

Harvest of the Month



Network for a Healthy California

Health and Learning Success Go Hand-In-Hand

With California's bountiful summer harvest, it is a great time to demonstrate how students can eat a variety of colorful fruits and vegetables every day as part of a healthy, nutrient-rich diet. Research shows that school-based nutrition education promoting healthful eating and physical activity can improve academic performance. *Harvest of the Month* supports academic content standards to give students the chance to explore, taste, and learn about the importance of eating fruits and vegetables. It can support students in making healthy food choices.

Exploring California Salad Greens: Taste Testing

What You Will Need (per group of 3-4 students):

- 1 cup each of several varieties of washed California grown salad greens*
- Printed Nutrition Facts labels** for each variety
- Dry erase board and markers

*See *Home Grown Facts* (page 3) for varieties.

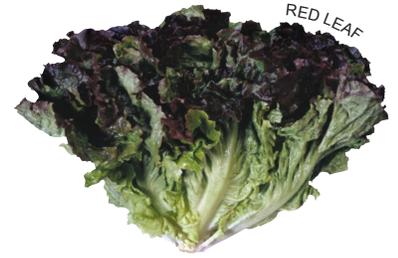
**Download labels from www.harvestofthemoth.com.

Activity:

- Make separate rows on board for each salad green variety. Label columns: appearance, texture, smell, sound, and flavor.
- Observe and taste the first variety and discuss its characteristics within group.
- Write sensory descriptions in appropriate column; repeat for each variety.
- Compare and contrast the Nutrition Facts labels for each variety.
- Take a poll to find out students' favorite variety. Share results with school nutrition staff.

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: 1 cup green leaf
lettuce, shredded (36g)
Calories 5 Calories from Fat 0

	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber 1g	2%
Sugars 0g	
Protein 0g	

Vitamin A 53% Calcium 1%
Vitamin C 11% Iron 2%

Cooking in Class: Caesar Salad Wrap

Makes 24 tastes at 1/4 slice each

Ingredients:

- 1 head romaine lettuce, torn into bite-size pieces
- 4 tomatoes, chopped
- 2 tablespoons green onion, chopped
- 6 tablespoons reduced fat Caesar salad dressing
- 2 tablespoons Parmesan cheese
- 6 (10-inch) fat free flour tortillas
- Small plates or napkins

1. In a large bowl, combine all ingredients, except flour tortillas.
2. Place equal amounts of salad mixture in each tortilla.
3. Roll up tortillas and slice into quarters. Serve on plates.

Hint: You may need to prepare in two batches.

Nutrition information per serving:

Calories 82, Carbohydrate 14 g, Dietary Fiber 1 g, Protein 3 g, Total Fat 2 g, Saturated Fat 1 g, Trans Fat 0 g, Cholesterol 0 mg, Sodium 191 mg

Source: *Network for a Healthy California*, 2011.

For more ideas, reference:

Kids Cook Farm-Fresh Food, CDE, 2002.

Reasons to Eat Salad Greens

One cup of salad greens provides:

- An excellent source of vitamin K* (green leaf, red leaf, romaine, butterhead, and iceberg).
- An excellent source of vitamin A (green leaf, red leaf, romaine, and butterhead).
- A good source of folate (romaine and butterhead).
- A good source of vitamin C (green leaf).

*Learn about vitamin K on page 2.

Champion Sources of Vitamin K*:

- Asparagus
- Avocado
- Brussels sprouts
- Celery
- Cooked greens
- Peas
- Salad greens
- Soybean

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

For more information, visit:

www.nal.usda.gov/fnic/foodcomp/search/
(NDB No.: 11250, 11251, 11252, 11253, 11257)

SALAD GREENS

What is Vitamin K?

- Vitamin K is a fat-soluble vitamin.
- Vitamin K helps stop cuts and scrapes from bleeding too much and starts the healing process.
- Together with calcium, vitamin K helps build strong bones.
- Vitamin K may also help keep blood vessels healthy.
- Low levels or deficiency of vitamin K affects the body's ability to clot blood and may result in easy bruising and bleeding (such as nose bleeds). Deficiencies are rare and usually only result when the body does not absorb vitamin K from the intestinal tract.
- Our bodies store vitamin K only in small amounts, so it is essential to obtain vitamin K through the foods we eat. Leafy green vegetables are a major source of vitamin K.

Source:

<http://lpi.oregonstate.edu/infocenter/vitamins/vitaminK/>

How Do Salad Greens Grow?

Lettuce is grown year-round, but since lettuce seeds germinate and grow best at lower temperatures, and can even withstand a moderate freeze, the peak harvest season is January through May.



Lettuce seeds are sown thinly in rows or in wide-row bands about 18 inches to two feet apart to utilize garden space. Seeds are covered with no more than one-half inch of fine soil, which is kept moist for 10 to 14 days. About three to seven days after planting, lettuce emerges from the ground. Young roots typically lengthen to about two to three centimeters before the seedling begins to extend upward. The cotyledons (the leaf in the embryo that emerges, enlarges, and becomes green) are the first leaves to emerge from the ground, and their storage reserves are utilized for early development. The first true leaves emerge soon after the cotyledons sprout and the process of photosynthesis begins. Growers thin out the plants to allow good air circulation between the plants and help prevent foliar, or leaf, diseases.

All salad greens are harvested by hand. They are cut with a sharp knife near the base of the head and any damaged outer leaves are removed. Then they are usually packed in a box right in the field and shipped to market.

Helpful Hint:

Learn how to grow your own lettuce in the *School Garden* activity (page 3).

For more information, visit: www.calgreens.org

Botanical Facts

Pronunciation: lèt'əs

Spanish name: lechugas variadas

Family: Asteraceae

Genus: *Lactuca*

Species: *L. sativa*



Salad greens consist of hundreds of varieties of different lettuce, which is a temperate annual plant of the family Asteraceae, or sunflower family. Initially, a lettuce plant will have a short stem called a rosette. When it blooms, the rosette lengthens and branches, ultimately producing several flower heads that look similar to dandelions. This process is called bolting. When grown to eat, lettuce is harvested before this bolting process begins.

Some varieties of *Lactuca*, like iceberg, have been specifically cultivated to remove the bitterness from their leaves. These types of lettuce (often called "crispheads") have a high water content, lighter colored leaves, and little nutrient value. Leaves with greater pigmentation contain more antioxidants and nutrients. According to the CDC, the four main types of lettuce are butterhead (e.g., boston, bibb), crisphead (e.g., iceberg), looseleaf (e.g., red leaf, green leaf), and romaine.

For more information, visit:

<http://plantanswers.tamu.edu/publications/vegetabletravelers/index.html>

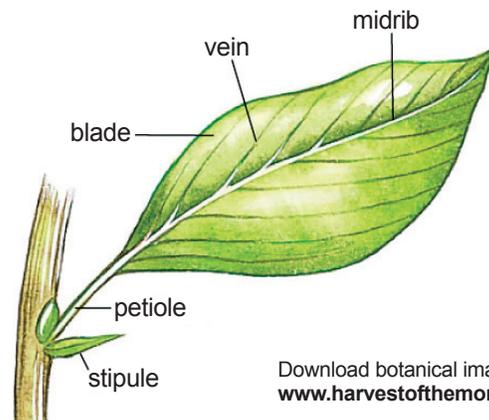
How Much Do I Need?

One cup of salad greens is about two cupped handfuls. For kids, the recommended serving size for salad greens is one cup. For adults, the recommended serving size is two cups. The amount of fruits and vegetables that each person needs depends on age, gender, and physical activity level. Have students find out how much they need to eat and write down how they plan to meet the daily recommended amount. Take time each week to talk with students about their goals.

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.



Download botanical image from www.harvestofthemoon.com.

A Leaf of Salad Greens History

As a cultivated crop, lettuce originated in or around the Mediterranean basin. Wild forms of lettuce in Egyptian tomb paintings and written accounts of lettuce that date back to 79 A.D. all support evidence that salad greens are one of the oldest known vegetables.

Lettuce was among the first vegetables brought to the New World by Christopher Columbus. At the start of the 20th century, the western shipping industry took off, greatly expanding the crop's popularity and range. The early western shipping industry relied mostly on New York lettuce cultivars. However, a disorder called "brown blight" destroyed numerous early plantings and by 1922, the magnitude was great enough to prompt the USDA to assign a plant breeder, I.C. Jagger, to Southern California to develop disease-resistant cultivars.

Jagger used healthy plants and some that he found in the affected New York lettuce fields. He eventually released three cultivars under the name "Imperial," which remained popular until the late 1940s, when the first true iceberg lettuce was developed by T.W. Whitaker. Two types of iceberg lettuce, Great Lakes and Calmar, dominated lettuce production until 1975, when the USDA replaced Calmar with the Salinas group. Salinas remains the most commonly grown lettuce variety today.

For more information, visit:

www.history.org/history/CWLand/resrch1.cfm
www.calgreens.org

Home Grown Facts

- California leads the nation in production of leaf lettuce, head lettuce, and romaine lettuce*.
- Accounting for all varieties, lettuce was California's seventh largest commodity for the period of 2006-2008.
- In addition to the four main varieties (butterhead, romaine, red and green leaf), other California grown varieties include bok choy, bibb lettuce, cilantro, endive, escarole, iceberg lettuce, Italian parsley, kale, Napa cabbage, parsley, radicchio, and green and red cabbage.
- The counties of Monterey, Imperial, Fresno, San Benito, and Santa Barbara account for the highest percentage of California's lettuce production.

*2008 Data

For more information, visit:

www.cdffa.ca.gov



School Garden: Grow Your Own Salad

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.

Growing salad greens in a school garden is easy and inexpensive, and can be done nearly any time from September through June*.

What You Will Need:

- Variety of salad green seeds
- Large growing area
- Seaweed extract or compost tea

Activity:

- Till the soil thoroughly, breaking up clumps and removing stones and debris.
- Dig in plenty of compost and well-cured manure to ensure the best growing soil for each selected salad green variety.
- Plant seeds about two feet apart, depending on variety.
- Keep soil moist, but avoid watering in the evening.
- Mulch soil to conserve moisture and keep soil cool.
- Once plants have grown, feed every three weeks with seaweed extract or compost tea.
- Begin cutting lettuce leaves as soon as they are large enough for use in a salad (or other meals).
- Harvest butterhead, romaine, etc., when heads are firm and fully formed.

*In cooler climates or during winter months, select a site that gets full sunlight. In warmer climates or summer plantings, select a site that gets partial sunlight.

For more ideas, reference:

A Child's Garden of Standards, CDE, 2004.

Student Sleuths

- 1 Why are darker green lettuce leaves more nutritious than lighter green leaves? What is the difference in the nutrient content? How does iceberg lettuce's nutrient content compare to darker green varieties?
- 2 Describe how vitamin K plays a role in helping blood clot. How much vitamin K should you have in your diet for your age?
- 3 What are three things that the mineral manganese helps the body to break down?
- 4 Name three other vegetables that belong to the family Asteraceae.
- 5 What are four components of photosynthesis? What is an effect of photosynthesis?
- 6 Develop a pie graph depicting the percentages of the varieties of lettuce commercially grown in California.
- 7 Identify what percentage of all commercially produced lettuce varieties make up the bagged salad sold in the domestic marketplace.

For information, visit:

<http://ipi.oregonstate.edu/infocenter/vitamins/vitaminK/>
www.nal.usda.gov/fnic/foodcomp/search
www.leafy-greens.org
www.calgreens.org

Adventurous Activities

Science Investigation:

What You Will Need:

Two potted plants*, masking tape, water

Activity:

- Using masking tape, label one plant “light” and other plant “no light.”
- Put the “light” plant in a sunny window.
- Put the “no light” plant in a closet.
- Hypothesize how plants will react.
- Water both plants regularly.
- After two weeks, compare and contrast plants.

*Look for donations for plants.

Research Writing:

Based on results from the Science Investigation, assign a research and writing project about photosynthesis.

For more ideas, visit:

www.agclassroom.org

Just the Facts

- Americans eat about 30 pounds of lettuce every year. That’s about five times more than in the early 1900s.
- In the United States, lettuce is the second most popular vegetable (behind potatoes).
- According to CalCHEEPS findings*, green salad is the most commonly eaten vegetable by California children.
- The ancient wild relative of lettuce contained a sedative-like compound. Ancient Romans and Egyptians would take advantage of this property by eating lettuce at the end of a meal to help induce sleep.

*Source: http://www.cdph.ca.gov/programs/cpns/Documents/REU-FruitsVegetables_CalCHEEPS_2009.pdf

Student Champions

- Have students visit the produce section of a grocery store and interview the produce manager. Report back to class: how many different varieties of salad greens are available? What are the different ways they are sold (e.g., bagged, cut, salad bar)? Is the price different or the same for each variety?
- Have students create posters and cut-out materials with information about salad green varieties to post on the school salad bar. Students can also bring these materials to local restaurants and grocery stores to hang in their salad bars for customers.

Cafeteria Connections

- Partner with school nutrition staff to challenge classes to create and promote a new salad for the school menu. Provide classes with a budget and the “Promotion Planner” from *Fruits and Vegetables Galore*. The goal is to develop a new “salad” that can be introduced through the cafeteria or snack bar.
- Encourage younger students to complete the Word Jumble activity on the *Salad Greens Menu Slick* and to sign their name. On a selected day, draw names during lunch. Selected students will help create a “salad” (with guidance from school nutrition staff) and will be acknowledged for their creation on the day it is served.

For more ideas, reference:

Fruits and Vegetables Galore, USDA, 2004.

Physical Activity Corner

What You Will Need:

- 1 hula hoop per 3 students (“salad bowl”)
- A variety of items to represent “salad ingredients” (scarves, small balls, beanbags, crumpled paper, etc.)



Activity:

- Scatter the hoops throughout the activity area.
- Divide students into groups of three at each hoop.
- Divide items equally between all hoops.
- Have students decide what vegetable each item represents.
- Students simultaneously begin collecting “ingredients” from other hoops; students can only take one ingredient at a time.
- Items must be placed, not thrown, and students cannot guard their hoop.
- After several minutes, stop play. Have groups count their items (skip this step to minimize competition), then redistribute items before starting play again.

Adapted from: www.catchinfo.org

Literature Links

- **Primary:** *Welcome to Our Vegetable Farm*, Pyramid Publishing, *How Groundhog’s Garden Grew* by Lynne Cherry, and *Plants on My Plate* by Cathy Smith.
- **Secondary:** *Green Power: Leaf and Flower Vegetables* by Meredith Sayles Hughes, *Sell What You Sow* by Erica Gibson, and *Agricultural History* by the University of California Press, Journals Division.



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