  - Send each group to a different cone.
  - Give them 30 seconds to complete each activity as fast as they can.
  - After 30 seconds, move clockwise to next cone by skipping, tiptoeing, taking giant steps, or running.

### Helpful Hint:

Complement with *Student Advocates* activity (page 3).

For more ideas, visit:  
[www.sparkpe.org](http://www.sparkpe.org)



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