Harvest of the Month

Network for a Healthy California

Health and Learning Success Go Hand-In-Hand

School breakfast programs increase learning and academic achievement, improve student attention to academic tasks, reduce visits to the school nurse, and decrease behavioral problems. Help promote the school breakfast and meals program to your students. Use *Harvest of the Month* to encourage students to eat healthfully and be active.

Exploring California Winter Squash: Taste Testing

What You Will Need:

- Three to five different winter squash varieties, whole and sliced*
- One of each variety per every four students
- Nutrition labels for each variety**
- Dry erase board, markers

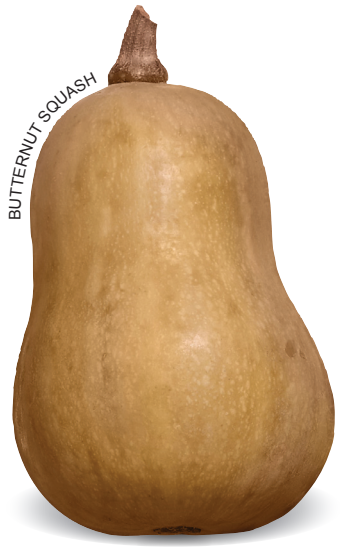
*See *Botanical Facts* on page 2 for varieties.
Download labels from **www.harvestofthemonth.com.

Activity:

- Examine squash noting color (skin and flesh), texture, sound, and smell.*
- Chart observations on board.
- Analyze nutrition information.
- Chart three highest nutrient levels.
- Compare and contrast varieties.
- Discuss differences in nutrient levels and how they may be related to characteristics like flesh color.

*Note: Tasting raw winter squash is not recommended.

For more ideas, reference:
The Power of Choice, USDA, 2003, pp. 41-51.



Nutrition Facts

Serving Size: ½ cup cooked acorn squash, cubed (103g)

Calories 57	Calories from Fat 0
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 4mg	0%
Total Carbohydrate 15g	5%
Dietary Fiber 5g	18%
Sugars 0g	
Protein 1g	
Vitamin A 9%	Calcium 5%
Vitamin C 19%	Iron 5%

Cooking in Class: Pumpkin Delight

Makes 36 tastes at 2 tablespoons each

Ingredients:

- 2 (15-ounce) cans 100% pure pumpkin
- 2 tablespoons of pumpkin pie spice
- 1 sleeve of lowfat graham crackers
- 1 tablespoon of honey*
- Small paper plates
- Small plates and forks

1. Place the pumpkin in a large bowl.
2. Stir pumpkin spice and honey thoroughly into the pumpkin.
3. Crumble all graham crackers into the pumpkin mixture and stir until well blended. Mixture will be chunky.
4. Place 2 tablespoons of pumpkin mixture on paper plate. Serve immediately.

*Do not give honey to children under the age of one. Lowfat vanilla yogurt may be used in place of honey.

Nutrition information per serving:
Calories 40, Carbohydrate 8 g, Dietary Fiber 0 g, Protein 0 g, Total Fat 0 g, Saturate Fat 0 g, Trans Fat 0 g, Cholesterol 0 mg, Sodium 53 mg

Adapted from: Tasting Trio Team, *Network for a Healthy California*, 2010.

For more ideas, visit:
www.cachampionsforchange.net

Reasons to Eat Winter Squash

A ½ cup of cooked winter squash provides:

- An excellent source of vitamin A (butternut, hubbard, and pumpkin).
- A good source of vitamin C (acorn, butternut, hubbard, and pumpkin).
- A good source of fiber (acorn, butternut, and hubbard).
- A good source of potassium (acorn and hubbard).
- A good source of magnesium, thiamin, and vitamin B_6 (acorn).
- A source of iron* (acorn).

*Learn about iron on page 2.

Champion Sources of Iron*:

- Beans
- Fortified cereal
- 100% prune juice
- Pumpkin seeds
- Soybeans and soybean nuts

*Champion sources provide a good or excellent source of iron.

For more information, visit:
www.eatright.org/Public/content.aspx?id=3608&terms=winter+squash
www.nal.usda.gov/fnic/foodcomp/search/
(NDB No: 11483)

WINTER SQUASH

What is Iron?

- Iron is a mineral that helps move oxygen from the lungs to the rest of the body. It also helps keep red blood cells healthy and helps the body fight infections.
- Even though iron is found in many foods, low iron levels are a common nutrition problem.
- Iron carries oxygen throughout your body so cells can produce energy. When iron levels are low, you may feel fatigued, weak, and have difficulty tolerating extreme temperatures.
- Iron in food exists as two types, heme and non-heme. Animal foods such as meat, fish, and poultry provide heme. Your body uses this type of iron most effectively. Non-heme is found in plant foods like spinach and beans and isn't as well absorbed by the body.
- You can add to your iron intake by choosing a variety of animal and plant foods and by eating foods rich in vitamin C, which helps your body absorb the iron in plant foods (especially important for vegetarians). Eat a variety of foods to be sure you get enough iron.

Source: www.eatright.org

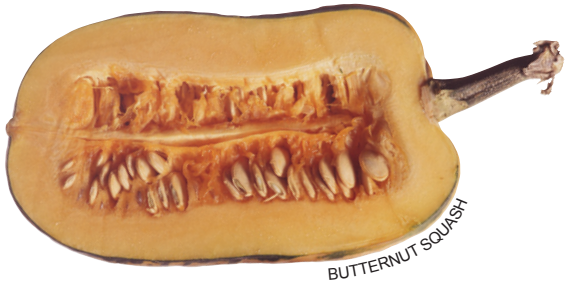
For more information, visit:
http://lpi.oregonstate.edu/infocenter/minerals/iron/

Student Sleuths

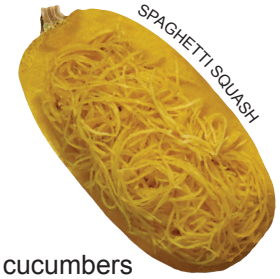
1. What are some nutritional benefits of winter squash? How do the nutrients vary between different varieties?
2. What is iron? What does it do for the body? How much iron do you need? Make a list of foods that are good and excellent sources of iron.* Then, develop a daily meal plan that will meet your daily iron needs.
3. How is the iron provided by plants different than iron provided by animal sources?
4. Search for recipes with winter squash. List the various ways squash can be prepared.
5. Go to the grocery store and identify all of the different varieties of winter squash. Do a price cost comparison. What are the most and least expensive varieties?
6. What are the top three squash-producing countries in the world? Hypothesize why these countries lead squash crop production.

*Good sources provide 10-19% of the recommended Daily Value (DV). Excellent sources provide 20% or more of DV.

For information, visit:
www.eatright.org
www.ers.usda.gov
www.nal.usda.gov/fnic/foodcomp/search
www.choosemyplate.gov/MenuPlanner/downloads/RateWhatYouAte.pdf


BUTTERNUT SQUASH

Botanical Facts


SPAGHETTI SQUASH

Pronunciation: wĭn-tər - skwôsh
Spanish name: calabaza
Family: Cucurbitaceae
Genus: *Cucurbita*
Species: *C. maxima Duchesne*

Squash are gourds belonging to the *Cucurbita* genus. Gourds, along with cucumbers and melons, are vine crops of the Cucurbitaceae family. The word "squash" is derived from the Native American *askutasquash* meaning "food eaten raw."

There are two main squash varieties: winter and summer. Winter squash are not grown or harvested in winter, but picked when fully ripe and feature a hard shell (rind) with thick, inedible skin and hollow seed cavity with fully developed seeds. The thick shell allows it to be stored for several months. (Summer squash are picked immature and have a soft shell.)

The most common varieties of winter squash grown in the United States include:

- **Acorn,** a smaller, acorn-shaped squash with dark green skin, deep furrows, and yellow-orange flesh.
- **Butternut,** a long, pear-shaped squash with tan skin and orange, sweet flesh; the most popular variety.
- **Buttercup** or **Turban,** named for its "wrapped" layers, usually a dark green shell with orange, mealy flesh.
- **Hubbard,** a golden or green squash notable for its bumpy, thick skin.
- **Pumpkin,** the largest squash variety with bright orange, ribbed skin, and orange flesh.
- **Spaghetti,** a yellow-skinned squash whose flesh forms translucent spaghetti-like strands when cooked.

For more information, visit:
www.urbanext.uiuc.edu/veggies/wsquash1.html

How Much Do I Need?

A ½ cup of cooked winter squash is about one cupped handful. The amount of fruits and vegetables that each person needs depends on age, gender, and physical activity level. Fruits and vegetables are an important part of an overall healthy diet.

Have students visit **http://teamnutrition.usda.gov/resources/mypyramidclassroom.html** to learn about the recommended daily amounts for all food groups. Use the student worksheets to help students write down and track their food group goals.

For more ideas, visit:
www.choosemyplate.gov/MenuPlanner/downloads/RateWhatYouAte.pdf

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.choosemyplate.gov** to learn more.

How Does Winter Squash Grow?

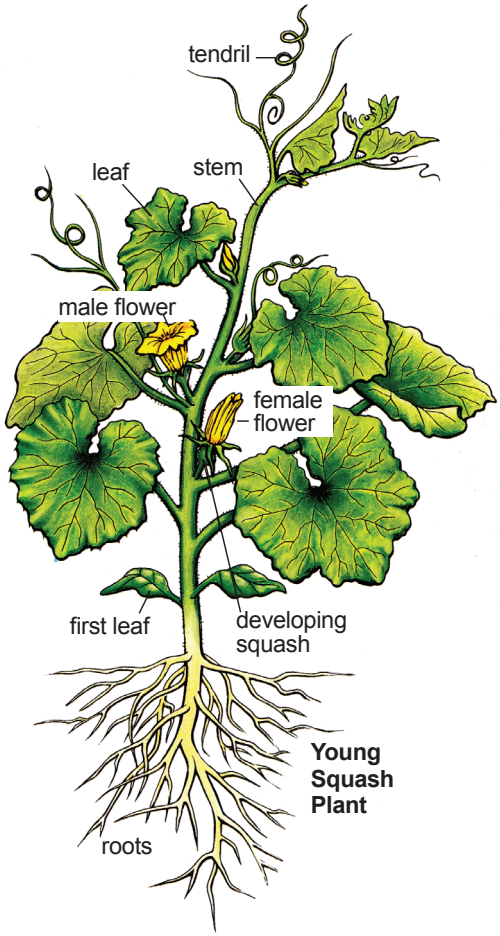
Winter squash are warm-weather plants requiring pollination for fruit development. Until recently, squash plants were grown exclusively on vines. Today, more growers are using a hybridized, compact "bush" variety that allows for more plants per acre.

	Vine and Bush Squash
Temperature	70-90 F (sensitive to frost)
Preferred soil	Rich, sandy loam soil, well drained, heavy fertilization (or added compost)
Exposure	Full sun with steady water supply
Planting	Seeds on hills or raised beds (6 to 10 feet apart, 4 to 6 seeds per hill)
Flowers	Multiple male blossoms on long stems; few females, swollen at base of plant
Pollination	Bees transfer pollen from male to female blossoms; USDA recommends one hive per acre
Harvesting	Occurs at mature fruit stage, usually 80 to 100 days after planting (typically in fall months)

For more information, reference:
www.kidsgardening.com

Growing Vegetables California Style, Marsha Prillwitz, 1988.

Linking Science and Nutrition: Tips, Lessons, and Resources for Integrated Instruction, *Network for a Healthy California*, 2010. (Also available on **www.californiahealthykids.org**.)



Adapted from: *Hot as a Pepper, Cool as a Cucumber,* Meredith Sayles Hughes, 1999. To download reproducible botanical images, visit the *Educators' Corner* at **www.harvestofthemonth.com**.

A Taste of Squash History

- Gourds, cucumbers, and melons are all part of the Cucurbit family, but all have different origins. Squash and pumpkins are native to the Americas, while cucumbers originated in eastern Asia, and melons in Africa or Persia.
- Squash are one of the oldest cultivated crops in the Western Hemisphere. Seeds found in Mexico have been dated as 10,000 years old.
- Squash were originally cultivated for their seeds, as early varieties did not contain much flesh and were very bitter.
- Squash were one of the "Three Sisters" planted by the Iroquois. The Iroquois myth describes three sisters that were inseparable. These plants — squash, maize (corn), and beans — were staples of nearly every Native American tribe.
- Winter squash first migrated to Europe from Peru by Spanish Explorer Francisco Pizarro in the early 16th century. Many Europeans referred to squash as "melons."
- Winter squash became a staple food of early colonists and eventually traveled West with Americans, producing better crops in warmer states like California.

For more information, reference:
Growing Vegetables California Style, Marsha Prillwitz, 1988.

Adventurous Activities

Celebrate National School Lunch Week by having students write journal entries every day of what they ate for lunch. Have students monitor how they feel (e.g., tired, energetic, etc.). Use the NutritionData® Custom Data Entry tool to complete a nutrient analysis of their lunches (**www.nutritiondata.com**). Compare journal entries between school lunches and lunches from home.

For more activities, visit:
www.harvestofthemonth.com

Home Grown Facts

TURBAN SQUASH

- California leads the nation in total squash production (20%), followed by Florida (18%), Michigan (17%), and Georgia (15%).
- California ranks third behind Michigan and Oregon in production of squash for processing (15% of total squash acreage).
- Squash production takes place mostly in central San Joaquin Valley, with summer squash accounting for more acreage than winter squash.

For more information, visit:
www.cdfa.ca.gov

Physical Activity Corner

California's Physical Education Content Standards emphasize educating students on the importance of a healthy lifestyle that includes nutritious foods and regular physical activity. Help reinforce this message in the classroom. Demonstrate how being active is not limited to doing outdoor activities or organized sports.

Discussion:

- Break students into small groups and have them discuss how they can be active for 60 minutes every day doing a variety of indoor and outdoor activities each day. Have each group share at least one answer and demonstrate to the class.
- Discuss ways students can increase their physical activity in everyday activities such as while grocery shopping, doing household chores, etc.

For physical activity ideas, visit:
www.ncpe4me.com

Cafeteria Connections

Winter squash are available in many varieties. Butternut, acorn, and spaghetti are most common, but students may not be as familiar with others like banana and kabocha. Help students taste and learn about different varieties.

- Work with your school nutrition staff to set up a "Winter Squash" display in the cafeteria. Label each variety and provide the nutrition information.*
- Invite school nutrition staff to help with the *Exploring California Winter Squash* activity (page 1).
- Organize a "Squash Naming" contest. Display a number of winter squash and post the variety names above in scrambled order. Ask students to match the name with the correct variety.

*Hint: Download the Nutrition Facts labels from **www.harvestofthemonth.com**.

For more ideas, reference:
Fruits and Vegetables Galore, USDA, 2004.

CARNIVAL SQUASH

Just the Facts

- Referred to as a vegetable in cooking, squash are actually fruits of vines of the *Cucurbita* genus.
- Native Americans believed squash seeds increased fertility and called squash "the apple of God."
- In Native American, the word "squash" means "eaten raw" but winter squash are almost never eaten raw.
- Besides the fruit, other edible parts of squash plants include the seeds (eaten whole, toasted, ground into paste, or pressed for oil); shoots, leaves, and tendrils (eaten as greens); and blossoms (used for cooking and decoration).

For more information, visit:
www.vegparadise.com

School Garden: Plant Parts We Eat

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.

Squash plants have many edible parts including the fruits, leaves, flowers, and seeds. Many other plants have multiple edible parts, like beets, strawberries, and pumpkins. Some plants have edible fruit but poisonous leaves, like tomatoes. Use the CDE *Fruit and Vegetable Photo Cards* and/or school garden to help students learn the plant parts we eat — roots, stems, leaves, fruits, flowers, and seeds.

- Assign a plant part to groups of students
- Have groups research and report on assigned part, including examples
- Visit school garden and have students identify plants and their edible parts

Adapted from: *Nutrition to Grow On,* CDE, 2001, pp. 10-17.

Student Champions

- Invite older students to work with younger students to plant a "Three Sisters" garden plot (squash, corn, beans) at school or in a community garden. Enlist help of neighbors, family, and friends.
- Using the knowledge they have gained about nutrition, have students find healthy recipes featuring winter squash. Encourage students to visit local grocery stores and provide them with these recipes to promote as "school specials." Students can offer to include special artwork to help the store show patrons how they are supporting a local school.

For more ideas, visit:
www.schoolnutrition.org

Literature Links

- **Elementary:** *Carlos and the Squash Planet* (bilingual) by Jan Romero Stevens, *Plant Plumbing: A Book About Roots and Stems* by Susan Blackaby, and *Pumpkin Soup* by Helen Cooper.
- **Secondary:** *Squashed* by Joan Bauer and *The Legend of Sleepy Hollow* by Washington Irving.

For more ideas, visit:
www.cfaitc.org/trg/pdf/trg2009.pdf

This material was produced by the California Department of Public Health's *Network for a Healthy California* with funding from USDA SNAP, known in California as CalFresh (formerly Food Stamps). These institutions are equal opportunity providers and employers. CalFresh provides assistance to low-income households and can help buy nutritious foods for better health. For CalFresh information, call 1-877-847-3663. For important nutrition information, visit www.cachampionsforchange.net. © 2011