

This document contains Chapters 5-6 of the 2002 *Kids Cook Farm-Fresh Food* prepared under the direction of the Nutrition Services Division for the California Department of Education. The entire publication is available at <http://www.cde.ca.gov/ls/nu/he/kidscook.asp>.

# sweet Potatoes

Sweet potatoes are a root vegetable with a sweet taste and flesh that ranges in color from yellowish-white to dark orange. They are native to a large area from central Mexico to tropical South America. Sweet potatoes are members of the morning glory family. They should not be confused with potatoes, which are in the nightshade family.

Sweet potatoes are also sometimes confused with yams, another crop in the morning glory family and a native of tropical Africa and Asia. Yams produce tubers (not roots). To make matters more confusing, sweet potatoes are sometimes labeled yams in retail food stores.

The most commonly grown varieties of sweet potatoes in California are Garnet and Jewel. Both have a tender, moist flesh when cooked, but Garnet has a higher moisture content.

Garnet sweet potatoes have a purple-red skin and a deep orange, moist, and sweet flesh. They are often sold canned under the name *candied yams*. Jewels have copper or tan flesh and a sweet, somewhat mealy consistency. Other often-seen varieties are Jersey, Japanese (also called *Koto-buki*), All Gold, and Puerto Rico.



**Seasonality and Growing Conditions**

As tropical plants, sweet potatoes are very sensitive to frost. They are harvested in the fall but are available year-round due to cold storage. However, sweet potatoes are sweetest and most flavorful around harvesttime (fall).

Unlike other plants but similar to potatoes, sweet potatoes can sprout shoots from their roots. In March, sweet potatoes or their roots are placed in covered hot beds filled with moist sand or sawdust. The sweet potatoes will sprout numerous baby roots and slender shoots with small leaves. In mid-May when the soil is warm, the sturdiest shoots, called slips, are replanted in the fields. Slips should be between eight and 12 inches long. Sweet potatoes like a hot, dry climate, and the areas around the vines should be kept free of weeds. They grow best at 90 degrees or higher.

Sweet potatoes require lots of water, typically requiring irrigation once or twice a week. In August or early September, water is cut off to allow the potatoes to cure. Curing the potatoes helps them to last longer in storage. After curing, a mechanical digger-harvester unearths

the potatoes, and workers sort them by size. Sweet potatoes may also be cured by placing them in a hot, well-ventilated place for up to four to seven days, after which they will be shipped to market.

**Sustainable Farming Issues**

Black rot, soft rot, and scurf are diseases that may affect sweet potatoes. These can be controlled in one of two ways without chemicals: by hand removal of infected leaves or by using only healthy roots for replanting.

**Selection, Storage, and Nutrition Information**

When purchasing sweet potatoes, choose ones with smooth, firm skin and no bruises or cracks. To store, place the potatoes for up to four weeks in a dark, dry place that maintains a temperature of about 55 degrees. Do not refrigerate as this will convert the potatoes' natural sugars to starch and destroy the flavor and texture. Sweet potatoes are high in vitamins A and C and are a good source of fiber and potassium.

# Make-Your-Own Baked Sweet Potato

Preparation Time: 5 minutes  
 Cooking Time: 45 minutes  
 Total Lesson Time: 1 hour  
 recipe Level: easy

## Background

For many students, baked whole sweet potatoes are a new experience. While preparing and eating them, students can examine and learn about the different varieties of sweet potatoes. Four varieties are commonly grown in California: Garnet, Jewel, Jersey, and Japanese (also known as Koto-buki). In markets, you can usually find all but the Japanese variety. Students can discuss the differences among these varieties and compare baked sweet potatoes to the baked potatoes they may be more used to.

## Objectives

*Students will be able to:*

- understand why it is necessary to poke holes in sweet potato skins before baking.
- use their senses to compare different sweet potato varieties and topping combinations.

## Ingredients

*For a class of 20:*

- 10 large sweet potatoes  
(assorted varieties)
- 1 pint low-fat sour cream
- 1 stick butter
- 1 cup grated cheddar cheese
- 1 cup brown sugar
- 1 cup pecans or walnuts,\*  
chopped coarsely

## Materials

*For the class:*

- colander
- baking sheet
- 6 serving spoons
- oven
- 4 small bowls
- 1 knife
- fork

*For each group of 4:*

- 2 cutting boards
- 2 knives
- 4 plates
- 4 napkins
- 4 forks
- journals

\*make sure no students are allergic to pecans or walnuts.

**Preparation**

1. Wash potatoes and dry in the colander.
2. Clean and set up tables.
3. ha ve students wash their hands. discuss proper methods of handling food.
4. Preheat oven to 400°F.

**Safety Precautions**

Take care when removing sweet potatoes from the oven as they will be very hot. allo w them to cool slightly before serving to students.

**Making the Recipe**

1. demonstrate ho w to poke holes with a fork into the sweet potatoes while leading a discussion about why it is necessary to do so. sweet potatoes (and potatoes) ha ve a water-tight skin. Without holes in the skin, the sweet potato would burst open because of the pressure inside. To prevent this, poke holes in the sweet potato skin to allow air and steam to escape. students may use a fork to pok e holes in the sweet potatoes' skin.
2. Place the sweet potatoes on a baking sheet and bake them for 30 to 45 minutes or until a knife can easily puncture the sweet potatoes.
3. ha ve students arrange the toppings (sour cream, butter, brown sugar, cheese, and nuts) in bowls on the demonstration table. discuss with students which topping combinations might go well together. ha ve students predict in their journals which combination will taste best and suggest other toppings that might be good.
4. When baked sweet potatoes are ready, cut them in half. serv e half of a potato to each student. students may arrange their o wn toppings.
5. While students eat, ask them to share their observations about how the sweet potatoes taste. encourage students to try different potatoes and topping combinations. Washed skins are also edible.
6. Clean up materials. if you have a school or classroom compost or worm bin, place the food scraps there.

# Oven-Roasted Sweet Potato Chips

Preparation Time: 10 minutes  
 Cooking Time: 20 to 30 minutes  
 Total Lesson Time: 1 hour  
 recipe Le vel: easy

## Background

Some people encounter sweet potatoes only at Thanksgiving. However, any time during the fall harvest season is a great time to try the sweet, savory taste of a sweet potato. This is an interesting recipe because it offers a delightful and surprising twist to chips. It also leads to thoughtful discussions about the differences between potatoes and sweet potatoes.

## Objectives

*Students will be able to:*

describe differences between potatoes and sweet potatoes.

## Ingredients

*For a class of 20:*

10 medium sweet potatoes  
 1 to 2 teaspoons salt  
 pepper  
 ½ cup olive oil

## Materials

*For the class:*

1 large mixing bowl  
 colander  
 2 baking sheets  
 large spoon  
 oven  
 knife  
 measuring spoons  
 2 serving spoons

*For each group of 4:*

2 cutting boards  
 2 knives  
 1 small bowl  
 4 paper plates  
 4 napkins  
 4 forks

**Preparation**

1. Wash the sweet potatoes and let them dry in the colander.
2. Clean and set up tables.
3. have students wash their hands. discuss proper methods of handling food.
4. Preheat the oven to 450°F.

**Safety Precautions**

review safety precautions for using knives and the oven. use caution when serving and eating the chips as they may be very hot.

**Making the Recipe**

1. demonstrate how to slice sweet potatoes into half-moon shaped pieces. The safest way for students to do this is to slice the sweet potato in half lengthwise and then place the flat side on the cutting board to make  $\frac{1}{4}$ -inch to  $\frac{3}{8}$ -inch slices. You do not need to peel the potatoes.
2. divide the sweet potatoes among the groups and have students slice the potatoes and place them in a bowl.
3. Gather bowls at the demonstration table. after students have gathered around the table, have a student volunteer place the slices into the large mixing bowl. ask two volunteers to measure  $\frac{1}{2}$  cup olive oil and toss the oil and salt with the sweet potatoes.
4. ask other volunteers to arrange the sweet potato slices on the baking sheets in a single layer. at this point you may wish to ask students for their ideas about why you arranged the slices in this manner and why you put olive oil on the slices.
5. Place the slices in the oven for 20 to 30 minutes, checking frequently to make sure they do not burn.
6. While the sweet potato slices bake, make a T-chart on the board with the two columns labeled "Potatoes" and "sweet Potatoes." Lead a discussion comparing these two vegetables. record student ideas on the chart.
7. When the sweet potato slices are golden and crispy, remove and season with more salt and pepper, if desired. serve on plates and remind students to be careful if the chips are hot.
8. While students eat, ask them to share their observations about how sweet potato chips taste compared with French fries. add their observations to the T-chart.
9. Clean up materials. if you have a school or classroom compost or worm bin, place the food scraps there.

# Sweet Potato Pie

Preparation Time: 20 minutes  
 Cooking Time: 1 hour and 30 minutes  
 Total Lesson Time: 2 hours  
 recipe Level: advanced

## Background

This recipe combines the nutritious sweet potato with spices that bring out its sweet, savory taste.

Students who have never had sweet potatoes may be reluctant to try the pie, but it is a favorite of children all across the southern United States. The best variety for sweet potato pie is Garnet or Jewel. Both have a moist, tender flesh when cooked. Garnet has purple-red skin and deep orange flesh, and Jewel has copper or tan skin and bright orange flesh.

In this recipe, students have the opportunity to learn about the nutritional value of the sweet potato while enjoying its sweet taste. You probably want to make two pies for 20 children since this recipe is very popular. (double the following recipe for two pies.)

## Objectives

*Students will be able to:*

enjoy the nutritional significance of a sweet potato

## Ingredients

*For a class of 10:*

- 3 medium sweet potatoes
- ½ teaspoon cinnamon
- ⅛ teaspoon nutmeg
- ⅛ teaspoon cloves
- 1 teaspoon vanilla
- ½ cup brown sugar
- ⅓ cup white sugar
- 1 cup heavy cream
- 3 eggs
- pinch of salt
- 9-inch pre-baked pie shell
- 1 tablespoon orange juice concentrate (optional)

## Materials

*For the class:*

- 1 large mixing bowl
- colander
- large spoon
- oven
- knife
- measuring spoons
- 2 serving spoons
- fork

*For each group of 4:*

- 2 plastic spoons
- 4 plastic forks
- 4 plates
- 4 napkins

**Preparation**

1. if you have no nutmeg or cloves, use 1 teaspoon cinnamon for the spices.
2. Wash sweet potatoes and dry them in the colander.
3. have students wash their hands. discuss proper methods of handling food.
4. Preheat oven to 400°F.
5. after showing the sweet potatoes to the class, puncture the skins with a fork and bake for 45 minutes.
6. (optional) if you do not have an oven, steam cut-up sweet potatoes in a 4-quart pot by simmering for 15 minutes or until they are tender.

**Safety Precautions**

allow sweet potatoes to cool before having students scoop them out. review safety precautions for using the oven.

**Making the Recipe**

1. Lead students in a discussion of some of the nutritional benefits of sweet potatoes
2. When sweet potatoes are cooked, have students use spoons to scoop out the fleshy part onto plates and place the skins into the compost bucket. have them mash the flesh with their forks. When the flesh is fully mashed, have students place it in a large mixing bowl at the demonstration table. There should be approximately 1½ cups mashed sweet potato.
3. after students have gathered around the table, have volunteers measure and add spices and all other ingredients except the pie shell to the sweet potatoes.
4. Pass the bowl around so that each student can have a turn at stirring (three stirs per student is enough). Pour the mixture into the pre-baked pie shell and bake for 60 minutes at 325°F, until the crust is golden brown.
5. When the sweet potato pie is ready, cut and serve on plates. remind students to be careful if the pie is hot.

# Finding the right soil for Your Plant

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Preparation Time:	20 minutes
Total Lesson Time:	1 to 1½ hours
soil observation:	10 to 20 minutes
drainage:	20 to 30 minutes
settling:	15 minutes

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## Background

This activity involves the comparison of three types of soil. students will use their senses to observe characteristics of each type and perform two soil experiments. students will look at one soil characteristic, texture, and think about how it affects the suitability of a particular soil for growing sweet potatoes, which are at risk of rotting should they sit too long in a soil where water does not drain quickly. *Soil texture* refers to the proportions of different size particles that make up soil. sand, silt, and clay are terms that define particle size, with sand being the largest, silt the intermediate, and clay the smallest. These particles combine in varying proportions to comprise a range of soil texture classes: sand, loam, and clay.

students will identify and think about the organic matter component of soils. soil organic matter consists of a wide range of materials and is concentrated in the top two layers of the soil profile. The top layer is generally an inch or two thick and consists of fresh and decaying plant matter: fallen leaves, dried leaves, stems, and other plant parts. The next layer, called *topsoil*, consists of dead insects and worms, partially composted materials, and humus, the dark stable fine material that is no longer identifiable as having been a plant, animal, or other living thing. Topsoil is an area of intense biological activity where plant roots, bacteria, fungi, and animals perform various functions. in the settling experiment, students will find that the organic matter separates from the mineral components (sand, silt, and clay). When compared with the mineral components, organic matter is darker in color, feels different, and smells distinctive, especially when moist.

## Objectives

*Students will be able to:*

observe and identify the mineral components of soil (sand, silt, clay).

observe and identify the organic matter component of soil.

see that one soil is not the same as another and that soil texture affects crop choice.

## Materials

*For the class:*

- 1 quart sand from a sandbox
- 1 quart soil from the school yard
- 1 quart soil from the school garden  
or 1 quart commercial potting soil
- ½ gallon water
- newspaper

*For each group of 4:*

- 4 copies of Nakashima farm profile (optional)
- 3 paper towels
- 1 1-quart clear plastic container  
with tight-fitting lid
- 1 large funnel
- 3 coffee filters (size 4)
- 1 plastic cup
- watch or clock (with a second hand)
- journals

**Preparation**

1. on the day before the activity, have students collect soil from the school yard, school garden, and school sandbox. (if you do not have a school garden, you can use commercial potting soil.)
2. Clean and set up tables. Cover the tables with newspaper.
3. For each group, prepare three paper towels with a cupful of one of the three types of soil on each towel.

**Doing the Activity: Soil Observation**

1. (optional) have students read the Nakashima farm profile and discuss the soil requirements for sweet potatoes.
2. ask students in each group to examine the three soils and to compare the color, texture, size of particles, and types of particles in each pile. ask them to write down the features that make each pile different from the others.
3. have volunteers from each group share their observations. on the board, write descriptive words for each type of soil. ask students to predict which soil will allow water to drain the quickest. have students write in their journals their predictions and the reasons for their predictions.

**Drainage**

1. Provide each group with a funnel, three coffee filters, a plastic container, and a plastic cup filled with water. demonstrate how to put the coffee filter into the funnel and place the funnel on top of the plastic container. demonstrate how to place a half cup of one of the soils into the funnel and then slowly pour the cupful of water into the funnel.
2. ask students to set up the equipment as demonstrated and to measure the time it takes for the water to drain through each type of soil. remind students to pour water into the filter at the same rate for each of the three trials. (students will need to save the soil for the settling activity.)
3. have students use the watch or clock to note the order of drainage (fastest to slowest) for the three soils and record the results in writing.
4. have each group share its results. as a class, discuss reasons for differences in drainage rates. have students write their conclusions in their journals.

**Settling**

1. have each group empty one of the three coffee filters from the drainage activity into the clear plastic container. students record the site where soil was collected. They are then to fill the container nearly to the top with water and twist the lid on tightly.
2. have students shake the containers well and place them on a table. have students observe and record which components of soil settle first. record the total time needed for the soil to settle.
3. have each group share its results. as a class, discuss reasons for different soils settling differently. have students write their conclusions in their journals.

# Nakashima Farms



**For the Nakashima family in Merced County, growing sweet potatoes in California's Central Valley is a cherished family tradition.**

Tom Nakashima's family has been farming near the town of Livingston for almost 100 years. Tom's father was part of the Yamato Colony, a Japanese American community established in Livingston in 1906. Tom and his wife have raised three daughters and a son on their farm. Late August to late October is harvest time for sweet potatoes. By late summer, the fields are a tangle of low-growing vines with wiry stems and fleshy leaves. To check if the crop is ready for harvesting, Tom pulls some of the vines aside and shovels sandy dirt out of the way to reveal the swollen magenta roots: the ripe sweet potatoes. "I love to farm and to see things grow," he says.

In other fields, harvesting machines move slowly down the long rows of vines. The machines pull the sweet potatoes from the ground, then 10 men sort them by size and type. After the tractor-pulled machines pass, swarms of blackbirds land in the field to feast on the worms and other insects turned up by the harvest.

The Nakashima farm is a large family farm; it has 300 acres of sweet potatoes and more than 400 acres of almonds and peaches. The Livingston area is well known for its sweet potatoes. In the 1920s and 1930s, there were around 13,000 acres of sweet potatoes grown in this part of the valley. Today, there are only about 8,000 acres left, but they still provide most of the sweet potatoes eaten by people on the Pacific Coast.



many crops would not do well in Livingston's sandy soil, but sweet potatoes thrive in it. under that sand—which looks like beach sand in some places—there is a lot of water. and that is precisely the combination the tough sweet potato vines thrive on: sand and water.

Portuguese farmers who, like the Japanese, settled in the Livingston area almost 100 years ago were the first to plant sweet potatoes there. They knew that sweet potatoes can grow in soil too poor for many other food plants. Tom actually learned about sweet potato farming from a Portuguese neighbor who was renting land on the Nakashima farm during the 1950s. Tom has been growing sweet potatoes ever since, for almost 50 years now.

sweet potatoes have brought prosperity to Livingston's Japanese American farming community and have helped the community to overcome the hardship of World War II. during that time, in the 1940s, the government ordered Japanese Americans to move to what were called internment camps. at the time, the United States was at war with Japan, and the government feared that Japanese Americans might become spies against the United States even though most of them had been living in the United States for a long time and were loyal American citizens.

When families such as the Nakashimas were finally able to return to their homes after the war ended in 1945, many of their businesses and farms were in a poor state, and most of their fruit trees were dead or dying. That is when a number of Japanese farmers started growing sweet potatoes because the crop can be harvested the same year it is planted, thus providing immediate income.

Tom recalls that the uprooting of their family made his father so bitter that he moved to Japan in retirement. Tom was only a high school student when all this happened, and he says younger people found it easier to adapt than their elders did. so he took up where his father left off and continued the family farm tradition. and he has been at it ever since.

# Persimmons & Pomegranates

Persimmons and pomegranates are two of the most ancient fruits known to humans. Today's commonly cultivated persimmon was domesticated in China and Japan over 4,000 years ago. Many different persimmon varieties are grown in California. There is a species native to the United States though it is not commercially grown. The two most common types of persimmon are the intensely sweet hachiya, which has a jelly-like interior when ripe, and the firm, spicy Fuyu, which has vivid orange flesh and apricot and cinnamon flavors. Hachiyas are ideal for puddings, cakes, and muffins, while Fuyus make excellent additions to salads and dessert toppings and can be eaten fresh, like apples.

Persimmons have a high tannin (an astringent substance found in some plants) content, which makes them mouth-puckeringly tart when unripe. The tannins also make even ripe persimmons corrosive to certain cookware, so be sure to use only stainless steel or enamel-coated pots and pans.

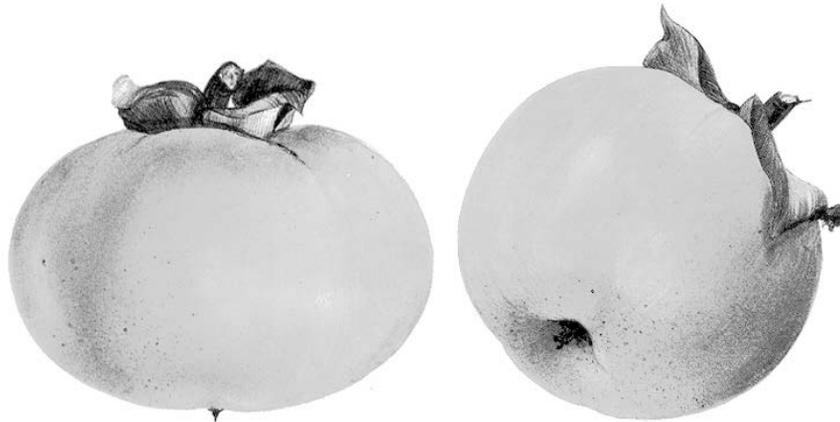
Pomegranates are native to the Middle East. Spanish missionaries brought the fruit to

California in the eighteenth century. The ancient Chinese saw the pomegranate as a symbol of economic prosperity; in Middle Eastern theology, it was the pomegranate, not the apple, that Eve picked and gave to Adam.

Pomegranates have an unusual structure composed of a spongy white pith encasing hundreds of succulent crimson seeds, or arils. The fruit is often eaten out of hand by popping out the pithy seeds and eating them whole. You can also roll the fruit to loosen the juice from the seeds, punch a hole in the skin, insert a straw, and drink the juice. Pomegranates are also made into juice, jelly, or pomegranate molasses or syrup, which are all popular in Middle Eastern and Mediterranean cooking. The two main pomegranate varieties that are grown in California are Wonderful and Spanish Ruby.

## Seasonality and Growing Conditions

Persimmons and pomegranates require growing conditions similar to those of other fruit trees. Both trees are adaptable to many soils. The pomegranate does best in areas with hot, dry summers, such as the Central Valley of California. The persimmon prefers a similar climate





to that of the pomegranate. The fruits of both trees are at their peak from fall to early winter.

Good water drainage, adequate soil organic matter, and aerated soil allowing for deep root development are all essential to growing persimmons and pomegranates. The trees do not tolerate harsh winters; a full vorful and abundant fruit yield depends on plenty of sunshine. Both trees have flowers with self-fertile pollen; however, the trees will produce more fruit if the flowers are cross-pollinated by bees.

**Sustainable Farming Issues**

Persimmon trees are not subject to any severe pests or diseases. They require pruning to prevent the tree from growing too tall or overproducing. overproduction in one year means a small crop the next year. This condition is called *alternate bearing* and is found in most trees. Birds love the brightly colored orange fruits. sometimes farmers set out near the ripe fruit shiny flags that move in the wind to frighten the birds away.

Pomegranates do not have any severe diseases but may be subject to scale insects and mealy bugs. Those pests are controlled by applying a soap spray on the fruit and growing cover crops to attract to the orchard beneficial insects that eat scales and mealy bugs. Pomegranate trees are also subject to alternate bearing.

**Selection, Storage, and Nutrition Information**

When choosing persimmons, look for fruit with smooth, glossy, bright skin. hachiyas should feel soft and gelatinous, and Fuyus

should be firm with a slight give. a void mushy, blemished fruit. Persimmons that are not quite ripe can be kept at room temperature, then refrigerated as they ripen. Persimmons are high in antioxidant vitamins a and C. They are also a good source of fiber .

ripe pomegranates range from pink to deep red, depending on the variety and the weather. Cold weather enhances the red color. a ripe pomegranate feels heavy for its size. Cracking is a sign of ripeness in pomegranates; make sure the pomegranate is not overripe. Pomegranates are a good source of vitamin C.



# Persimmon & Pomegranate Salad

Preparation Time: 30 minutes  
 Cooking Time: None  
 Total Lesson Time: 45 minutes  
 recipe Level: easy

## Background

There is an opportunity for students to taste fresh fruit in a savory salad and also become familiar with two distinctive, yet not widely known fruits. The recipe is a great springboard for developing new vocabulary around taste, color, and texture. When choosing the fruit for this salad, look for Fuyu persimmons for their firm, deep orange flesh. Do not use hachiya persimmons; they tend to be mushy, a texture that does not work well in salads.

Full-flavored lettuce greens dressed with a tangy vinaigrette set off those sweet fruits very well. You may want to substitute a head of frisée, a type of curly endive.

**note:** Pomegranate juice stains. Be careful not to get the juice on clothes. Clean juice spills as quickly as possible.

## Objectives

*Students will be able to:*

investigate and become familiar with pomegranates and persimmons.  
 develop vocabulary describing sensations of touch, sight, and taste.

## Ingredients

*For a class of 20:*

2 pomegranates  
 3 heads of sturdy dark green lettuces  
 6 Fuyu persimmons  
 1½ cups pecans (optional)  
 3 tablespoons red wine vinegar  
 ¾ cup olive oil  
 salt and pepper

## Materials

*For the class:*

1 small mixing bowl  
 1 large mixing bowl  
 measuring spoons  
 measuring cups  
 fork or small whisk  
 2 serving spoons  
 salad spinner

*For each group of 4:*

2 cutting boards  
 2 knives  
 bowl or plate  
 4 plates  
 4 forks  
 4 napkins  
 journals

**Preparation**

1. Clean and set up tables.
2. have students wash their hands. discuss proper methods of handling food.
3. Wash salad greens and dry in the salad spinner.

**Safety Precautions**

review safety precautions for using knives.

**Making the Recipe**

1. Give each group one persimmon, a pomegranate, and some greens. Give students time to examine the produce and write down descriptive words for them in their journals.
2. show how to peel and cut persimmons into wedges. explain how to cut the pomegranate in half, place the cut side down, and then tap the back of the fruit with a spoon or fork to loosen the seeds. have students place the prepared ingredients in their group's bowl or plate.
3. Collect ingredients at the demonstration table and ask students to gather around the table. ask one student to mix the ingredients in a large mixing bowl.
4. ask two students to measure and pour the oil and vinegar into a small mixing bowl for the vinaigrette dressing. students whisk the oil and vinegar and add salt and pepper to taste.
5. serve the salad on plates and allow students to taste the salad without vinaigrette, then let them add the vinaigrette to their own salad to individual taste. have students write words that describe the tastes. as they eat, allow students to share words from their journals.
6. Clean up materials. if you have a school or classroom compost or worm bin, place the food scraps there.

# Persimmon Cake

Preparation Time: 30 minutes  
 Cooking Time: 1 hour and 15 minutes  
 Total Lesson Time: 2 hours  
 recipe Level: advanced

## Background

This recipe allows students to bake a cake from start to finish. The procedure noted below is written as a class demonstration. However, your class may also enjoy working in groups to bake their own small cake.

Persimmons come in two major varieties: Fuyu, known for its firm, deep orange flesh, and hachiya, often described as mushy when sweet enough to eat. For this cake, you will need the hachiya variety.

## Objectives

*Students will be able to:*

- measure solids and liquids accurately by using cooking measurement tools.
- use different baking utensils.

## Ingredients

*For a class of 20:*

- 2 cups shelled walnuts\*  
(halves)
- 6 very ripe hachiya persimmons (about 3 lbs)
- flour and oil to coat baking pan
- 6 eggs
- 1 cup vegetable oil
- 1 cup white sugar
- 1 cup brown sugar
- 4 cups flour
- 2 teaspoons ground cinnamon
- 1 teaspoon ground cloves
- 1 teaspoon allspice
- 1/8 teaspoon salt
- 2 teaspoons baking powder

## Materials

*For the class:*

- 3 medium mixing bowls
- 2 9-inch round cake pans  
or 1 9-inch x 13-inch  
cake pan
- measuring cups
- baking tray
- oven
- knife
- measuring spoons
- 2 large mixing spoons,  
wooden or metal

*For each group of 4:*

- 2 small plates or bowls
- 2 plastic spoons
- 4 forks
- 4 plates
- 4 napkins
- cutting boards
- journals

\*make sure no students are allergic to walnuts.

**Preparation**

1. Clean and set up tables.
2. have students wash their hands. discuss proper methods of handling food.
3. Preheat oven to 375°F.
4. Place walnuts on the baking tray and toast in the oven at 375°F for six minutes.

**Safety Precautions**

review safety precautions for using knives.

**Making the Recipe**

1. have each group of students cut two persimmons in half. each student in a group will scoop pulp out of the persimmon peel with a spoon. have students mash the pulp with forks on cutting boards and place it on the group plate or bowl.
2. Provide an equal amount of walnuts to each group to chop coarsely and place on another plate.
3. Gather plates of mashed persimmons and chopped walnuts at the demonstration table. have students gather around the table.
4. have two students oil and flour the baking pans. have other students measure and add eggs, oil, and sugars into the mixing bowl and thoroughly mix. ask other students to add the persimmons and mix well.
5. ask three students to measure and add flour, spices, salt, and baking powder into another mixing bowl. mix well. have yet another pair of students slowly mix the dry ingredients into the wet ingredients until they are evenly combined. add and mix in the walnuts.
6. Pour the batter into the two pans. Place the pans in the oven for 75 minutes or until a fork inserted in the cake comes out clean. While waiting for the cake, clean up and let students write about their experience in making the recipe.
7. While the students eat, have each group discuss its experience making the recipe. Questions for discussion: What went well? What did not? What things should you consider the next time you cook? does the cake taste the way you thought it would?
8. Clean up materials. if you have a school or classroom compost or worm bin, place the food scraps there.

# a school Produce stand

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Preparation Time: Will vary, depending on your situation  
Total Lesson Time: Will vary

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## Background

one of the most important parts of a farmer's job is selling or marketing the farm produce. many farmers employ a number of strategies to sell their produce to a variety of consumers. one that is beginning to become more popular as consumers become educated about farms is Community supported agriculture (Csa). Csa depends on a close relationship between consumers and the farm. Csa members pay in advance a seasonal or monthly fee and, in return, receive weekly shares of the farm's harvest. Csa farmers benefit from a guaranteed market, and members receive a diverse supply of fresh, seasonal produce.

another marketing strategy used by farmers is working with a wholesaler or broker who buys produce from the farmer and then sells it to markets in neighboring towns and cities. many wholesale relationships are very close because the farmer and the wholesaler both have a need to be successful. a farmer who sells produce through a wholesaler does not receive money for the crop for a few weeks or sometimes months after it is shipped to the wholesaler.

in this activity, students simulate the third strategy—the produce stand. many farmers set up farm produce stands in a local farmers market or on their property next to a road or highway, where people can stop and buy fruits and vegetables. although it takes more work for the farmer, the produce stand gives the farmer the opportunity to make more money because the sale is direct to the consumer. For students, the produce stand offers the adult responsibilities of selling and managing money.

a produce stand is ideal for a school with a bountiful garden. however, schools without gardens can also have stands with produce donated by local markets or wholesalers or a stand with dried tomato seeds (from Chapter 2, "Tomatoes"), harvest garlands (from Chapter 4, "Peppers"), or baked goods (such as persimmon cake) made by the students. The produce stand may be open once a week, once a month, or once a year, depending on the school's situation. many schools have stands that are open during recess or at lunch.

## Objectives

*Students will be able to:*

Name the three primary methods of marketing for farmers.

develop a plan for selling produce (or other goods) at school to other students.

use communication skills with customers.

**Materials***For the class:*

- 2 large folding tables with tablecloths
- cash box or toy cash register
- 4 to 6 chairs for sitting and displaying produce
- signs and posters advertising the event
- 4 to 6 boxes or baskets for display
- maps of farms (if using donated produce)
- water bowls for washing hands
- paper towels for drying hands
- compost containers for peels, seeds, etc.

*For each group of 4:*

- 4 copies of dad's ranch farm profile (optional)

**Preparation**

1. Before the sale, check with the school principal for permission to set up the produce stand and for guidance on policies related to this activity. Plan what the students will sell (see Background for ideas in addition to produce). if donations are needed, plan ahead to make necessary arrangements and give recognition to the donating organizations.
2. at least one week before the sale, spend one class period making signs. Lead a student discussion about what should be included in the signs. The signs should include information such as the time and date of the sale, prices of items to be sold (a quarter is a common price), and nutritional and agricultural information about the produce.
3. have students research the produce or other merchandise so that they can expertly inform other students and staff about it. They might find out the name and location of the farm where the produce was grown, the produce's growing requirements, and the specific varieties that will be offered.
4. have students develop and practice specific jobs for the stand, such as a cashier who handles the money, a customer educator who explains information about the produce to the customer, and a produce manager who makes sure the produce is displayed properly.
5. Plan to have two to three adults supervising the students to help them with problems that might arise during the sale.
6. (optional) ask students to read the dad's ranch farm profile. ask students to name some of the strategies dad's ranch uses to sell its produce (for example, growing produce that is in season at different times of the year; looking for customers in places other than California).

**Doing the Activity**

1. on the day of the sale, help students set up the stand.
2. after the sale, have a class discussion about how it went, what they would do differently next time, and what to do with the stand proceeds.
3. encourage students to track the proceeds over time to determine the best days, times, seasons, and crops for the produce stand in the future.

# Dad's Ranch

**While some farms may slow their pace during the fall months, Dad's Ranch in Fresno, California, keeps busy harvesting more than 30 acres of pomegranates and persimmons from late September through December.**

Both persimmons and pomegranates grow on trees and are fall or winter crops. stan schlete witz, the "dad" of dad's ranch, explains that having crops year-round helps to ensure that workers on the farm will have jobs throughout the year. This means the workers do not have to look for a second job during the slow season.

other crops on dad's ranch include grapes, navel oranges, Valencia oranges, and lemons. since 1990, dad's ranch has grown all its fruit organically.

stan, who was born in 1937, has been doing farm work for as long as he can remember. his grandfather started farming in Fresno in 1917. Then stan's father took on the family farm until he passed away in 1957. at that point, stan was in college and came back to take care of the farm and his younger brothers. Today, stan's two sons and daughter-in-law run the farm. "We have been farming here for four generations," says stan.

Growing up on the farm, stan was one of six children. "all of us had responsibilities," he recalls. "Before we walked to school, we had to feed the chickens and milk the cows. my brother and i had our own projects too—like raising our own rabbits and chickens."

When he was young, all stan's neighbors were farmers, too. When the chores were through, he and the neighboring children had fun camping, building their own toys, and making up and performing their own plays. "This was before we had TV," stan remembers, "and there was always a lot to do. it was a small farming community, but we had lots of kids around."

Today, stan's sons, Craig and rick, are running the farm. Craig, the younger son, is in charge of distribution. his job is to make sure that there are buyers for the farm's produce. most of the produce is eventually sold in stores—not just in California but also throughout the united states, Canada, and even Japan. Craig's wife, alison, manages the office and does the book keeping.

stan's older son, rick, left the farm for a while to become a chef. he has returned and now works as the farm manager, overseeing the daily operations of the farm.

Now that his sons are taking care of things on the farm, stan and his wife, Floretta, have moved into a smaller house in town. stan is glad to have his sons carrying on the family tradition but adds that he never pressured them to come back to the farm. "i just let them decide what they wanted to do, and this was it," says stan.



**An intensively planted California fruit orchard that features a cover crop. Cover crops are frequently used to increase soil fertility, build up humus, and provide a living mulch.**

# Locations of Farms Profiled in Late summer–Fall

