Fruits and Vegetables for Health

Grades 4-6

Editor, 4th Edition
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California Foundation for Agriculture in the Classroom

Vision: An appreciation of agriculture by all.

Mission: To increase awareness and understanding of agriculture among California's educators and students.

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The California Foundation for Agriculture in the Classroom is dedicated to fostering a greater public knowledge of the agricultural industry. The Foundation works with K-12 teachers, community leaders, media representatives, and government executives to enhance education using agricultural examples, helping young people acquire the knowledge needed to make informed choices.

This unit was originally developed in 1996 through a partnership between the Fresh Produce and Floral Council, the California Farm Bureau Federation, and the California Foundation for Agriculture in the Classroom. *Fruits and Vegetables for Health* was updated in 2012 in partnership with 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 (877) 847-3663. For important nutrition information, visit *www.cachampionsforchange.net*.

Funding for 2017 updates were provided through a California Agriculture Special Interest License Plate grant (CalAgPlate) that supports agricultural education, agricultural career training, and agricultural leadership development. For more information, *visit www.CalAgPlate.com.*

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Introduction

The framework for California public schools emphasizes the need to make education meaningful to students so they can apply what they learn in the classroom to their daily lives. Since all students eat food and wear clothing, one natural connection between academic education and the real world is agriculture.

Agriculture is an important industry in the United States, especially in California. As more rural areas become urbanized and more challenges exist to maintain and improve the quality of the planet and feed the people of the world, it is extremely important to educate students about their environment, agriculture, and the modern technologies that continue to make Earth a viable and productive planet.

Fruits and Vegetables for Health, a fourth through sixth grade unit, introduces students to the production, distribution, and nutritional value of California fresh produce. Students will study California geography, plan healthy meals, and write formal letters to agriculture commodity boards. They will also practice evaluating data tables and graphing as they study the nutritional value of fruits and vegetables. A simple chemistry experiment involving observation, prediction, data gathering, and summarizing is also included in the unit. As a culminating activity, students write a creative story that details the path a particular fruit or vegetable takes to get from the farm to the table. The need for all people to eat fresh produce is emphasized throughout the unit.

This unit teaches subject matter reinforced by the current California standards for California Public Schools. The standards, located on the sidebar of each lesson, specify grade level, subject matter and standard number. A standards matrix for the entire unit, with specific standards described, is located on pages 69-82. *Fruits and Vegetables for Health* is one of many educational units developed and distributed by the California Foundation for Agriculture in the Classroom.

Unit Overview

Unit Length

Approximately fifteen 50-minute sessions.

Objectives

Students will:

- Examine USDA's MyPlate icon.
- Identify and compare key nutrients in selected fruits and vegetables.
- Learn the benefits of eating fruits and vegetables.
- Examine the varying geographical features and climates of California.
- Write business and thank-you letters.
- Comprehend the importance of California agriculture.
- Create a report and oral presentation on a fruit or vegetable.
- Create bar graphs.
- Experiment with various food preservation techniques.
- Write a narrative story about a fruit or vegetable.

Brief Description

This unit contains five lessons designed to teach students about the production, distribution, and nutritional value of California-grown produce. Students will gain knowledge in geography, language arts, science, and math as they learn about the process through which fruits and vegetables are transported from California farms to kitchen tables.

The lessons can be used separately or together and may be taught in any order. To fully address the concepts, however, teaching the unit in the provided sequence and in its entirety is recommended.

California Standards

A concerted effort to improve student achievement in all areas has impacted education throughout California. The California Foundation for Agriculture in the Classroom provides educators with numerous resource materials and lessons that can be used to teach and reinforce the current education standards for California Public Schools including Common Core State Standards. The lessons encourage students to think for themselves, ask questions, and learn problem-solving skills while learning the specific content needed to better understand the world in which they live.

This unit, *Fruits and Vegetables for Health*, includes lessons that can be used to teach and reinforce many of the educational standards covered in grades four through six. It can be used as a self-contained unit, to enhance themes and lessons already in use, or can provide technical information about nutrition and agriculture. Emphasis is also placed on the importance of eating fresh produce.

The specific educational standards met are listed on the sidebars of each lesson. A matrix chart showing how the entire unit is aligned with current standards including Common Core State Standards and Next Generation Science Standards is included on pages 69-82.

Unit Overview

Key Vocabulary

A glossary of terms is located on pages 83-85.

Agriculture
Ascorbic acid
Citric acid
Climate
Commodity
Conservation
Consumer
Crop
Cup equivalent
Discoloration
Distribution center
Farm
Farmer
Fiber
Flatbed
Fruit
Geography
Grain
Harvest
Map
MyPlate
Nutrient
Nutrition
Ounce equivalent
Oxidation
Percent Daily Value
Produce
Scientific method
Sodium bicarbonate
Vegetable
Vitamins

Evaluation

This unit incorporates numerous activities and questions that can be used as evaluation tools, many of which can be included in student portfolios. Embedded assessment includes oral and written responses to open-ended questions, drawing, group presentations, and other knowledge-application projects.

In addition, *Network for a Healthy California* created the Nutrition Education Survey (NES) to assess the impact of nutrition education delivered to fourth through eighth grade students. The NES is a modular tool that educators can customize to measure outcomes related to nutrition education. Use of this tool may help teachers justify the importance of integrating units like *Fruits and Vegetables for Health* into regular classroom instruction. Visit *www.harvestofthemonth.cdph.ca.gov/Pages/impact-eval.asp* to download the evaluation tool.

Visual Display Ideas

- Draw a large MyPlate icon on butcher paper. Have students fill each section with related pictures from magazines or grocery store ads.
- Make a large outline of California on butcher paper. Have students draw pictures of different fruits and vegetables and place them on the map in regions where they are grown.
- Pictorially, trace the path that one particular commodity takes to get from the farm to the table.
- Display bar graphs and stories students create in the lessons.
- Have each student draw a picture of the fruit or vegetable they learned about. Post these on a bulletin board with interesting facts about each commodity.

Before You Begin

1. Skim over the entire unit. Make appropriate changes to the lessons and student worksheets to meet the unique student needs and personal teaching style.
2. The following resources may be helpful in learning about various commodities:

Unit Overview

- California Department of Food and Agriculture's website, *www.cdfa.ca.gov*. This site contains general and specific information on various aspects of agriculture.
- *Network for a Healthy California's Harvest of the Month* program features tools and resources that help teachers give students hands-on learning opportunities as they explore, taste, and learn about the importance of eating fresh fruits and vegetables. All program materials can be downloaded for free from *www.harvestofthemonth.com*.
- USDA's website, *ChooseMyPlate.gov*. This site features great educational materials that are up-to-date with the 2015 Dietary Guidelines.
- California Farm Bureau Federation's website, *www.cfbf.com*. This site has articles on current issues in agriculture as well as agricultural information on each county.
- The agricultural organizations listed on pages 49-53.

3. Read "Answers to Commonly Asked Questions" on pages 44-48 to gain background knowledge to use during the unit. Also review the glossary on pages 83-85. Use these definitions with your students as you see appropriate.
4. Ideally, nutrition education is incorporated into all curricular areas and is promoted by example through school-provided breakfasts and lunches. If possible, work with school nutrition and cafeteria personnel to use the school cafeteria as a learning laboratory for classroom lessons.
5. Arrange classroom visits from people involved in the food industry. Guest speakers may include farmers, ranchers, food distributors, grocers, dietitians, and chefs.
6. Organize appropriate field trips. Possibilities include local farmers markets, food distribution centers, wholesale fresh produce markets, farms, ranches, and grocery stores.
7. Obtain the necessary supplies for the unit.

Thank you for recognizing the importance of helping students understand and appreciate agriculture. We hope you find this resource useful in your teaching endeavors.

Making Half MyPlate Fruits and Vegetables

Purpose

The purpose of this lesson is to introduce students to the 2015-2020 Dietary Guidelines for Americans and to reinforce the importance of making half your plate fruits and vegetables.

Time

Teacher Preparation:
10 minutes

Student Activities:
One 50-minute session

Materials

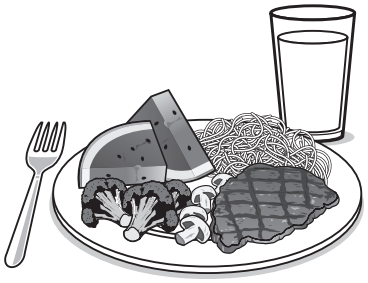
For the class:

- 1-cup measuring cup
- Two dominoes

For the student:

- *MyPlate* handout (page 13)
- *MyPlate* Daily Food Plan Checklist (pages 14)
- Fruits and Veggies on MyPlate (page 15)
- Have Fun With Fruits and Vegetables (page 16)

Background Information



The 2015-2020 Dietary Guidelines for Americans promotes the importance of a healthy eating pattern to maintain health and reduce the risk of disease. Everything you eat and drink — the food and beverage choices we make day to day and over our lifetime — matters. By eating a variety of foods from each food group, we give our bodies what they need to be and stay healthy. Start with small changes to make healthier choices you can enjoy.

The MyPlate logo serves as a colorful visual that a person should eat foods from the five food groups each day. It is important to eat a variety of healthy foods. Find your healthy eating style and maintain it for a lifetime. Try to:

- Make half your plate fruits and vegetables.
  - Focus on whole fruits
  - Vary your veggies.
- Make half your grains whole grains.
- Move to low-fat and fat-free milk or yogurt.
- Vary your protein choices.
- Drink and eat less sodium, saturated fat, and added sugars.
- Children 6-17 years old should move at least 60 minutes each day.

This lesson will focus on encouraging students to choose foods based on the 2015-2020 Dietary Guidelines for Americans and MyPlate recommendations, with special attentiaon to the goal: Make half your plate fruits and vegetables.

Procedure

1. Distribute the MyPlate handout to each student. Briefly review the five food groups. The fruits and vegetables sections take up half the plate, with the vegetable food group being slightly larger than the

Making MyPlate YourPlate

California Standards

Grade 4

Common Core English Language Arts
RI.4.1, 4.4, 4.7

Grade 5

Common Core English Language Arts
RI.5.4

Grade 6

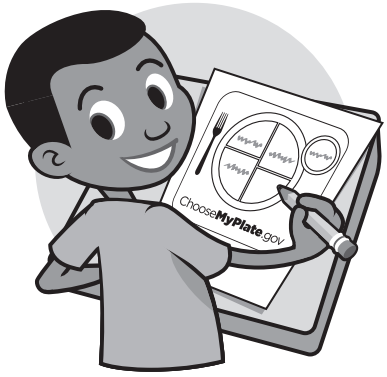
Common Core English Language Arts
RI.6.4, 6.7

fruit group. The grains section is larger than the protein section. Each food group's size is slightly different because our bodies need different amounts from each food group to stay healthy.

2. Have students write a one-minute "quick list" of foods that could be listed in each of the five groups. Note: Beans are unique because they fit in both the protein and vegetables group. For more information about beans and peas visit: *choosemyplate.gov/vegetables-beans-and-peas*.

3. Have students share their answers and record them in a chart on the board. Create a spelling list from select words.

4. Lead students through a discussion of five reasons why they should make half their plate fruits and vegetables daily. Discussion points may include:



- Fruits and vegetables are the only source of vitamin C in the diet. Vitamin C helps the body heal wounds and lowers the risk of infection. It also helps keep the body from bruising and builds the tissue that holds muscles and bones together. Vitamin C is also known as ascorbic acid and helps the body absorb the iron found in foods and strengthens the immune system.

- Vitamin A serves several functions in the body. It helps maintain good vision, fight infection, support cell growth, and keep skin healthy. Leafy greens, carrots, sweet potatoes, squash, spinach, apricots, and green peppers are all excellent sources of vitamin A.

- Fruits and vegetables are a good source of complex carbohydrates, whose energy release is slow, gradual, and long lasting. Sugar provides quick energy, but its effects are short lived. This knowledge is important when choosing foods to eat before an athletic event.

- Fruits and vegetables contain fiber. Fiber helps move food through the body to prevent constipation and provide a sense of fullness.

- Fruits and vegetables are quick, often ready to eat, easy to carry,

and tasty foods to have as snacks. They provide the energy needed to function throughout the day.

- Eating a variety of fruits and vegetables provides health benefits — people who eat more fruits and vegetables as part of a healthy eating style are likely to have a reduced risk of some chronic diseases.
- Fruits and vegetables provide nutrients that help us grow and stay healthy.
- They are naturally low in fat and calories. None have cholesterol.

5. Briefly discuss what foods are in the fruit and vegetable groups using the MyPlate Daily Food Plan Checklist on page 14.

   Fruit Group:

   - Any fruit or 100% fruit juice counts as part of the Fruit Group. Fruits may be fresh, canned, frozen, or dried, and may be whole, cut-up, or pureed. For more information and fruit group photos visit *choosemyplate.gov/myplate/fruits/gallery*.
   - Focus on whole fruits
   - Choose whole or cut up fruits more often than 100% juice.
   - Snack on fresh, frozen, canned, or dried fruits instead of cookies, brownies, or other sugar-sweetened treats.

   Vegetable Group:

   - Any vegetable or 100% vegetable juice counts as a member of the Vegetable Group. Vegetables may be raw or cooked; fresh, frozen, canned, or dried/dehydrated; and may be whole, cut-up, or mashed. For more information and vegetable group photos visit *choosemyplate.gov/myplate/vegetables/gallery*.
   - Vegetables are organized into 5 subgroups based on their nutrient content:
     - Dark-Green Vegetables (e.g., broccoli, spinach, romaine lettuce, bok choy, collard greens)
     - Red and Orange Vegetables (e.g., acorn or butternut squash, carrots, pumpkin, red peppers, sweet potatoes, tomatoes)

- Beans and Peas Vegetables (e.g., chickpeas/garbanzo beans; lentils; black, kidney, navy, or pinto beans)
- Starchy Vegetables (e.g., corn, green peas, green lima beans, plantains, potatoes)
- Other Vegetables (e.g., celery, cucumbers, green beans, green peppers, iceberg lettuce, zucchini)

6. Discuss the importance of eating a variety of vegetables from each of the subgroups throughout the week. Vegetable subgroup recommendations are given as amounts to eat WEEKLY. It is not necessary to eat vegetables from each subgroup daily. Most people need to eat more vegetables from the Dark-Green, Red and Orange, and Beans and Peas subgroups.
7. Ask students to name their favorite vegetables in each of the subgroups. Write the subgroup categories on the board.
8. Review the amount of food students need from each of the five food groups each day using the MyPlate Daily Food Plan Checklist on page 14. Direct the students to identify what foods are measured in cups vs. ounces. (The amounts of foods are listed in cups for fruits, vegetables, and dairy, and in ounce equivalents for grains and protein foods.) To help students see what these foods might look like on a plate, use measuring cups for volume and two dominoes for one-ounce equivalents.
9. Show students what a ½ cup of fruits, vegetables, and cooked grains look like. Display the food on a plate. Have the students measure 1 or 2 cups of food to compare. Have the students hold 2 dominoes in their hand. Explain that the 2 dominoes are equal to one ounce.
10. Have students complete the Fruits and Veggies on MyPlate handout on page 15 or at *fns.usda.gov/sites/default/files/digin_l1h2.pdf.*
11. Have students try the Have Fun with Fruits and Vegetables Word Search on page 16 or at *choosemyplate-prod.azureedge.net/sites/default/files/audiences/HaveFunWordSearch.pdf*.

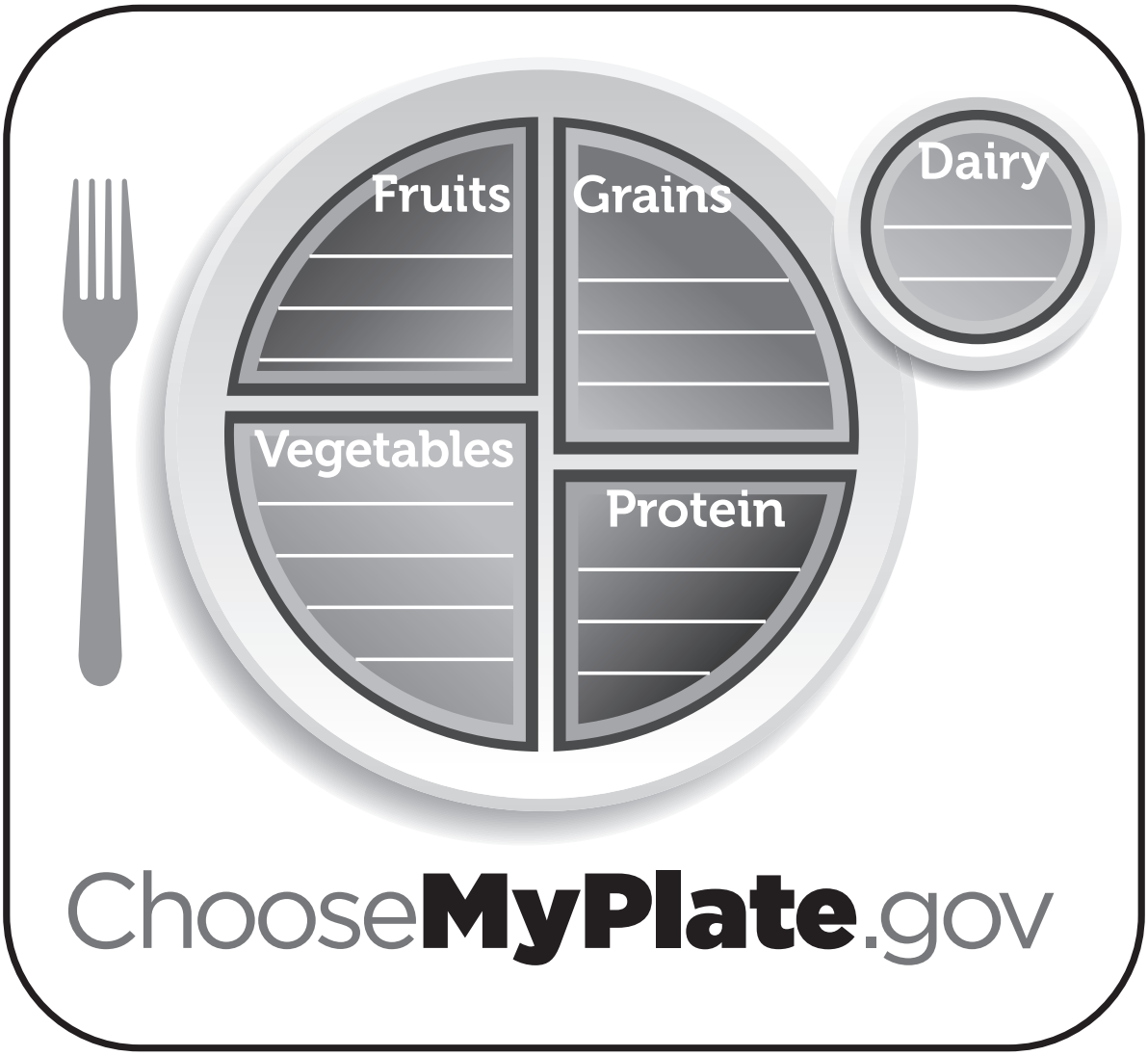
Extension

- Visit *supertracker.usda.gov* to create an individual profile and calculate the number of servings for MyPlate Daily Checklist.

Name: _____

Period: _____

MyPlate



MyPlate is a colorful visual of the five food groups that are the building blocks for a healthy eating style throughout your lifetime. Each of these food groups provide some, but not all, of the nutrients you need. No one food group is more important than another—for good health you need them all. Everything you eat and drink matters.

Information compiled from the United States Department of Agriculture (USDA). Go to *ChooseMyPlate.gov* for more information.

MyPlate Daily Food Plan Checklist

Children have different calorie needs based on their height, weight, and physical activity level. For example, the food group amounts for 1,800 calories a day for children ages 9 and up that are active for 30 minutes or more per day are:

Fruits- 1 ½ cups
1 cup of fruits:

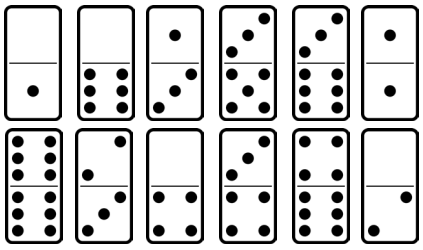
- 1 cup raw or cooked fruit
- ½ cup dried fruit
- 1 cup 100% fruit juice

Vegetables- 2 ½ cups
1 cup of vegetables:

- 1 cup raw or cooked vegetables
- 2 cups leafy salad greens
- 1 cup 100% vegetable juice

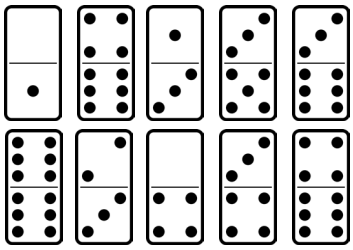
Grains -6 ounce equivalents
1 ounce of grains:

- 1 slice bread
- 1 cup of ready-to eat cereal
- ½ cup of cooked rice, pasta, or cereal



Protein-5 ounce equivalents
1 ounce of protein:

- 1 ounce lean meat, poultry, or seafood
- 1 egg
- 1 Tbsp peanut butter
- ¼ cup cooked beans or peas
- ½ ounce nuts or seeds



Dairy-3 cups
1 cup of dairy:

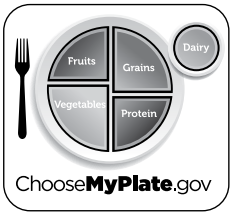
- 1 cup milk
- 1 cup yogurt
- 1 cup fortified soy beverage
- 1 ½ ounces natural cheese or 2 ounces processed cheese.

Each of these food groups provide some, but not all, of the nutrients you need. No one food group is more important than another—for good health you need them all. Drink and eat less sodium, saturated fat, and added sugars for a healthy eating style.

Fruits and Veggies on MyPlate

LESSON 1 HANDOUT 2

Name: _____ **Date:** _____



Edible plant parts are found in more than two of the five ***MyPlate*** food groups we need each day for good health. Do you know which ones? (Circle them below).

Fruit Group **Vegetable Group** **Grain Group** **Protein Foods Group** **Dairy Group**

Look at the school lunch menu below and fill in the table by answering the following questions:

1) What is the original ingredient?
For each menu item, list the major ingredient from which it was made. Pizza is a combination food made up of foods from three food groups. Provide answers for each food in the pizza, as well as for the rest of the meal.

2) What food group does it belong to?

3) Did it come from a plant? Answer "yes" or "no."

4) Which edible plant part is it?

Lunch Menu Item	Original Ingredient		Food Group	Does It Come From a Plant? (yes/no)	Edible Plant Part
 WHOLE-WHEAT CHEESE PIZZA	a. Crust (example)	Wheat Flour	Grain Group	Yes	Seed
	b. Tomato Sauce				
	c. Cheese				
 BAKED SWEET POTATO FRIES					
 BOWL OF BROCCOLI					
 APPLESAUCE					
 FAT-FREE MILK					

5) What fruits and vegetables are on this menu? List them: _____

_____

Have Fun With Fruits and Vegetables

Find the hidden fruits and vegetables in the puzzle. Words can read up, down or across, from left to right or right to left.

Find:

Apple
Banana
Broccoli
Carrots
Celery
Eggplant
Grapes
Kiwi
Orange
Papaya
Pear
Peas
Squash
Yams

B	F	S	E	A	Y	A	P	A	P
R	C	Q	L	S	R	P	E	A	R
O	H	U	P	B	A	N	A	N	A
C	P	A	P	Y	R	E	L	E	C
C	S	S	A	Y	A	M	S	T	E
O	A	H	E	G	N	A	R	O	K
L	E	C	A	R	R	O	T	S	I
I	P	G	R	A	P	E	S	K	W
B	E	G	G	P	L	A	N	T	I

Fruit and Vegetable Goals

Name a fruit you would like to try:

_____

_____

_____

How will you eat this fruit? (On cereal, as a snack, for dessert, with dinner or on pancakes.)

_____

_____

_____

Name a vegetable you would like to try:

_____

_____

_____

How will you eat this vegetable? (As a snack, with dip, or for lunch.)

_____

_____

_____

Adapted from
Team Up At Home Team Nutrition Activity Book

California Crops: From the Farm to the Table

Purpose

The purpose of this lesson is for students to appreciate that California is a major agricultural state. They will gather information on the production of one specific California agricultural commodity.

Time

Teacher Preparation:
20 minutes

Student Activities:
Part I
Two 50-minute sessions

Part II
Three 50-minute sessions

Note: Part II cannot be completed until all materials have been gathered from the letter writing activity. This may take at least four weeks.

Materials

For the class:

- Large wall map of California with legend
- Reference books on fruits and vegetables (optional)

For each partnership:

- *Agricultural Distribution Process* handout (page 24)

Background Information

Agriculture is an enormous industry in California and has tremendous economic impact on our state. Agriculture commodity boards, councils, and commissions serve the growers and public in many ways. These groups provide facts and figures to the government, educate farmers and consumers about the commodity, and can provide a wealth of information to educators and students. Be aware that addresses for these organizations change and can be confirmed using the websites. Refer to pages 49-53 for more information.

Procedure

Part I

1. Introduce the lesson. Explain to your students that they will be learning about California agriculture. They will become "experts" on one California commodity, write a report, and make an oral presentation to the class. Review the agricultural distribution process using the chart on page 23.
2. Show students a large wall map of California. Introduce the legend and brainstorm several things that can be learned from the map. Have students locate where they live and identify the nearest agricultural growing regions. Discuss the main topographical areas of California—the mountains, valleys, deserts, and coastal areas. Discuss what your students know about the climate, water, and soil of different regions and how this information can indicate an area's agricultural capacity. Discuss that each commodity grown in California has unique needs and grows best in certain regions of California. Use the map template (page 23) as you see appropriate for your students. A useful commodity map can be viewed and downloaded from *LearnAboutAg.org/resources/learn/map.pdf*

California Crops: From the Farm to the Table

Materials (continued)

- *Map of California* handout (page 23)
- *California's Major Agricultural Commodities* list (page 21)
- *Agricultural Organizations* list (pages 49-53)
- Postage stamps and/or access to e-mail
- Letter writing materials
- *Sample Letter to Agricultural Commodity Board* handout (page 22)

3. Select an agricultural commodity to research. Present students with the list of California's major agricultural commodities and the addresses of agricultural organizations (pages 49-53). In small groups of two or three, have students select an agricultural commodity for which they will become "experts." Explain that they will teach their classmates about their commodities.

4. Write a business letter. Have students select one fruit or vegetable and write a formal business letter to an appropriate agricultural commodity board and/or farmer. Prior to writing the letter, students should prepare a list of things they wish to learn. Students may choose to write to more than one organization. A sample letter is provided on page 22.

   Included in their requests may be questions related to:

   - The production of the crop.
   - The agricultural distribution of the crop *(how the crop gets from the farm to the table)*.
   - Growing locations and conditions.
   - Uses of the crop.
   - The nutritional value of the crop.
   - The importance of the commodity to California's economy.

   Students may also ask for:

   - Informational brochures.
   - Samples and/or pictures of the crop or product.

5. Approve the letters before the envelopes are sealed. Mail the letters and wait for a reply. Many organizations have e-mail. Some students may wish to e-mail their letter once it is proofread.

California Crops: From the Farm to the Table

California Standards

Grade 4

Common Core English Language Arts
RI.4.1, 4.3, 4.4, 4.9
RF. 4.4
W.4.2, 4.4, 4.7, 4.9
SL.4.4, 4.5
L.4.1, 4.2, 4.3

Grade 5

Common Core English Language Arts
RI.5.1, 5.4, 5.7, 5.9
RF.5.4
W.5.2, 5.4, 5.7, 5.9
SL.5.4, 5.5
L.5.1, 5.2, 5.3

Grade 6

Common Core English Language Arts
RI.6.1, 6.2, 6.4, 6.7
W.6.2, 6.4, 6.7
SL.6.4, 6.5
L.6.1, 6.2, 6.3

Part II

1. Write a thank-you letter. Upon receipt of materials, have the students write and send thank-you letters to the organizations that provided information. Be sure to have students proof the rough drafts of their letters and have you review them, prior to sending. Remind students to write legibly and use proper letter format.

2. Write a report on a California agricultural commodity. The information and materials received from the agricultural commodity board should be assembled into a written report and used in an oral presentation. The written report should be proofed for grammar, spelling, and organization before making a final copy which is typed or written legibly and includes quotes or paraphrasing of information from various sources. Credit should be given to all references. The written report may include:

   - A map of California with growing areas highlighted.
   - A creative schematic drawing of how the commodity gets from the farm, where it is grown, to the table, where it is eaten.
   - Interesting facts and products.
   - Nutritional information.
   - Information about the importance of the crop to California's economy.
   - Brochures, pictures, or other supporting materials.

3. Make an oral presentation. Have each group of students give a three-to-five-minute "expert" oral presentation explaining what they have learned about agriculture in California and the specific commodity that they have researched. Encourage creative presentations which may include television commercials, plays, editorials, news reports, poems, or interviews. Prior to the formal presentation, students should practice their reports orally focusing on volume, pitch, and appropriate body gestures.

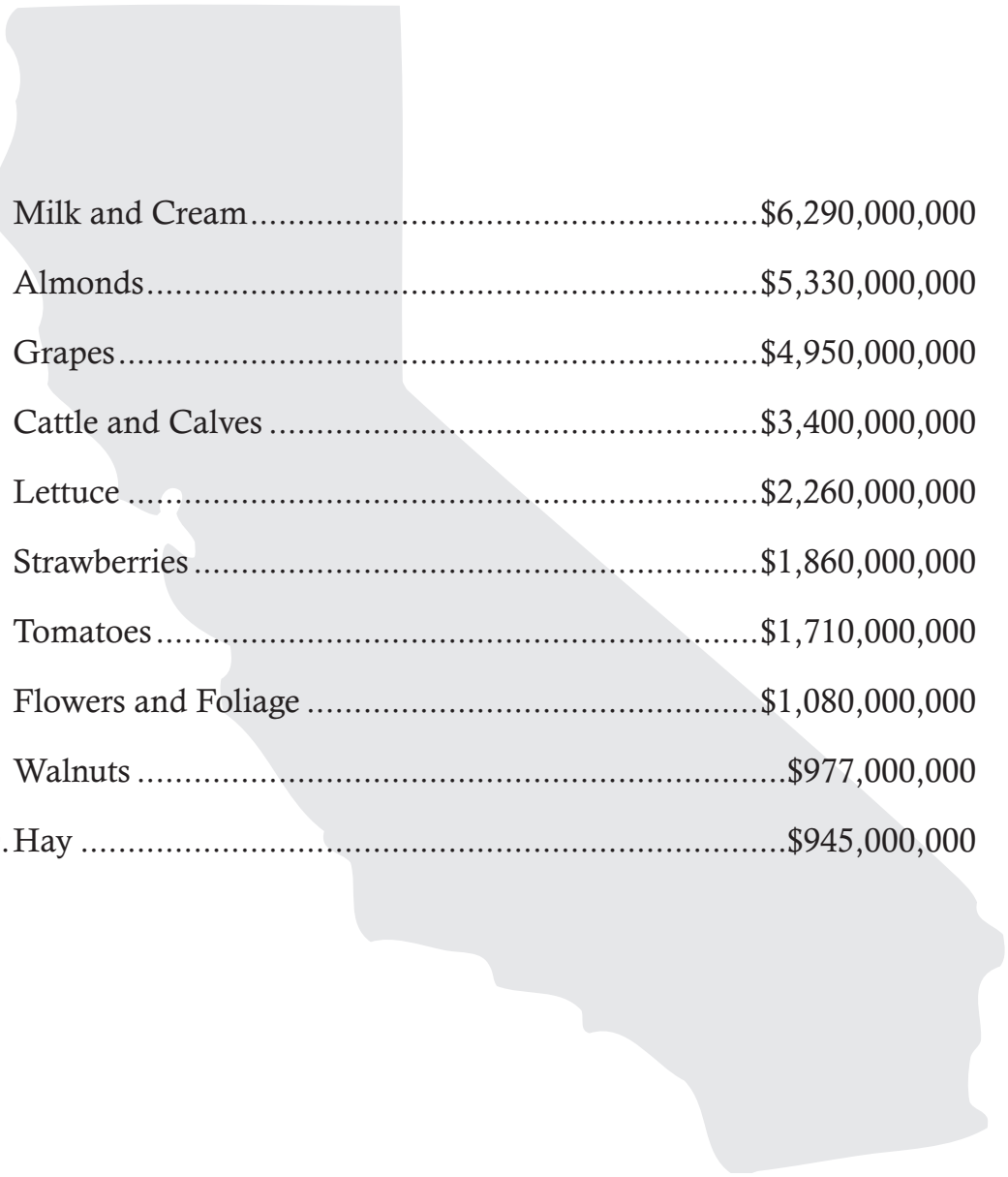
California Crops: From the Farm to the Table

Extensions

- Have students choose one of the crops studied and include it in one of their meals at home. Students then summarize their experience and send their summary to the organization that provided information.
- Take a field trip to a farmers market, the produce section of a local supermarket, or a local produce vendor. Observe how California crops are marketed.
- Encourage students to identify recipes that showcase their selected California commodity. Visit *www.cachampionsforchange.cdph.ca.gov/en/Recipes.php* for recipes that feature California-grown produce.
- Learn about careers involved in each step of Farm to Table. Have students research opportunities in production agriculture, food processing, marketing, retail, and transportation of commodities. Add careers to the Distribution Process handout (page 24.)

California's Major Agricultural Commodities

In 2015, the leading California commodities were:



1. Milk and Cream.....$6,290,000,000
2. Almonds.....$5,330,000,000
3. Grapes.....$4,950,000,000
4. Cattle and Calves.....$3,400,000,000
5. Lettuce.....$2,260,000,000
6. Strawberries.....$1,860,000,000
7. Tomatoes.....$1,710,000,000
8. Flowers and Foliage.....$1,080,000,000
9. Walnuts.....$977,000,000
10. Hay.....$945,000,000

Source: The California Department of Food and Agriculture's California Agricultural Production Statistics; *www.cdfa.ca.gov/statistics*

Sample Letter to Agricultural Commodity Board

Student's Name
School Name
School Address
School Phone Number

Date

Mr. Robert Apple
Fresh Valley Fruits
3001 Produce Circle
Pleasant Grove, CA 90132

Dear Mr. Apple:

Introductory paragraph. The first paragraph of your letter should be short. Introduce yourself to the person to whom you are writing. Explain why you are writing the letter.

Body paragraph(s). The following paragraph(s) should provide more details about why you are writing. If you are asking for information, provide a detailed list of what you would like to know. Use linking structures to improve the flow of your writing. "Moreover," "furthermore," and "in addition," are all examples of words that can be used to link sentences together. If you would like to request brochures, samples, or additional resources, ask for them directly.

Concluding paragraph. The last paragraph should state what action you would like the reader to take. Specify when you would like them to respond by, and tell the reader what you plan to do with the information. Be sure to thank them for their time and assistance.

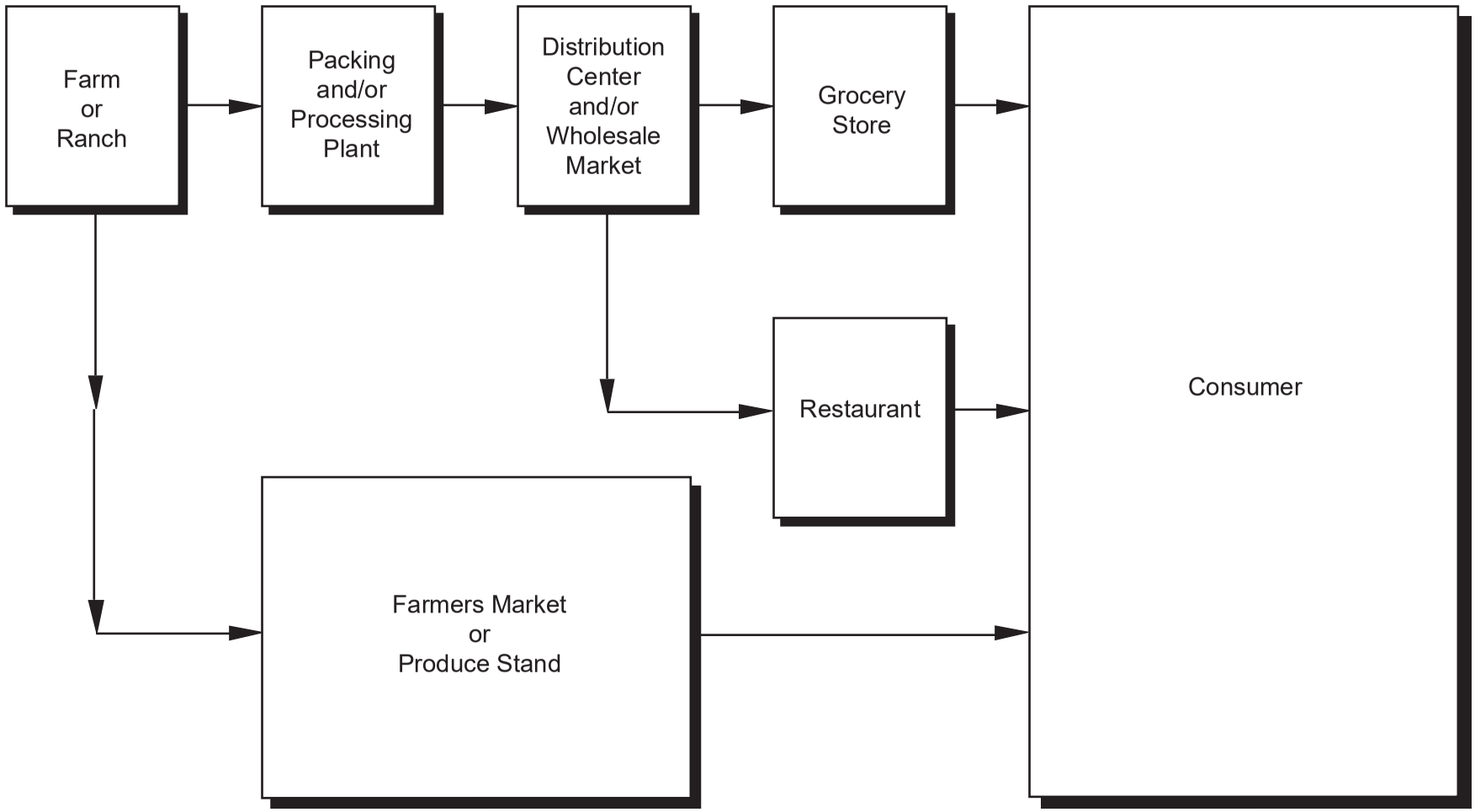
Sincerely,

_____
Student's Name

Note: This is a sample letter. All students should write their own letters using their own words.

Map of California

Agricultural Distribution Process



Nutritional Value of Fresh Produce

Purpose

In this lesson students will learn that fresh produce is a good source of vitamin A, vitamin C, and fiber, and that all fruits and vegetables do not contain the same quantities of each nutrient.

Time

Teacher Preparation:
10 minutes

Student Activities:
One or two 50-minute sessions

Materials

For each student:

- *Fresh Fruits and Vegetables Nutrition Facts* handout (pages 27-29)
- *Dietary Fiber, Vitamin A and Vitamin C* bar graph worksheets (pages 30-32)
- Colored pencils, crayons, or markers
- *Nutrient Comparison* worksheet (pages 33-34)

For the teacher:

- Document Camera
- Markers

Background Information

The Percent Daily Value on the Nutrition Facts label is a guide to the nutrients in one serving of food. For example, if the label lists 5 Percent Daily Value for fiber, it means that one serving provides 5 percent of the fiber you need each day.

The Daily Values are average levels of nutrients for a person eating 2,000-calories a day. For children, the amount needed will be slightly lower. Even if a person's diet is higher or lower in calories, they can still use the Percent Daily Value as a guide. Percent daily values are the entire day, not just one snack or meal. For example, the Percent Daily Value can help students determine whether a food is high or low in specific nutrients:

If a food has 5 percent or less of a nutrient, it's considered to be low in that nutrient. If it has 20 percent or more, it's considered to be high in that nutrient.

To get the most benefit from Percent Daily Values, use them to choose foods high in vitamins, minerals and fiber—and to limit foods high in fat, cholesterol, and sodium. This lesson is designed to help students visualize which fruits and vegetables are the richest sources of vitamin A, vitamin C, and fiber.

Vitamin A is essential for maintaining good vision, fighting infection, supporting cell growth, and keeping skin healthy. Research has shown that consuming one serving a day of a food containing vitamin A may help prevent some kinds of cancer.

Vitamin C (ascorbic acid) is a powerful antioxidant. These nutrients help protect cells from damage that can increase the risk for certain diseases, such as cancer. Vitamin C helps the body heal cuts and wounds and helps lower the risk of infection.

Dietary fiber naturally occurs in plants, helps provide a feeling of fullness, helps keep your blood sugar level normal, and helps to avoid constipation. Sources of dietary fiber include dry beans and legumes, vegetables, fruits, whole grains, and nuts.

Nutritional Value of Fresh Produce

California Standards

Grade 4

Common Core English Language Arts
RI.4.1, 4.3, 4.7

Common Core Mathematics
4.MD.4

Grade 5

Common Core English Language Arts
RI.5.3, 5.7

Common Core Mathematics
5.MD.2
5.G.2

Grade 6

Common Core English Language Arts
RI.6.3, 6.7

Common Core Mathematics
6.SP.5b

Procedure

1. Distribute copies of the *Fresh Fruits and Vegetables Nutrition Facts* handout to individual students or small groups of two or three. Review one Nutrition Facts label with the class to make certain that students understand how to read them. Using a document camera to show the handout may be helpful.
2. Distribute copies of the bar graph worksheets. Review the procedure for making bar graphs. You may wish to make an example blank graph to use in your explanation of bar graphing. Remind students that all graphs contain the following:
   - labels for the axes
   - a title
   - evenly divided horizontal and vertical axes
   - accurate data
3. Have students complete the bar graphs.
4. Distribute and discuss the *Nutrient Comparison* worksheet. Instruct students to use their bar graphs to complete the worksheet. Discuss the answers.

Variations

- Have students create their own bar graphs on graph paper. Instruct them to label the x- and y-axes, determine appropriate increments, and give their graph a title.
- Have students create large nutrition pictographs or bar graphs for posting or displaying in the school cafeteria or library.

Extension

- Have a tasting party of the fruits and vegetables you have studied. Ask the students to make a survey of the most popular fruits and vegetables among the class members and prepare graphs that display the results of the survey.

Fresh Fruits and Vegetables Nutrition Facts

Vegetables

Broccoli

Nutrition Facts

Serving Size: ½ cup cooked broccoli (78g)

Calories 27	Calories from Fat 0
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 32mg	1%
Total Carbohydrate 6g	2%
Dietary Fiber 3g	10%
Sugars 1g	
Protein 2g	
Vitamin A 24%	Calcium 3%
Vitamin C 84%	Iron 3%

Carrots

Nutrition Facts

Serving Size: ½ cup carrots, sliced (61g)

Calories 25	Calories from Fat 0
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 45mg	2%
Total Carbohydrate 6g	2%
Dietary Fiber 2g	7%
Sugars 3g	
Protein 1g	
Vitamin A 204%	Calcium 2%
Vitamin C 6%	Iron 1%

Corn

Nutrition Facts

Serving Size: ½ cup yellow corn (82g)

Calories 89	Calories from Fat 9
	% Daily Value
Total Fat 1g	2%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 21g	7%
Dietary Fiber 2g	9%
Sugars 3g	
Protein 3g	
Vitamin A 4%	Calcium 0%
Vitamin C 9%	Iron 2%

Green Beans

Nutrition Facts

Serving Size: ½ cup green beans, fresh (50g)

Calories 24	Calories from Fat 1
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 2mg	0%
Total Carbohydrate 5g	1%
Dietary Fiber 1g	6%
Sugars 1g	
Protein 1g	
Vitamin A 7%	Calcium 2%
Vitamin C 13%	Iron 3%

Spinach

Nutrition Facts

Serving Size: 1 cup fresh spinach (30g)

Calories 7	Calories from Fat 0
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 24mg	1%
Total Carbohydrate 1g	0%
Dietary Fiber 1g	2%
Sugars 0g	
Protein 1g	
Vitamin A 56%	Calcium 3%
Vitamin C 14%	Iron 4%

Sweet Red Peppers

Nutrition Facts

Serving Size: ½ cup sweet red peppers, chopped (75g)

Calories 23	Calories from Fat 1
	% Daily Value
Total Fat 0g	1%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 3mg	0%
Total Carbohydrate 5g	2%
Dietary Fiber 2g	6%
Sugars 3g	
Protein 1g	
Vitamin A 47%	Calcium 1%
Vitamin C 158%	Iron 2%

Fresh Fruits and Vegetables Nutrition Facts

Potatoes

Nutrition Facts

Serving Size: ½ cup baked potato (61g)

Calories 57	Calories from Fat 0
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 3mg	0%
Total Carbohydrate 13g	4%
Dietary Fiber 1g	4%
Sugars 1g	
Protein 1g	

Vitamin A 0%	Calcium 0%
Vitamin C 13%	Iron 1%

Tomatoes

Nutrition Facts

Serving Size: ½ cup tomatoes, sliced (90g)

Calories 16	Calories from Fat 0
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 4mg	0%
Total Carbohydrate 4g	1%
Dietary Fiber 1g	4%
Sugars 2g	
Protein 1g	

Vitamin A 15%	Calcium 1%
Vitamin C 19%	Iron 1%

Fruits

Apples

Nutrition Facts

Serving Size: ½ cup apples, sliced (55g)

Calories 28	Calories from Fat 0
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 1mg	0%
Total Carbohydrate 8g	3%
Dietary Fiber 1g	5%
Sugars 6g	
Protein 0g	

Vitamin A 1%	Calcium 0%
Vitamin C 4%	Iron 0%

Pears

Nutrition Facts

Serving Size: ½ cup pears, sliced (70g)

Calories 41	Calories from Fat 0
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 1mg	0%
Total Carbohydrate 11g	4%
Dietary Fiber 2g	9%
Sugars 7g	
Protein 0g	

Vitamin A 1%	Calcium 1%
Vitamin C 5%	Iron 1%

Strawberries

Nutrition Facts

Serving Size: ½ cup strawberries (72g)

Calories 23	Calories from Fat 0
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 1mg	0%
Total Carbohydrate 6g	2%
Dietary Fiber 1g	6%
Sugars 4g	
Protein 0g	

Vitamin A 0%	Calcium 1%
Vitamin C 74%	Iron 2%

Fresh Fruits and Vegetables Nutrition Facts

Grapes

Nutrition Facts

Serving Size: ½ cup grapes (76g)

Calories 52	Calories from Fat 0
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 2mg	0%
Total Carbohydrate 14g	5%
Dietary Fiber 1g	3%
Sugars 12g	
Protein 1g	
Vitamin A 1%	Calcium 1%
Vitamin C 14%	Iron 2%

Oranges

Nutrition Facts

Serving Size: ½ cup orange, sections (90g)

Calories 42	Calories from Fat 0
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 1mg	0%
Total Carbohydrate 10g	4%
Dietary Fiber 2g	9%
Sugars 7g	
Protein 1g	
Vitamin A 4%	Calcium 4%
Vitamin C 82%	Iron 1%

Peaches

Nutrition Facts

Serving Size: ½ cup peach, sliced (77g)

Calories 30	Calories from Fat 0
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 7g	2%
Dietary Fiber 1g	5%
Sugars 7g	
Protein 1g	
Vitamin A 5%	Calcium 1%
Vitamin C 9%	Iron 1%

Plums

Nutrition Facts

Serving Size: 1 medium plum (66g)

Calories 30	Calories from Fat 2
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 8g	3%
Dietary Fiber 1g	4%
Sugars 7g	
Protein 0g	
Vitamin A 5%	Calcium 0%
Vitamin C 10%	Iron 1%

Watermelon

Nutrition Facts

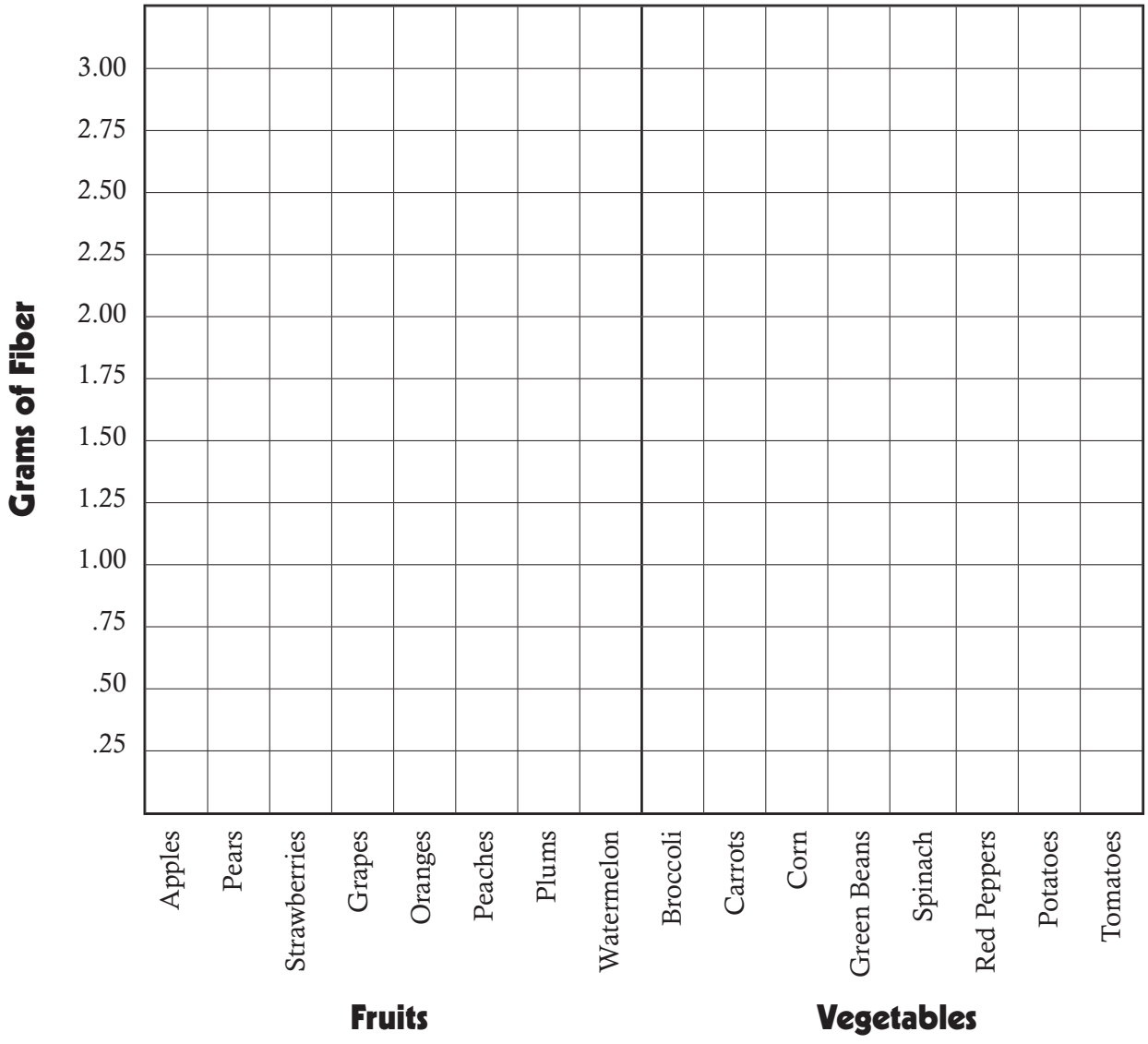
Serving Size: ½ cup watermelon, cubed (76g)

Calories 23	Calories from Fat 0
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 1mg	0%
Total Carbohydrate 6g	2%
Dietary Fiber 1g	1%
Sugars 5g	
Protein 1g	
Vitamin A 9%	Calcium 1%
Vitamin C 10%	Iron 1%

Dietary Fiber

Name: _____

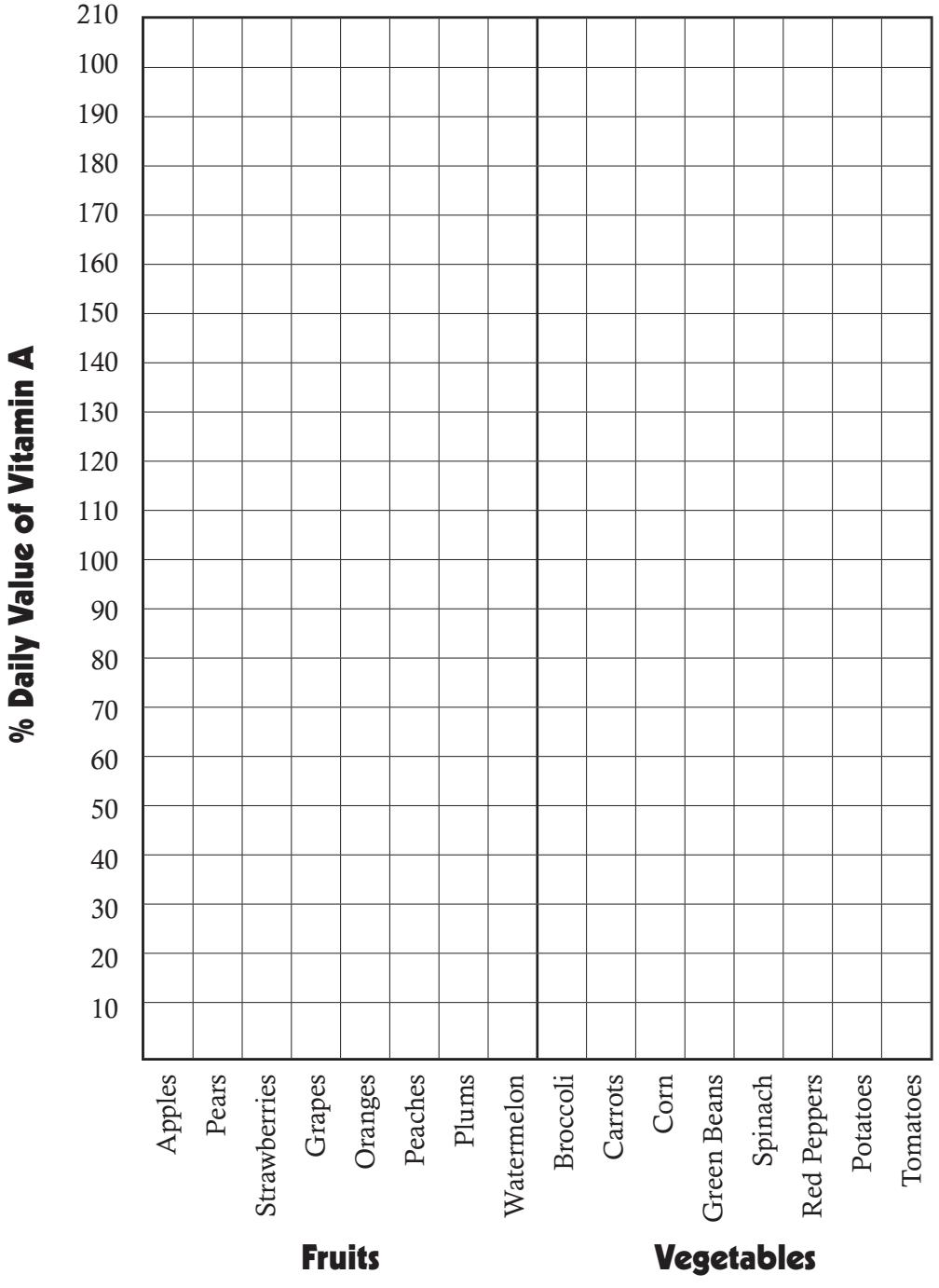
Dietary fiber is found in fresh fruits and vegetables and in grains such as wheat and oats. Fiber helps you feel full, helps keep your blood sugar level normal, and helps to avoid constipation. The *2015 Dietary Guidelines for Americans* recommends that young people between the ages of 9 and 18 consume 22-31 grams of fiber each day, depending on age, gender, and physical activity. Use the information from the *Fresh Fruits and Vegetables Nutrition Facts* handout to create a bar graph on fiber quantities in fresh fruits and vegetables.



Vitamin A

Name: _____

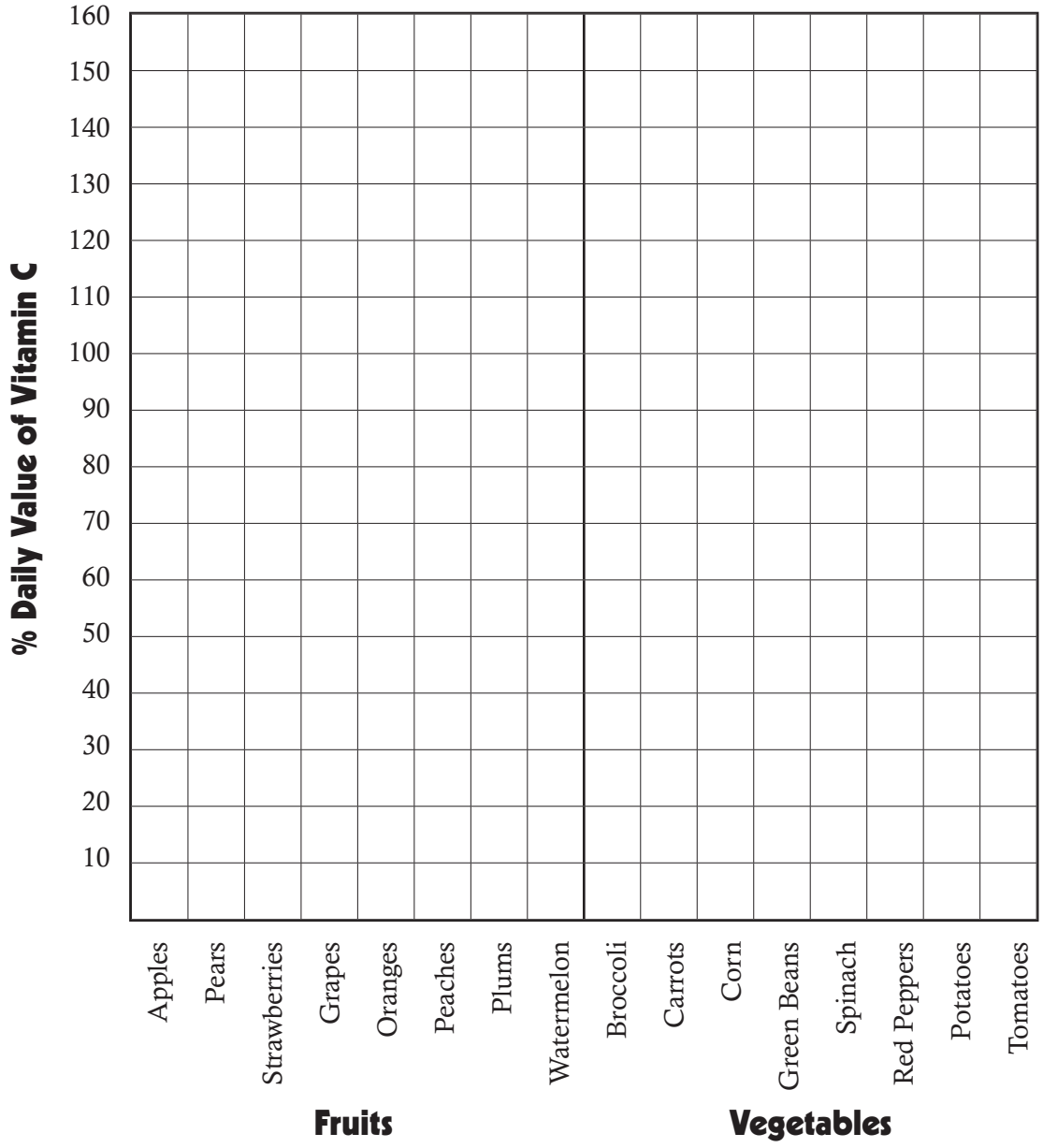
Vitamin A helps maintain good vision, fight infections, and keep your skin healthy. Use the information from the *Fresh Fruits and Vegetables Nutrition Facts* handout to create a bar graph showing vitamin A quantities in specific fruits and vegetables.



Vitamin C

Name: _____

Vitamin C, also known as ascorbic acid, helps the body heal cuts and wounds and helps lower the risk of infections. Vitamin C is only found in plant foods. Use the information from the *Fresh Fruits and Vegetables Nutrition Facts* handout to create a bar graph showing the vitamin C quantities in fresh produce.



Nutrient Comparison Worksheet

Name: _____

Instructions: Using the graphs or labels provided, answer the questions below. As you complete the worksheet, think of why eating a wide variety of foods benefits your health. In this activity, categorize tomatoes as vegetables, even though they are scientifically fruits.

1. Which fruit contains the highest Percent Daily Value of vitamin A? _____
2. Which vegetable contains the highest Percent Daily Value of vitamin A? _____
3. Which fruit or vegetable contains the lowest Percent Daily Value of vitamin A? _____
4. Which fruit contains the highest Percent Daily Value of vitamin C? _____
5. Which vegetable contains the highest Percent Daily Value of vitamin C? _____
6. Which fruit or vegetable contains the lowest Percent Daily Value of vitamin C? _____

7. List some fruits and vegetables that are higher in fiber than others.

   _____

   _____

   _____

8. Find two fruits and two vegetables that are high in both vitamin A and vitamin C and list them.

   _____

9. Which way is easier for you to compare nutritional value of the fruits or vegetables—the labels provided or the graphs you made? _____ Why? _____

   _____

   _____

10. From the nutrient information provided, nominate one fruit or vegetable to be the "Best Produce" award winner. What fruit or vegetable did you choose? _____

    _____

    _____

Nutrient Comparison Worksheet

Name: _____

11. Plan meals and snacks for one day so you would eat a total of three or more vegetable servings and two or more fruit servings. Write each food item in the chart below.

Breakfast	Lunch	Dinner	Snacks

12. Why is it important to build a healthy eating style and build it throughout your lifetime? _____

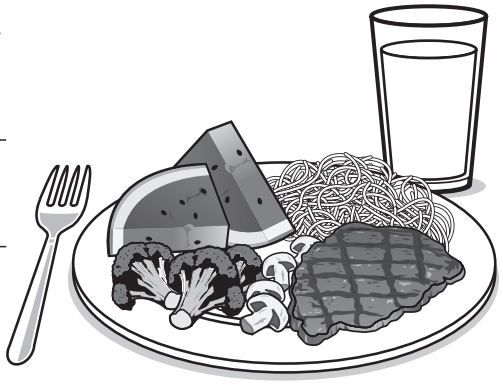
_____

_____

_____

_____

_____



For Fun! How many different definitions can you find for the words "fruit" and "vegetable?"

Nutrient Comparison Worksheet Answer Key

1. Which fruit contains the highest Percent Daily Value of vitamin A? *Watermelon*
2. Which vegetable contains the highest Percent Daily Value of vitamin A? *Carrots*
3. Which fruit or vegetable contains the lowest Percent Daily Value of vitamin A? *Strawberries (fruit) or potatoes (vegetable)*
4. Which fruit contains the highest Percent Daily Value of vitamin C? *Oranges*
5. Which vegetable contains the highest Percent Daily Value of vitamin C? *Sweet red peppers*
6. Which fruit or vegetable contains the lowest Percent Daily Value of vitamin C? *Apples (fruit) or green beans (vegetable)*
7. List some fruits and vegetables that are higher in fiber than others. *Broccoli, carrots, corn, sweet red peppers, pears, oranges all have 2 grams of fiber or more per serving*
8. Find two fruits and two vegetables that are high in both vitamin A and vitamin C and list them. *Watermelon and plums (fruit) and sweet red peppers and broccoli (vegetables)*
9. Which way is easier for you to compare the nutritional value of fruits and vegetables—the Nutrition Facts labels provided or the graphs you made? *Answers vary*
   Why? *Answers vary*
10. From the nutrient information provided, nominate one fruit or vegetable to be the "Best Produce" award winner. What fruit or vegetable did you choose? *Answers vary*
    Why? *Answers vary*
11. Plan meals and snacks for one day so you would eat a total of three or more vegetable servings and two or more fruit servings. *Answers vary*
12. Why is it important to build a healthy eating style and build it throughout your lifetime? *Answers vary*

The Chemistry of Fruits and Vegetables

Purpose

The purpose of this lesson is for students to perform scientific experiments where they examine fruit and vegetable preparation and storage.

Time

Teacher Preparation:
20 minutes

Student Activities:
Two 50-minute sessions

Materials

For each student or partnership:

- Two different fruits (apple, avocado, peach, plum, or pear)
- Two different whole vegetables (potato, eggplant, zucchini, sweet potato, or carrot)
- Paper or plastic plates (12)
- Knife (metal or heavy-duty plastic)
- Plastic wrap
- Treatment chemicals: lemon juice, pineapple juice, ascorbic acid solution, sodium bicarbonate solution, citric acid solution
- *The Chemistry of Fruits and Vegetables* activity sheet (page 40)

Background Information

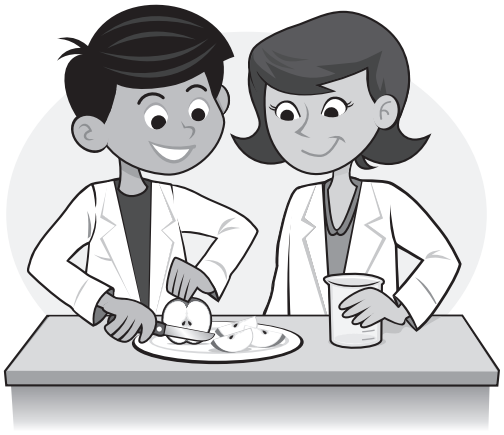
All plants are made up of living cells that are held together by cell walls. When some fruits and vegetables are cut, the cell walls are broken and a chemical reaction occurs which causes the cut surfaces to darken. The chemical reaction is caused by exposure of the fruit or vegetable to oxygen in the air. This chemical reaction is called oxidation and is promoted by enzymes that are released when the cells are cut open. Fruits and vegetables that have been discolored from oxidation are still edible, despite the change in appearance. The chemical reaction that causes darkening will not occur when:

- Ascorbic acid is present naturally in the fresh produce, or added immediately after cutting.
- The produce is heated to destroy the enzymes that cause discoloration due to oxidation.
- The food is covered to prevent oxygen from entering the cut cells.

Bruised and blemished produce is also edible if the imperfections are removed with a knife. However, moldy fruit and vegetables should be discarded because some molds produce toxins that are potentially harmful.

In this lesson, students will experiment with fruits and vegetables to determine the best method to prevent discoloration.

It is important to discuss with students that the agricultural industry establishes guidelines on how fresh produce should be shipped and stored so that quality produce gets to the consumer. It is equally important to discuss with students the appropriate produce storage and handling techniques they should use at home.



The Chemistry of Fruits and Vegetables

Materials *(continued)*

For the teacher:

- Two bowls of cut produce (such as fruit salad), one treated with lemon juice
- Sharp metal knife
- Storage area for student experiments

Procedure

Day 1

1. At least five hours prior to class, prepare two bowls of fresh fruit salad. Liberally apply lemon juice to one of the bowls.

2. Show the class the two bowls of fruit salad. Ask students to choose which of the fruit servings they would prefer to eat. Have students share why they prefer one bowl over the other.

3. Ask students why they think the salads look different. Collect responses from students and write them on the board. If they suggest that one is older than the other, explain that they were prepared at the same time. Building upon the students' ideas, reveal that the more appealing fruit was treated with a natural chemical found in lemons called ascorbic acid.

4. Divide the class into cooperative groups of 3-4 students. Explain to students that their challenge is to find a way to prevent a variety of fruits and vegetables from turning brown. Outline the safety requirements students should follow when using a knife. Introduce the potential treatment options for the fruits and vegetables. Have them record their hypotheses on *The Chemistry of Fruits and Vegetables* activity sheet on page 40.

   Potential treatment options:

   - Lemon juice
   - Pineapple juice
   - Sodium bicarbonate solution (one teaspoon of baking soda dissolved per 100 mL of water)
   - Ascorbic acid solution (one crushed vitamin C pill dissolved per cup of water)
   - Citric acid solution (one gram of citric acid dissolved per 1000 mL of water)
   - Plastic wrap

The Chemistry of Fruits and Vegetables

California Standards

Grade 4

Common Core English Language Arts
W.4.1
SL.4.1

Next Generation Science Standards
4-LS1-1

Grade 5

Common Core English Language Arts
W.5.1
SL.5.1

Next Generation Science Standards
5-PS1-1

Grade 6

Common Core English Language Arts
SL.6.1, 6.2

Next Generation Science Standards
MS-PS1-2

5. Instruct groups to select two types of vegetables and two types of fruit for their experiment. Students will need to slice three equal portions (one control and two different treatments) of each fruit and vegetable.
6. Without delay, treat the three slices of each type of fresh produce as follows:
   - First slice—leave exposed to the air (the control).
   - Second slice—apply treatment of choice to all exposed surfaces.
   - Third slice—apply different treatment of choice to all exposed surfaces.
7. Have students record their observations on *The Chemistry of Fruits and Vegetables* activity sheet (page 40). Observations should be made and recorded immediately after cutting and at regular 10-minute intervals for thirty minutes.

Day 2

1. Have students make their final observations.
2. Hold a class discussion on produce discoloration and the effect different treatments have on fresh produce. Take time to discuss the real-life application of their experiment, as well as the types of discoloration that affect the healthfulness of food, such as mold and bruising.
3. Have student groups discuss results as well as draw and write conclusions. Students should be able to make conclusions about the following and then complete their worksheets:
   - How does the naturally occurring ascorbic acid content of different types of produce affect the rate in which they brown?
   - What treatment is most effective in preventing discoloration?
   - As consumers, how will the results of this experiment affect how they store food?
   - As scientists, what additional information would they want to know before marketing their solution to consumers?

The Chemistry of Fruits and Vegetables

Variations

- Have students write a formal lab report, which includes a purpose, hypothesis, materials list, procedure, results, and conclusion.
- Before the activity, have students predict what the results of the experiment will be (hypothesis). After the experiment, have the students compare their data with their predictions.

Extension

- Conduct a blind taste test. Divide students into groups. Have each group select a student to be a taster and blindfold him or her. Give this student a freshly cut piece of fruit, then give him or her a piece of the same kind of fruit that has oxidized (turned slightly brown). Have the taster comment on the differences in taste and texture.
- Bring in ready-cut produce from the grocery store, such as broccoli florets, apple slices, pineapple, sweet potato sticks, cauliflower florets, or baby carrots. Examine why consumers purchase products pre-cut and research how packaging is designed to extend the shelf life.

The Chemistry of Fruits and Vegetables

Name: _____

Introduction: The appearance of fruits and vegetables is very important to most people. Some imperfections do not affect the taste or healthfulness of the fresh produce. Examples include skin blemishes, browning of cut fruit, and odd shapes or sizes. Other imperfections, such as bruises, may be cut off and not affect the taste, while others, such as molds, make the fruit or vegetable inedible. In this activity, you will experiment with the browning of cut fruits and vegetables.

Hypothesis: _____

Produce Name	Treatment of Food	Color				
		Immediately After Cutting	After 10 Minutes	After 20 Minutes	After 30 Minutes	After 24 Hours

Think About It! *(Complete after you have finished the experiment.)*

Suppose you were only going to eat ½ of an apple and wanted to store the other ½ to eat the next day. What treatment would you use? _____ Why? _____

Explain what your experimental results might mean to a chef who wants cut fruits and vegetables to look attractive. _____

_____

What was it about your treatment that kept the fruits and vegetables from browning? Use research tools to support your reasoning. _____

_____

How do your results compare to those of another group? _____

_____

My Life as a Fruit or Vegetable

Purpose

The purpose of this lesson is to provide students with an opportunity to enhance writing skills while simultaneously learning about the production and distribution of California fresh produce.

Time

Teacher Preparation:
20 minutes

Student Activity:
Six 50-minute sessions, plus time at home

Materials

For the class:

- Commodity reports from the lesson *California Crops: From the Farm to the Table*
- Fresh produce resources—books, websites, and articles
- Writing paper
- Pens or pencils
- Blank paper for illustrations
- Construction paper or tagboard

For the teacher:

- Butcher or chart paper

Background Information

Cross-curricular writing is an integral part of every student's language arts education. When opportunities for writing in social studies, science, physical education, and math increase, the development of the whole student is expanded. A study of the vast produce industry in California can occur as students write fictional stories about the production and distribution of fresh fruits and vegetables. The writing process will include brainstorming, writing rough drafts, peer editing, illustrating, and publishing final copies of student work.

Procedure

1. Introduction. Read aloud a winning *Imagine this...* story that highlights the life of a fruit or vegetable. Visit *LearnAboutAg.org/imaginethis* for examples. Explain to students that the goal of this activity is for each student to write a fictional, creative story about life as a fruit or vegetable. Each story should outline the life of one fruit or vegetable from the farm to the table.
2. Brainstorming. As a class, generate a list of fruits and vegetables. Also, brainstorm a list of questions that students will need to answer as they write their story about the production and development of a specific fresh produce item. Questions that students answer in their stories may include:
   - From where did I originate?
   - What is my biological classification?
   - To what other plants am I related?
   - How am I planted?
   - Where am I grown and why?
   - How am I grown?
   - What do I look like growing on the plant?
   - How am I harvested?
   - How am I transported?
   - What health benefits do I offer?

My Life as a Fruit or Vegetable

California Standards

Grade 4

Common Core English Language Arts
RI.4.9
RF.4.4
W.4.3, 4.4, 4.5, 4.7
L.4.1, 4.2, 4.3

Grade 5

Common Core English Language Arts
RI.5.9
RF.5.4
W.5.3, 5.4, 5.5, 5.7
L.5.1, 5.2, 5.3

Grade 6

Common Core English Language Arts
RI.6.7
W.6.3, 6.4, 6.5, 6.7
L.6.1, 6.2, 6.3

- What potential problems could I cause, if any?
- How am I stored?
- How am I prepared/cooked?

3. Selecting a theme. Ask students to select one fruit or vegetable that will be the main character or theme of their stories. Each student should write about a different fruit or vegetable. Avoid duplicate produce items.

4. Writing a rough draft. Using resources compiled by you and your students, the commodity reports from the lesson *California Crops: From the Farm to the Table*, and the list of questions brainstormed by the class, have each student write a story about the life of the fruit or vegetable. The story should be written in the first person narrative, with the fruit or vegetable telling the story.

5. Peer editing. Have students edit each other's work. Explain to students that this is an important step in the writing process and should be taken very seriously. (Students could be assessed on the editing as well as the writing part of the lesson.) Assign each student a classmate's rough draft.

Tell students to edit for the following:

- Proper punctuation
- Content
- Spelling
- Proper sequence (from farm to table)
- Accuracy of facts

6. Rewriting a final version. Have students write final versions of their stories. Ideally, the final versions will include illustrations of each phase of the fruit or vegetable's growth, development, and distribution. Encourage students to illustrate as much as possible. Advise students to include a title page and verso which includes publisher, copyright, etc. Other requirements should be discussed before the final writing phase.

7. Sharing. Have students share their stories with classmates, family, friends, and anyone else who might be interested.

My Life as a Fruit or Vegetable

Extensions

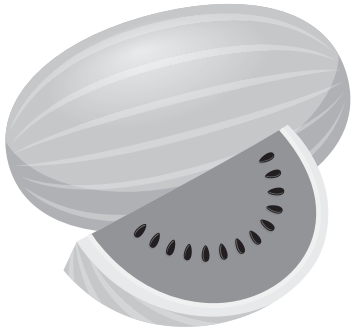
- Encourage students to enter their stories in *Imagine this...* Story Writing Contest. Visit *LearnAboutAg.org/imaginethis* for more information.
- Have students make a stick or bag puppet of their fruit or vegetable and share their story through the puppet.
- Place the published collection of stories on display in the school library or produce section of the local market.
- Have students make a farm-to-table flow chart for their fruit or vegetable.
- Have students create unique hard covers for their books. Perhaps they could be in the shape of the fruit or vegetable, or a product made from the produce item.
- Have students read their stories to primary students.

Answers to Commonly Asked Questions

What is nutrition?

Nutrition is the interaction between food and living organisms. The study of nutrition focuses on what foods and eating habits promote good health and decrease the risk of disease.

What are nutrients?



Nutrients are substances that are required by living things for a healthy life. For humans, more than fifty substances must be taken into the body in sufficient quantity to meet the body's needs. These nutrients are classified into six groups: carbohydrates, proteins, fats, water, minerals, and vitamins. The United States Recommended Daily Allowance (USRDA) is an average recommendation of the major nutrients that are included in food labeling.

Where do nutrients come from?

The nutrients required by humans come from the food they eat and the liquids they drink. One nutrient, vitamin D, can be provided by the sun. Most people depend on a network of people to provide them with the food they consume—from farmers and ranchers to food distributors, truck drivers, grocers, and restaurateurs.

What are the nutritional dietary guidelines for Americans?

The 2015-2020 Dietary Guidelines provide the information you need to help Americans make healthy food choices. Based on the current body of nutrition science, the Dietary Guidelines is a resource to help improve the health of individuals, families, and communities across the nation. The current edition has 5 Guidelines:

- Guideline 1: Follow a Healthy Eating Pattern Across the Lifespan.
    - The combination of all the foods and beverages a person eats and drinks over time matter.

Answers to Commonly Asked Questions

- Guideline 2: Focus on Variety, Nutrient Density, & Amount.
    - One important way of achieving a healthy eating pattern is to choose a variety of nutrient dense foods across all food groups. Nutrient-dense foods have the right balance-they pack in plenty of important nutrients and are naturally lean or low in solid fats and have little or no added solid fats, sugars, refined starches, or sodium. Nutrient-dense foods are the foundation of a healthy eating pattern.

- Guideline 3: Limit Calories from Added Sugars & Saturated Fats & Reduce Sodium Intake.
    - Less than 10% of your daily calories should come from added sugars.
    - Less than 10% of your daily calories should come from saturated fats.
    - Adults and children ages 14 years and over should limit sodium to less than 2,300 mg per day, and children younger than 14 years should consume even less.
- Guideline 4: Shift to Healthier Food & Beverage Choices
- Guideline 5: Support Healthy Eating Patterns for All

What is MyPlate?

In 2015 the United States Department of Agriculture (USDA) updated the federal government's food icon, MyPlate, to serve as a reminder to help Americans make healthier food choices. It is designed to follow the 2015-2020 Dietary Guidelines for Americans. MyPlate illustrates the five food groups using something familiar to many of us-a place setting. Fruits, Vegetables, Grains, Protein Foods, and Dairy are the five food groups identified on MyPlate. For more information visit *www.chooseMyPlate.gov.*

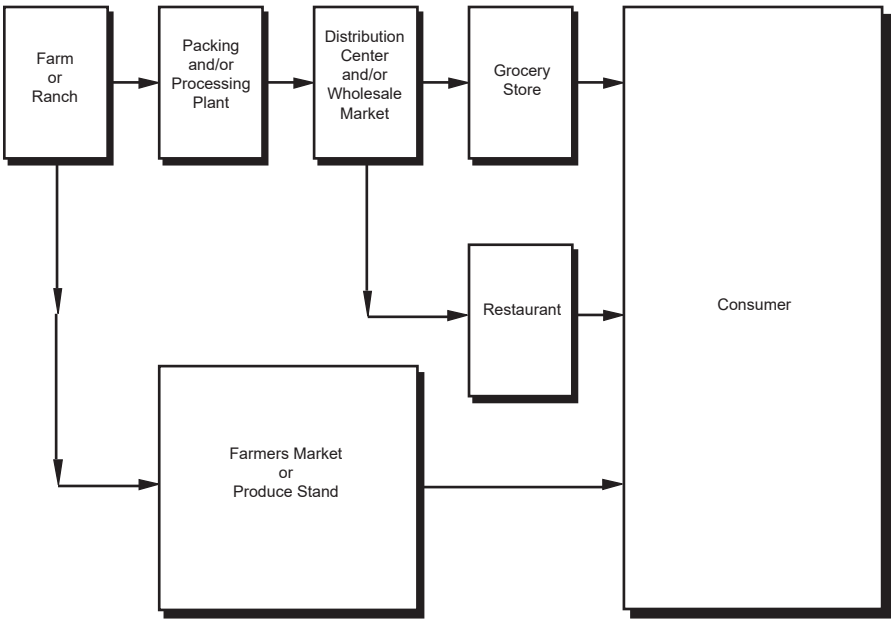
Answers to Commonly Asked Questions

What about MyPyramid?

Many individuals remember the Pyramids - the Food Guide Pyramid and MyPyramid - USDA's food guidance symbols before MyPlate, but not many people realize just how long USDA's history of providing science-based dietary guidance to the American public actually is. Starting over a century ago, USDA empowered Americans to make healthy food choices by providing a number of publications, food guidance symbols, and, more recently, a suite of interactive online tools. Explore the history of USDA's food guidance on the timeline below.
Sources: USDA *ChooseMyPlate.gov*

How does the food get from the farm to the consumer?

Only 1 to 2 percent of the United States population actually grows the food for all of the people in the United States to consume. Research and technological advances continue to improve agricultural production and assist the farmer in producing plentiful and healthful food. The quantity and variety of fresh produce and other foods available to the United States consumer make it simple and affordable to meet the recommended dietary guidelines.



Generally, the farmers and ranchers produce the food and then use a food delivery system similar to the one described above. In some instances, the food goes to a food processor to make items such as tomato sauce, fruit cocktail, and canned soups before heading to a distribution

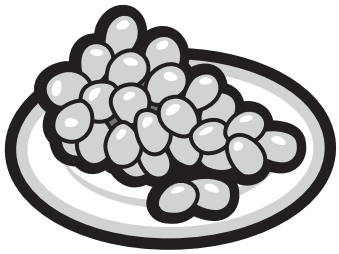
Answers to Commonly Asked Questions

center. In other cases, food is sold directly to the consumer. Such is the case at fruit and vegetable stands and farmers markets. Fresh produce generally goes from the farm to a packing plant and then to a wholesale market or distribution center before heading to the grocery store or restaurant.

What is a packing center?

After fruits and vegetables are picked from the fields or orchards, they are transported to a packing center. There the produce is cooled, sorted (by size, color, ripeness, or grade), and then packed into appropriate containers such as cartons, lugs, or flats.

Where does fresh produce go after it is properly packed?



The fresh produce may be transported to a distribution center or a wholesale market. Distribution centers are refrigerated to preserve the freshness of fresh fruits and vegetables. The food remains in this location until another truck takes it to a store, wholesale market, or exporter.

How long does it take to get fruits and vegetables from the farm to the table?

On an average, it takes just a few days for produce to travel from the farm to homes throughout the country. Even cherries and pears grown in California can reach Japan just two days after shipping. However, some fruits and vegetables such as tomatoes, apples, and cucumbers are covered with a water-soluble edible wax before being packed. These items can be stored for more than a month before arriving at a supermarket. This is one way fresh produce can be made available over a longer period of time. The agricultural community continues to develop innovative techniques in fresh produce preservation.

Answers to Commonly Asked Questions

What are some current trends in fresh produce?

Fresh produce is eaten by consumers more often if it is prepared for them. Value-added products, such as ready-to-eat salad kits and stir-fry mixes, baby carrots, and cut fruits are now standard in grocery stores. People are also opting to grow their produce in home, school, and community gardens. In some areas, fresh produce can be ordered from local growers and delivered to doorsteps. The increase in handling and services usually increases the cost of the items.

How can people be assured that the food they eat is safe?

The United States Department of Agriculture and the United States Environmental Protection Agency personnel continually meet with research scientists, technical experts, farmers, ranchers, and the general public to discuss food safety issues and to establish guidelines and standards for all food processors, handlers, and others involved in food production and distribution. Inspections occur on a regular basis to make sure that the food meets the governmental standards and regulations. The United States currently has the safest food supply in the world and many people work hard to maintain this position.

People in the United States, especially in California, are fortunate to have such a wide variety of healthful fresh fruits and vegetables year-round. By practicing safe food handling and storage, consumers also play a significant role in food safety. All fruits and vegetables should be washed before eating or cutting them. Consumers should be careful to avoid cross-contamination of raw meat, poultry, and seafood with fresh produce.

Agricultural Organizations

General

California Certified Organic Farmers
2155 Delaware Avenue, Suite 150
Santa Cruz, CA 95060
Phone: (831) 423-2263
Website: *www.ccof.org*

California Federation of Certified Farmers Markets
Email: *CFCFM@comcast.net*
Website: *www.cafarmersmarkets.com*

California Foundation for Agriculture in the Classroom
2300 River Plaza Drive
Sacramento, CA 95833
Toll free: (800) 700-2482
Email: *info@LearnAboutAg.org*
Website: *LearnAboutAg.org*

California Rare Fruit Growers
The Fullerton Arboretum - CSUF
Post Office Box 6850
Fullerton, CA 92834-6850
Website: *www.crfg.org*

Community Alliance with Family Farmers
Post Office Box 363
Davis, CA 95617
Phone: (530) 756-8518
Website: *www.caff.org*

Network for a Healthy California
California Department of Public Health
Post Office Box 997413, MS7204
Sacramento, CA 95899-7413
Phone: (916) 449-5371
Website: *www.harvestofthemonth.com*

Produce for Better Health Foundation
7465 Lancaster Pike, Suite J, 2nd Floor
Hockessin, DE 19707
Website: *www.fruitsandveggiesmorematters.org*

Apples

California Apple Commission
2365 Alluvial Avenue, Suite 182
Clovis, CA 93611
Phone: (559) 225-3000
Email: *calapple@calapple.org*
Website: *www.calapple.org*

United States Apple Association
7600 Leesburg Pike, Suite 400 East
Falls Church, VA 22043
Phone: (703) 442-8850
Email: *info@usapple.org*
Website: *www.usapple.org*

Apricots

Apricot Producers of California
2201 Geer Road, Suite 103
Turlock, CA 95382
Phone: (209) 632-9777
Website: *www.apricotproducers.com*

Artichokes

California Artichoke Advisory Board
Post Office Box 747
10357 Merritt Street
Castroville, CA 95012
Phone: (831) 633-4411
Website: *www.artichokes.org*

Asparagus

California Asparagus Commission
1432 McCabe Cove
El Centro, CA 92243
Phone: (916) 690-3111
Email: *ccwatte@calasparagus.com*
Website: *www.calasparagus.com*

Agricultural Organizations

Avocados

California Avocado Commission
12 Mauchly, Suite L
Irvine, CA 92618-6305
Phone: (949) 341-1955
Website: *www.avocado.org*

Calavo Growers of California
1141-A Cummings Road
Santa Paula, CA 93060
Phone: (805) 525-1245
Website: *www.calavo.com*

Beans

California Dry Bean Board
531-D North Alta Avenue
Dinuba, CA 93618-3203
Phone: (559) 591-4866
Website: *www.calbeans.org*

Blueberries

California Blueberry Commission
2565 Alluvial Ave., Suite 182
Clovis, CA 93611
Phone: (559) 221-1800
Email: *calapple@calapple.org*
Website: *www.calblueberry.com*

U.S. Highbush Blueberry Council
1847 Iron Point Circle, Suite 100
Folsom, CA 95630
Phone: (916) 983-0111
Website: *www.blueberry.org*

Cantaloupe

California Cantaloupe Advisory Board
531-D North Alta Avenue
Dinuba, CA 93618
Phone: (559) 591-5715
Website: *www.cmrb.org*

Carrots

Grimmway Farms
Post Office Box 81498
Bakersfield, CA 93380
Phone: (800) 301-3101
Email: *media@grimmway.com*
Website: *www.grimmway.com*

Cherries

California Cherry Board
1521 I Street
Sacramento, CA 95814
Phone: (916) 441-1063
Email: *info@calcherry.com*
Website: *www.calcherry.com*

Cherry Marketing Institute
12800 Escanaba Drive, Suite A
Dewitt, MI 48820
Email: *info@choosecherries.com*
Website: *www.choosecherries.com*

Corn

National Corn Growers Association
632 Cepi Drive
Chesterfield, MO 63005
Phone: (636) 733-9004
Email: *corninfo@ncga.com*
Website: *www.ncga.co*m

Cranberries

Cape Cod Cranberry Growers' Association
P.O. Box 97
1 Carver Square Blvd.
Carver, MA 02330
Phone: (508) 866-7878
Email: *info@cranberries.org*
Website: *www.cranberries.org*

Agricultural Organizations

Dates

California Date Administrative Committee
Post Office Box 1736
Indio, CA 92202
Phone: (800) 223-8748
Email: *datesaregreat@datesaregreat.com*
Website: *www.datesaregreat.com*

Figs

California Fig Advisory Board
Phone: (559) 243-8600
Website: *www.californiafigs.com*

Grapefruit

California Citrus Growers Association
1039 North Demaree
Visalia, CA 93291
Phone: (559) 622-9758
Website: *www.calcitrusgrowers.com*

Grapes

California Table Grape Commission
392 West Fallbrook, Suite 101
Fresno, CA 93711
Phone: (559) 447-8350
Email: *info@grapesfromcalifornia.com*
Website: *www.tablegrape.com*

Concord Grape Association
Email: info@concordgrape.org
Website: *www.concordgrape.org*

California Association of Winegrape Growers
1121 L Street, Suite 304
Sacramento, CA 95814
Phone: (916) 379-8995
Website: *www.cawg.org*

Kiwifruit

California Kiwifruit Commission
1521 I Street
Sacramento, CA 95814
Phone: (916) 441-0678
Email: *kiwifruit@kiwifruit.org*
Website: *www.kiwifruit.org*

Lemons

California Citrus Growers Association
1039 North Demaree
Visalia, CA 93291
Phone: (559) 622-9758
Website: *www.calcitrusgrowers.com*

Lettuce

Leafy Greens Council
Post Office Box 143
Waterport, NY 14571
Email: *leafygreenscouncil@gmail.org*
Website: *www.leafy-greens.org*

Mushrooms

American Mushroom Institute
1284 Gap Newport Pike
Avondale, PA 19311
Phone: (610) 268-7483
Email: *info@americanmushroom.org*
Website: *www.americanmushroom.org*

Mushroom Council
303 Twin Dolphin Drive, Suite 600
Redwood Shores, CA 94065
Phone: (650) 632-4250
Email: *info@mushroominfo.com*
Website: *www.mushroominfo.com*

Agricultural Organizations

Olives

California Olive Committee
Website: *www.calolive.org*

California Olive Oil Council
801 Camelia Street, Suite D
Berkeley, CA 94710
Phone: (888) 718-9830
Website: *www.cooc.com*

Onions

National Onion Association
822 7th Street, Suite 510
Greeley, CO 80631
Phone: (970) 353-5895
Website: *www.onions-usa.org*

Oranges

California Citrus Growers Association
1039 North Demaree
Visalia, CA 93291
Phone: (559) 622-9758
Website: *www.calcitrusgrowers.com*

Papayas

Calavo Growers of California
1141-A Cummings Road
Santa Paula, CA 93060
Phone: (805) 525-1245
Website: *www.calavo.com*

Peaches

California Cling Peach Board
1521 I Street
Sacramento, CA 95814
Phone: (916) 441-3865
Email: *calpeach@agamsi.com*
Website: *www.calclingpeach.com*

California Canning Peach Association
2300 River Plaza Drive, Suite 110
Sacramento, CA 95833
Phone: (916) 925-9131
Email: *ccpa@calpeach.com*
Website: *www.calpeach.com*

Pears

California Pear Advisory Board
1521 I Street
Sacramento, CA 95814
Phone: (916) 441-0432
Email: *info@calpear.com*
Website: *www.calpear.com*

Pear Bureau Northwest
4382 SE International Way, Suite A
Milwaukie, OR 97222-4635
Phone: (503) 652-9720
Website: *www.usapears.org*

Persimmons

California Fuyu Growers Association
Post Office Box 1301
Valley Center, CA 92082
Email: *jlbathgate@worldnet.att.net*

Potatoes

Potatoes USA
4949 S. Syracuse Street, Suite 400
Denver, CO 80237
Phone: (303) 369-7783
Website: *www.potatogoodness.com*

Prunes (Dried Plums)

California Dried Plum Board
Website: *www.californiadriedplums.org*

Agricultural Organizations

Raisins

California Raisin Marketing Board
2445 Capitol Street, Suite 200
Fresno, CA 93721
Phone: (559) 248-0287
Website: *www.calraisins.org*

Sun-Maid Growers of California
13525 South Bethel Avenue
Kingsburg, CA 93631-9232
Phone: (559) 896-8000
Email: *cgoto@sunmaid.com*
Website: *www.sunmaid.com*

Spinach

Fresh Express
Post Office Box 80599
Salinas, CA 93912
Phone: (800) 242-5472
Website: *www.freshexpress.com*

Strawberries

California Strawberry Commission
Post Office Box 269
180 Westridge Drive
Watsonville, CA 95076
Phone: (831) 724-1301
Email: *info@calstrawberry.org*
Website: *www.calstrawberry.com*

Sweet Potatoes

North Carolina Sweet Potato Commission
700 E Parrish Drive, Suite C
Benson, NC 27504
Phone: (919) 894-1067
Email: *communications@ncsweetpotatoes.com*
Website: *www.ncsweetpotatoes.com*

Sweet Potato Council of California
Post Office Box 366
Livingston, CA 95334
Email: *info@casweetpotatoes.com*
Website: *www.cayam.com*

Tangerines

California Citrus Growers Association
1039 North Demaree
Visalia, CA 93291
Phone: (559) 622-9758
Website: *www.calcitrusgrowers.com*

Tomatoes

California Tomato Growers Association
2300 River Plaza Drive, Suite 100
Sacramento, CA 95833
Phone: (916) 925-0225
Email: *info@ctga.org*
Website: *www.ctga.org*

Watermelon

National Watermelon Promotion Board
1321 Sundial Point
Winter Springs, FL 32708
Phone: (407) 657-0261
Email: *info@watermelon.org*
Website: *www.watermelon.org*

Teacher Resources and References

American Farm Bureau Foundation for Agriculture

Apple Ag Mag
Classroom sets of 30 agriculture magazines explore the production of apples. Topics include apple production, history, growth, varieties, and careers.

Corn Ag Mag
Classroom sets of 30 agriculture magazines are provided in a set that explores corn. Topics include corn as an export, a renewable resource, and for use as a fuel and bioplastic.

Soybean Ag Mag
Classroom sets of 30 agriculture magazines are provided in a set that explores soybeans. Topics include nutrition, economics, geography, math, and science.

Soybeans in the Story of Agriculture: Educator's Guide
This educator's guide of lessons and activities is designed to use with the book, "Soybeans in the Story of Agriculture" to teach reading, science, and social science. The book and activities show the process of growing soybeans to the making of products.

American Farm Bureau Foundation
for Agriculture
600 Maryland Avenue SW, Suite 1000W
Washington, DC 20024
Phone: (800) 443-8456
Website: *www.agfoundation.org*
Website: *www.myamericanfarm.org*

Illinois Agriculture in the Classroom

Exploring Corn!
This booklet offers cross-curricular activities for students to explore dent corn, sweet corn, and popcorn. Information is also included about broom corn, a type of sorghum, which is in the same family as corn.

Nutrition Ag Mag
Classroom sets of 30 agriculture magazines feature information about nutrition, classroom activities, and agricultural careers.

Super Soybeans Lesson Booklet
The soybean has many important roles in our lives, from the food we eat to the products we use to clean. This lesson booklet explores the many uses of soybeans and can be used to teach skills in science, social studies, and math. Lessons complement the book, "The Super Soybean," by Raymond Bial.

Illinois Agriculture in the Classroom
1701 Towanda Avenue
Bloomington, IL 61701
Phone: (309) 557-3334
Email: *aitc@ilfb.org*
Website: *www.agintheclassroom.org*

U.S. Highbush Blueberry Council

Bring Blueberries to Your School
Tips for school nutrition managers to discover easy kid-friendly ways to use blueberries.

Blueberry Mini Magazine
Information and recipes in English and Spanish.

Teacher Resources and References

Blueberry Activity Booklet
Students will learn about healthy eating habits as they play games and learn trivia.

U.S. Highbush Blueberry Council
80 Iron Point Road, Suite 100
Folsom, CA 95630
Website: *www.blueberrycouncil.org*

California Cherry Board

California's Perfect Snack
Information on California's cherry production. Includes data on nutrition, varieties, packing, marketing, and more.

California Cherry Board
1521 I Street
Sacramento, CA 95814
Phone: (916) 441-1063
Website: *www.calcherry.com*

California Foundation for Agriculture in the Classroom

A "Sour" Subject
Students reinforce their skills of observation, mathematical computation, and written expression by comparing and contrasting grapefruits and lemons.

California Foundation for Agriculture in the Classroom
2300 River Plaza Drive
Sacramento, CA 95833-3293
Phone: (916) 561-5625
Toll-free: (800) 700-AITC
Email: *info@LearnAboutAg.org*
Website: *LearnAboutAg.org*

Cape Cod Cranberry Growers' Association

Exploring Cranberries
Through three sections of lesson plans and scenarios, students become acquainted with the cranberry, its habitat, its history, and the people involved in cranberry agriculture.

Cape Cod Cranberry Growers' Association
Post Office Box 97
1 Carver Square Boulevard
Carver, MA 02330
Phone: (508) 866-7878
Email: *info@cranberries.org*
Website: *www.cranberries.org*
Website: *www.exploringcranberries.org*

California Department of Public Health

Harvest of the Month
Harvest of the Month features ready-to-use resources that can be widely applied within the school environment. The Educators' Corner provides teachers with additional activities, lesson ideas, recipes, student assessments, and a wealth of resources to help implement a successful program.

Harvest of the Month Elements
Download free monthly newsletters on a variety of fresh seasonal fruits and vegetables. Visit *harvestofthemonth.cdph.ca.gov/Pages/Downloads.aspx.*

California Department of Public Health
Post Office Box 997413, MS7204
Sacramento, CA 95899-7413
Phone: (916) 449-5371
Website: *www.harvestofthemonth.com*

Teacher Resources and References

Gourmet Mushrooms, Inc.

Educator's Mushroom Growth Kit
This mushroom kit includes a lesson plan complete with classroom, laboratory, and extension activities; mushroom life cycle and anatomy worksheets; Mushroom Modules containing medium and mushroom spores; and all materials and equipment needed for the growth of the mushrooms. Select from one of three grade-level groupings. Each lesson plan includes a full chapter's worth of textbook-style background information as well as concepts, science themes, and laboratory and extension activities. Indicate grade level lesson preference when ordering.

Gourmet Mushrooms, Inc.
Post Office Box 180
Sebastopol, CA 95473
Phone: (707) 823-1743
Website: *www.mycopia.com*

National Dairy Council

Fuel Up to Play 60
Pick a play that suits your school, use it as a guide and be creative. Instills healthy eating and physical activity.

National Dairy Council
Website: *www.FuelUptoPlay60.com*
Website: *www.NationalDairyCouncil.org*

Dairy Council of California

BreakFAST & Jump To It!
Test your knowledge about the importance of eating a healthy breakfast and what makes up a healthy breakfast.

Deal Me In... food and fitness
Deal Me In... food and fitness is a self-contained program that provides fun, hands-on, engaging ways to introduce and reinforce healthy eating and physical activity in an after-school program. Materials include color workbooks for each student, complete full-color game cards, and parent booklets in English and Spanish. Available in English and Spanish.

Dairy Council of California
1101 National Drive, Suite B
Sacramento, CA 95834
Phone: (916) 263-3560
Email*: info@dairycouncilofca.org*
Website: *www.dairycouncilofca.org*
Website: *www.mealsmatter.org*

Dole Food Company, Inc.

Dole Super Kids
Dole Food Company's 5 A Day Program is now *Dole SuperKids*. Created by the Dole Nutrition Institute, *DoleSuperKids.com* provides a variety of free resources for teachers, such as lesson plans and downloadable music. Visit *dolesunshine.com/superkids.*

Dole Food Company
Post Office Box 5700
Thousand Oaks, CA 91359-5700
Toll Free: (800) 356-3111
Website: *www.superkidsnutrition.com*

California Department of Education

Fresh Fruit and Vegetable Photo Cards
This is a set of 140 color photographs suitable for framing. Each fully laminated 8" x 9" card displays a color photograph of a fruit or vegetable

with its name in English and Spanish. On the reverse is a bar graph displaying an analysis of nutrients and suggested serving size.

California Department of Education
CDE Press Sales Office
1430 N Street, Suite 3207
Sacramento, CA 95814
Toll Free: (800) 995-4099
Email: *sales@cde.ca.gov*
Website: *www.cde.ca.gov/re/pn/rc*

Smart Picks, Inc.

Fruit & Veggie Color Bingo
Designed to fuel kids' passion for produce. Students will learn to group 95 fruits and veggies by color and understand how they keep bodies growing strong and healthy. Includes user-friendly charts and resources, a coloring activity, a recipe for green smoothies, and more.

Smart Picks, Inc.
Post Office Box 771440
Lakewood, OH 44107
Phone: (216) 226-6173
Email: *smartpicks@gmail.com*
Website: *www.smartpicks.com*

California Olive Industry

Get in the Game for Good Health
This standards-based education program is made possible by the California Olive Industry. Includes teacher guide, color poster, and interactive worksheets that encourage students to assess their own lifestyles, learn about healthy eating habits, create innovative ways to increase activity levels, and commit to following a healthy lifestyle.

California Olive Industry
Website: *www.calolive.org*

Action for Healthy Kids

Healthy and Active Classroom Parties
This resource provides guidelines for creating a classroom party with healthy foods and physical activity. Focus on fun, not food.

Action for Healthy Kids
600 West Van Buren Street, Suite 720
Chicago, IL 60607
Toll Free: (800) 416-5136
Website: *www.actionforhealthykids.org*

24 Carrot Press

Nutrition Fun with Brocc & Roll
Nutrition Fun with Brocc & Roll is a hands-on activity guide that combines a discovery approach to learning with a healthy dose of humor. Important life skills are gained when kids learn to assess food and activity habits, set goals, make choices, understand advertising and label reading, and develop basic cooking skills. A chapter on "Growing Fun" helps children to more fully understand the "roots" of the food they eat each day. Sixty-four pages with 42 copy-ready nutrition activities.

24 Carrot Press
Email: *info@nutritionforkids.com*
Website: *www.nutritionforkids.com*

Learning ZoneXpress

Nutrition Resources
Nutrition resources available include fun bookmarks, full-color posters, nutrition bingo games,

teacher bulletin board kits, and DVDs. Titles include "Great Plate" posters, "Fruit and Veggie Team" bingo, "Fruits Bulletin Kit," and more. Parent newsletters are also available.

Learning ZoneXpress
Post Office Box 1022
667 East Vine Street
Owatonna, MN 55060
Toll Free: (888) 455-7003
Website: *www.learningzonexpress.com*

National Agricultural Literacy Curriculum Matrix

Find lesson plans, books, and other resources to teach about nutrition, fruits, vegetables, and much more. Check out "The Farmer Grows a Rainbow" for lessons that integrate nutrition with traditional academic subjects, and emphasize the vital role played by the farmer in food production.

National Agricultural Literacy Curriculum Matrix
Website: *www.agclassroom.org/teacher/matrix/index.cfm*

United States Potato Board

Kid's Corner
Fun coloring books, games, activities, and resources to learn more about potatoes.

Potatoes USA
4949 S. Syracuse Street, #400
Denver, CO 80237
Phone: (303) 369-7783
Website: *www.potatogoodness.com*

North Carolina Sweet Potato Commission, Inc.

Carolina Sweet Potato Investigation (CSPI)
Presented in the form of a lab journal with guiding questions for each month of the school year, this lesson set contains links to virtual field trips and interviews. Students can view a greenhouse and packing house where sweet potatoes are graded and shipped to retailers. They can visit a research facility where the all-important task of micro-propagation is fine-tuned in order to produce a delicious, nutritious, and economical product.

Sweet Potato Activity and Lesson Plans
These lessons, geared for upper elementary classrooms, teach about North Carolina sweet potatoes while students perform science, technology, math, and language arts activities.

North Carolina Sweet Potato Commission, Inc.
700 E. Parrish Drive, Suite C
Benson, NC 27504
Phone: (919) 894-4067
Website: *www.ncsweetpotatoes.com*

California Raisin Marketing Board

California Raisins
For the history, nutrition, recipes, and more about raisins.

California Raisin Marketing Board
2445 Capitol Street, Suite 200
Fresno, CA 93721
Phone: (559) 248-0287
Website: *www.calraisins.org*

Teacher Resources and References

National Watermelon Promotion Board

Watermelon—Educational Activity Pages
Language arts, math, social science, and healthy eating activity sheets are available online. Teacher's Tool Kits are available for download including coloring books, a watermelon sing-a-long, and more watermelon-themed ideas to promote healthy eating in schools.

National Watermelon Promotion Board
1321 Sundial Point
Winter Springs, FL 32708
Phone: (407) 657-0261
Email: *info@watermelon.org*
Website: *www.watermelon.org*

Team Nutrition

Team Nutrition Resource
Information and resources cataloged all in one place. Get kits, posters, games, and stickers as well as the strategies and messages of Team Nutrition. Educational posters includes "Make Half Your Plate Fruits and Vegetables," and many others with the message of eating healthy and being active.

United States Department of Agriculture Food and Nutrition Service
3101 Park Center Drive
Alexandria, VA 22302
Website: *www.fns.usda.gov/tn/team-nutrition*

Related Websites

This list is offered as an informational resource only. It contains websites established by various entities and at the time of printing included information related to fruits, vegetables, nutrition, and/or agriculture. The list is not considered to be all-inclusive. The entities or contents of the sites on this list are not endorsed by the California Foundation for Agriculture in the Classroom or by the authors of *Fruits and Vegetables for Health*.

Academy of Nutrition on Dietetics
www.eatright.org

Alliance for a Healthier Generation
www.healthiergeneration.org

American Cancer Society
www.cancer.org

American Heart Association
www.heart.org

American Mushroom Institute
www.americanmushroom.org

American School Health Association
www.ashaweb.org

Apricot Producers of California
www.apricotproducers.com

Calavo Growers of California
www.calavo.com

California Apple Commission
www.calapple.org

California Artichoke Advisory Board
www.artichokes.org

California Asparagus Commission
www.calasparagus.com

Related Websites

California Avocado Commission
californiaavocado.com

California Blueberry Commission
calblueberry.org

California Canning Peach Association
www.calpeach.com

California Cantaloupe Advisory Board
californiacantaloupes.com

California Certified Organic Farmers
www.ccof.org

California Cherry Advisory Board
www.calcherry.com

California Citrus Growers Association
www.calcitrusgrowers.com

California Cling Peach Board
www.calclingpeach.com

California Date Administrative Committee
www.datesaregreat.com

California Department of Education
www.cde.ca.gov

California Department of Food and Agriculture
www.cdfa.ca.gov

California Dried Plum Board
www.californiadriedplums.org

California Dry Bean Board
www.calbeans.org

California Farm Bureau Federation
www.cfbf.com

Related Websites

California Federation of Certified Farmers' Markets
www.cafarmersmarkets.com

California Fig Advisory Board
www.californiafigs.com

California Foundation for Agriculture in the Classroom
LearnAboutAg.org

California Kiwifruit Commission
www.kiwifruit.org

California Olive Committee
www.calolive.org

California Olive Oil Council
www.cooc.com

California Pear Advisory Board
www.calpear.com

California Raisin Marketing Board
www.calraisins.org

California Rare Fruit Growers
www.crfg.org

California Strawberry Commission
www.calstrawberry.com

California Table Grape Commission
www.tablegrape.com

California Tomato Growers Association
www.ctga.org

Cape Cod Cranberry Growers' Association
www.cranberries.org

Champions for Change
www.cachampionsforchange.cdph.ca.gov

Related Websites

Cherry Marketing Institute
www.choosecherries.com

Community Alliance for Family Farmers
www.caff.org

Concord Grape Association
www.concordgrape.org

Dole Nutrition Program
www.dole5aday.com

Fresh Express
www.freshexpress.com

Fresh King
www.freshking.com

Grimmway Farms
www.grimmway.com

Harvest of the Month
www.harvestofthemonth.com

Leafy Greens Council
www.leafy-greens.org

Mushroom Council
www.mushroominfo.com

National Corn Growers Association
www.ncga.com

National Onion Association
www.onions-usa.org

National Watermelon Promotion Board
www.watermelon.org

Pear Bureau Northwest
www.usapears.org

Related Websites

U.S. Highbush Blueberry Council
www.blueberry.org

North Carolina Sweet Potato Commission, Inc.
www.ncsweetpotatoes.com

Potandon Produce
www.potandon.com

Produce for Better Health Foundation
www.fruitsandveggiesmorematters.org

Sunkist Growers
www.sunkist.com

Sun-Maid Growers of California
www.sunmaid.com

Sweet Potato Council of California
www.cayam.com

United States Apple Association
www.usapple.org

United States Potato Board
www.potatogoodness.com

Western Growers Association
www.producepedia.com

Related Literature

Adler, Karen. ***California Fruit Raps***. Karen Adler Books, 2007. After singing along with Karen Adler, students will be motivated to make healthy choices by visiting the produce section at the market. This interactive CD and song book motivates students to eat California fruits. ISBN 978-0967977256

Blaisdell, Molly. ***Surprising Beans***. Picture Window Books, 2008. Kayla is unhappy when she has to help the family grow beans, but her attitude changes and she finds fun in growing beans. ISBN 978-1-4048-2290-0

California School Garden Network. ***Gardens for Learning***. California School Garden Network, 2006. This comprehensive guidebook provides a strong foundation to support the growing school garden movement. ISBN 978-0-9788693-0-4

Farmer, Jacqueline. ***Apples***. Charlesbridge, 2007. This educational book features the history, uses, and anatomy of apples. Also includes recipes and nutritional information. ISBN 978-1-57091-694-6

Farmer, Jacqueline. ***Bananas!*** Charlesbridge, 1999. Learn how bananas grow, which animals eat bananas, how bananas make the long journey to your breakfast table, and much more. ISBN 978-0-88106-115-4

Freymann, Saxton and Joost Elffers. ***Fast Food***. Arthur A. Levine Books, 2006. This picture book engages students with sculpted fruits and vegetables depicting modes of transportation. ISBN 978-0-439-11019-8

Freymann, Saxton and Joost Elffers. ***Food for Thought***. Arthur A. Levine Books, 2005. Shapes, colors, numbers, letters, and opposites are introduced using whimsical sculptures made out of fresh fruits and vegetables. ISBN 978-0-439-11018-1

Ganeri, Anita. ***From Bean to Bean Plant***. Heinemann Library, 2006. Find out how beans grow, what a bean pod is, and how insects help bean plants grow. ISBN 978-0-431-05089-8

Related Literature

Gibbons, Gail. ***The Vegetables We Eat***. Holiday House, 2008. Enjoy a wealth of information about a variety of vegetables, from how they are planted to how they get to stores. ISBN 978-0-8234-2153-4

Grigsby, Susan. ***First Peas to the Table.*** Albert Whitman & Company, 2012. A girl grows peas for a classroom competition, following the same strategies Thomas Jefferson used to grow peas. The story weaves in history, school gardens, botany and weather. ISBN 978-0-8075-2452-7

Hardesty, Constance. ***Grow Your Own Pizza: Gardening Plans and Recipes for Kids***. Fulcrum Publishing, 2000. For gardeners and food connoisseurs of all ages, this fun yet practical resource takes you step-by-step from dirt to the dinner table. Organized by easy, medium, and advanced level garden plots. ISBN 978-1-55591-398-4

Hesser, Leon. ***The Man Who Fed the World***. Durban House, 2009. A biography of Dr. Norman Borlaug, Nobel Peace Prize recipient for averting hunger and famine. He is credited with saving hundreds of millions of people from starvation. ISBN 978-0-9818486-6-2

Hewitt, Sally. ***Your Food***. Crabtree Publishing, 2009. Engage students with information about where their food comes from and how they can eat healthfully. ISBN 978-0-7787-4106-0

Hibbert, Clare. ***The Life of an Apple***. Raintree, 2004. This book explains how an apple tree develops from a seed and creates new seeds inside fruit called apples. ISBN 978-1-4109-0922-0

Hopkinson, Deborah and Nancy Carpenter. ***Apples to Oregon***. Atheneum, 2004. A tall tale about the obstacles that a father and daughter face while moving with their fruit trees from Iowa to Oregon in the mid-nineteenth century. ISBN 978-0-689-84769-1

Hunter, Sally M. ***Four Seasons of Corn: A Winnebago Tradition***. Lerner Publications Company, 1996. Enjoy learning how the Native American Winnebagos grow and process corn and the traditions they have. ISBN 978-0-8225-9741-4

Related Literature

Kite, Patricia L. ***Gardening Wizardry for Kids***. Barron's Educational Services, 1995. History and folklore associated with common fruits and vegetables and the methods for raising, eating, and crafting with them. ISBN 978-0-8120-8362-0

Milway, Katie Smith. ***The Good Garden***. Kids Can Press, Ltd., 2010. A story of a young girl in Honduras who helps her family and community produce more food through new farming methods. ISBN 978-1-55453-488-3

Nagro, Anne. ***Our Generous Garde*n**. Dancing Rhinoceros Press, 2008. Based on a successful school garden project, this book encourages young people to get outdoors and start growing. ISBN 978-0-9793739-4-7

Overbeck, Cynthia. ***How Seeds Travel***. Lerner Publications Company, 1993. This book presents a look at seeds on the move. Colorful photographs trace the journeys made by seeds from such varied plants as the maple tree, the dandelion, pussy willow, and coconut palm. The role of seeds and fruit in plant reproduction is also explained. ISBN 978-0-8225-9569-4

Owen, Ruth. ***Growing and Eating Green***. Crabtree Publishing, 2009. This book showcases careers in organic farming, producing, and marketing. ISBN 978-0-7787-4864-9

Perez, L. King. ***First Day in Grapes.*** Lee & Low Books, Inc., 2002. Learn how Chico and his family move up and down the state of California picking fruits and vegetables and about Chico's successes and challenges in school.
ISBN 978-1-58430-045-8

Peterson, Cris. ***Harvest Year***. Boyds Mills Press, 1996. Full-color photos and clear, concise text take readers month-by-month through a sampling of the wide diversity and volume of crops grown throughout the United States. ISBN 978-1-56397-571-4

Peterson, Cris. ***Seed, Soil, Sun: Earth's Recipe for Food***. Boyds Mills Press, 2010. Seed, soil, and sun are three ingredients for growing food. ISBN 978-1-59078-713-7

Related Literature

Poole, Amy Lowry. ***The Pea Blossom***. Holiday House, 2005. In a garden near Beijing, five peas grow in a shell and wait to discover their fate. ISBN 978-0-8234-2018-6

Powell, Martin. ***The Legend of Johnny Appleseed***. Stone Arch Books, 2010. The graphic novel retells the story of Johnny Appleseed and the adventures he encounters traveling across the country planting apple seeds to grow trees. ISBN 978-1-4342-1895-7

Rendon, Marcie R. and Cheryl Walsh Bellville. ***Farmer's Market***. Lerner Publishing Group, 2001. Full of colorful photographs, this book describes the efforts of many families who work hard to produce food that is sold at farmers markets. ISBN 978-1-57505-462-9

Royston, Angela. ***Flowers, Fruits and Seeds***. Heinemann Library, 1999. Discover why plants have flowers, how some animals help make new plants, and what pollen is. ISBN 978-1-58810-449-6

Scott, Emily. ***Dinner from Dirt: Ten Meals Kids Can Grow and Cook***. Gibbs Smith Publisher, 1998. This book provides experiential ideas for planting and then cooking with the products. ISBN 978-0-87905-840-1

Slack, Judy. ***Crunching Carrots, Not Candy***. Judy Slack, 2006. This book brings a colorful look into healthy snacks; written in English and Spanish. ISBN 978-1-59975-747-6

Spilsbury, Louise and Richard Spilsbury. ***What is a Plant?*** Heinemann Library, 2006. Explains why plants have leaves, which plants do not grow fruit, and what spores are. ISBN 978-0-431-01808-9

Spilsbury, Louise and Richard Spilsbury. ***Why Do Plants Have Flowers?*** Heinemann Library, 2006. Explains what pollen is, why some flowers are so colorful, and why plants make fruit. ISBN 978-1-4034-7368-4

Tang, Greg. ***The Grapes of Math***. Scholastic Press, 2004. Use a few problem-solving techniques to solve the math puzzles in this book. Many have themes of fruits, vegetables, and insects. ISBN 978-0-439-59840-8

Matrix of Standards 4th Grade

California Standards	Description	Making Half My Plate Fruits and Vegetables	California Crops: From the Farm to the Table	Nutritional Value of Fresh Produce	The Chemistry of Fruits and Vegetables	My Life as a Fruit or Vegetable
Common Core English Language Arts						
RI.4.1 Reading Informational Text	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.	x	x	x		
RI.4.3 Reading Informational Text	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.		x	x		
RI.4.4 Reading Informational Text	Determine the meaning of general academic and domain specific words or phrases in a text relevant to a *grade 4 topic or subject area.*	x	x			
RI.4.7 Reading Informational Text	Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.	x		x		
RI.4.9 Reading Informational Text	Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.		x			x
RF.4.4 Reading Foundational Skills	Read with sufficient accuracy and fluency to support comprehension. ▸ Read on-level text with purpose and understanding. ▸ Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. ▸ Use context to confirm or self-correct word recognition and understanding, rereading as necessary.		x			x

Matrix of Standards
4th Grade

California Standards	Description	Making Half My Plate Fruits and Vegetables	California Crops: From the Farm to the Table	Nutritional Value of Fresh Produce	The Chemistry of Fruits and Vegetables	My Life as a Fruit or Vegetable
W.4.1 Writing	Write opinion pieces on topics or texts, supporting a point of view with reasons and information. ▸ Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose. ▸ Provide reasons that are supported by facts and details. ▸ Link opinion and reasons using words and phrases (e.g., *for instance, in order to, in addition*). ▸ Provide a concluding statement or section related to the opinion presented.				x	
W.4.2 Writing	Write informative/explanatory texts to examine a topic and convey ideas and information clearly. ▸ Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. ▸ Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. ▸ Link ideas within categories of information using words and phrases (e.g., *another, for example, also, because*). ▸ Use precise language and domain-specific vocabulary to inform about or explain the topic. ▸ Provide a concluding statement or section related to the information or explanation presented.		x			
W.4.3 Writing	Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. ▸ Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. ▸ Use dialogue and description to develop experiences and events or show the responses of characters to situations. ▸ Use a variety of transitional words and phrases to manage the sequence of events.					x

Matrix of Standards 4th Grade

California Standards	Description	Making Half My Plate Fruits and Vegetables	California Crops: From the Farm to the Table	Nutritional Value of Fresh Produce	The Chemistry of Fruits and Vegetables	My Life as a Fruit or Vegetable
W.4.3 (continued) Writing	▸ Use concrete words and phrases and sensory details to convey experiences and events precisely. ▸ Provide a conclusion that follows from the narrated experiences or events.					x
W.4.4 Writing	Produce clear and coherent writing (including multiple paragraph texts) in which the development and organization are appropriate to task, purpose, and audience.		x			x
W.4.5 Writing	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.					x
W.4.7 Writing	Conduct short research projects that build knowledge through investigation of different aspects of a topic.		x			x
W.4.9 Writing	Draw evidence from literary or informational texts to support analysis, reflection, and research. ▸ Apply *grade 4 Reading standards* to literature (e.g., "Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text [e.g., a character's thoughts, words, or actions]"). ▸ Apply *grade 4 Reading standards* to informational texts (e.g., "Explain how an author uses reasons and evidence to support particular points in a text").		x			
SL.4.1 Speaking and Listening	▸ Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.				x	

Matrix of Standards 4th Grade

California Standards	Description	Making Half My Plate Fruits and Vegetables	California Crops: From the Farm to the Table	Nutritional Value of Fresh Produce	The Chemistry of Fruits and Vegetables	My Life as a Fruit or Vegetable
SL.4.4 Speaking and Listening	Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace. Plan and deliver a narrative presentation that: relates ideas, observations, or recollections; provides a clear context; and includes clear insight into why the event or experience is memorable.		x			
SL.4.5 Speaking and Listening	Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.		x			
L.4.1 Language	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. Write fluidly and legibly in cursive or joined italics. ▸ Use interrogative, relative pronouns (*who, whose, whom, which, that*) and relative adverbs (*where, when, why*). ▸ Form and use the progressive (e.g., *I was walking; I am walking; I will be walking*) verb tenses. ▸ Use modal auxiliaries (e.g., *can, may, must*) to convey various conditions. ▸ Order adjectives within sentences according to conventional patterns (e.g., *a small red bag rather than a red small bag*). ▸ Form and use prepositional phrases. ▸ Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons. ▸ Correctly use frequently confused words (*e.g., to, too, two; there, their*).		x			x
L.4.2 Language	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. ▸ Use correct capitalization. ▸ Use commas and quotation marks to mark direct speech and quotations from a text. ▸ Use a comma before a coordinating conjunction in a compound sentence. ▸ Spell grade-appropriate words correctly, consulting references as needed.		x			x

Matrix of Standards 4th Grade

California Standards	Description	Making Half My Plate Fruits and Vegetables	California Crops: From the Farm to the Table	Nutritional Value of Fresh Produce	The Chemistry of Fruits and Vegetables	My Life as a Fruit or Vegetable
L.4.3 Language	Use knowledge of language and its conventions when writing, speaking, reading, or listening. ▸ Choose words and phrases to convey ideas precisely. ▸ Choose punctuation for effect. ▸ Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion).		x			x
Common Core Mathematics						
4.MD.4 Measurement and Data	Make a line plot to display a data set of measurements in fractions of a unit (½, ¼, ⅛). Solve problems involving addition and subtraction of fractions by using information presented in line plots.			x		
Next Generation Science Standards						
4-LS1-1	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.				x	

Matrix of Standards
5th Grade

California Standards	Description	Making Half My Plate Fruits and Vegetables	California Crops: From the Farm to the Table	Nutritional Value of Fresh Produce	The Chemistry of Fruits and Vegetables	My Life as a Fruit or Vegetable
Common Core English Language Arts						
RI.5.1 Reading Informational Text	Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.		x			
RI.5.3 Reading Informational Text	Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.			x		
RI.5.4 Reading Informational Text	Determine the meaning of general academic and domain specific words and phrases in a text relevant to a *grade 5 topic or subject area.*	x	x			
RI.5.7 Reading Informational Text	Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.		x	x		
RI.5.9 Reading Informational Text	Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.		x			x
RF.5.4 Reading Foundational Skills	Read with sufficient accuracy and fluency to support comprehension. ▸ Read on-level text with purpose and understanding. ▸ Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. ▸ Use context to confirm or self-correct word recognition and understanding, rereading as necessary.		x			x

Matrix of Standards 5th Grade

California Standards	Description	Making Half My Plate Fruits and Vegetables	California Crops: From the Farm to the Table	Nutritional Value of Fresh Produce	The Chemistry of Fruits and Vegetables	My Life as a Fruit or Vegetable
W.5.1 Writing	Write opinion pieces on topics or texts, supporting a point of view with reasons and information. ▸ Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose. ▸ Provide logically ordered reasons that are supported by facts and details. ▸ Link opinion and reasons using words, phrases, and clauses (e.g., *consequently, specifically*). ▸ Provide a concluding statement or section related to the opinion presented.				x	
W.5.2 Writing	Write informative/explanatory texts to examine a topic and convey ideas and information clearly. ▸ Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. ▸ Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. ▸ Link ideas within and across categories of information using words, phrases, and clauses (e.g., *in contrast, especially*). ▸ Use precise language and domain-specific vocabulary to inform about or explain the topic. ▸ Provide a concluding statement or section related to the information or explanation presented.		x			

Matrix of Standards
5th Grade

California Standards	Description	Making Half My Plate Fruits and Vegetables	California Crops: From the Farm to the Table	Nutritional Value of Fresh Produce	The Chemistry of Fruits and Vegetables	My Life as a Fruit or Vegetable
W.5.3 Writing	Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. ▸ Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. ▸ Use narrative techniques, such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations. ▸ Use a variety of transitional words, phrases, and clauses to manage the sequence of events. ▸ Use concrete words and phrases and sensory details to convey experiences and events precisely. ▸ Provide a conclusion that follows from the narrated experiences or events.					x
W.5.4 Writing	Produce clear and coherent writing (including multiple paragraph texts) in which the development and organization are appropriate to task, purpose, and audience.		x			x
W.5.5 Writing	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.					x
W.5.7 Writing	Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.		x			x
W.5.9 Writing	Draw evidence from literary or informational texts to support analysis, reflection, and research. ▸ Apply *grade 5 Reading standards* to literature (e.g., "Compare and contrast two or more characters, settings, or events in a story or a drama, drawing on specific details in the text [e.g., how characters interact]"). ▸ Apply *grade 5 Reading standards* to informational texts (e.g., "Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]").		x			

Matrix of Standards 5th Grade

California Standards	Description	Making Half My Plate Fruits and Vegetables	California Crops: From the Farm to the Table	Nutritional Value of Fresh Produce	The Chemistry of Fruits and Vegetables	My Life as a Fruit or Vegetable
SL.5.1 Speaking and Listening	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.				x	
SL.5.4 Speaking and Listening	Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace. ▸ Plan and deliver an opinion speech that: states an opinion, logically sequences evidence to support the speaker's position, uses transition words to effectively link opinions and evidence (e.g., consequently and therefore), and provides a concluding statement related to the speaker's position. ▸ Memorize and recite a poem or section of a speech or historical document using rate, expression, and gestures appropriate to the selection.		x			
SL.5.5 Speaking and Listening	Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.		x			
L.5.1 Language	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. ▸ Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences. ▸ Form and use the perfect (e.g., *I had walked; I have walked; I will have walked*) verb tenses. ▸ Use verb tense to convey various times, sequences, states, and conditions. ▸ Recognize and correct inappropriate shifts in verb tense. ▸ Use correlative conjunctions (e.g., *either/or, neither/nor*).		x			x

Matrix of Standards
5th Grade

California Standards	Description	Making Half My Plate Fruits and Vegetables	California Crops: From the Farm to the Table	Nutritional Value of Fresh Produce	The Chemistry of Fruits and Vegetables	My Life as a Fruit or Vegetable
L.5.2 Language	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. ▸ Use punctuation to separate items in a series. ▸ Use a comma to separate an introductory element from the rest of the sentence. ▸ Use a comma to set off the words yes and no (e.g., *Yes, thank you*), to set off a tag question from the rest of the sentence (e.g., *It's true, isn't it?*), and to indicate direct address (e.g., *Is that you, Steve?*). ▸ Use underlining, quotation marks, or italics to indicate titles of works. ▸ Spell grade-appropriate words correctly, consulting references as needed.		x			x
L.5.3 Language	Use knowledge of language and its conventions when writing, speaking, reading, or listening. ▸ Expand, combine, and reduce sentences for meaning, reader/listener interest, and style. ▸ Compare and contrast the varieties of English (e.g., dialects, registers) used in stories, dramas, or poems.		x			x
Common Core Mathematics						
5.MD.2 Measurement and Data	Make a line plot to display a data set of measurements in fractions of a unit (½, ¼, ⅛). Use operations on fractions for this grade to solve problems involving information presented in line plots.			x		
5.G.2 Geometry	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.			x		
Next Generation Science Standards						
5-PS1-1	Develop a model to describe that matter is made of particles too small to be seen.				x	

Matrix of Standards 6th Grade

California Standards	Description	Making Half My Plate Fruits and Vegetables	California Crops: From the Farm to the Table	Nutritional Value of Fresh Produce	The Chemistry of Fruits and Vegetables	My Life as a Fruit or Vegetable
Common Core English Language Arts						
RI.6.1 Reading Informational Text	Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.		x			
RI.6.2 Reading Informational Text	Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.		x			
RI. 6.3 Reading Informational Text	Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).			x		
RI.6.4 Reading Informational Text	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.	x	x			
RI.6.7 Reading Informational Text	Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.	x	x	x		x
W.6.2 Writing	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. ▸ Introduce a topic or thesis statement; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. ▸ Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples. ▸ Use appropriate transitions to clarify the relationships among ideas and concepts. ▸ Use precise language and domain-specific vocabulary to inform about or explain the topic. ▸ Establish and maintain a formal style. ▸ Provide a concluding statement or section that follows from the information or explanation presented.		x			

Matrix of Standards 6th Grade

California Standards	Description	Making Half My Plate Fruits and Vegetables	California Crops: From the Farm to the Table	Nutritional Value of Fresh Produce	The Chemistry of Fruits and Vegetables	My Life as a Fruit or Vegetable
W.6.3 Writing	Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences. ▸ Engage and orient the reader by establishing a context and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically. ▸ Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters. ▸ Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another. ▸ Use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events. ▸ Provide a conclusion that follows from the narrated experiences or events.					x
W.6.4 Writing	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.		x			x
W.6.5 Writing	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.					x
W.6.7 Writing	Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.		x			x
SL.6.1 Speaking and Listening	Engage effectively in a range of collaborative disscussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.				x	

Matrix of Standards 6th Grade

California Standards	Description	Making Half My Plate Fruits and Vegetables	California Crops: From the Farm to the Table	Nutritional Value of Fresh Produce	The Chemistry of Fruits and Vegetables	My Life as a Fruit or Vegetable
SL. 6.2 Speaking and Listening	Interpret informative and diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study				x	
SL.6.4 Speaking and Listening	Present claims and findings (e.g., argument, narrative, informative, response to literature presentations), sequencing ideas logically and using pertinent descriptions, facts, and details and nonverbal elements to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.		x			
SL.6.5 Speaking and Listening	Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.		x			
L.6.1 Language	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. ▸ Ensure that pronouns are in the proper case (subjective, objective, possessive). ▸ Use all pronouns, including intensive pronouns (e.g., *myself, ourselves*) correctly. ▸ Recognize and correct inappropriate shifts in pronoun number and person. ▸ Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents). ▸ Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language.		x			x

Matrix of Standards
6th Grade

California Standards	Description	Making Half My Plate Fruits and Vegetables	California Crops: From the Farm to the Table	Nutritional Value of Fresh Produce	The Chemistry of Fruits and Vegetables	My Life as a Fruit or Vegetable
L.6.2 Language	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. ▸ Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements. ▸ Spell correctly.		x			x
L.6.3 Language	Use knowledge of language and its conventions when writing, speaking, reading, or listening. ▸ Vary sentence patterns for meaning, reader/listener interest, and style. ▸ Maintain consistency in style and tone.		x			x
Common Core Mathematics						
6.SP.5b Statistics and Probability	Describe the nature of the attribute under investigation, including how it was measured and its units of measurement			x		
Next Generation Science Standards						
MS-PS1-2 Physical Sciences	Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occured.				x	

Glossary

Agriculture: The science and business of growing crops and raising livestock.

Ascorbic acid: Another name for vitamin C; necessary in the body for healthy cells.

Citric acid: An organic acid which acts as a natural preservative. It is also used to add an acidic, or sour, taste to foods and beverages.

Climate: The weather conditions of a region, such as temperature, air pressure, humidity, precipitation, sunshine, cloudiness, and winds.

Commodity: Fruits, vegetables, nuts, or grains, as a unit that are bought or sold.

Conservation: The careful use of resources such as water.

Consumer: A person or thing that eats or uses something.

Crop: An agricultural plant grown and harvested.

Cup equivalent: The amount of a food product that is considered equal to 1 cup from the vegetable, fruit, or milk food group. A cup equivalent for some foods may be less than a measured cup because the food has been concentrated (such as raisins or tomato paste), or more than a cup for some foods that are airy in their raw form and do not compress well into a cup (such as salad greens).

Discoloration: A change in color.

Distribution center: A place where food or other items are stored until they are transported to a store, wholesale market, or elsewhere.

Farm: A piece of land where crops or animals are raised.

Farmer: A person who produces food, fiber, or plants, for others to use.

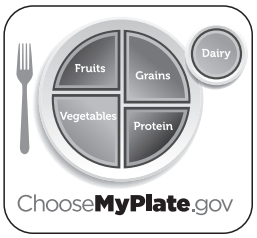
Glossary

Fiber: An indigestible carbohydrate found in plant foods that is important to the health of the digestive tract.

Flatbed: A truck or trailer without sides.

Fruit: Scientifically speaking, the matured ovary of a flower and its contents; some fruits such as squash are called vegetables because they are vegetation that is prepared for the table.

Geography: The mountains, valleys, lakes, rivers, and other physical elements that make up an area.



Grain: A small hard seed of a cereal plant such as wheat or rice.

Harvest: The gathering of a crop.

Map: A picture that represents all or part of the Earth's surface.

MyPlate: Developed by the United States Department of Agriculture, a visual cue that reminds consumers how to make healthy food choices. MyPlate replaced MyPyramid in 2011.

Nutrient: A chemical component of food that is essential, in some quantity, to a living organism.

Nutrition: The interaction between food and a living organism.

Ounce equivalent: The amount of a food product that is considered equal to 1 ounce from the grain group or the protein foods group. An ounce equivalent for some foods may be less than a measured ounce if the food is concentrated or low in water content (nuts, peanut butter, dried meats, or flour), or more than an ounce if the food contains a large amount of water (tofu, cooked beans, cooked rice, or cooked pasta).

Oxidation: The interaction between oxygen molecules and all the different substances they may contact, from metal to living tissue.

Glossary

Percent Daily Value: The recommended amount of a nutrient to eat each day to stay healthy. The values on the label are based on a 2,000-calorie diet.

Produce: Fresh fruits and vegetables.

Scientific method: The techniques scientists use for investigating phenomena and acquiring new knowledge.

Sodium bicarbonate: An antacid used to relieve heartburn and acid indigestion. The common form is baking soda.

Vegetable: The edible part of a plant which is generally served as part of a main meal; also known as vegetation that is prepared for the table.

Vitamins: A group of essential nutrients used in small quantities to regulate body processes.