

COOKING IN THE CLASSROOM

Banana Berry Smoothie

Make 20 servings at ¼ each.

Ingredients:

- 1 large banana, peeled
 - 1 cup milk (non-fat, coconut milk, soymilk)
 - 1 cup 100% orange juice
 - 2 cups frozen berries
 - 20 small cups.
1. Place first three ingredients in a blender container. Put lid on tightly and blend until smooth.
 2. Add frozen berries and blend again.
 3. Pour immediately into cups and serve.

Source: http://www.harvestofthemonth.cdph.ca.gov/download/Spring/021712/Ed_news_Berries_Final.pdf

Berries

HOW IT'S GROWN

Raspberries and blackberries grow on canes (stick like structures). It takes 2 years for the cane to develop to grow the berries. Once the cane has fruited it dies.

It's easy to tell first-year canes from second-year canes. First-year canes have green stems, while second-year canes have a thin, brown bark covering them.

Blueberries are a bush-type perennial that can grow up to 12 feet tall. Harvesting is done two to five times during the season since all berries do not mature at the same time. Blueberry bushes take about two to three years to establish, with harvesting starting about the third or fourth growing season and continuing for more than 20 years.

For more information go to <http://www.umaine.edu/publications/2066e/>

DID YOU KNOW?

- Native American Indians called strawberries "heart-seed berries" and pounded them into corn-meal bread. Colonists created their own version, which we know today as strawberry shortcake.
- Strawberries and blueberries are native to North and South America.
- All berries are harvested by hand, not by machines, because they are very fragile.
- Berries grow on different plants including bushes and canes. These plants live for many years and grow a new crop of berries each year.
- Berry plants produce small flowers. Once pollinated by insects, the flowers then grow into berries.
- Older strawberry varieties include Tillamook, Hood, Totem, Marshall, Siletz and Shokusan.
- The part of the berry plant we eat is the fruit.
- Bees collect pollen from berry flowers and use it to make honey.
- Raspberry leaves can be used as a medicine.
- Berries are harvested from late June through September, depending on the berry.
- Berries are full of Vitamin C, which helps our skin, bones, teeth and gums stay healthy. Vitamin C helps wounds heal quickly and keeps our brains working well.
- Berries are good for making jam, freezing and drying.



SCHOOL GARDEN

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.

Strawberries are very easy to grow and love our climate. You can grow them in window boxes, planters or in the ground, as long as they get at least 6 hours of sunlight. If you go the window box / planter route, make sure they don't get too much water. Strawberry roots don't do well when their roots are flooded with water.

Growing strawberries in a school environment is easy and an enjoyable learning experience for students. Strawberry plants can be planted in the spring or fall. Clear the garden space and mound up the soil where you will be planting the strawberry starter. Strawberry plants will produce fruit for about 5 years, so once established, you will enjoy the fruit for years to come.

Here is a site explaining how to grow strawberries in a window box: http://www.kiddiegardens.com/grow_strawberries.html

GROWING TIPS:

- Plant strawberries on a cloudy day or in the late afternoon.
- Strawberries prefer a well-drained soil, rich in organic matter.
- Set the strawberry plant in the soil so that the soil is just covering the tops of the roots. Do not cover the crown.
- Plants should be set 18 to 30 inches apart in rows of three to four feet apart. This will allow daughter plants to root freely and to become a matted row.
- Do not plant strawberries where peppers, tomatoes, eggplant, and potatoes have been grown. These plants

could harbor verticillium wilt, a major strawberry disease.

- Strawberry plants need about one inch of water per week.
- After four or five weeks, plants will produce runners and new daughter plants.

Adapted from: www.urbanext.uiuc.edu/strawberries/growing.html. For more ideas, visit: www.kidsgardening.com/teachers.asp. For more information on growing strawberries, check out http://www.fns.usda.gov/tn/Resources/growit_book7.pdf

JUST THE FACTS

- Blueberries are the second most popular berry among Americans after strawberries.
- There are four colors of raspberries: gold, black, purple, and red.
- Cranberries are related to blueberries and grow on long vines in bogs and marshes.
- Strawberries are usually the first fruit to ripen in the spring.
- The seeds of the strawberry are really the fruit while the red fleshy part is the receptacle that holds the parts of the flower together.
- On average, there are 200 tiny seeds on every strawberry.
- Strawberries are the most popular berry in the United States.
- Ninety-four percent of American households consume strawberries.
- On average, Americans eat more than three pounds of fresh strawberries each year plus another almost two pounds of frozen strawberries. Per person, Americans eat more wheat than any other food.
- The tool that farmers use to put the wheat seed in the ground is called a "grain drill."

BOTANICAL FACTS

NAME	PRONUNCIATION	FAMILY	GENUS	SPECIES
Blackberry	'blak-ber-ē	Rosaceae	Rubus	Rubus fruticosus
Raspberry	'raz-ber-ē	Rosaceae	Rubus	Rubus idaeus
Blueberry	'blü-'ber-ē	Ericaceae	Vaccinium	Vaccinium
Strawberry	strô'bērē	Rosaceae	Fragaria	Fragaria virginiana

Strawberries belong to the genus *Fragaria* in the rose family. They are low, herbaceous, perennial plants with edible fruits that are called an "accessory fruit." This means the fleshy part is not derived from the plant ovaries, but from the peg of the hypanthium that holds the ovaries.

There are about 12 species of strawberry plants. The common wild strawberry, *Fragaria vesca*, is believed to have been the first species cultivated in the early 17th century. Botanists then found other garden varieties: *Fragaria elatior*, a European species and the parent of *Fragaria virginiana* from the United States. About this time,

Fragaria chiloensis was discovered on an island off the coast of Chile. Today, nearly all varieties can be linked to these four species.

Blackberries and raspberries are members of the rose family. They are called aggregate fruits because each berry is a cluster of tiny fruits called drupelets. Each drupelet has a seed. Raspberries have a hollow center when picked since the receptacle remains on the cane. Blackberry drupelets remain centered around the core even after the berry is picked. When we eat a blackberry fruit, we consume the receptacle of the inflorescence (or cluster) called a torus.

Blueberries are members of the heath family, which includes azaleas, rhododendrons, and cranberries. Blueberries grow wild around the world and include more than 450 species. There are three main blueberry bush types: low bush, high bush, and rabbit-eye.

For more information, visit: www.uga.edu/fruit/rubus.html
<http://edis.ifas.ufl.edu/HS104>

STUDENT SLEUTH

1. Ask students when berries are ripe and ready to be eaten off the vine. Ask students to brainstorm how we are able to eat berries in the winter, even though they are harvested in the summer? (freezing, drying, canning in the form of jams, etc)
2. Explain to students that we freeze berries to make them last longer so we can eat them during the winter when berries don't grow. Freezing food is a form of 'food preservation'. Since most fruits and vegetables grow during the summer, we preserve them to keep them fresh through the winter when it's too cold to grow food. We make jam, freeze, can or dry berries to preserve them. Preservation allows us to have access to nutrition foods that are not available in the winter.
3. As a class, brainstorm other methods of food preservation and list any fruits, vegetables or meats that get preserved using these methods. Ask students to think about the food in their pantry if they need a hint. Your list may look something like this:
 - Freeze: berries, spinach, corn
 - Dry: apricots, beef, corn
 - Can: tomatoes, corn, berries
 - Jam/jelly: strawberries, grapes, plums
 - Smoke: salmon, ham
 - Pickle: cucumbers, beans, cherries
 - Ferment: yogurt, cheese, sauerkraut
 - Juice: apples, grapes, oranges

Source: http://www.pps.k12.or.us/files/wellness/HoM_Berries_3to5_gray.pdf

LITERATURE LINKS

Jamberry by Bruce Degen

Blueberries for Sal by Robert McCloskey

From Seed to Plant by Gail Gibbons,

Berries, Nuts and Seeds by Diane Burns,

Gabe's Grocery List by Heidi Shelton Jenck,

Farmer's Market Rounding by Julie Dalton.

ADVENTUROUS ACTIVITIES

Blueberries get their blue pigment from a phytochemical called anthocyanin. The color of anthocyanins are affected by the level of acidity, or pH level, in a particular substance or food. Anthocyanins are red at low pH (indicating greater acidity) and are blue to purple at higher pH (more basic).

MATERIALS:

- 1 pint of fresh or frozen blueberries
- ½ cup water
- ½ cup lemon juice
- ½ cup vinegar
- 1 small box of baking soda
- 3 glass jars

ACTIVITY:

1. Simmer blueberries in water over medium heat until water is deep blue.
2. Strain blueberry skins with a tea strainer.
3. Let solution cool. Pour into three jars.
4. Add lemon juice to first jar. Record color.
5. Add vinegar to second jar. Record color.
6. Add baking soda to third jar. Record color.
7. Discuss results. Based on what you know about anthocyanins, which substances added to the jars were acids? Which were bases?

Adapted from: www.umaine.edu/nsfgk-12/images/PDFs/natdye.pdf

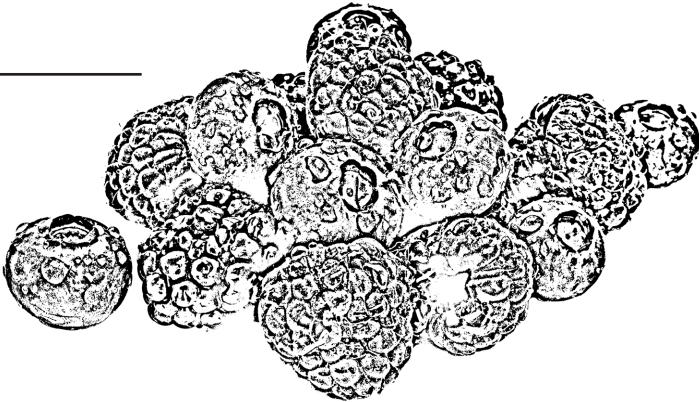
Thanks to the Harvest of the Month program in California for much of the information included in this document.



HEAL IS A collaboration between Seattle Public Schools nutrition services, health education, physical education and risk management departments.

Name _____

Berries



Handwriting practice lines consisting of solid top and bottom lines with a dashed middle line, repeated multiple times down the page.