

Harvest of the Month



Network for a Healthy California



Health and Learning Success Go Hand-In-Hand

School meals are designed to provide the nutrition students need to be healthy and ready to learn! The Fresh Fruit and Vegetable Program is a great way for schools to provide healthy snacks to students during the school day. Consider leading your school in developing its own fruit and vegetable snack program. *Harvest of the Month* can support your efforts to show students how to make healthy food choices and be more active. For information on the Fresh Fruit and Vegetable Program, visit www.fns.usda.gov/cnd.

Exploring California Greens: Taste Testing

Getting Started:

- Contact school nutrition staff about cooking greens or conducting taste testing in cafeteria.

What You Will Need (per group):

- 1 cup each of 3-6 leafy green varieties*, raw and cooked
- Paper and colored pencils
- Printed Nutrition Facts labels and botanical image**



BOK CHOY

Activity:

- Make a chart to record observations for each raw and cooked variety: shape, color, smell, texture, and taste.
- Explore the look, smell, feel, and taste of raw leafy greens and cooked greens. Record observations in chart. Compare and contrast.
- Use botanical image to identify the parts of the raw leaf.
- Examine Nutrition Facts labels and discuss similarities and differences. Complete *Student Sleuths* (page 3) and report back to class.
- Complete *Literature Links* activity (page 4). Share drawings with library staff.
- Take a vote of the favorite cooked greens variety. Display results in cafeteria.

*See *Botanical Facts* on page 2 for varieties.

**Download from www.harvestofthemonth.com.

For more ideas, visit:

www.fns.usda.gov

Nutrition Facts

Serving Size: ½ cup cooked Swiss chard (88g)

Calories 18 Calories from Fat 0

% Daily Value

Total Fat 0g 0%

Saturated Fat 0g 0%

Trans Fat 0g

Cholesterol 0mg 0%

Sodium 157mg 7%

Total Carbohydrate 4g 1%

Dietary Fiber 2g 7%

Sugars 1g

Protein 2g

Vitamin A 107% Calcium 5%

Vitamin C 26% Iron 11%

Cooking in Class: Simmered Greens

Ingredients:

Makes 32 servings at ½ cup each

- ½ cup olive oil
- 4 cloves garlic, minced
- 4 onions, chopped
- 2 cups chopped green onion
- 4 cups low-sodium vegetable broth
- 4 cups tomato juice
- 4 pounds greens (mixture of kale, mustard, collard, and turnip greens)
- Salt and pepper
- Small paper cups and forks

1. In large pot, sauté garlic and onions in oil.
2. Add broth and juice. Bring to a boil.
3. Add greens and seasonings.
4. Cover and cook on low heat for 35 minutes or until tender. Serve warm.

Source: *Network for a Healthy California*, 2009.

For nutrition information, visit: www.harvestofthemonth.com

Reasons to Eat Greens

A ½ cup of most cooked green varieties provides:

- An excellent source of vitamin A, vitamin C, and vitamin K (bok choy, collards, kale, Swiss chard).
- An excellent source of folate (bok choy and collards).
- A good source of manganese (kale and Swiss chard).
- A good source of iron and potassium (Swiss chard).
- A good source of calcium (bok choy and collards).*

*Learn about calcium on page 2.

Champion Sources of Calcium:*

- Almonds
- Fortified cereals
- Lowfat dairy foods
- Nopales (cactus leaves)
- Soybeans

*Provide a good or excellent source of calcium.

Source: www.nichd.nih.gov/milk/prob/calcium_sources.cfm

COOKED GREENS

What is Calcium?

- Calcium plays a key role in teeth and bone health. In fact, more than 99 percent of the body's total calcium is found in the teeth and bones.
- Bones are the “calcium bank” for our bodies. Bones are living tissue constantly withdrawing and depositing calcium.
- Vitamin D is needed (from food and sunlight) to help us absorb calcium.
- Calcium also helps keep nerves healthy so that muscles can contract and blood can clot.
- As calcium need increases, the calcium absorption efficiency also increases (and vice versa).
- Calcium absorption declines with aging in both men and women.

For more information, reference:

Dietary Reference Intakes, Institute of Medicine, 2006.

How Much Do I Need?

A ½ cup of cooked greens is about the same as two cups of raw leafy greens. Leafy greens cook down considerably – from one-quarter up to one-eighth of the original volume.

The amount of fruits and vegetables you need depends on your age, gender, and physical activity level. All forms of fruits and vegetables count towards your daily amount. Leafy greens are available fresh, frozen, and canned and are just as nutritious when cooked.

How Do Cooking Greens Grow?

Cooking greens are known as cool-season crops, but can be grown and harvested almost year-round. They are commonly used as fall and winter vegetables, as they grow best in cooler weather and can survive an occasional frost. Some varieties, like kale and collards, taste sweeter after a frost. These varieties, along with Swiss chard, also grow well in warmer, more humid climates and in poor soil. Well-drained, loam soil is ideal for most cooking greens.

For a chart with information on how to plant and grow cooking greens, refer to *Cooked Greens Botanical Images* on www.harvestofthemonth.com.

Helpful Hint:

Refer to *Adventurous Activities* on page 4.

For more information, visit:

www.cfaitc.org/GardenGuide

Botanical Facts

Cooking greens are leafy green vegetables, which are among the most widely grown vegetables. They are also known as *pothebs* and most varieties can be used either fresh or cooked. The term “leafy greens” refers to vegetables like lettuce, cabbage, endive, escarole, spinach, broccoli, collards, turnip greens, mustard greens, kale, Swiss chard, and bok choy. They are grown for their leaves and stems, though sometimes the stems are inedible.

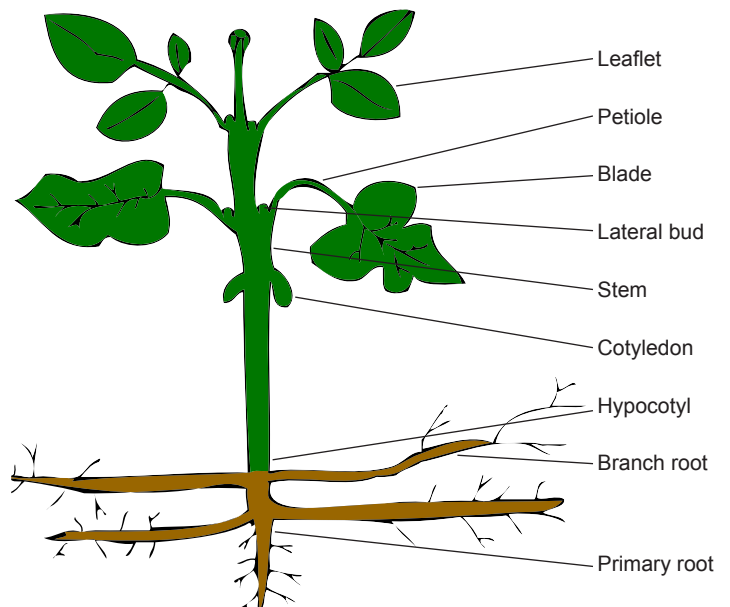
Most varieties – like collards, kale, mustard greens, turnip greens, and bok choy – are part of the cabbage family (Brassicaceae). Other varieties, like Swiss chard, are related to the spinach family (Amaranthaceae). Young plants have small, tender leaves and a mild or sweet flavor (collards, Swiss chard, bok choy, kale). Mature plants have tougher leaves and a stronger flavor (mustard greens, turnip greens).

Activity:

- Use the chart below as a guide to make another chart with four different leafy green varieties. Fill in all of the fields (family, genus, species, etc.). Make a list of all the different species to which leafy greens belong.

For more information, visit:

www.ers.usda.gov



Source: <http://library.thinkquest.org/3715>

	Bok choy	Collard	Kale	Swiss chard
Pronunciation	bäk-'choi	köl'ərd	kāl	swis-'chärd
Spanish	repollo chino	hojas de berza	col rizada	acelga
Family	Brassicaceae	Brassicaceae	Brassicaceae	Amaranthaceae
Genus	<i>Brassica</i>	<i>Brassica</i>	<i>Brassica</i>	<i>Beta</i>
Species	<i>Brassica rapa</i>	<i>Brassica oleracea</i>	<i>Brassica oleracea</i>	<i>Beta vulgaris</i>
Cultivar group	Chinensis, Pekinensis	Acephala	Acephala	Cicla
Other names	Pak-choi, snow cabbage, Chinese chard	<i>Coleworts</i> , Tree cabbage, non-heading cabbage	<i>Coles</i> or <i>caulis</i> , Borecole	Chard, Seakale, Spinach beet

School Garden: Parts of a Plant

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.

Visit your school or neighborhood garden to study the parts of the plant.

- Choose a leafy green vegetable plant. Identify the parts: *hypocotyl, cotyledon, stem, petiole, lateral bud, blade, and leaflet.*
- Choose a fruit plant. Identify the parts: *root, stem, leaflet, fruit, bud, and blossom.*
- Compare and contrast fruit and vegetable plants.

Helpful Hint:

Fall is a great time to plant leafy greens like kale, collards, and spinach. Refer to *How Do Cooking Greens Grow?* (page 2) for growing information.

For more ideas, visit:
www.csgn.org

Home Grown Facts

- California produces about two-thirds of the nation's leafy green vegetables.
- California leads the nation in production of mustard greens and ranks second for collard greens.
- California's production of mustard greens is about three times greater than collard greens. Kale production approximately doubles collard production.
- Monterey County is California's leading grower of most leafy green varieties.

Activity:

- Select one leafy green vegetable.
- In which counties or regions of California is it grown?
- Why are these regions optimal for growing the variety?
- On average, about how much (acreage and tons) is grown annually?
- Does the variety rank among California's top thirty agricultural commodities?

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

A Leaf of Cooking Greens History

- Collards were grown by the ancient Greeks and Romans. They are the oldest leafy green within the cabbage family.
- Like collards, kale descended from wild cabbage in eastern Europe and parts of Asia.
- Bok choy is a descendant of Chinese cabbage that originated in China about 6,000 years ago.
- Swiss chard was first grown in Sicily (Italy), but a Swiss scientist was the first to name it.

Activity:

- Select one cooking green that is grown in California. Research when and how the variety came to be grown in California.

For more information, visit:
www.fruitsandveggiesmatter.gov/month/greens.html
<http://plantanswers.tamu.edu/publications/vegetabletravelers>

Student Sleuths

- 1 Examine the four Nutrition Facts labels for bok choy, collard greens, kale, and Swiss chard. Make a list for each variety of the excellent and good nutrient sources. Which varieties have similar excellent sources? Which have similar good sources? Which have different good or excellent sources? Describe each nutrient's function in the body and how it connects to health.
- 2 Select one leafy green variety. Find the nutrition information for raw and cooked. (Hint: use similar measurements.) Make a chart comparing nutrient values for both forms. What happens to the nutrients when cooked? Make a hypothesis why there are differences between the raw and cooked forms. Why do leafy greens shrink when cooked? On average, by how much do leafy greens shrink (use percentages or ratios)?
- 3 Research several cultures and describe how "greens" have played a role in traditional recipes. Where in the United States are cooked greens most commonly eaten? Interview family members or neighbors to find out which cooked greens they eat. Bring a recipe to share with class featuring your favorite cooked greens and key nutrient facts.

For information, visit:
www.fruitsandveggiesmatter.gov/month/greens.html
www.ars.usda.gov

Student Champions

How walkable is your school's community? All neighborhoods have the right to clean, safe physical activity areas – including walking routes. Encourage students and parents to get involved with International Walk to School Month (October) and in assessing your community's needs for improved walking routes.



- Visit www.cachampionsforchange.net. Go to the *Our Community – How to Make Healthy Changes* page.
- Download the Walkability Assessment and complete as a class.
- Submit results to the school principal, faculty, and PTA.
- Develop a plan to make improvements, if needed.
- Identify and map safe walking routes to and from school. Work within a two-mile radius of school.
- Map out safe walking routes to other community areas – parks, farmers' markets, and shopping centers.
- Share maps with parents, school leaders, and neighbors.

Follow-up Activity:

Complete the *Physical Activity Corner* exercise on page 4.

For more information, visit:
www.saferoutesinfo.org

Adventurous Activities

Science Investigation

What You Will Need (per student):

- Printed copy of leafy green botanical image*
- Paper and colored pencils

Activity:

- Define each of the labeled plant parts in the botanical image.
- Describe *photosynthesis* and its role in plant growth.
- Select one leafy green variety. Research how it grows from root cells to maturity. Make a sketch at each stage of development.
- Complete *School Garden* activity on page 3.

*Download from www.harvestofthemonth.com.

Cafeteria Connections

- Share results from *Taste Testing* activity (page 1) of students' favorite cooked greens variety.
- Encourage school nutrition staff to do weekly taste tests of different cooked greens. Offer to help prepare and serve taste tests.
- Organize a school-wide contest for students to vote for their favorite cooked greens variety.
- Suggest using local growers to supply greens for the salad bar – spinach, romaine lettuce, and cabbage.

Just the Facts

- Collard, mustard, and turnip greens are commonly known as “Southern greens.”
- In Chinese, bok choy means “white vegetable.”
- Although it looks like romaine lettuce or celery stalks, bok choy is actually a type of cabbage.
- Swiss chard is a type of beet grown for its edible leaves.
- Some kale varieties are “flowering” and grown for their white, red, pink, purple, and blue ornamental leaves.

For more information, visit:

www.fruitsandveggiesmorematters.org

Activities & Resources Galore

Visit the Educators' Corner online for more resources:

- Cooking in Class (recipes analyses, cooking tips)
- Reasons to Eat (Nutrition Glossary)
- How Does It Grow (botanical images, growing tips)
- Student Sleuths (Answer Key)
- Adventurous Activities
- Literature Links (book lists)
- Links to California Content Standards (all grades)

All available at www.harvestofthemonth.com.

Physical Activity Corner

Walking is one of the best ways to be active every day. Physical activity can improve students' learning. Encourage students to walk more – especially outside of school.



Class Activity:

- Participate in any school activities celebrating International Walk to School Month in October.
- Have students make a pledge to walk a certain number of steps each day (e.g., 10,000 steps).
- Map out the estimated number of steps to get to common places within the school (e.g., from the classroom to the school yard, cafeteria, front office).
- Make a challenge among students in your classroom to track the number of steps they take each day.
- Track results on a display or poster board in classroom.
- Challenge other classrooms to a similar walking contest.
- Complete *Student Advocates* activity on page 3.

Helpful Hint:

Work with school leaders to start a Kids Walk-to-School Program at your school. For information, visit:

www.cdc.gov/nccdphp/dnpa/kidswalk

For information on Walk to School Month, visit:

www.walktoschool.org

Literature Links

Plan a visit to the library. Work with librarian to display a variety of books, encyclopedias, and journals on leafy greens and gardening. Feature a collection of ethnic cookbooks. Post students' leafy green drawings and botanical images around the library.

Activity:

- Select one leafy green variety.
- Find at least two different sources on your variety (e.g., a book and journal article).
- Write a report describing the plant's history, growing patterns, growing regions, uses, and health benefits.
- Find a recipe that features the leafy green vegetable.
- Present findings to class.

For a list of book ideas, visit:

www.harvestofthemonth.com

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