



Fruits and Vegetables for Health

Grades 4-6

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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. It offers school children the knowledge to make informed choices.

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Introduction

The frameworks for California public schools emphasize 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 continually makes headlines and is an excellent way for educators to connect agricultural current trends and innovations to the lives of every student.

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 current technologies and research that continue to make Earth a viable 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, enhance their language arts skills as they write letters to a commodity board to acquire information about a specific fruit or vegetable, and will read technical information obtained during research. 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, the 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 or reinforces specific subject matter Content Standards for California Public Schools. The standards which apply to each lesson are listed by grade level, subject matter, and number on the sidebars of each lesson. A content standard matrix for the entire unit, with specific standards described, is located on pages 54-61. *Fruits and Vegetables for Health* is one of many educational units provided by the California Foundation for Agriculture in the Classroom.

*What the future holds for
agriculture will determine
the quality of life for all . . .*

- *farmers and ranchers*
- *suppliers*
- *food processors*
- *wholesalers*
- *retailers*
- *consumers!*

Unit Overview

Unit Length

Approximately nine 50-minute sessions.

Objectives

The students will:

- Examine the Food Guide Pyramid.
- Understand the meaning of “serving size.”
- Learn some 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.
- Compare the nutritional value of selected fruits and vegetables.
- 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’s fresh 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 its entirety is recommended.

Curriculum Content Standards for California Public Schools

A concerted effort to improve student achievement in all academic 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 Curriculum Content Standards for California Public Schools. 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 or reinforce many of the educational content 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 subject matter content standards covered in the lessons are listed on the sidebars of each lesson. A matrix chart showing how the entire unit is aligned with the Curriculum Content Standards for California Public Schools can be found on pages 54-61.

Unit Overview

Key Vocabulary

agriculture
ascorbic acid
climate
commodity
conservation
consumer
crop
discoloration
distribution center
farm
farmer
fiber
flatbed
Food Guide Pyramid
fruit
geography
grain
harvest
map
nutrient
nutrition
oxidation
produce
scientific method
USRDA
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.

Visual Display Ideas

- Make a large Food Guide Pyramid on butcher paper. Have the students fill each section with appropriate pictures from magazines.
- Make a large outline of California on butcher paper. Have the 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 the bar graphs and stories the 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 needs of your students and teaching style.
2. The following resources may be helpful to you and your students as you study various commodities.
 - California Foundation for Agriculture in the Classroom's *Teacher Resource Guide*, 2300 River Plaza Drive, Sacramento, CA 95833. This guide will provide you with names and addresses of various commodity groups as well as other useful information. Allow three to four weeks for delivery. Also available online at www.cfaitc.org.
 - California Department of Food and Agriculture's web site, www.cdffa.ca.gov. This site contains general and specific information on various aspects of agriculture.
 - California Farm Bureau Federation's web site, www.cfbf.com. This site has articles on current issues in agriculture as well as agricultural information on each county.
 - *Agricultural Organizations* listed on pages 37-41.
3. Read *Answers to Commonly Asked Questions* on pages 33-36 to gain background knowledge to use during the unit. Also review the glossary on pages 62-63. 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 for classroom visits from people involved in the food industry. Guest speakers may include farmers, ranchers, food distributors, grocers, dieticians, 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. Grocery stores may provide fresh produce.

Climbing a Pyramid to Good Health

Purpose

The purpose of this lesson is to introduce students to the Food Guide Pyramid and to reinforce the importance of the daily consumption of fruits and vegetables.

Time

Teacher Preparation

Ten minutes

Student Activities

One 50-minute session

Materials

For the student:

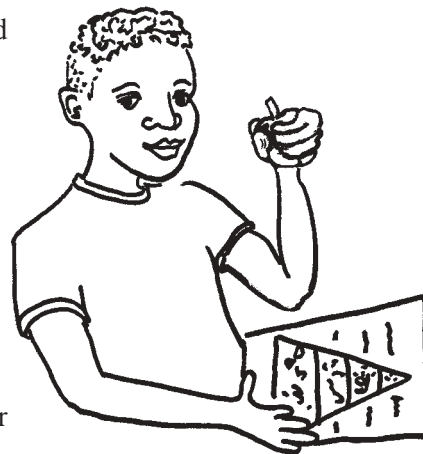
- Food Guide Pyramid (pages 9-10)
- Writing paper

Background Information

The United States Department of Agriculture's Human Nutrition Information Services Department developed the Food Guide Pyramid. It is a food guidance system that outlines how a diet should be structured. Breads, cereals, rice, and pasta are at the base of the pyramid because they are the foods that should be eaten in the largest quantities. The smallest area of the pyramid shows foods that should be eaten in small amounts: fats, oils, and sweets. One food group is not more important than the other. The appropriate number of servings of each food group is what is important for a healthy and balanced diet.

Procedure

1. Distribute a copy of the Food Guide Pyramid to each student. Ask the students to identify the foods that they see in each group.
2. Have students create a one-minute "quick list" of other foods that could be pictured in the various categories.
3. Have students share their answers and record them in charts or on the board. Create a spelling list from the words. Explain that this unit will focus of the fruits and vegetables sections of the Food Guide Pyramid.
4. Direct the students to read the information on the number of servings of fruits and vegetables that they need each day. Also discuss the meaning of "serving size." Have the students make a list of three vegetables and two fruits they might include in their diet.
5. Emphasize that the Food Guide Pyramid suggests that people have two to four servings per day of fruits and three to five servings per day of vegetables.



Climbing a Pyramid to Good Health

Content Standards

Grade 4

Science

Life Sciences • 2

Reading/Language Arts

Reading • 2.2

Grade 5

Reading/Language Arts

Reading • 2.1

Grade 6

Reading/Language Arts

Reading • 2.1

6. Lead students through a discussion of five reasons why they should eat fruits and vegetables daily. Some discussion points are listed below:

- Fruits and vegetables contain Vitamin C—in fact, they are the only sources of Vitamin C in the diet. Vitamin C, or ascorbic acid, is important for healthy gums and skin. It also helps to heal wounds.
- Many fruits and vegetables are good sources of Vitamin A. This vitamin is important for healthy skin, good night vision, and appropriate bone growth. Vitamin A is found in fruits and vegetables that are dark orange, dark yellow, or dark green.
- 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 have fiber, which is important for healthy digestion. The body’s digestive tract needs fiber to keep the food moving through it.
- 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.

7. When discussing serving sizes, bring in actual fruits and vegetables. Have the students eat the food after they calculate the number of servings they have prepared.

Variation

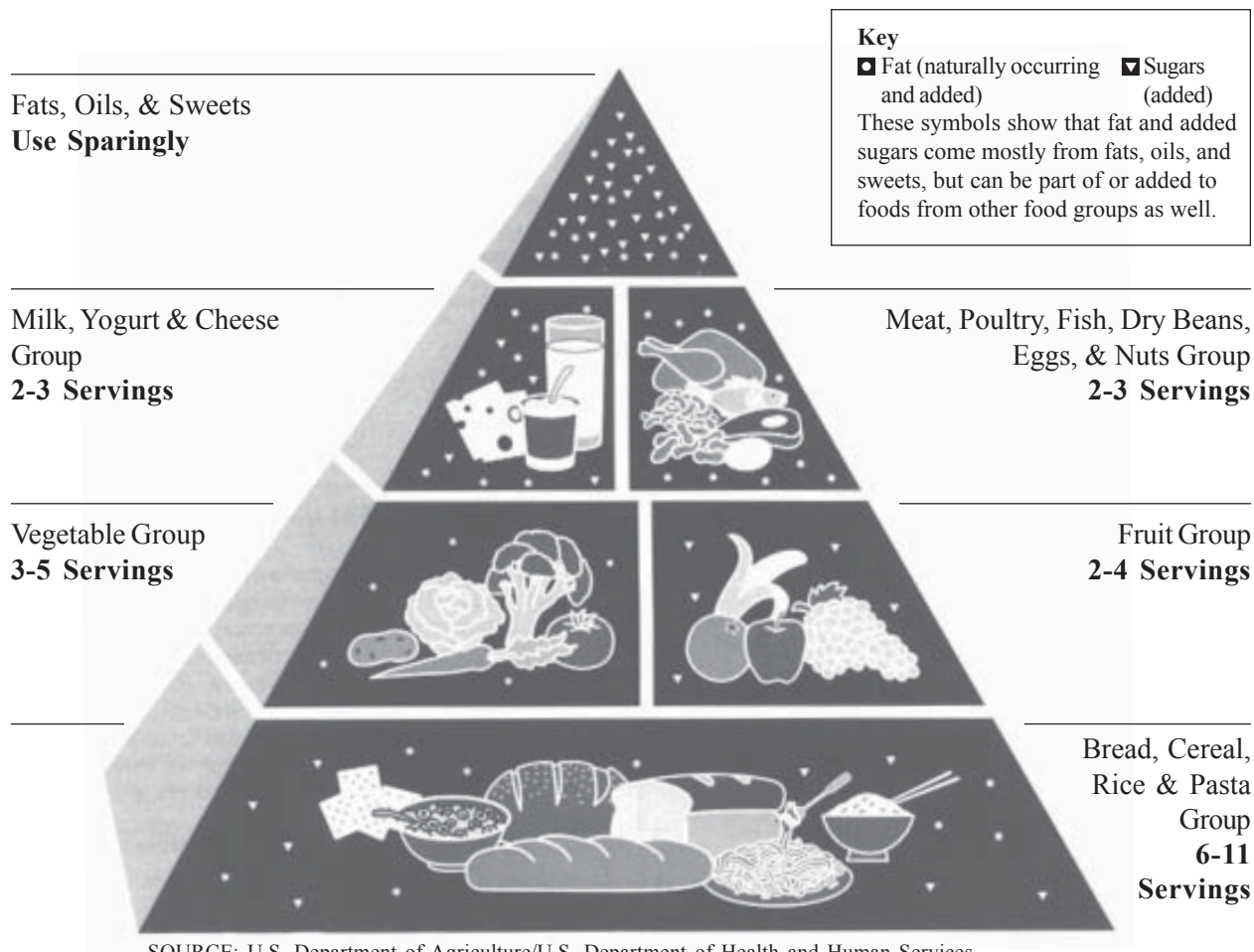
- Use the Food Guide Pyramid activity of your own to introduce students to food groups and serving sizes.

Extensions

- Using the list of fruits and vegetables the students created in the lesson, have the students determine which produce items are high in Vitamin A. This can be done using the “dark color test.” Produce high in Vitamin A is dark orange, dark yellow, or dark green throughout.
- Create fresh fruit and vegetable kabobs for students to eat.

Food Guide Pyramid

A Guide to Daily Food Choices



Use the Food Guide Pyramid to help you eat better every day . . . the Dietary Guidelines way. Start with plenty of Breads, Cereal, Rice and Pasta; Vegetables; and Fruits. Add two to three servings from the Milk group and two to three servings from the meat group.

Each of these food groups provides 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. Go easy on fats, oils, and sweets, the foods in the small tip of the Pyramid.

To order a copy of “The Food Guide Pyramid” booklet, send a \$1.00 check or money order made out to the Superintendent of Documents to: Consumer Information Center, Department 159-Y, Pueblo, Colorado 81009.

U.S. Department of Agriculture, Human Nutrition Information Service, August 1992, Leaflet No. 572

Food Guide Pyramid

How to Use The Daily Food Guide

What counts as one serving?

Breads, Cereals, Rice, and Pasta

- 1 slice of bread
- 1/2 cup of cooked rice or pasta
- 1/2 cup of cooked cereal
- 1 ounce of ready-to-eat cereal

Vegetables

- 1/2 cup of chopped raw or cooked vegetables
- 1 cup of leafy raw vegetables

Fruits

- 1 piece of fruit or melon wedge
- 3/4 cup of juice
- 1/2 cup of canned fruit
- 1/4 cup of dried fruit

Milk, Yogurt, and Cheese

- 1 cup of milk or yogurt
- 1-1/2 to 2 ounces of cheese

Meat, Poultry, Fish, Dry

Beans, Eggs, and Nuts

- 2-1/2 to 3 ounces of cooked lean meat, poultry, or fish
- Count 1/2 cup of cooked beans, or 1 egg, or 2 tablespoons of peanut butter as 1 ounce of lean meat (about 1/3 serving)

Fats, Oils, and Sweets

Limit calories from these, especially if you need to lose weight.

The amount you eat may be more than one serving. For example, a dinner portion of spaghetti would count as two or three servings of pasta.

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How many servings do you need each day?

	Women & some older adults	Children, teen girls, active women, most men	Teen boys & active men
Calorie level*	about 1,600	about 2,200	about 2,800
Bread group	6	9	11
Vegetable group	3	4	5
Fruit group	2	3	4
Milk group	**2-3	**2-3	**2-3
Meat group	2, for a total of 5 ounces	2, for a total of 6 ounces	3, for a total of 7 ounces

* These are the calorie levels if you choose lowfat, lean foods from the 5 major food groups and use foods from the fats, oils, and sweets group sparingly.

** Women who are pregnant or breastfeeding, teenagers, and young adults to age 24 need 3 servings.

A Closer Look at Fat and Added Sugars

The small tip of the Pyramid shows fats, oils, and sweets. These are foods such as salad dressings, cream, butter, margarine, sugars, soft drinks, candies, and sweet deserts. Alcoholic beverages are also part of this group. These foods provide calories but few vitamins and minerals. Most people should go easy on foods from this group.

Some fat or sugar symbols are shown in the other food groups. That's to remind you that some foods in these groups can also be high in fat and added sugars, such as cheese or ice cream from the milk group, or French fries from the vegetable group. When choosing foods for a healthful diet, consider the fat and added sugars in your choice from all the food groups, not just fats, oils, and sweets from the Pyramid tip.

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

Twenty 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* (page 17)

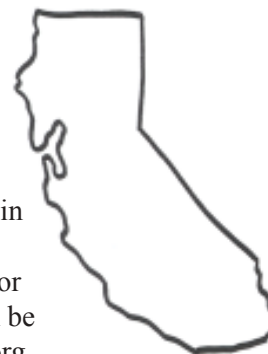
Background Information

Agriculture is an enormous industry in California and has a 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 web sites. Your county Farm Bureau may also be a good resource. Refer to pages 37-41 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 17.
2. **Study a map of California.** Show the students a large wall map of California. Introduce the legend and brainstorm several things that can be learned from the map of California. 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 16) as you see appropriate for your students. A useful commodity map can be viewed and downloaded from www.cfaitc.org.
3. **Select an agricultural commodity to research.** Present the students with the list of California’s major agricultural commodities and the addresses of agricultural organizations (pages 37-41). 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.



California Crops: From the Farm to the Table

Materials *(continued)*

- *Map of California* (page 16)
- *California Major Agricultural Commodities list* (page 14)
- *Agricultural Organizations list* (pages 37-41)
- Two postage stamps and/or access to e-mail
- Letter writing materials
- *Sample Letter to Agricultural Commodity Board* (page 15)

4. **Write a business letter.** Have the 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 15.



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. **Mail the letters.** 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 proofed.

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 the students proof the rough drafts of their letters and have you review them, prior to sending the letters. Remind students to write legibly and use a proper letter format.
2. **Write a report on 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 written legibly and includes quotes or paraphrasing of information from various sources. Credit should be given to all references. The written report may include:

California Crops: From the Farm to the Table

Content Standards

Grade 4

Science

Life Sciences • 3b

Reading/Language Arts

Reading • 2.2, 2.5

Writing • 1.0, 1.1, 1.2, 1.4,
1.5, 1.7, 1.10, 2.3

Written and Oral Language

Conventions • 1.0

Listening and Speaking • 1.0,

1.2, 1.5, 1.9, 2.2

Grade 5

Science

Earth Sciences • 3c

Reading/Language Arts

Reading • 2.1

Writing • 1.0, 1.1, 1.3, 1.6

Written and Oral Language

Conventions • 1.0

Listening and Speaking • 1.0,

1.4, 1.5, 1.6, 2.2

Grade 6

Science

Ecology 5e

Reading/Language Arts

Reading • 2.1

Writing • 1.0, 1.1, 1.2, 1.4,
1.6, 2.3

Written and Oral Language

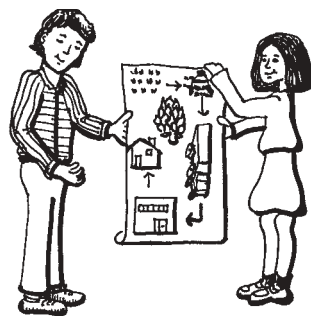
Conventions • 1.0

Listening and Speaking • 1.0,

1.4, 1.6, 2.2

- A map of California with crop-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 and/or pictures.

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, the students should practice their reports orally focusing on volume, pitch, and appropriate body gestures.



Extensions

- Have students choose one of the crops studied and include it in one of their home meals. Have students write a paragraph about the food and send the paragraph to the organization that provided information.
- Ask students to create a mural that illustrates the basic steps of the agricultural distribution process.
- Have students write letters to the food service personnel at their school or district informing them about their study of California agriculture and the commodities that have been researched. Have students ask the staff to include these food items in a future menu.
- Have your students visit a farmers' market, the produce section of a local supermarket, or a local produce vendor. Observe how California crops are marketed.
- Have a special snack day where students taste the foods described in the presentations.
- Design a quiz game to teach the class about various commodities. Create questions from the literature obtained from written inquiries.

California's Major Agricultural Commodities *

In 2001, the leading California commodities were:

1. Milk and Cream	\$3,630,171,000
2. Grapes	2,650,873,000
3. Nursery Products	2,087,447,000
4. Lettuce	1,370,004,000
5. Cattle and Calves	1,351,500,000
6. Hay	1,020,510,000
7. Flowers and Foliage	998,459,000
8. Strawberries	841,031,000
9. Tomatoes	766,260,000
10. Almonds	731,880,000



* 2001 statistics provided by the United States Department of Agriculture's National Agricultural Statistics Service; www.nass.usda.ca.gov/agcomm.

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:

I am a _____ grade student at _____ School. My class is studying California agriculture and I am learning about _____.

I would like to know where _____ grow(s) in California and the conditions required for its growth. I would like to know how _____ gets from the farms to the stores. I would also like to know about all the uses of _____, the nutritional value of _____ and the importance of _____ to California's economy. If you have any informational brochures, samples of _____, or products made from _____, I would like you to send them to me.

If possible, I would like you to send me this information by _____. I am going to write a report and make an oral presentation to my class and I would appreciate the information as soon as possible. Thank you.

Sincerely,

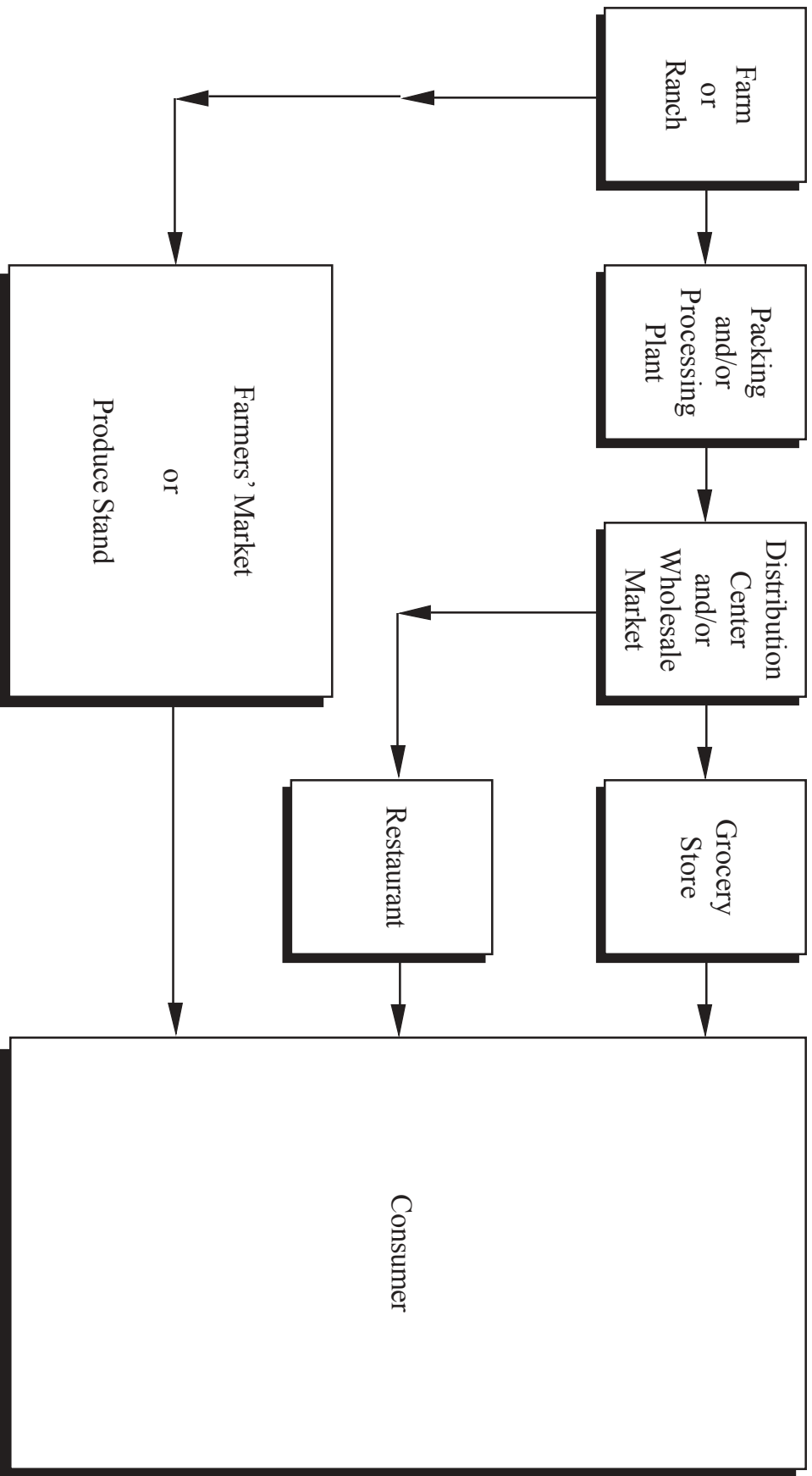
Student Name

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

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

Ten minutes

Student Activities

One or two 50-minute sessions

Materials

For each student:

- *Nutrients in Fresh Fruits and Vegetables* chart (page 20)
- *Dietary Fiber, Vitamin A and Vitamin C* graph worksheets (pages 21-23)
- Colored pencils, crayons, or markers
- *Nutrient Comparison Worksheet* (pages 24-25)

For the teacher:

- Overhead transparency plastic
- Overhead pens

Background Information

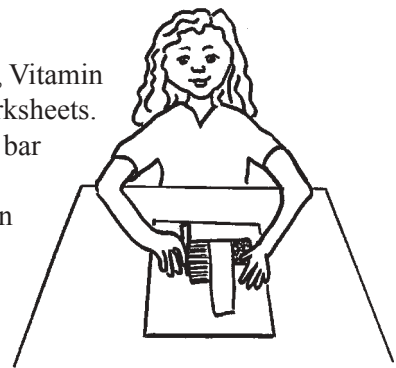
The vitamin content in fruits and vegetables is reported as the percent (%) of the United States Recommended Daily Allowance (USRDA). This is a nutrient standard used in food labeling to make it possible to compare the nutrient density of foods. In order to maintain good health, it is important that Vitamin A and Vitamin C be consumed daily at 100% of the USRDA level. The Food Guide Pyramid suggests that three or more vegetable servings and two or more servings of fruit be consumed daily. Fiber is also an important food component and it is recommended that one should consume 25 grams per day. 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 healthy body tissue and growing bones. It also helps with night vision. 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 essential for strong gums and healthy tissues. Children require 50 milligrams per day of this vitamin.
- Fiber is essential to maintain a healthy digestive tract and to prevent chronic illness in the digestive system.

Procedure

1. Distribute copies of the *Nutrients in Fresh Fruits and Vegetables* chart to individual students or small groups of two or three students. Review the chart with the class to make certain that the students understand how to read it. Using an overhead transparency of the chart may be helpful.
2. Distribute copies of the Vitamin A, Vitamin C, and dietary fiber bar graph worksheets. Review the procedure for making bar graphs. You may wish to make an overhead of a blank graph to use in your explanation of bar graphing. Remind students that all graphs contain the following:

- labels for the vertical axes
- a title
- evenly divided horizontal and vertical axes
- accurate data



Nutritional Value of Fresh Produce

Content Standards

Grade 4

Science

Life Sciences • 2

Mathematics

Statistics, Data Analysis,
and Probability • 1.0

Mathematical Reasoning
1.0, 1.1

Grade 5

Mathematics

Statistics, Data Analysis,
and Probability • 1.0, 1.2

Mathematical Reasoning
1.0, 1.1, 1.2, 2.0, 2.3

Grade 6

Mathematics

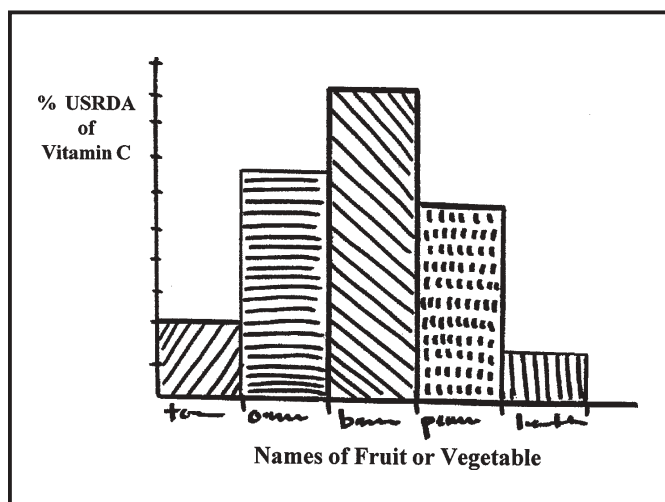
Statistics, Data Analysis,
and Probability • 1.0, 1.2

Mathematical Reasoning
1.0, 1.1, 1.3, 2.0, 2.4

- Have the students complete the bar graphs.
- Distribute and discuss the *Nutrient Companion Worksheet*. Instruct students to use their bar graphs to complete the worksheet. Discuss the answers.

Variations

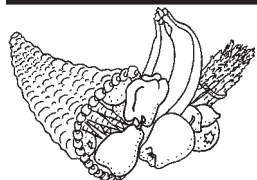
- Have students create their own bar graphs in place of the graphs provided with the lesson.
- Have students create large nutrition pictographs or bar graphs for posting or display in the school cafeteria or library.



Extensions

- 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 which display the results of the survey.
- Have students research other nutrients in fresh produce and graph their quantities.
- Have students research the amounts of Vitamin A, Vitamin C, and fiber contained in foods other than fresh produce.

Nutrients in Fresh Fruits and Vegetables



	Serving Size	Dietary Fiber Grams**	% of USRDA*** Vitamin A	% of USRDA*** Vitamin C
Vegetables				
Broccoli	1 medium stalk	5	10	240
Carrots	1 medium	1	330	8
Corn	1 ear	1	5	10
Green Beans	3/4 cup	3	2	8
Head Lettuce	1/6 head	1	2	4
Onions	1 medium	3	*	20
Potatoes	1 medium	3	*	50
Tomatoes	1 medium	1	20	40
Fruits				
Apples	1 medium	5	*	6
Bananas	1 medium	3	*	15
Cantaloupe	1/4 medium	0	55	90
Grapes	1-1/2 cups	2	3	9
Oranges	1 medium	6	*	120
Peaches	2 medium	1	20	20
Plums	2 medium	1	9	20
Watermelon	1/8 medium	1	8	25

* Contains less than 2% of the USRDA of this nutrient.
Source: U.S. Food and Drug Administration. Adapted from *Produce Nutrition*, Produce for Better Health Foundation, 1992.

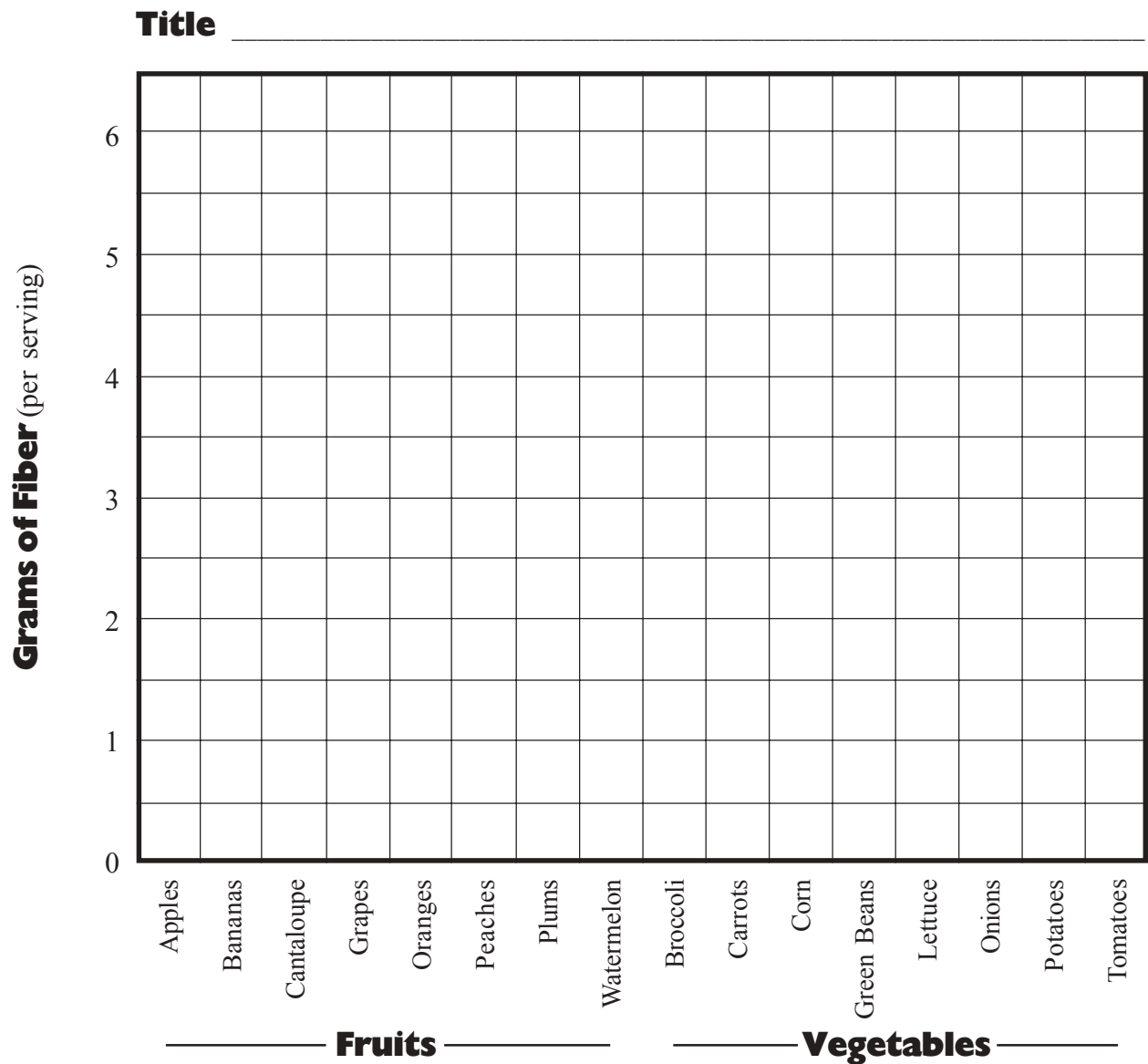
** It is recommended that an average person consume 25 grams of fiber each day.

*** USRDA stands for United States Recommended Daily Allowance.

Dietary Fiber

Name _____

Dietary fiber is found in fresh fruits and vegetable and in grains such as wheat and oats. Fiber is necessary to maintain a healthy digestive tract and to prevent chronic illness and even cancer. An average person should eat about 25 grams of fiber each day. Use the information from the *Nutrients in Fresh Fruits and Vegetables* chart to create a bar graph on fiber quantities in fresh fruits and vegetables.

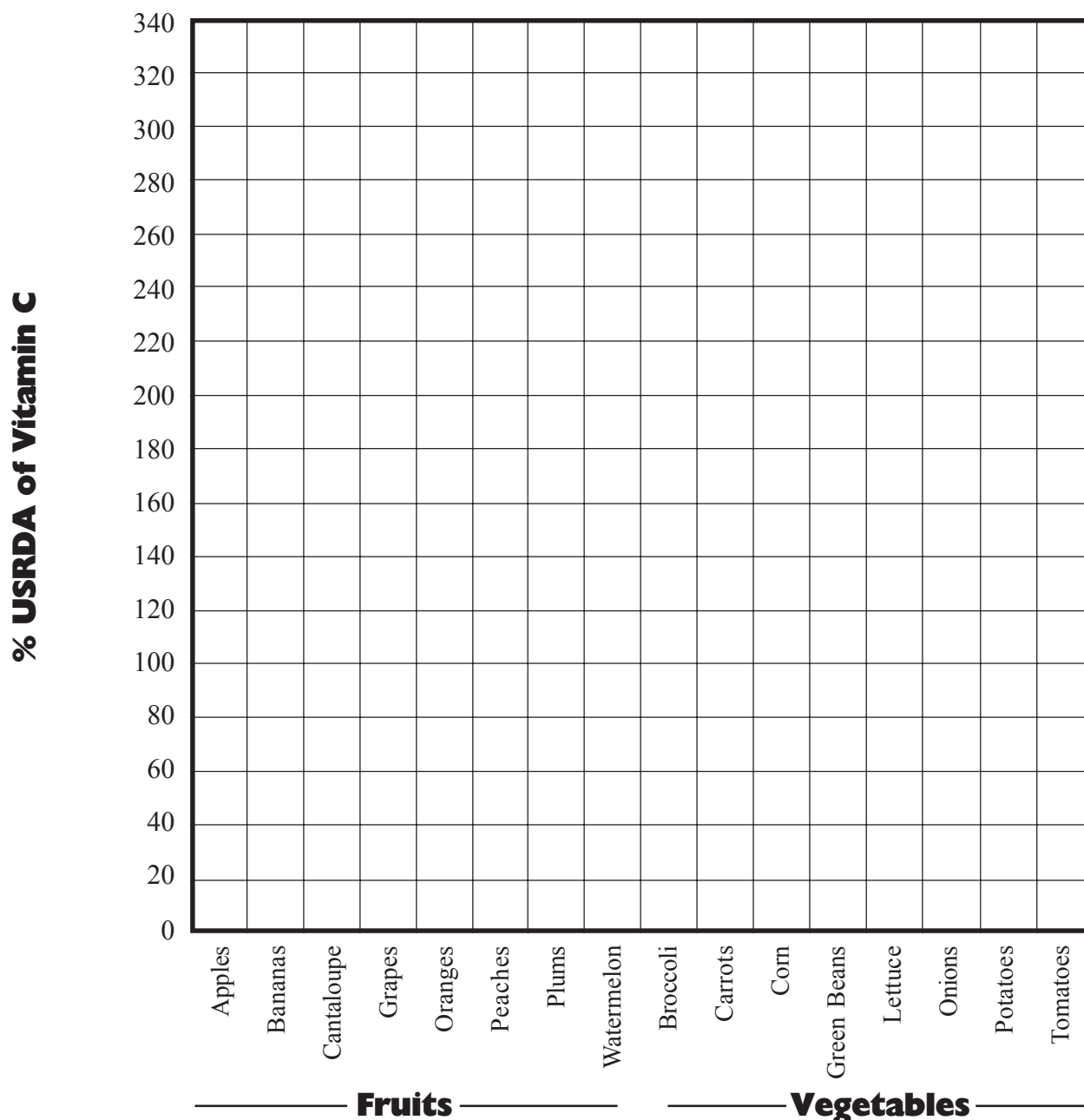


Vitamin C

Name _____

Vitamin C, also known as ascorbic acid, is required for strong gums and healthy tissues. Scurvy is a disease caused when people lack Vitamin C. Sailors and other explorers were known to suffer from this disease because of a lack of fresh fruits and vegetables in their diets. In 1795 the British navy made it a requirement that lime juice be a part of the sailors diets so they would not get scurvy. Use the information from the *Nutrients in Fresh Fruits and Vegetables* chart to create a bar graph showing the Vitamin C quantities in fresh produce.

Title _____



Nutrient Comparison Worksheet

Name _____

Instructions: Using the graphs or chart provided, answer the questions below. As you complete the worksheet, think of why eating a wide variety of foods might benefit your health. In this activity consider tomatoes vegetables although they are scientifically also fruits.

1. Which fruit contains the highest % of USRDA of Vitamin A? _____
2. Which vegetable contains the highest % of USRDA of Vitamin A? _____
3. Which fruit contains the lowest % of USRDA of Vitamin A? _____
4. Which vegetable contains the lowest % of USRDA of Vitamin A? _____
5. Which fruit contains the highest % or USRDA of Vitamin C? _____
6. Which vegetable contains the highest % of USRDA 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 chart 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? _____

Why? _____



Nutrient Comparison Worksheet

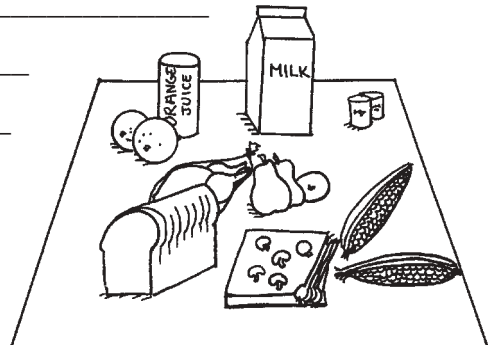
(continued)

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.

Breakfast	Lunch	Dinner	Snacks

12. Why is it important to eat a wide variety of foods? _____



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

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

Twenty minutes

Introduction

Fifteen minutes

Experiment

One 50-minute session

Concluding Discussion

Twenty minutes

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)

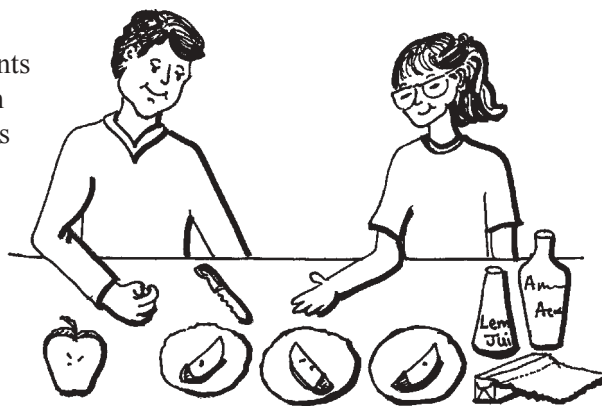
Background Information

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 right 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 if high enough levels of ascorbic acid are present 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 the students the appropriate produce storage and handling techniques they should use at home.

The Chemistry of Fruits and Vegetables

Materials *(continued)*

- Plastic wrap
- Lemon or orange juice
- *Chemistry of Fruits and Vegetables* activity sheet (page 29)

For the teacher:

- Sharp metal knife
- Storage area for student experiments

Procedure

Day 1

1. Divide the class into small cooperative groups. Explain to the students that they will be doing an experiment using fresh fruits and vegetables. Outline the safety requirements students should follow when using a sharp knife. Ask the students what they think will happen to various fruits and vegetables when they are cut open. Go over the following procedure with the students and have them record their hypotheses on their papers.
2. Pass out two types of vegetables and two types of fruit to each group of students. Students will need to slice three equal portions of each fruit and vegetable.
3. 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 lemon or orange juice to all exposed surfaces.
 - **Third slice**—seal tightly in plastic wrap.
4. Have students record their observations on *The Chemistry of Fruits and Vegetables* activity sheet (page 29). Observations should be made and recorded immediately after cutting and at regular 10-minute intervals for thirty minutes.



Day 2

1. Have the students make their final observations.
2. Hold a class discussion on produce discoloration and the effect ascorbic acid has on fresh produce. Take time to discuss types of discoloration that affect the healthfulness of the food such as mold and bruising.

The Chemistry of Fruits and Vegetables

Content Standards

Grade 4

Science

Life Sciences • 2c
Investigation and
Experimentation • 6, 6f

Reading/Language Arts

Listening and Speaking • 1.1,
1.6

Grade 5

Science

Physical Sciences • 1a
Investigation and
Experimentation • 6, 6g,
6h, 6i

Grade 6

Science

Investigation and
Experimentation • 7, 7a, 7d

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:

- The ascorbic acid content of the different types of produce in their natural states.
- The effectiveness of orange or lemon juice in preventing discoloration.
- The effectiveness of plastic wrap in preventing discoloration.

Variations

- Have the students write a formal lab report, which includes a purpose, hypothesis, materials list, procedure, results, and conclusion sections.
- Have students design their own experiments that will determine how discoloration of fresh produce can be reduced.
- Before the activity, have students brainstorm 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 the students into groups. Have each group select a student to be a taster and blindfold him or her. Give this student a fresh 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.

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 <ul style="list-style-type: none">• None (control)• Lemon/Orange Juice• Plastic Wrap	Color Immediately After Cutting	10 Minutes After Cutting	20 Minutes After Cutting	30 Minutes After Cutting	Color After 24 Hours

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

Suppose you were only going to eat 1/2 of an apple and wanted to store the other half to eat the next day. What storage technique would you use? _____ Why? _____

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

Other than those mentioned in this lesson, what other food storage techniques can you think of that keep food fresh, tasty, and healthful? _____

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

Twenty minutes

Activity

Four 50-minute sessions, plus time at home

Materials

For the class:

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

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.** Explain to the 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:



- 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 good things (nutrients) can I offer someone?
- What potential problems could I cause, if any?
- How long do I last?
- How am I stored?
- What kinds of things do people eat me in/with?
- How am I prepared/cooked?

My Life as a Fruit or Vegetable

Content Standards

Grade 4

Reading/Language Arts

Reading • 2.2, 2.5

Writing • 1.0, 1.1, 1.10, 2.1

Grade 5

Reading/Language Arts

Reading • 2.1

Writing • 2.0, 2.1

Grade 6

Reading/Language Arts

Writing • 1.0, 1.1, 2.1

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 *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 the 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.



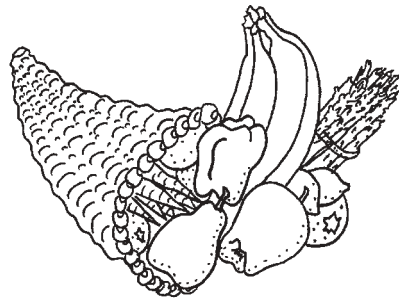
Tell students to edit for the following:

- 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 whose back also includes a 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

- 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 the 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 the 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 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, over 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?

After numerous studies and years of research, the following guidelines were established for Americans:

- Eat a variety of foods.
- Maintain a healthy weight.
- Choose a diet low in fat and cholesterol.
- Choose a diet with plenty of vegetables, fruits, and grains.
- Use sugar only in moderation.
- Use salt and sodium only in moderation.
- If you drink alcoholic beverages, do so in moderation.

Answers to Commonly Asked Questions

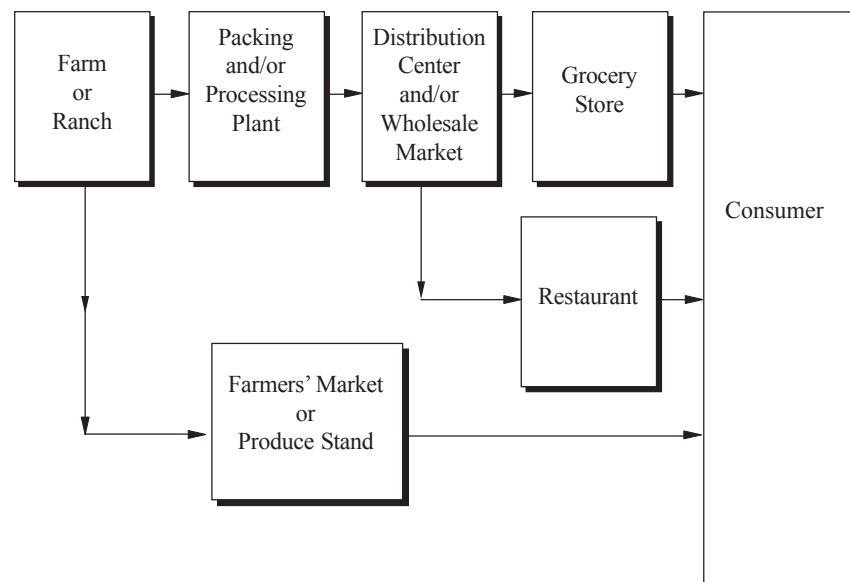
What is the Food Guide Pyramid?

The *Food Guide Pyramid* was developed by the United States Department of Agriculture to give Americans a guidance system on the quantity of food they should eat to maintain good health. It was designed to follow the Dietary Guidelines for Americans.

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

Only 1 to 2% 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 utilize a food delivery system similar to the one described below. 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 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.



Answers to Commonly Asked Questions

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, and/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 the fruits and vegetables from the farm to the table?

On an average, it takes just a few days for the 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 over 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.

What are some current trends in fresh produce?

Fresh produce is eaten by consumers more often if it is prepared for them. Ready-to-eat salads, baby carrots, and cut fruits are now standards in grocery stores. People are also opting to grow some of their produce in schools and community gardens. In some areas, fresh produce can be ordered from local growers and delivered to door steps. The increase in handling and services usually increases the cost of the items.

Answers to Commonly Asked Questions

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 continues to 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. At home, there are lots of ways consumers can maintain the quality of their fresh produce. All fruits and vegetables should be washed before eating or cutting them. All bruises should be removed.

General

California Certified Organic Farmers

1115 Mission Street
Santa Cruz, CA 95060
Phone: (831) 423-2263
Fax: (831) 423-4528
Web site: www.ccof.org

California Federation of Certified Farmers' Markets

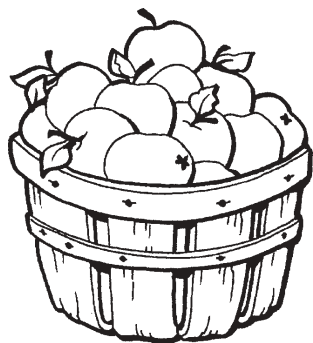
Post Office Box 1813
Davis, CA 95617
Phone: (530) 756-1695
Fax: (530) 756-1858
E-mail: rmacnear@dcn.org
Web site: www.farmersmarket.ucdavis.edu

California Foundation for Agriculture in the Classroom

2300 River Plaza Drive
Sacramento, CA 95833
Toll free: (800) 700-2482
Fax: (916) 561-5697
E-mail: cfaitc@cfbf.com
Web site: www.cfaitc.org

California Rare Fruit Growers

The Fullerton Arboretum-CSUF
Post Office Box 6850
Fullerton, CA 92834-6850
Web site: www.crfg.org



Apples

California Apple Commission

4974 East Clinton Way, Suite 125
Fresno, CA 93727
Phone: (559) 456-0900
Fax: (559) 456-0125
Web site: www.calapple.org

United States Apple Association

8233 Old Courthouse Road, Suite 200
Vienna, VA 22182
Phone: (703) 442-8850
Fax: (703) 790-0845
Web site: www.usapple.org

Apricots

Apricot Producers of California

2125 Wylie Drive, Suite 2-A
Modesto, CA 95355
Phone: (209) 524-0801
Fax: (209) 524-3840
Web site: www.apricotproducers.com

Artichokes

California Artichoke Advisory Board

10719 Merritt Street
Castroville, CA 95012
Phone: (831) 633-4411
Fax: (831) 633-0215
Web site: www.artichokes.org

Asparagus

California Asparagus Commission

311 East Main Street, Suite 204
Stockton, CA 95202
Phone: (209) 474-7581
Fax: (209) 474-9105
Web site: www.calasparagus.com

Avocados

California Avocado Commission

1251 East Dyer Road, Suite 210
Santa Ana, CA 92705-6505
Phone: (714) 558-6761
Fax: (714) 641-7024
Web site: avocado.org

Calavo Growers of California

2530 Red Hill Avenue
Santa Ana, CA 92705
Phone: (949) 223-1111
Fax: (949) 223-1112
Web site: www.calavo.com

Beans

Dry Bean Advisory Board

531-D North Alta Avenue
Dinuba, CA 93618
Phone: (559) 591-4866
Fax: (559) 591-5744
Web site: www.calbeans.com

Blueberries

North American Blueberry Council

4995 Golden Foothill Parkway, Suite 2
El Dorado, CA 95762
Phone: (916) 933-9399
Fax: (916) 933-9777
Web site: www.blueberry.org

Carrots

California Fresh Carrot Advisory Board

531-D North Alta Avenue
Dinuba, CA 93618
Phone: (559) 591-5675
Fax: (559) 591-5744
Web site: www.carrots.org

Grimmway Farms

Web site: www.grimmwayfarms.com

Cherries

California Cherry Marketing Program

Post Office Box 877
Lodi, CA 95241
Phone: (209) 368-0685
Fax: (209) 368-4309
Web site: www.calcherry.com

Corn

National Corn Growers Association

632 Cepi Drive
Chesterfield, MO 63005
Phone: (636) 733-9004
Fax: (636) 733-9005
Web site: www.ncga.com

Cranberries

Cape Cod Cranberry Growers Association

3202-B Cranberry Highway
East Wareham, MA 02538
Phone: (508) 295-4895
Fax: (508) 291-1511
E-mail: cccga@capecod.net
Web site: www.cranberries.org

Figs

California Fig Advisory Board

3425 N. First Street, Suite 109
Fresno, CA 93726
Toll free: (800) 588-2344
Fax: (559) 224-3449
E-mail: info@californiafigs.com
Web site: www.californiafigs.com

Grapefruit

Sunkist Growers

14130 Riverside Drive
Sherman Oaks, CA 91423-2313
Phone: (818) 986-4800
Fax: (818) 379-7511
Web site: www.sunkist.com

Grapes

California Table Grape Commission

392 West Fallbrook, #101
Fresno, CA 93711-6150
Phone: (559) 447-8350
Fax: (559) 447-9184
Web site: www.tablegrape.com

Concord Grape Association

5775 Peachtree-Dunwoody Road, Suite 500-G
Atlanta, GA 30342
Phone: (404) 252-3663
Fax: (404) 252-0774
Web site: www.concordgrape.org

Kiwifruit

California Kiwifruit Commission

9845 Horn Road, Suite 160
Sacramento, CA 95827
Phone: (916) 362-7490
Fax: (916) 362-7993
Web site: www.kiwifruit.org

Lemons

Sunkist Growers

14130 Riverside Drive
Sherman Oaks, CA 91423-2313
Phone: (818) 986-4800
Fax: (818) 379-7511
Web site: www.sunkist.com

Mushrooms

American Mushroom Institute

1284 Gap Newport Pike, Suite 2
Avondale, PA 19311
Phone: (610) 268-7483
E-mail: MushroomNews@kennett.net
Web site: www.americanmushroom.org

Mushroom Council

11875 Dublin Boulevard, Suite D-262
Dublin, CA 94568
Phone: (925) 556-5970
Fax: (925) 556-5979
E-mail: info@mushroomcouncil.org
Web site: www.mushroomcouncil.org

Nectarines

California Tree Fruit Agreement

Web site: www.eatcaliforniafruit.com

Olives

California Olive Committee

1903 North Fine, Suite 102
Fresno, CA 93727
Phone: (559) 456-9096
Fax: (559) 456-9099
Web site: www.calolive.org

Aberti Olives

Web site: www.oliveoilsource.com

Onions

National Onion Association

822 7th Street, Suite 510
Greeley, CO 80631
Phone: (970) 353-5895
Fax: (970) 353-5897
Web site: www.onions-usa.org

Oranges

Sunkist Growers

14130 Riverside Drive
Sherman Oaks, CA 91423-2313
Phone: (818) 986-4800
Fax: (818) 379-7511
Web site: www.sunkist.com

Papayas

Calavo Growers of California

2530 Red Hill Avenue
Santa Ana, CA 92705
Phone: (949) 223-1111
Fax: (949) 223-1112
Web site: www.calavo.com

Peaches

California Cling Peach Board

c/o Echo Communications
1195 Park Avenue, Suite 201
Emeryville, CA 94608
Phone: (510) 654-5400
Fax: (510) 654-5402
Web site: www.calclingpeach.com

California Canning Peach Association

2300 River Plaza Drive, Suite 110
Sacramento, CA 95833
Phone: (916) 925-9131
Fax: (916) 925-9030
Web site: www.calpeach.com

California Freestone Peach Association

1704 Herndon Road
Ceres, CA 95307
Phone: (209) 538-2372
Fax: (209) 537-1043
Web site: www.calpeach.com

Pears

California Pear Advisory Board

1521 I Street
Sacramento, CA 95814
Phone: (916) 441-0432
Fax: (916) 446-1063
Web site: www.calpear.com

Persimmons

San Diego County Farm Bureau

1670 East Valley Parkway
Escondido, CA 92027
Phone: (760) 745-3023
Fax: (760) 489-6348
E-mail: fuyus@fuyufarm.com
Web site: www.fuyufarm.com

Plums

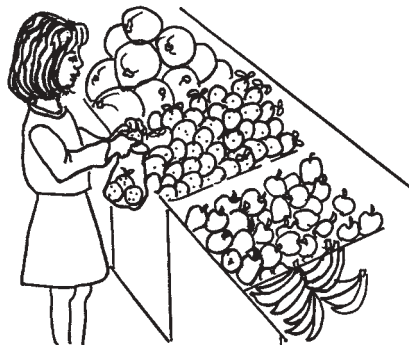
California Tree Fruit Agreement

Web site: www.eatcaliforniafruit.com

Dried Plums (Prunes)

California Dried Plum Board

Post Office Box 348180
Sacramento, CA 95834
Phone: (916) 565-6232
Fax: (916) 565-6237
Web site: www.californiadriedplums.org





Agricultural Organizations

Popcorn

The Popcorn Board

401 North Michigan Avenue
Chicago, IL 60611-4267
Phone: (877) POPALOT
Web site: www.popcorn.org

Potatoes

North Carolina Sweet Potato Commission, Inc.

1327 N. Brightleaf Boulevard
North Plaza, Suite H
Smithfield, NC 27577
Phone: (919) 989-7323
Fax: (919) 989-3015
Web site: www.ncsweetpotatoes.com

Sweet Potato Council of California

Post Office Box 366
Livingston, CA 95334
Phone: (209) 358-1685
Fax: (209) 358-2750
Web site: www.cayam.com

The National Potato Promotion Board

7555 East Hampden Avenue, #412
Denver, CO 80231
Phone: (303) 873-2331
Fax: (303) 369-7718
Web site: www.potatohelp.com

Raisins

California Raisin Marketing Board

Post Office Box 5195
Fresno, CA 93755
Phone: (559) 248-0287
Fax: (559) 224-7016
E-mail: info@raisins.org
Web site: www.calraisins.org

Sun-Maid Growers of California

13525 South Bethel Avenue
Kingsburg, CA 93631
Phone: (559) 896-8000
Fax: (559) 897-2362
Web site: www.sunmaid.com

Strawberries

California Strawberry Commission

Post Office Box 269
Watsonville, CA 95077-0269
Phone: (831) 724-1301
Fax: (831) 724-5973
E-mail: info@calstrawberry.com
Web site: www.calstrawberry.com

Tangerines

Sunkist Growers

14130 Riverside Drive
Sherman Oaks, CA 91423-2313
Phone: (818) 986-4800
Fax: (818) 379-7511
Web site: www.sunkist.com

Tomatoes

California Tomato Commission

1625 East Shaw Avenue, Suite 106
Fresno, CA 93710
Phone: (559) 230-0116
Fax: (559) 230-0635
Web site: www.tomato.org

Watermelon

National Watermelon Promotion Board

Post Office Box 140065
Orlando, FL 32814-0065
Phone: (407) 657-0261
Fax: (407) 895-2213
Web site: www.watermelon.org



Teacher Resources and References

AIMS Activities

Numerous math and science activities. Request a catalog.

AIMS Education Foundation
Post Office Box 8120
Fresno, CA 93747-8120
Phone: (888) 733-2467
Fax: (559) 255-6396
E-mail: aimsales@fresno.edu
Web Site: www.AIMSedu.org

All 'Bout Cranberries

This teaching tool covers many aspects of cranberry growing and takes the user on a journey from the cranberry bog to the kitchen table. Contains 15 reproducible activity sheets covering science, history, geography, and language arts. Approximately \$5.

Cape Cod Cranberry Growers' Association
3203-B Cranberry Highway
East Wareham, MA 02538
Phone: (508) 295-4895
Fax: (508) 291-1511
E-mail: cccga@capecod.net
Web site: www.cranberries.org

Avocados From A to Z

Packet filled with student book, activity sheets, and information sheets that cover history, nutrition, and facts. Free.

California Avocado Commission
1251 East Dyer Road, Suite 210
Santa Ana, CA 92705-5606
Phone: (714) 558-6761
Fax: (714) 641-7024
Web site: avocado.org

Banana Slug String Band

Request a brochure of their music about the earth, planting, and the environment.

Banana Slug String Band
Post Office Box 2262
Santa Cruz, CA 95063
Phone: (888) 327-5847
Fax: (888) 327-5847
E-mail: slugs@bananaslugstringband.com
Web site: www.bananaslugstringband.com

California Association for Health

Request physical fitness materials available for educators and students.

California Association for Health, Physical
Education, Recreation and Dance
1501 El Camino Avenue, Suite 3
Sacramento, CA 95815-2741
Phone: (916) 922-3596
Web site: www.ashaweb.org

California Children's 5 a Day—Power Play! Campaign

The California Children's 5 a Day Power Play! Campaign uses a tested, multi-channel, community-based approach to encourage 9-11 year-old children and their families to eat at least five servings of fruits and vegetables and be physically active every day. Each Teacher Box contains a resource mini-kit, a cookbook, colorful parent brochures, challenge books, and an audiocassette. Free to California teachers in schools with 50% or greater student participation in the free and reduced meal program.

California Department of Health Services
Cancer Prevention and Nutrition Section
601 North 7th Street
Post Office Box 942732, MS 662
Sacramento, CA 94234-7320
Phone: (916) 445-7030
Toll free: (888) EAT-FIVE
Fax: (916) 322-8799
Web site: www.ca5aday.com



Teacher Resources and References

California Foundation for Agriculture in the Classroom

- **Commodity Fact and Activity Sheets**
These California fact sheets include information on various commodities including almonds, artichokes, avocados, beef, citrus fruits, cling peaches, cut flowers, dairy, dried plums, dry beans, eggs, fresh carrots, pistachios, pears, processing tomatoes, rice, table grapes, strawberries, and walnuts. Includes information on production, history, nutrition, top producing counties, and economic values. Free to California educators. Also downloadable from Web site.
- **What's Growin' On? California Feeds the World**
This newspaper, written for grades 4-8 highlights the many farms, environments, and diverse foods thriving in California. Activities, trivia, readings, and graphics are sprinkled throughout, providing a connection for every learner. Available in class sets at various times throughout the year. Free to a limited number of California classrooms.
- **Teacher Resource Guide**
This guide provides resource listings on materials related to agriculture. Includes listings on lesson plans, posters, Web sites, book lists, phone numbers, and California agriculture statistics. Free to California residents. Also downloadable from the Web site.

California Foundation for Agriculture in the Classroom
2300 River Plaza Drive
Sacramento, CA 95833
Phone: (800) 700-2482
Fax: (916) 561-5697
E-mail: cfaitc@cfbf.com
Web site: www.cfaitc.org

California Table Grape Commission

Environmental lesson plans, posters, and kids brochure available in limited quantities. Free.

California Table Grape Commission
392 West Fallbrook, #101
Fresno, CA 93711-6150
Phone: (209) 447-8350
Fax: (209) 447-9184
Web site: www.tablegrape.com

CDE Press

The Content Standards for California Public Schools, subject matter frameworks, and all other California Department of Education publications are available through this company. They are also available on the California Department of Education Web site.

CDE Press, Sales Office
California Department of Education
Post Office Box 271
Sacramento, CA 95812-0271
Phone: (916) 445-1260
Fax: (916) 0823
Web site: www.cde.ca.gov/cdepress

Dairy Council of California

Provides a variety of nutrition lessons for specific grade levels. Free to California teachers.

Dairy Council of California
1101 National Drive, Suite B
Sacramento, CA 95834
Toll free: (888) 868-3133
Fax: (916) 263-3566
Web sites: www.dairycouncilofca.org
www.virtualteacherslounge.org
www.mealsmatter.org

Teacher Resources and References

Dole Food Company, Nutrition and Health Program

Provides a variety of 5 A Day nutrition education materials to teachers including a 5 A Day Adventures CD, 5 A Day songs, and more. Free.

Dole Food Company
Nutrition and Health Program
100 Hegenberger Road, Suite 100
Oakland, CA 94621
Phone: (510) 639-5550
Fax: (510) 639-5556
Web site: www.dole5aday.com

Farmer's Market: Families Working Together

Filled with colorful photographs, this book shows the behind-the-scenes of two families who sell produce at farmers' markets. Approximately \$25.

Lerner Publishing Group
241 First Avenue North
Minneapolis, MN 55401-1036
Toll free: (800) 328-4929
Fax: (800) 332-1132
Web site: www.lernerbooks.com

Figs are a Major Munch!

Information on the nutrients found in figs, usage tips and recipes. Free.

California Fig Advisory Board
3425 N. First Street, Suite 109
Fresno, CA 93726
Toll free: (800) 588-2344
Fax: (559) 224-3449
E-mail: info@californiafigs.com
Web site: www.californiafigs.com

Five A Day Adventures

A food pyramid computer program available on CD-ROM for both Macintosh and Windows.

Dole Food Company, Inc.
155 Bovet, Suite 476
San Mateo, CA 94402
Phone: (415) 570-4378

Food Pyramid Bingo Game

This game teaches all aspects of the Food Guide Pyramid while increasing knowledge of 95 foods and portion sizes. Game includes 30 cards and the year 2000 Dietary Guidelines for Nutrition. Prices vary.

SmartPicks, Inc.
Post Office Box 771440
Lakewood, OH 44107
Toll free: (888) 712-3144
Web site: www.smartpicks.com

Fresh Fruits and Vegetable Photo Cards

This comprehensive set of fruits and vegetable photographs contains a picture of the product along with the names of each item in both English and Spanish. The nutritional content of each commodity is also provided. \$30 plus tax and shipping and handling.

CDE Press
Post Office Box 271
Sacramento, CA 95812-0271
Phone: (916) 445-1260
Toll free: (800) 995-4099
Fax: (916) 323-0823
Web site: www.cde.ca.gov/cdepress

Fuyu and Other Non-astringent Persimmons

Lesson plans, posters, activity sheets, and recipes. Limited materials are available in Spanish. Covers geography, math, history, language arts, and music. Approximately \$10.

San Diego County Farm Bureau
1670 East Valley Parkway
Escondido, CA 92027
Phone: (760) 745-3023
Fax: (760) 489-6348
E-mail: fuyus@fuyufarm.com
Web site: www.fuyufarm.com

Teacher Resources and References

How to Teach Nutrition to Kids

A curriculum resource organized by subjects and applicable to the classroom, cafeteria, and home. Includes over 200 activities. Leader activity guide with copy-ready worksheets available. Approximately \$18.

24 Carrot Press
Post Office Box 23546
Portland, OR 97281-3546
Toll free: (800) 291-6098
Web site: www.nutritionforkids.com

Inside the Orange: It's a Juicy Story

This colorful teacher's guide with blackline masters helps students understand the role of fruits and vegetables, particularly oranges, in maintaining a balanced diet. Four activities included. Free.

Sunkist Growers
Consumer Affairs MS 236
Post Office Box 7888
Van Nuys, CA 91409
Web site: www.sunkist.com

Kids Cook Farm Fresh Food

This activity guide links local agriculture to the pleasure of dining. It is designed to introduce students and teachers, through direct experience, to fresh, seasonal, locally grown produce. \$15 plus shipping and handling.

CDE Press, Sales Office
California Department of Education
Post Office Box 271
Sacramento, CA 95812-0271
Phone: (916) 445-1260
Fax: (916) 0823
Web site: www.cde.ca.gov/cdepress

Learn About Plants

A computer program of primary grade activities for Macintosh computers.

Sunburst Communications
Toll free: (800) 321-7511

Lerner Publishing Group

This publishing company has numerous books in a "Plants We Eat" series that describe specific and historical facts about many fruits, vegetables, and spices.

Lerner Publishing Group
241 First Avenue North
Minneapolis, MN 55401-1036
Toll free: (800) 328-4929
Fax: (800) 332-1132
Web site: www.lernerbooks.com

National Cattlemen's Beef Association

Has a variety of materials related to healthful eating including Food Guide Pyramid posters and lesson plans. Free to teachers of appropriate grade levels.

National Cattlemen's Beef Association
Education Department
Post Office Box 670
Bloomington, IL 60108-0670
Toll free: (800) 368-0670
Fax: (312) 467-9729
Web site: www.teachfree.com

National Dairy Council

Materials for all grade levels on nutrition and the milk industry. Free catalog.

National Dairy Council
c/o Inland Marketing
3030 Airport Road
La Cross, WI 54603
Toll free (800) 426-8271
Fax: (800) 974-6455
Web site: www.nutritionexplorations.org

Teacher Resources and References

NEAT Solutions

Request a catalog that features a large selection of nutrition education resources for children, from books, music, and posters, to jewelry and stickers.

NEAT Solutions
Post Office Box 2432
Martinez, CA 94553
Toll free: (888) 577-6328
Fax: (888) 577-6328
Web site: www.neatsolutions.com

North Carolina Sweet Potato Lesson Plan

This unique set of lessons includes on-line research, nutrition analysis with graphing and a science experiment. Free.

North Carolina Sweet Potato Commission, Inc.
1327 N. Brightleaf Boulevard
North Plaza, Suite H
Smithfield, NC 27577
Phone: (919) 989-7323
Fax: (919) 989-3015
Web site: www.ncsweetpotatoes.com

PCI Photo Bingo

Fresh Produce and Prepared Foods photo bingo games include 20 full-color bingo cards, calling cards, a matching mat, bingo chips, and instructions. Approximately \$32 per set. Other games available. Free catalog.

PCI Educational Publishing
Post Office Box 34270
San Antonio, TX 78265-4270
Toll free: (800) 594-4263
Fax: (888) 259-8284
www.specialed.net

Peach Power

Bookmarks, table fonts, and growth charts demonstrate various ways cling peaches can help students meet their 5 A Day goal. Free.

Kelli Iverson
Echo Communications, UC
1195 Park Avenue, Suite 201
Emeryville, CA 94608
Phone: (510) 654-5400
Fax: (510) 654-5402
Web site: www.calclingpeach.com

Produce for Better Health Foundation

This organization promotes the “Eat 5 A Day” message and has a variety of materials available to educators, food service providers, athletic trainers, and retail stores. Many links for educators and students are available on the Web site.

Produce for Better Health Foundation
5301 Limestone Road, Suite 101
Wilmington, DE 19808-1249
Toll free: (888) 391-2100
Fax: (302) 235-5555
Web site: www.5aday.com

Science in Your Shopping Cart

An abundance of marketplace miracles are depicted in this full color booklet including who created frozen orange juice and how San Francisco sourdough bread is made. Free.

Agricultural Research Service
5601 Sunnyside Avenue, Room 1-2232B
Beltsville, MD 20705-5130
Phone: (301) 504-1633
Fax: (301) 504-1641
Web site: www.ars.usda.gov/is/kids

Teacher Resources and References

Strawberries Make the Grade

Strawberry lessons and fact sheets are available.
Free.

California Strawberry Commission
Post Office Box 269
Watsonville, CA 95077-0269
Phone: (831) 724-1301
Fax: (831) 724-5973
E-mail: info@calstrawberry.com
Web site: www.calstrawberry.com

The National Potato Promotion Board

Several different lesson plans and posters are
available that support healthy eating.

The National Potato Promotion Board
7555 East Hampden Avenue, #412
Denver, CO 80231
Phone: (303) 369-7783
Fax: (303) 369-7718
Web site: www.potatohelp.com

The ABC's of Food

This comprehensive book is a compilation of food
references, stories, activities, and related food
information from A to Z.

The ABC's of Food
Richard Calhoun
34 Greenbrier Drive
Oroville, CA 95966
Phone: (530) 589-0359

The "Rap" About Kiwi

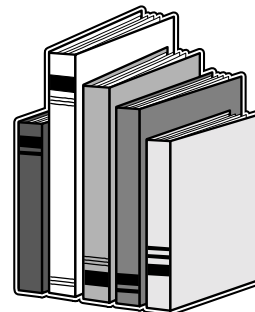
A lesson plan, poster, and nutrition information
about kiwis.

California Kiwifruit Commission
9845 Horn Road, Suite 160
Sacramento, CA 95827
Phone: (916) 362-7490
Fax: (916) 362-7993
Web site: www.kiwifruit.org

Western Growers Association

This organization has a garden program with
grants and supplies available.

Western Growers Association
Attn. Danielle Blacet
1005 12th Street, Suite A
Sacramento, CA 95814
Phone: (916) 446-1435
Fax: (916) 446-0181
E-mail: dblacet@wga.com
Web site: www.wga.com



Related Web Sites

Alberti Olive

www.oliveoilsource.com

American Cancer Society

www.cancer.org

American Dietetic Association

www.eatright.org

American Heart Association

www.americanheart.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

California Avocado Commission

avocado.org

California Certified Organic Farmers

www.ccof.org

California Cherry Marketing Program

www.calcherry.com

California Children's 5 A Day Campaign

www.ca5aday.com

Related Web Sites

California Cling Peach Board

www.calclingpeach.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 Farm Bureau Federation

www.cfbf.com

California Federation of Certified Organic Farmers

www.farmersmarket.ucdavis.edu

California Fig Advisory Board

www.californiafigs.com

California Foundation for Agriculture in the Classroom

www.cfaitc.org

California Fresh Advisory Board

www.carrots.org

California Kiwifruit Commission

www.kiwifruit.org

California Olive Committee

www.calolive.org

California Pear Advisory Board

www.calpear.com

California Raisin Marketing Board

www.calraisins.org

California Raisins

www.raisins.org

California Rare Fruit Growers

www.crfg.org

Related Web Sites

California Strawberry Commission

www.calstrawberry.com

California Table Grape Commission

www.tablegrape.com

California Tomato Commission

www.tomato.org

California Tree Fruit Agreement

www.eatcaliforniafruit.com

Cape Cod Cranberry Growers Association

www.cranberries.org

Concord Grape Association

www.concordgrape.org

Dairy Council of California

www.dairycouncilofca.org

Dole Nutrition Program

www.dole5aday.com

Dry Bean Advisory Board

www.calbeans.com

Grimmway Farms

www.grimmway.com

Murty Fuyu Farm

www.fuyufarm.com

Mushroom Council

www.mushroomcouncil.com

National Cattleman's Beef Association

www.teachfree.com

National Corn Growers Association

www.ncga.com

National Onion Association

www.onions-usa.org

Related Web Sites

National Watermelon Promotion Board

www.watermelon.org

North American Blueberry Council

www.blueberry.org

North Carolina Sweet Potato Commission, Inc.

www.ncsweetpotatoes.com

Produce for Better Health Foundation

www.5aday.com

Sunkist Growers

www.sunkist.com

Sun-Maid Growers of California

www.sunmaid.com

Sweet Potato Council of California

www.cayam.com

The Popcorn Board

www.popcorn.org

United States Apple Association

www.usapple.org

Western Growers Association

www.wga.com

Student Literature

Bauer, Joan. *Squashed*. Puffin Books, 1992. Ellie Morgan's life would be almost perfect if she could get her potentially prizewinning pumpkin to put on two hundred pounds before the Rock River Pumpkin Weigh-in.

Bourgeois, Paulette. *The Amazing Apple Book*. Addison-Wesley Publishing Company, Inc., 1990. Information on apples including their cultivation, crafts, and recipes.

Bourgeois, Paulette. *The Amazing Potato Book*. Addison-Wesley Publishing Company, Inc., 1991. Information on potatoes including their cultivation, crafts, and recipes.

Burns, Diane L. *Cranberries: Fruit of the Bogs*. Carolrhoda Books, Inc., 1994. A brief history of the "bog ruby" reveals the berry's versatility and importance to the Native Americans and pilgrims as well as shows the activities that take place throughout the growing season on a cranberry farm.

Corwin, Judith Hoffman. *Harvest Festivals Around the World*. Silver Burdett Press, 1995. A history of many crop-related festivals including craft activities and recipes.

Darian, Shea. *Grandpa's Garden*. Dawn Publications, 1996. On Saturdays, Grandpa and grandchild work side by side in the garden. Among the radishes and rhubarb they share their deepest feelings and wishes, and learn firsthand of life, death, growth, and change.

Denee, Joanne. *In the Three Sisters Garden*. Common Roots Press, 1995. The three sisters—corn, squash, and bean—an ancient and contemporary agricultural tradition, are discussed through myths and folklore, craft activities, recipes, and gardening procedures.

Hausherr, Rosemarie. *What Food is This?* Scholastic, 1994. Fish, sausage, carrots, and many more foods are detailed in this tale of food origins. Fun trivia for the entire family and classroom.

Hughes, Meredith Sayles and Tom Hughes. *Buried Treasures: Roots and Tubers*. Lerner Publications Company, 1998. Examines the discovery and migration of potatoes and edible roots, as well as their roles in cooking, technology, and world cultures. The field to table process is also examined.

Hughes, Meredith Sayles and Tom Hughes. *Cool as a Cucumber, Hot as a Pepper: Fruit Vegetables*. Lerner Publications Company, 1999. Information and a bit of history about vegetables which are scientifically fruits.

Student Literature

Hughes, Meredith Sayles and Tom Hughes. ***Green Power: Leaf and Flower Vegetables***. Lerner Publications Company, 1999. Colorful photographs and a unique format provide information on leaf and flower vegetables including cabbage, broccoli, artichokes, spinach and more.

Hughes, Meredith Sayles and Tom Hughes. ***Stinky and Stringy: Stem & Bulb Vegetables***. Lerner Publications Company, 1999. Examines the discovery and migration of onions, garlic, leeks, celery, asparagus, and rhubarb, as well as their roles in cooking, technology, and world cultures. The field to table process is also examined.

Hughes, Meredith Sayles and Tom Hughes. ***Yes We Have Bananas: Fruits from Shrubs and Vines***. Lerner Publications Company, 2000. Examines the discovery and migration of bananas, berries, and melons, as well as their roles in cooking, technology, and world cultures. The field to table process is also examined.

King, Elizabeth L. ***Chile Fever***. Dutton Children's Books, 1995. Color photos and text show the growth cycle, history, and importance of chile peppers to cultures of the world.

Kite, Patricia L. ***Garden 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.

McMillan, Bruce. ***Eating Fractions***. Scholastic Press, 1991. This photographic feast shows food cut into halves, thirds, and fourths.

Rendon, Marcie R. and Cheryl Walsh Belville. ***Farmer's Market***. Carolrhoda Books, Inc., 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.

Rushing, Felder. ***New Junior Garden Book***. Meredith Books, 1999. This colorful and student-friendly book provides hundreds of projects for kids to grow and make. Projects are ranked from simple to more advanced.

Schotter, Roni. ***A Fruit & Vegetable Man***. Little, Brown and Co., 1993. A multi-cultural story of a small, urban fruit stand and the connection between farmer and consumer.

Weaver, Willam Woys. ***100 Vegetables***. Algonquin Books of Chapel Hill, 2000. Enjoy learning about one hundred intriguing vegetables from around the world, some of which are regulars on the dinner table.

Content Standard Details

Content Standards for California Public Schools Addressed in *Fruits and Vegetables for Health**

Obtained from the California Department of Education

Grade 4		
Standard	Lesson(s) in which Standard is Taught or Reinforced	Standard Description
Science		
Life Sciences 2	Climbing a Pyramid to Good Health Nutritional Value of Fresh Produce	All organisms need energy and matter to live and grow.
Life Sciences 2c	The Chemistry of Fruits and Vegetables	Decomposers, including many fungi, insects, and microorganisms, recycle matter from dead plants and animals.
Life Sciences 3b	California Crops: From the Farm to the Table	In any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.
Investigation and Experimentation 6	The Chemistry of Fruits and Vegetables	Scientific process is made by asking meaningful questions and conducting careful investigations.
Investigation and Experimentation 6f	The Chemistry of Fruits and Vegetables	Follow a set of written instructions for a scientific investigation.
Reading/Language Arts		
Reading 2.2	Climbing a Pyramid to Good Health California Crops: From the Farm to the Table My Life as a Fruit or Vegetable	Use appropriate strategies when reading for different purposes.
Reading 2.5	California Crops: From the Farm to the Table My Life as a Fruit or Vegetable	Compare and contrast information on the same topic after reading several passages or articles.
Writing 1.0	California Crops: From the Farm to the Table My Life as a Fruit or Vegetable	Write clear, coherent sentences and paragraphs that develop a central idea. Writing shows that student considers the audience and purpose. Students progress through the stages of the writing process (e.g. prewriting, drafting, revising, editing, successive versions).
Writing 1.1	California Crops: From the Farm to the Table My Life as a Fruit or Vegetable	Select a focus, an organizational structure, and a point of view based upon purpose, audience, length, and format requirements.

Grade 4 <i>(continued)</i>		
Standard	Lesson(s) in which Standard is Taught or Reinforced	Standard Description
Writing 1.2	California Crops: From the Farm to the Table	Create multiple-paragraph compositions that provide an introductory paragraph, establish and support a central idea, include supporting paragraphs, conclude with a paragraph that summarizes the points, and uses proper indentation.
Writing 1.4	California Crops: From the Farm to the Table	Write fluidly and legibly in cursive or jointed italic.
Writing 1.5	California Crops: From the Farm to the Table	Quote or paraphrase information sources, citing them appropriately.
Writing 1.7	California Crops: From the Farm to the Table	Use various reference materials (e.g. dictionary, thesaurus, card catalog, encyclopedia, online information) as an aid to writing.
Writing 1.10	California Crops: From the Farm to the Table My Life as a Fruit or Vegetable	Edit and revise selected drafts to improve coherence and progression, by adding, deleting, consolidating, and rearranging text.
Writing 2.1	My Life as a Fruit or Vegetable	Write narratives that relate ideas, observations of an event or experience; provide a context to enable the reader to imagine the world of the event or experience; use concrete sensory details; and provide insight into why the selected event or experience is memorable.
Writing 2.3	California Crops: From the Farm to the Table	Write information reports that frame a central question about an issue or situation, include facts and details for focus, and draw from more than one source of information.
Written and Oral Language Conventions 1.0	California Crops: From the Farm to the Table	Students write and speak with a command of standard English conventions appropriate to this grade level.
Listening and Speaking 1.0	California Crops: From the Farm to the Table	Students listen critically and respond to oral communication. They speak in a manner that guides the listener to understand important ideas by using proper phrasing, pitch, and modulation.
Listening and Speaking 1.1	The Chemistry of Fruits and Vegetables	Ask thoughtful questions and respond to relevant questions with appropriate elaboration in oral settings.
Listening and Speaking 1.2	California Crops: From the Farm to the Table	Summarize major ideas and supporting evidence presented in spoken messages and formal presentations.
Listening and Speaking 1.5	California Crops: From the Farm to the Table	Present effective introductions and conclusions that guide and inform the listener's understanding of important ideas and evidence.
Listening and Speaking 1.6	The Chemistry of Fruits and Vegetables	Use traditional structures for conveying information (e.g. cause and effect, similarity and difference, and posing and answering a question).

Grade 4 <i>(continued)</i>		
Standard	Lesson(s) in which Standard is Taught or Reinforced	Standard Description
Listening and Speaking 1.9	California Crops: From the Farm to the Table	Use volume, pitch, phrasing, pace, modulation, and gestures appropriately to enhance meaning.
Listening and Speaking 2.2	California Crops: From the Farm to the Table	Make informational presentations that frame a key question, include facts and details that help the listener to focus, and incorporate more than one source of information.
Mathematics		
Statistics, Data Analysis, and Probability 1.0	Nutritional Value of Fresh Produce	Organize, represent, and interpret numerical and categorical data and clearly communicate their findings.
Mathematical Reasoning 1.0	Nutritional Value of Fresh Produce	Make decisions about how to approach problems.
Mathematical Reasoning 1.1	Nutritional Value of Fresh Produce	Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.

Grade 5		
Standard	Lesson(s) in which Standard is Taught or Reinforced	Standard Description
Science		
Physical Sciences 1a	The Chemistry of Fruits and Vegetables	During chemical reactions the atoms in the reactants rearrange to form products with different properties.
Earth Sciences 3c	California Crops: From the Farm to the Table	Water vapor in the air moves from one place to another and can form fog or clouds, which are tiny droplets of water or ice, and can fall to Earth as rain, hail, sleet, or snow.
Investigation and Experimentation 6	The Chemistry of Fruits and Vegetables	Scientific progress is made by asking meaningful questions and conducting careful investigations.
Investigation and Experimentation 6g	The Chemistry of Fruits and Vegetables	Record data by using appropriate graphic representations and make inferences based on those data.
Investigation and Experimentation 6h	The Chemistry of Fruits and Vegetables	Draw conclusions from scientific evidence and indicate whether further information is needed to support a specific conclusion.
Investigation and Experimentation 6i	The Chemistry of Fruits and Vegetables	Write a report of an investigation that includes conducting tests, collecting data, or examining evidence, and drawing conclusions.
Reading/Language Arts		
Reading 2.1	Climbing a Pyramid to Good Health California Crops: From the Farm to the Table My Life as a Fruit or Vegetable	Understand how text features (e.g. format, graphics, sequence, diagrams, illustrations, charts, maps) make information accessible and usable.
Writing 1.0	California Crops: From the Farm to the Table	Students write clear, coherent, and focused essays. The writing exhibits the students' awareness of the audience and purpose. Essays contain formal introductions, supporting evidence, and conclusions. Students progress through the stages of the writing process as needed.
Writing 1.1	California Crops: From the Farm to the Table	Create multiple-paragraph expository compositions that establish and develop a situation or plot, describe the setting, and present an ending.
Writing 1.3	California Crops: From the Farm to the Table	Use organizational features of printed text to locate relevant information.
Writing 1.6	California Crops: From the Farm to the Table	Edit and revise manuscripts to improve the meaning and focus of writing by adding, deleting, consolidating, clarifying, and rearranging words and sentences.
Writing 2.0	My Life as a Fruit or Vegetable	Students write narrative, expository, persuasive, and descriptive texts of at least 500 to 700 words in each genre.

Grade 5 <i>(continued)</i>		
Standard	Lesson(s) in which Standard is Taught or Reinforced	Standard Description
Writing 2.0	My Life as a Fruit or Vegetable	Students write narrative, expository, persuasive, and descriptive texts of at least 500 to 700 words in each genre.
Writing 2.1	My Life as a Fruit or Vegetable	Write narratives which establish a plot, point of view, setting, and conflict; and show, rather than tell, the events of the story.
Written and Oral Language Conventions 1.0	California Crops: From the Farm to the Table	Students write and speak with a command of standard English conventions appropriate to this grade level.
Listening and Speaking 1.0	California Crops: From the Farm to the Table	Students deliver focused, coherent presentations that convey ideas clearly and relate to the background and interests of the audience.
Listening and Speaking 1.4	California Crops: From the Farm to the Table	Select a focus, organizational structure, and point of view for an oral presentation.
Listening and Speaking 1.5	California Crops: From the Farm to the Table	Clarify and support spoken ideas with evidence and examples.
Listening and Speaking 1.6	California Crops: From the Farm to the Table	Engage the audience with appropriate verbal cues, facial expressions, and gestures.
Listening and Speaking 2.2	California Crops: From the Farm to the Table	Deliver informative presentations about an important idea, issue, or event by framing a question to direct the investigation, establish a controlling idea or topic, and develop the topic with simple facts, details, examples, and explanations.
Mathematics		
Statistics, Data Analysis, and Probability 1.0	Nutritional Value of Fresh Produce	Students display, analyze, compare, and interpret different data sets, including data sets of different sizes.
Statistics, Data Analysis, and Probability 1.2	Nutritional Value of Fresh Produce	Organize and display single-variable data in appropriate graphs and representations and explain which types of graphs are appropriate for various data sets.
Mathematical Reasoning 1.0	Nutritional Value of Fresh Produce	Students make decisions on how to approach problems.
Mathematical Reasoning 1.1	Nutritional Value of Fresh Produce	Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing, and prioritizing information, and observing patterns.
Mathematical Reasoning 1.2	Nutritional Value of Fresh Produce	Determine when and how to break a problem into simpler parts.

Grade 5 *(continued)*

Standard	Lesson(s) in which Standard is Taught or Reinforced	Standard Description
Mathematical Reasoning 2.0	Nutritional Value of Fresh Produce	Use strategies, skills, and concepts in finding solutions.
Mathematical Reasoning 2.3	Nutritional Value of Fresh Produce	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, and diagrams, and models, to explain mathematical reasoning.

Grade 6		
Standard	Lesson(s) in which Standard is Taught or Reinforced	Standard Description
Science		
Ecology 5e	California Crops: From the Farm to the Table	The number and types of organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities of light and water, a range of temperatures, and soil composition.
Investigation and Experimentation 7	The Chemistry of Fruits and Vegetables	Scientific progress is made by asking meaningful questions and conducting careful investigations.
Investigation and Experimentation 7a	The Chemistry of Fruits and Vegetables	Develop a hypothesis.
Investigation and Experimentation 7d	The Chemistry of Fruits and Vegetables	Communicate steps and results from an investigation in written reports and oral presentations.
Reading/Language Arts		
Reading 2.1	Climbing a Pyramid to Good Health California Crops: From the Farm to the Table	Identify the structural features in popular media and use the features to obtain information.
Writing 1.0	California Crops: From the Farm to the Table My Life as a Fruit or Vegetable	Write clear, coherent, and focused essays with awareness of audience and purpose. Essays contain formal introductions, supporting evidence, and conclusions. Students progress through the stages of the writing process as needed.
Writing 1.1	California Crops: From the Farm to the Table My Life as a Fruit or Vegetable	Choose the form of writing (personal letter, letter to the editor, review, poem, report, narrative) that best suits the intended purpose.
Writing 1.2	California Crops: From the Farm to the Table	Create multiple-paragraph expository compositions that engage the interest of the reader and state a clear purpose; develop the topic with supporting details and precise verbs, nouns, and adjectives to paint a visual image in the mind of the reader; and conclude with detailed summary linked to the purpose of the composition.
Writing 1.4	California Crops: From the Farm to the Table	Use organizational features of electronic text to locate information.
Writing 1.6	California Crops: From the Farm to the Table	Revise writing to improve the organization and consistency of ideas within and between paragraphs.
Writing 2.1	My Life as a Fruit or Vegetable	Write narratives that establish and develop a plot and setting and present a point of view that is appropriate to the stories; include sensory details and concrete language to develop plot and character; and use a range of narrative devices (e.g. dialogue, suspense, etc.).

Grade 6 <i>(continued)</i>		
Standard	Lesson(s) in which Standard is Taught or Reinforced	Standard Description
Writing 2.3	California Crops: From the Farm to the Table	Write research reports that pose relevant questions with a scope narrow enough to be thoroughly covered; support the main idea or ideas with facts, details, examples, and explanations from multiple authoritative sources; include a bibliography.
Written and Oral Language Conventions 1.0	California Crops: From the Farm to the Table	Write and speak with a command of standard English conventions appropriate to this grade level.
Listening and Speaking 1.0	California Crops: From the Farm to the Table	Deliver focused, coherent presentations that convey ideas clearly and relate to the background and interests of the audience.
Listening and Speaking 1.4	California Crops: From the Farm to the Table	Select a focus, an organizational structure, and a point of view, matching the purpose. Message, occasion, and vocal modulation to the audience.
Listening and Speaking 1.6	California Crops: From the Farm to the Table	Support opinions with detailed evidence and with visual or media displays that use appropriate technology.
Listening and Speaking 2.2	California Crops: From the Farm to the Table	Deliver informative presentations that pose relevant questions sufficiently limited in scope to be completely and thoroughly answered; develop the topic with facts, details, examples, and explanations from multiple authoritative sources.
Mathematics		
Statistics, Data Analysis, and Probability 1.0	Nutritional Value of Fresh Produce	Compare and analyze statistical measurements for data sets.
Statistics, Data Analysis, and Probability 1.2	Nutritional Value of Fresh Produce	Understand how additional data added to data sets may affect these computations of measures of central tendency.
Mathematical Reasoning 1.0	Nutritional Value of Fresh Produce	Make decisions on how to approach problems.
Mathematical Reasoning 1.1	Nutritional Value of Fresh Produce	Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.
Mathematical Reasoning 1.3	Nutritional Value of Fresh Produce	Determine when and how to break a problem into simpler parts.
Mathematical Reasoning 2.0	Nutritional Value of Fresh Produce	Students use strategies, skills, and concepts in finding solutions.
Mathematical Reasoning 2.4	Nutritional Value of Fresh Produce	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.

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.

Climate: the type of weather that occurs in an area.

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

Conservation: the careful use of resources such as water.

Consumer: one who uses something.

Crop: an agricultural plant grown and harvested.

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.

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.

Food Guide Pyramid: a research-based food guidance system developed by the United States Department of Agriculture that shows the amount of food people should eat from the various food groups.

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 a 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.

Glossary

Harvest: the gathering of a crop.

Map: a picture that represents all or part of the earth's surface.

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.

Oxidation: a process of oxidizing or adding oxygen to a reaction.

Produce: fresh fruits and vegetables.

Scientific Method: a process used to conduct experiments.

USRDA: United States Recommended Daily Allowance; a nutrient requirement standard designed for nutritional labeling; the value is an average that would meet requirements for most people.

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.