Harvest of the Month

Network for a Healthy California

Health and Learning Success Go Hand-In-Hand

Studies show that eating nutritious foods and getting regular physical activity can increase students' focus on tests and maintain healthy immune systems. *Harvest of the Month* connects with core curricula to give students the chance to explore, taste, and learn about the importance of eating fruits and vegetables. It links the classroom, cafeteria, home, and community to help motivate and support students to make healthy food choices and be physically active every day.

Exploring California Sweet Potatoes: Taste Testing

What You Will Need (per group of 6-8 students):

- Two raw sweet potatoes (one each of "dry flesh" and "moist flesh"*), cubed; two baked sweet potatoes (one each of dry flesh and moist flesh); one can of sweet potatoes
- Map of California
- Nutrition Facts labels** for raw, baked, and canned sweet potatoes
- Pencils and paper

*California grows both "dry flesh" and "moist flesh" varieties. Sometimes the "moist flesh" are referred to as "yams," but they are sweet potatoes.
Download from **www.harvestofthemonth.com.

Activity:

- Taste raw, dry flesh sweet potato and describe the texture, smell, color, and taste. Locate on the California map where dry flesh sweet potatoes are grown.
- Repeat with raw, moist flesh sweet potato; then baked and canned sweet potatoes.
- Compare regions where dry and moist flesh varieties are grown. Discuss what affects the flesh color and texture (e.g., altitude, temperature, climate, weather).
- Compare the Nutrition Facts labels for the different varieties. Which nutrient values are similar and different? Why?
- What is the difference in taste between the raw, baked, and canned sweet potatoes? Which is the students' favorite?

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.

Nutrition Facts

Serving Size: ½ cup baked sweet potatoes (100g)

Calories 90	Calories from Fat 0
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 36mg	2%
Total Carbohydrate 21g	7%
Dietary Fiber 3g	13%
Sugars 6g	
Protein 2g	
Vitamin A 384%	Calcium 4%
Vitamin C 33%	Iron 4%

SWEET POTATOES

Cooking in Class: Paradise Sweet Potatoes

Makes 36 servings at 1 piece of sweet potato and pineapple per serving

Ingredients:

- 2 (15-ounce) cans sweet potatoes in light syrup, drained
- 1 (20-ounce) can pineapple chunks in 100% juice, drained (reserve ¼ cup juice)
- 1½ teaspoons ground cinnamon

1. Combine sweet potatoes, pineapple, cinnamon, and reserved juice in a large bowl. Mix thoroughly.
2. Place one sweet potato and one pineapple chunk on each paper plate. Serve immediately.

Nutrition information per serving:
Calories 36, Carbohydrate 9 g, Dietary Fiber 1 g, Protein 0 g, Total Fat 0 g, Saturated Fat 0 g, Total Fat 0 g, Cholesterol 0 mg, Sodium 9 mg

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

For more ideas, visit:
www.cachampionsforchange.net

Reasons to Eat Sweet Potatoes

A ½ cup of sweet potatoes is:

- An excellent source of vitamin A* and vitamin C.
- A good source of fiber, vitamin B_6 (pyridoxine), and potassium.

*Learn about vitamin A on page 2.

Champion Sources of Vitamin A*:

- Carrots
- Kale
- Pumpkin
- Spinach
- Sweet potatoes
- Turnip greens

*Champion sources provide an excellent source of vitamin A (at least 20% Daily Value).

For more information, visit:
www.nal.usda.gov/fnic/foodcomp/search/
(NDB No: 11508)

What is Vitamin A?

- Vitamin A is a fat-soluble vitamin that helps maintain good vision, protects the body from infections, supports cell growth, and keeps skin healthy.
- Vitamin A in its complete form is found in animal sources of foods, such as liver, fish oil, and eggs.
- In foods of plant origin, vitamin A works as an antioxidant in the form of carotenoids. There are two main kinds of carotenoids: alpha carotene and beta carotene.
- Sweet potatoes are one of the richest plant sources of beta carotene, which the body converts into vitamin A.
- Antioxidants, like carotenoids, help keep the immune system healthy, the body safe from free radicals and may lower the risk of some types of cancer.

Source:
American Dietetic Association Complete Food and Nutrition Guide, 3rd Edition by Roberta Larson Duyff, The American Dietetic Association, 2006.

How Do Sweet Potatoes Grow?

Sweet potatoes are tropical vegetables, grown mostly in California and in the southern states (North Carolina, South Carolina, Louisiana, Mississippi, Alabama, Texas, and Georgia). Hot days and warm nights are important for successful commercial production; however, sweet potatoes can be grown wherever there are 150 frost-free days for them to develop.

Sweet potatoes are propagated from sprouts or vine cuttings called "slips." In California's San Joaquin Valley, sprout production begins around early March. Sprouts are grown from plant stock; approximately six to eight bushels will produce enough sprouts to plant one acre of sweet potatoes.

Sandy, well-drained soil is best for production. Roots will begin to form in 30 to 45 days and need nitrogen, phosphorus, and potash for optimum growth. A mature sweet potato will have four to five roots of varying sizes, but the majority should have a 1¾-inch diameter and be three to nine inches in length. Maturity is checked by gently lifting the sweet potatoes out of the ground with a shovel and making sure they do not become detached from the vine. If the sweet potato is not mature, then it is lowered back down and covered with soil.

For more information, visit:
http://urbanext.illinois.edu/veggies/sweetpotato.cfm

Student Champions

Suggest that students design sweet potato placemats with holiday designs and games to distribute to nursing homes, families, and friends for holiday meals. Students may also want to include sweet potato nutrition facts, growing information, and recipes on the placemats.

For more ideas, visit:
www.cfaitc.org

Botanical Facts

Pronunciation: swēt pə-tā´tō
Spanish name: camote
Family: Convolvulaceae
Genus: *Ipomoea*
Species: *I. batatas*

The sweet potato is a perennial plant of the genus *Ipomoea,* in the family Convolvulaceae (morning glory family). The sweet potato is grown for its tuberous roots. Its botanical name, *Ipomoea batatas,* was derived from the Native Americans of Louisiana who were growing them as early as 1540 and referred to the roots as *batatas*.

The sweet potato is commonly confused with the yam, which belongs to another family. The confusion began over 100 years ago when farmers and stores marketed sweet potatoes as "yams" and the name stuck. Despite recent branding regulations by the USDA, sweet potatoes are still widely known as "yams." The sweet potato is only distantly related to the potato (*Solanum tuberosum*). See chart below to compare characteristics of yams and sweet potatoes.

	Sweet Potatoes	Yams
What is it?	Root	Tuber
Skin	Smooth Color ranges depending on variety, from pale yellow to dark purple to bright orange	Scaly and rough Color ranges from off-white to dark brown
Flesh	Moist consistency and sweet flavor Colors range from light yellow to pink, red, or orange	Dry and starchy Color ranges from off-white to yellow to pink to purple
Nutrition	Very high in beta carotene and other nutrients	Very low in beta carotene and other nutrients

For more information, visit:
http://aggie-horticulture.tamu.edu/plantanswers/vegetables/sweetpotato.html
www.urbanext.uiuc.edu/veggies/

How Much Do I Need?

A ½ cup of sweet potatoes is about one cupped handful. The amount of fruits and vegetables each person needs depends on age, gender, and physical activity level. It is important to eat a variety of nutrient-rich foods every day from each food group to maintain good nutrition and health. Fruits and vegetables are available in fresh, frozen, canned, and dried forms. They are sources of many vital nutrients like vitamin A (as carotenoids), vitamin C, folate, potassium, fiber, and other phytochemicals.

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.

Physical Activity Corner

Studies support a connection between regular physical activity and increased levels of alertness, memory function, and learning. Children should engage in at least 60 minutes of physical activity every day to stay healthy and fit, both mentally and physically. Here are some ideas for indoor classroom activities.

Objective:

Develop memory, visual learning, and locomotor skills.

Add-A-Move Memory Game:

- Stand in front of the room and do a specific movement (e.g., hop up and down once).
- Ask students to mimic the movement.
- Repeat using a different movement, for up to 10 times.
- Students act out the movements in same order as presented.

Bring It Home:

- Encourage children to suggest playing *Add-A-Move Memory Game* with family members and explain how eating fruits and vegetables and doing physical activity can affect memory.

Mathematical Jumping Jacks:

- Call out a math problem. Ask students to give their answer in jumping jacks.

Q&A Catch:

- Play a game of catch where a student catches the ball, calls out the answer to a question asked by the teacher, and quickly tosses the ball to someone else for the next answer.

For more ideas, visit:
www.cdc.gov/HealthyYouth/physicalactivity

Student Sleuths

1. What does vitamin A do for our bodies? Vitamin C? Vitamin B_6? Iron?
2. What are some potential health problems associated with vitamin A deficiency?
3. What is the difference between a tuber and a root?
4. How are sweet potatoes similar to and different from yams? Include nutrient content, texture, skin, and flesh colors, and geographic regions where each are found.
5. Research products that George Washington Carver made using sweet potatoes. How have those products affected or revolutionized everyday life?
6. Which former U.S. President was a sweet potato farmer before taking office?
7. What makes the flesh of a sweet potato so orange?

For information, visit:
www.cayam.com
www.sweetpotato.org
www.ncsweetpotatoes.com
www.fruitsandveggiesmatter.gov/month/sweet_potato.html

School Garden: Root Plants

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.

Sweet potatoes are root plants. The root is the part of the plant that absorbs water and nutrients from the soil and anchors the plant in the ground. Bring in a variety of root vegetables to the classroom, such as sweet potatoes, potatoes, and carrots and pass around to students.

- Identify each vegetable, discuss the color, texture, smell, and taste.
- Talk about how they are grown.
- Discuss and compare the nutrients* of each and why it is important for us to eat plenty of fruits and vegetables.
- Brainstorm other root vegetables that we eat.

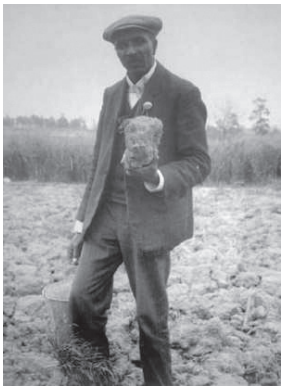
*Download Nutrition Facts labels for Sweet Potatoes and Root Vegetables from **www.harvestofthemonth.com**.

Take It Further:

- Visit the school garden and have students identify root vegetables and the nutrients they provide.
- Grow sweet potato plants from a sweet potato. Cut up a sweet potato to include an 'eye' and plant in moist soil or potting soil.

For more ideas, visit:
www.ncsweetpotatoes.com
www.lifelab.org

The Story of George Washington Carver



George Washington Carver was an African American who revolutionized Southern agriculture with the development of a crop rotation method. Born in Missouri in 1864, he studied farming and nutrition and soon began to think of new ways in which farmers could earn more money. He taught other farmers how to alternate the soil-depleting cotton crops with soil-enriching crops such as peanuts, peas, soybeans, sweet potatoes, and pecans. By alternating crops, the soil is replenished with nutrients, allowing farmers to re-plant the same land again and again.

Carver also created new uses for sweet potatoes. He made about 100 new products from sweet potatoes including flour, ink, starch, synthetic rubber, tapioca, vinegar, a type of glue for postage stamps, and 500 shades of textile dye.

Just the Facts

- The Center for Science in the Public Interest (CSPI) ranks the sweet potato as one of the best foods to eat*.
- Approximately 4.2 pounds of sweet potatoes per capita are consumed annually in the United States.
- It would take 23 cups of broccoli to provide the same amount of vitamin A as one medium sweet potato.
- Sweet potatoes are more nutritious when cooked with the skin.

*Visit **www.cspinet.org/nah/10foods_bad.html** for complete list.

Home Grown Facts

- California ranks third in sweet potato production behind North Carolina and Louisiana.
- Almost 80 percent of California production takes place in Merced County, followed by Fresno and Stanislaus counties. All three counties are located in the San Joaquin Valley, one of the most productive agricultural regions in the world.
- Most California grown sweet potatoes are marketed to the West Coast, Texas, and Canada.
- There are many varieties of sweet potatoes, but the three main varieties found in California markets are Hanna or Golden Sweets, orange-fleshed Beauregards, and Red "Yams."

Cafeteria Connections

- Encourage students to take part in the *Student Champions* (page 2) activity by holding a Placemat Contest between classrooms.
- Use categories to help create interest, such as Most Creative, Most Festive, and Most Informational.
- Ask staff and older students to help judge the entries. Have student judges create a cafeteria bulletin board to display the placemats for a week.
- Consider awarding prizes in each category by grade level. Students can then donate the placemats to elder day care centers or homes for the holiday meals.

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

Adventurous Activities

History Exploration:

Ask students to research and write a report on the many medical and industrial uses of sweet potatoes throughout history.

Problem Solving:

Use the nutrient content of sweet potatoes in math problems.

- **Example:** In order to get the same amount of vitamin A that is contained in one medium sweet potato, a person would have to consume 23 cups of broccoli. How many sweet potatoes would it take to fulfill the same requirements as 100 cups of broccoli? How much vitamin A, vitamin C, and fiber would there be?

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

A Slice of Sweet Potato History

Sweet potatoes are believed to have been domesticated in Central and South America nearly 5,000 years ago. They then spread to Mexico, the Caribbean, the West Indies, and parts of North America.

When Christopher Columbus landed on America's shores in 1492, the Native Americans were growing sweet potatoes. Columbus and his men loved the tasty sweet potatoes so much that they brought them back to Europe to grow their own, where they continued to increase in popularity.

The Spanish began cultivating sweet potatoes immediately. Soon they were profitably exporting sweet potatoes to England where they were included in spice pies to be devoured at the court of Henry VIII.

The French, not to be outdone, planted them at the request of Louis XV. After his death, the popularity of the sweet potato staggered for 30 years. Finally, the Portuguese carried sweet potatoes to Asia and Africa where they have become an important dietary staple. In the United States, the sweet potato was a main source of nourishment for early homesteaders and for soldiers during the American Revolution and Civil War. The Pilgrims and Native Americans even ate sweet potatoes at the first Thanksgiving feast.

Literature Links

- **Elementary:** *Farmer's Market* by Marcie Rendon and Cheryl Walsh Bellville, *Give Me My Yam!* by Jan Blake, *Plant Plumbing: A Book About Roots and Stems* by Susan Blackaby, *Tops and Bottoms* by Janet Stevens.
- **Secondary:** *An Ag Interview** by Pamela Emery and *Buried Treasure: Roots & Tubers* by Meredith Sayles Hughes.

*Available through California Foundation for Agriculture in the Classroom.

For more ideas, visit:
www.cfaitc.org/books

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.

CDPH California Department of PublicHealth

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