

# Harvest of the Month



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

Students who eat school meals are more likely to eat the recommended daily amount of fruits and vegetables, which can improve their attendance and overall health. Support academic content standards and integrate *Harvest of the Month* into the classroom, cafeteria, home, and community. Involve students to help them understand the benefits of eating a variety of colorful fruits and vegetables and being physically active every day.

## Exploring California Potatoes: Taste Testing

### What You Will Need (per group of 4-6 students):

- 1 potato each of 3 different varieties\*, raw
- One knife and cutting board
- Plastic gloves, one pair per student
- Hot plate and pans (or microwave); serving plate; small plates; serving spoons

\*Refer to *Botanical Facts* (page 2) for varieties.

### Activity:

- Divide class into groups; distribute one potato variety to each group.
- Observe the external look, feel, and smell of raw potato; record observations. Repeat with other varieties.
- Cut potatoes into cubes.
- Boil potatoes in water or microwave; place cubes on plate at head table.
- Sample varieties; record taste differences/similarities; share observations.
- Take poll of students' favorite variety. Find a healthy recipe featuring this variety and share recipe with students' families.

### For more ideas, reference:

*The Power of Choice*, Team Nutrition, USDA, 2003.

## Cooking in Class: Herb Roasted Potatoes

Makes 36 tastes at 1/3 cup each

### Ingredients:

- 4 pounds potatoes
- 4 tablespoons olive oil
- 1 small bunch rosemary or thyme
- 1 1/2 teaspoons salt
- Small plates and napkins

1. Preheat oven to 450 F. Remove rosemary or thyme from stems.
2. Cut rinsed potatoes into quarters or smaller.
3. In large bowl, toss potatoes with oil, herbs, and salt.
4. Place in baking dish. Cover. Bake for 30 to 40 minutes or until done. Serve warm on plates.

Hint: If unable to cook in class, make alternate cooking arrangements.

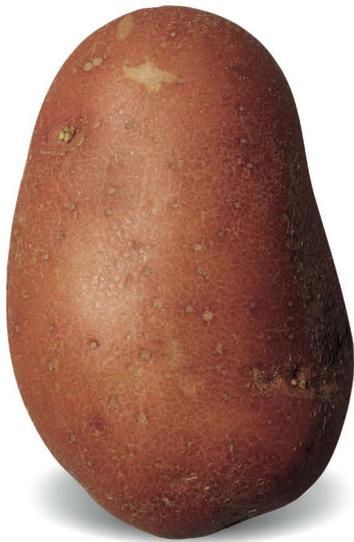
### Nutrition information per serving:

Calories 51, Carbohydrate 9 g, Dietary Fiber 1 g, Protein 1 g, Total Fat 2 g, Saturated Fat 0 g, Trans Fat 0 g, Cholesterol 0 mg, Sodium 102 mg

Adapted from: *Kids Cook Farm-Fresh Food*, CDE, 2002.

### For more ideas, visit:

[www.cachampionsforchange.net](http://www.cachampionsforchange.net)



## Nutrition Facts

Serving Size: 1/2 cup potato, cooked (78g)

Calories 68      Calories from Fat 0

% Daily Value

Total Fat 0g      0%

Saturated Fat 0g      0%

Trans Fat 0g

Cholesterol 0mg      0%

Sodium 3mg      0%

Total Carbohydrate 16g      5%

Dietary Fiber 1g      6%

Sugars 1g

Protein 1g

Vitamin A 0%      Calcium 0%

Vitamin C 17%      Iron 1%

## Reasons to Eat Potatoes

A 1/2 cup of cooked potatoes provides:

- A good source of vitamin C.
- A source of carbohydrates and fiber.
- A source of vitamin B<sub>6</sub>, niacin\*, thiamin, and potassium.

\*Learn about niacin on page 2.

### Champion Sources of Niacin\*:

- Fortified cereals
- Legumes
- Lowfat yogurt
- Peanut butter
- Turkey
- Tuna

\*Champion sources provide a good or excellent source of niacin (at least 10% Daily Value).

### For more information, visit:

[www.nal.usda.gov/fnic/foodcomp/search/](http://www.nal.usda.gov/fnic/foodcomp/search/) (NDB No.: 11365, 11363)



POTATOES

## What is Niacin?

- Niacin is a B-complex vitamin, which is a family of water-soluble vitamins.
- All living cells require niacin, as it plays a role in releasing energy from carbohydrates, fats, and proteins.
- Niacin aids the body in synthesizing fat and helps enzymes function normally.
- Niacin helps the body use sugars and fatty acids.
- Low levels of niacin can slow the body's metabolism and make a person sensitive to cold.

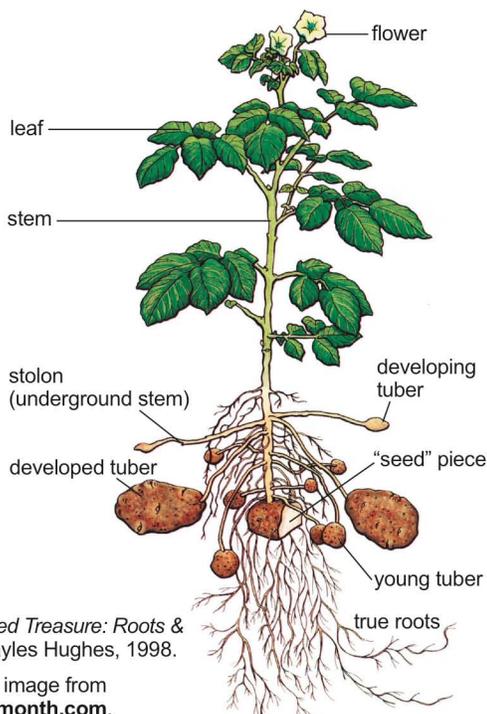
### For more information, reference:

American Dietetic Association Complete Food and Nutrition Guide, 2006.  
[www.umm.edu/altmed/articles/vitamin-b3-000335.htm](http://www.umm.edu/altmed/articles/vitamin-b3-000335.htm)

## How Do Potatoes Grow?

The potato is a cool-weather, perennial plant grown for its starchy tuber. Commercial plants follow the life cycle of tuber to sprout to plant to tuber. Following rapid leaf growth, the plant grows yellow-green flowers above ground. Underground stems called stolons branch out and swell. The leaves produce excess starch, which gets sent down through the roots and deposited at the stolon ends and forms tubers. The tubers (potatoes) grow larger as more starch is produced.

Temperature	Grows best at 60 F
Exposure	Full sun
Soil	Sandy loam; loose, well-drained
Propagation	By potato seed
Seed germination	2 to 3 weeks
Care	Till soil and water regularly
Time before harvest	3 to 4 months
Harvesting	By machine when mature



Adapted from: *Buried Treasure: Roots & Tubers*, Meredith Sayles Hughes, 1998.

Download botanical image from [www.harvestofthemonth.com](http://www.harvestofthemonth.com).

## Botanical Facts

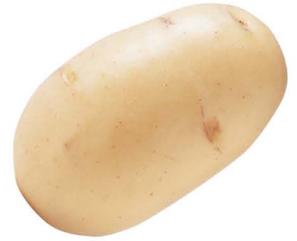
**Pronunciation:** pə-tā'tō

**Spanish name:** papa

**Family:** Solanaceae

**Genus:** *Solanum*

**Species:** *S. tuberosum*



Members of the nightshade family, potatoes are tubers and come in more than 200 varieties. These are often categorized as first earlies, second earlies, and main crop, based on when they are harvested. First earlies include *new potatoes*, which are harvested before the sugars have fully converted to starch, resulting in a flesh that is crisp and waxy. Second earlies are larger and have a waxy and moist flesh. Main crop potatoes are harvested when fully developed and can store for long periods. The most common American main crop variety, the *Russet Burbank* potato, was named after horticulturist Luther Burbank.

Potato	Skin/Flesh Color	When Harvested (best used for)
Russet Burbank	Brown/white	Main crop (baking, processing)
Yellow Finn	Yellow/yellow	First early (boiling, mashing)
Red Gold	Red/yellow	Second early (boiling, roasting, mashing)
German Butterball	Yellow/yellow	Main crop (baking, processing)
Yukon Gold	Yellow/yellow	First early (boiling, roasting, mashing)
Purple	Purple/purple	First or second early (boiling, roasting)

### For more information, visit:

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

[www.pnas.org/cgi/content/full/102/41/14694](http://www.pnas.org/cgi/content/full/102/41/14694)

## How Much Do I Need?

A ½ cup of cooked potatoes is about one cupped handful. This is about the size of half of one medium potato. The amount of fruits and vegetables that is right for each person depends on age, gender, and physical activity level. All forms of fruits and vegetables count toward the daily amount – fresh, frozen, canned, and dried. Fruits and vegetables can be prepared and served in different ways too (e.g., mashed, puréed, juiced, baked, steamed, roasted, fried, etc.). Some ways are healthier than others. Have a class discussion about healthy ways to eat fruits and vegetables. Have students write down how they plan to eat their recommended daily amount.

### Recommended Daily Amount of Fruits and Vegetables\*

	Kids, Ages 5-12	Teens and Adults, Ages 13 and up
<b>Males</b>	2½ - 5 cups per day	4½ - 6½ cups per day
<b>Females</b>	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](http://www.mypyramid.gov) to learn more.

## Just the Facts

- The potato is America's number one vegetable crop.
- In 2005, potatoes were the fifth highest production crop in the world.
- Easy to grow and adaptable to many climates, potatoes are grown in 35 states in the United States.
- Americans consume on average 130 pounds of fresh and processed potatoes annually.
- More than half of all potatoes are used for processing (e.g., French fries, chips) while the remainder are sold fresh\*.
- The Russet potato is the predominant variety grown in Idaho, which also grows about one-third of the nation's potato supply.



\*During potato commercial processing, the ratio of calories and fat to nutrients is altered significantly. The calories, fat, and sodium content are increased.

### Sources:

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

[www.fruitsandveggiesmatter.gov/month/potato.html](http://www.fruitsandveggiesmatter.gov/month/potato.html)

## Student Sleuths

- 1 Make a chart comparing the nutrient values of the following potato products: baked potato (without toppings), mashed potatoes, boiled potato, potato chips (fried), potato chips (baked), French fries, and hash browns (or tater tots). Use similar serving sizes (e.g., ½ cup) for each product. In your chart, include columns for calories, fat, carbohydrate, protein, vitamin C, vitamin B<sub>6</sub>, niacin, iron, fiber, sodium, and calcium. Describe the differences in fat, caloric, and nutrient content between these products. Draw conclusions as to why there are differences.
- 2 Plan a meal that includes a potato. The meal should be low in calories, fat, and sodium and provide at least 20% of the recommended Daily Value for iron, fiber, and calcium. Which potato recipe would you select? What other foods (grains, fruits, vegetables, meat/beans, dairy products) would you include to make a complete, balanced meal? Which vitamins are included in your meal?
- 3 California grows 4% of the nation's potato crop, but its share of exports is more than 30%. Hypothesize why California's crop accounts for a large proportion of the country's exports. Investigate where California's potatoes are sold. Track California's potatoes as they travel from the farm to processing or the market. Find out if the potatoes sold at your local grocery store are California grown. If not, from where do they come? Based on your findings, draw a conclusion as to why California contributes such a large percentage of potato exports.

### For information, visit:

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

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

[www.indepthinfo.com/potato/](http://www.indepthinfo.com/potato/)

## Home Grown Facts

- California ranks tenth nationally in potato production\*.
- California provides a year-round supply of potatoes with harvests peaking in spring and fall.
- Kern County grows more than 60% of the state's potato crop, followed by San Joaquin, Riverside, Siskiyou, and Modoc counties\*.

\*2008 Data

### For more information, visit:

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

## School Garden: Grow a Potato

*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.*

### What You Will Need:

- Whole seed potato (available at gardening stores)\*
- Compost

\*Seed potatoes are certified disease-free potatoes about the size of golf balls. Avoid grocery store seeds, which are often treated with chemicals and grow poor potatoes.

### Activity:

- Select a sunny site; each plant will need a minimum of 12 inches in each direction.
- Plant between early spring and summer\*; in desert areas, plant in late September for early winter harvest\*.
- Dig soil to at least 12 inches; remove rocks or debris and add compost.
- Plant the whole seed about eight inches deep.
- Water sparingly until leaves emerge from soil; then water from below or in the morning so leaves can dry.
- Harvest early potatoes seven to nine weeks after planting.
- Harvest main crop about two weeks after plant tops die.

\*Plant after legume crops (e.g., beans, peas), which fix nitrogen to soil. Avoid planting with tomatoes or other plants of the nightshade family.

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

## Adventurous Activities

### History Exploration:

- Research the history, uses, and folklore associated with the potato in Ireland and Russia.
- Compare and contrast the Irish potato history with the Russian potato history. Discuss the significance and influence of the potato crop in these countries (e.g., culture, nutrition, economics, migration).
- Have students research the history of other crops that are or have been the primary food source of a nation's majority population.

### For more ideas, visit:

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



## The Roots of Potato History

- Wild potatoes originated in the Andes mountain range and were first cultivated about 7,000 years ago.
- By the 1400s, the potato was a staple crop of the Incas and was grown throughout western South America.
- Spanish conquistadors shipped potatoes back to their mother country in the mid-16<sup>th</sup> century.
- The Irish Potato Famine of 1845 to 1851 was the result of a fungus that destroyed the primary food source of the majority population. More than one million Irish died and another three to four million emigrated.
- Captain Nathaniel Butler (proclaimed Governor of Bermuda) shipped the first potatoes to North America in 1621 as a gift to the Governor of Virginia.
- Able to keep for several months, potatoes were delivered to the miners during the California gold rush.
- In 1995, NASA grew the first vegetable, the potato, in space.

For more information, reference:  
[www.cfaitc.org](http://www.cfaitc.org)

## Student Champions

- Have students list their favorite restaurants and places that serve French fries or hash browns.
- Research how these foods are prepared. Find out if they offer a substitute side dish.
- If no substitute dishes are offered, make a list of healthier substitute side dishes (e.g., baked potatoes, roasted potatoes, side salad, apple slices, mandarin slices, tomatoes with lowfat cottage cheese).
- Compile the nutrient data for all options.
- Share results with peers and encourage them to order healthier side dishes.
- Write a persuasive letter asking the restaurant's manager/owner to make healthier side dishes available.



## Physical Activity Corner

### What You Will Need:

- Beanbag or small ball
- Playful music

### Activity:

- Students stand in a circle and pass beanbag around the circle as fast as they can.
- When the music stops, the student holding the beanbag must answer a question about potatoes, do a math problem on the board, or spell a word.
- To make the game more interesting, when the music stops use a specific rule for deciding who will answer the question (e.g., the student two spots to the left of the person holding the item). Make up a new rule for every round to keep the students thinking.

Adapted from: Physical Activity Specialist, Northcoast Region, *Network for a Healthy California*, 2011.

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

## Cafeteria Connections

Have students work with school nutrition staff to create a bulletin board illustrating the nutritional differences between fresh and processed potato products.

- Make large-sized Nutrition Facts labels of potato products (cooked potatoes, chips, French fries, mashed). Use labels from packages or visit [www.nal.usda.gov/fnic/foodcomp/search](http://www.nal.usda.gov/fnic/foodcomp/search).
- Have students evaluate the nutrient differences\*.
- Make a chart of health benefits and risks for each product.
- Conduct taste testing session during lunch. Showcase the many healthy ways potatoes can be eaten — baked, boiled, roasted, mashed, etc.

\*Complete in *Student Sleuths* (page 3).

## Literature Links

- **Elementary:** *Blue Potatoes, Orange Tomatoes: How to Grow a Rainbow Garden* by Rosalind Creasy, *The Enormous Potato* by Aubrey Davis, *One Potato: A Counting Book of Potato Prints\** by Diana Pomeroy, and *Two Old Potatoes* by John Coy.
- **Secondary:** *Buried Treasure: Roots and Tubers* by Meredith Sayles Hughes and Tom Hughes and *Potato: How the Humble Spud Rescued the Western World* by Larry Zuckerman.

\*Reading level is prekindergarten.

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



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