

What's Growin' On?

20 
CELEBRATING 20 YEARS
CALIFORNIA FOUNDATION FOR
AGRICULTURE IN THE CLASSROOM



Lasting Connections



California Foundation for
Agriculture in the Classroom

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Introduction

Real life examples and experiences are a way of facilitating student's learning. When connections are made between the classroom and the lives of students, skills have meaning and knowledge is retained. There are many ways to link the classroom curricula to the lives of youth. Two methods are described below and utilized in this teacher's guide.



- When weaving **agriculture** into teaching, students relate the information to food they eat, clothes they wear, homes they live in, and open spaces they enjoy. Agriculture's lasting connections impact our lives on a daily basis!
- The **newspaper** is a continuing source of information. When used in the classroom as an instructional tool, it becomes a resource that can help motivate students. Students discover the relevance of their classroom studies as they read news stories, learn about events, and gather facts in the pages of the newspaper.

This issue of *What's Growin' On?* provides activities that use agricultural examples and the newspaper to reinforce academic concepts taught in fourth through eighth grades. It has been developed and reviewed by educators, and shows how easy it is to use the local newspaper to teach problem-solving and critical thinking skills in the curricular areas of reading, writing, mathematics, science and social studies. The specific academic Content Standards for California Public Schools that are addressed in the activities are listed at the bottom of each page. The topics in this edition of the guide complement those highlighted in the California Foundation for Agriculture in the Classroom's 5th edition student newspaper *What's Growin' On? Lasting Connections*.

The **California Foundation for Agriculture in the Classroom (CFAITC)** is dedicated to increasing the awareness and understanding of agriculture among California's educators and students. CFAITC provides educators with resources and programs that enhance agricultural literacy. To request a free teacher resource packet or copies of the current edition of *What's Growin' On?* contact CFAITC via e-mail cfaitc@cfbf.com or phone (800-700-AITC).

Newspapers in Education (NIE) is comprised of approximately 950 newspapers throughout the United States that promote and aid in newspaper education. Whether creating or offering special curricula or programs, NIE touches the lives of students in countless ways. Local NIE programs reach out to their educational communities by providing teachers with training and resources that expand the newspaper's use as an effective tool – a real life textbook, to which students respond enthusiastically. For more information about California Newspapers in Education (CNIE), view its Web site at www.cal-nie.org.



Lesson objectives and answers keys can be found on pages 14 and 15 of this guide.

Lasting Connections

Agriculture is all around us! It is truly a part of every Californian's life in an astonishing number of ways one may not even realize. Less than 2% of the United States population lives on farms, and California is the largest agricultural state in the country. Every segment of the industry is an important part of everyone's life.

The forestry industry is a very important part of agriculture. California has more forestland than any state other than Alaska. Forests cover over one-third of California.



Timber!

Did you ever wonder why people shout “timber” when something's falling over? To the forest industry, timber refers to the trees standing in the forest that will be cut down for lumber. Lumber refers to the trees that have already been cut down and processed into pieces of wood that can be used to build things.

Activities

Interview with a tree. Ask students to write up an “interview” with a tree or write a story from a tree's perspective. In the interview or story, the tree should reveal how different plants and animals depend on it and how they affect it.

Wood and paper products. Ask students to write an essay and give an in-class presentation that addresses the following topics. Request that students cite their reference materials. What products have you used today that are made from wood, wood fiber or wood chemicals? What forest products are present in the classroom, at home?

Standards:

Interview With a Tree: **Grade 3** English-Language Arts: Writing 1.1, 2.1 **Grade 4** English-Language Arts: Writing 1.1, 1.2, 1.3, 1.7,1.5, 2.1 **Grade 5** English-Language Arts: Writing 1.1, 1.3, 2.1 **Grade 6** English-Language Arts: Writing 1.1, 1.2, 2.1 **Grades 7 and 8** English-Language Arts: Writing 2.1

Wood and Paper Products: **Grade 3** English-Language Arts: Writing 1.1, 1.3; Written and Oral English Language Conventions 1.1; Social Studies 3.5 #1; Life Science 3c **Grade 4** English-Language Arts: Writing 1.2, 1.7; Written and Oral English Language Conventions 1.1; Life Science 2.2, 2b, 2c, 3 **Grade 5** English-Language Arts: Writing 1.2, 2.3; Life Science 2.2 **Grade 6** English-Language Arts: Writing 1.1, 1.2, 2.2, 2.3; Life Science 2.2 **Grades 7 and 8** English-Language Arts: Writing 2.3; Life Science 2.3

Timber!

Word Scramble

Unscramble each group of letters to find different ways trees are used.

1. dofo _____

2. lrtehes _____

3. ppera _____

4. urmebl _____

5. notceerira _____

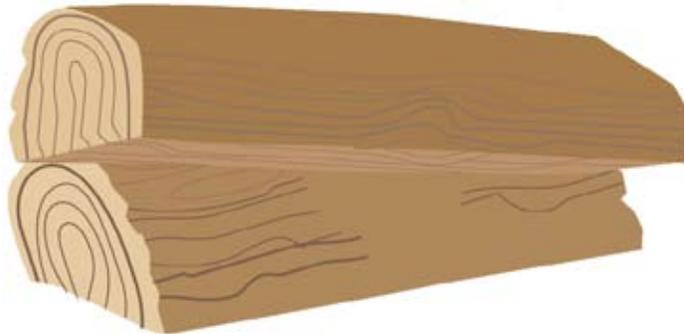
6. ttonronrsptaia _____

7. lfeu _____

8. nlgchoti _____

9. otosl _____

10. odlpyow _____



Standards:

Grade 3 English-Language Arts: Reading 1.7 (if checking in dictionary for spelling and meaning) **Grade 4** English-Language Arts: Reading 2.2

ATVs...Today's Horsepower

Today's farmers and ranchers utilize many modernized tools to operate their businesses. All Terrain Vehicles (ATVs) are one of the tools widely used in the industry.

ATVs can be valuable farm tools. They are efficient for so many tasks where a tractor or pickup is too heavy or big. Fast, nimble and built for off-road use, ATVs can make it quick and easy getting from one farm to another, scouting crops, spreading clover seed, or finding a partner/co-worker who is seeding at the back of the property. And the truth is, ATVs also double as toys that are fun to drive.



Agricultural workers use ATVs to inspect and maintain crops, property, livestock, and more. Protective gear, inspections, and proper handling reduce ATV hazards for agricultural workers.

Activities

1. What other uses do ATVs serve? Write five complete sentences describing the different uses or misuses of ATVs. Each sentence should include two adjectives and not be repeated (Write your sentences on the back of this sheet).
2. Shop for an ATV. Look through the classified advertisements in the newspaper for used ATVs. Cut them out and glue onto a sheet of paper. Find out what the abbreviated terms mean and make a key for the terms.
3. Next, on a separate sheet of paper, write a classified advertisement for an ATV you want to buy or sell. Limit the advertisement to 50 words. Abbreviations are allowed.

Standards:

Grade 3 English-Language Arts: Reading 2.1, 2.6, Writing: 1.1; Written and Oral English Language Conventions 1.1, 1.2 **Grade 4** English-Language Arts: Reading 2.2, Writing 1.8 **Grade 5** Written and Oral English Language Conventions 1.4 **Grade 6** English-Language Arts: Reading 2.1, Writing: 1.1; Written and Oral English Language Conventions 1.4 **Grade 7** Written and Oral English Language Conventions 1.6 **Grade 8** Written and Oral English Language Conventions 1.5

"That was Then, This is Now"

Farming began more than 7,000 years ago in Ancient Mesopotamia. It was the beginning of a huge change. People no longer had to spend 80% of their day hunting and gathering food to survive. They began growing more food than they would use. The surplus of food was used for trade and there was more time for people to pursue other interests like arts and culture.

Today we spend time earning the money it takes to buy the food we eat. Some countries need to use half of their income for food. Others spend less.

Percent of Income Spent on Food

Australia	21%	Japan	26%
Finland	16%	Mexico	33%
France	18%	New Zealand	20%
Germany	21%	South Africa	28%
India	51%	Spain	25%
Israel	26%	United Kingdom	22%
Italy	23%	United States	10%

(Source: *Farm Facts*, American Farm Bureau Federation)



Activities

- Which three countries spend the lowest percentage of their income on food?

- What is the average income percentage spent on food for all the countries listed?
- Research the design of each country's flag and draw them on a separate sheet of paper.
- Research a practice that was used in the agriculture industry that is no longer utilized today. What caused its demise? How did this transition of agricultural practices impact the industry in terms of efficiency and financial gain?

Standards:

Grade 3 English-Language Arts: Reading 2.3, 2.6; Math: Number Sense 1.1, 1.2, 2.1; Social Studies 3.5 #1, #3 **Grade 4** English-Language Arts: Reading 2.2 **Grade 5** Math: Number Sense 2.2

"That was Then, This is Now"

Thanks to modern farming techniques, such as the use of biotechnology, global positioning satellites and conservation tillage, America's farmers and ranchers are producing more food on fewer acres with fewer inputs.

One acre of land can produce many different types of crops, depending on the fertility and type of soil, how much rain falls and how much the sun shines. Some examples of what an acre can produce include:

One acre of land can produce:

11,600 lbs. of **Sweet Corn**

29,098 lbs. of **Oranges**

35,000 lbs. of **Lettuce**

36,700 lbs. of **Potatoes**

42,800 lbs. of **Strawberries**



Activities

Answer the following questions on the back of this page.

1. Using various reference materials, create a list of 10 tools that farmers and ranchers use in today's practices that have improved production. Indicate whether the tools were used or even available for use 20 years ago.
2. Take a look around the classroom and list as many items as you can that were made available because of a farmer or rancher.
3. How many pounds of the commodities listed above would be produced on 6 acres of land? How many pounds on 1/2 of an acre? Show your work.

Standards:

Grade 3 English-Language Arts: Reading 2.3, 2.6; Math: Number Sense 1.1, 2.4, 2.5, Algebra and Functions 2.1, Mathematical Reasoning 2.3; Social Studies 3.5 #1 **Grade 4** English-Language Arts: Reading 2.2, Writing: 1.7; Math: Number Sense 3.4, Mathematical Reasoning 2.3 **Grade 5** Math: Number Sense 2.1, Mathematical Reasoning 2.3 **Grade 6** English-Language Arts: Writing: 1.1; Math: Mathematical Reasoning 2.4 **Grade 7** Math: Mathematical Reasoning 2.5

Name: _____

California's Top Commodities

Circle the words in the word-find box from the list below. Words may be forward, backward or diagonal.

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

ALMONDS
BROCCOLI
CARROTS
CATTLE
CHICKENS
COTTON
CROPS

FLORICULTURE
GRAPES
HAY
LEMONS
LETTUCE
MILK
NURSERY

ORANGES
PISTACHIOS
RICE
STRAWBERRIES
TIMBER
TOMATOES
WALNUTS

Standards:

Grade 3 English-Language Arts: Reading 2.6, 2.7 Grade 4 English-Language Arts: Reading 2.2

The Price of Food Today

Activities

Go shopping at a grocery store with your parent/guardian this week.
Remember to be courteous and respectful.



- Go to the appropriate section of the store, examine the prices of several brands of the items listed below, and complete the chart.

Item	Least Expensive	Most Expensive	Estimated Average Price
1 lb. bacon			
5 lbs. sugar			
1 dozen eggs			
1 lb. butter			
1 lb. tomatoes			
1 lb. apples			
1 loaf white bread			
1/2 gallon whole milk			
1 item of your choice			

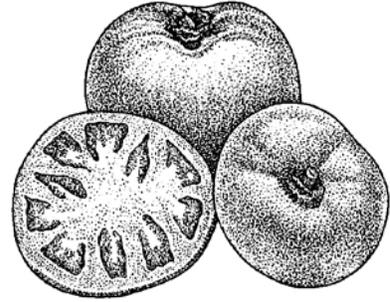
- How did you decide to estimate the price of each item?
- Are tomatoes always the same price? Why or why not?
- Name one item you think will not be in the store three months from now. Why?
- On the back of this paper, write one paragraph about what you learned from doing this exercise.

Standards:

Grade 3 English-Language Arts: Reading 2.3, 2.6, Writing 1.1; Written and Oral English Language Conventions 1.1; Math: Number Sense 1.1, 1.2, 3.3, Mathematical Reasoning 2.3
Grade 4 English-Language Arts: Reading 2.2, Writing 1.1; Written and Oral English Language Conventions 1.1; Math: Number Sense 1.1, 1.2, Mathematical Reasoning 2.3
Grade 5 English-Language Arts: Reading 2.1; Written and Oral English Language Conventions 1.4; Math: Mathematical Reasoning 2.3
Grade 6 English-Language Arts: Writing 1.1, 1.3; Written and Oral English Language Conventions 1.1, 1.4; Math: Mathematical Reasoning 2.4
Grade 7 Written and Oral English Language Conventions 1.6; Math: Mathematical Reasoning 2.5
Grade 8 Written and Oral English Language Conventions 1.5

Tomatoes...

People used to think that tomatoes were poisonous and for years no one ate them. American colonists believed they were related to the deadly nightshade plant and avoided eating them. However, in 1820, a brave man named Robert Gibbon Johnson stood on the New Jersey courthouse steps and ate a tomato! He did not get sick from eating the tomato and lived to the age of 79.



Since then, the tomato has evolved and become extremely popular. There are two different types of tomatoes: fresh and processing. The fresh tomatoes are the kinds that are used in salads, and processing tomatoes are used for canning to make sauces, pastes and salsas.

Activity

1. Look through the newspaper grocery advertisements and list the various types of tomatoes and tomato products advertised. In the *Type* column, identify each tomato product as either “processing” or “fresh”.

Product	Type

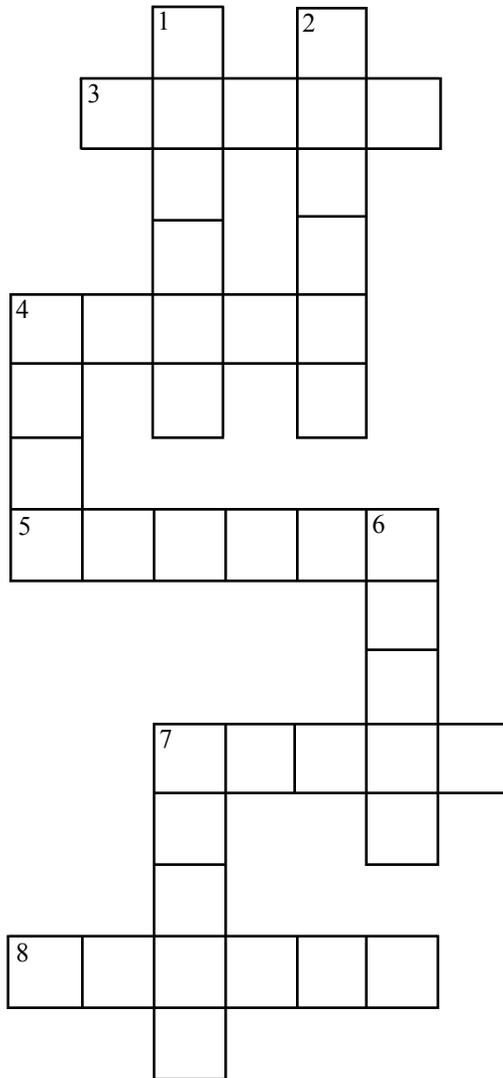
2. Using tomato products, create your own recipe on the back of this page.

Standards:

Grade 3 English-Language Arts: Reading 2.3, 2.6; Math: Number Sense 1.1 **Grade 4** English-Language Arts: Reading 2.2 **Grade 6** English-Language Arts: Writing 1.1

Tomato Products

Using the Across and Down clues, complete the crossword puzzle.



Across

- 3. A thick sauce
- 4. Spaghetti wouldn't be the same without it
- 5. Yours can be take-out or delivery
- 7. A perfect salad companion
- 8. A smaller tomato used in salads

Down

- 1. Popular on hamburgers
- 2. Used to make chili
- 4. A perfect meal to warm you up
- 6. A chip dip and also a kind of dance
- 7. Cooked on the stove

Standards:

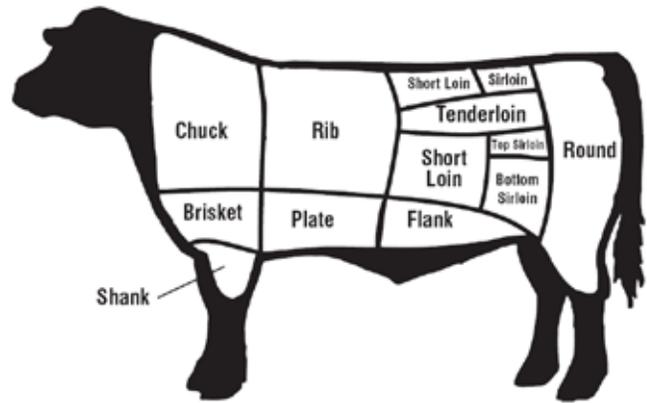
Grade 3 English-Language Arts: Reading 2.6, 2.7; Math: Number Sense 1.1; Social Studies 3.5 #1 Grade 4 English-Language Arts: Reading 2.2

Cattle Connection

Cattle are an important source of food, including beef, dairy products and milk. Surprisingly, cattle are also very important to sports, automobiles (brake fluid) medicine (Vitamin B-12), and art (ceramics, crayons). One cannot drive a car without the by-products of cattle.

By-products are the secondary products from the cow that are a result of processing. They are used to create industrial, household, health, and food products people consume or use every day. Some examples are: cosmetics, deodorants, detergents, mouthwash, paper, perfume, shaving cream, soap, and toothpaste.

Cattle have always been used for much more than just food. Cattle contribute a great power source in the world. According to the Food and Agriculture Organization (FAO) of the United Nations (UN), 50 percent of the world's people still count on cattle to plow their fields, move heavy objects, provide power to operate machinery and provide transportation to move goods to market.



Over the years, cattle producers have improved America's favorite beef cuts to make it leaner. Now 29 cuts of beef meet government guidelines for lean!

They include:

- | | | |
|--------------------------------------|----------------------------|------------------------|
| Bottom Round Roast | Round Tip Roast | Tenderloin Steak |
| Bottom Round Steak | Round Tip Steak | Top Loin (Strip) Steak |
| Bottom Round (Western Griller) Steak | Shank Cross Cuts | Top Round Roast |
| Brisket, Flat Half | Shoulder Center (Ranch) | Top Round Steak |
| Chuck Shoulder Pot Roast | Shoulder Petite Medallions | Top Sirloin Steak |
| Chuck Shoulder Steak | Sirloin Tip Center Roast | Tri-Tip Roast |
| Eye Round Roast | Sirloin Tip Center Steak | Tri-Tip Steak |
| Eye Round Steak | Sirloin Tip Side Steak | T-Bone Steak |
| Flank Steak | Steak | 95% Lean Ground Beef |
| Round Steak | Tenderloin Roast | |

Activity

Look through the grocery advertisements in the newspaper for the 29 cuts of lean beef. Cut the advertisements out and paste them on a board from most expensive to least expensive. Compare the differences in prices and explain why some cuts cost more than others.

Standards:

Grade 3 English-Language Arts: Reading 2.3, 2.6; Written and Oral English Language Conventions: 1.1; Math: Number Sense 1.1, 1.2 **Grade 4** English-Language Arts: Reading 2.2, Writing 1.1; Written and Oral English Language Conventions: 1.1; Math: Number Sense 1.2 **Grade 5** English-Language Arts: Reading 2.4; Written and Oral English Language Conventions 1.4 **Grade 6** English-Language Arts: Reading 2.4, Writing: 1.1, 1.3; Written and Oral English Language Conventions 1.4 **Grade 7** Written and Oral English Language Conventions 1.6 **Grade 8** Written and Oral English Language Conventions 1.5

“Wood” You Like to Know?

Forests are an integral part of our state’s agriculture industry. Forests cover over one-third of California. Since forests are so prominent in California, there is a great need for many foresters. Foresters take care of the forest and all the things that contribute to its well-being: the air, the soil, the animals, the water, and of course the trees! Foresters are college-educated in many different areas so they are trained and knowledgeable in such areas as harvesting trees and growing young trees in nurseries for planting, ensuring future generations will always have forests and the products they provide. Foresters protect trees from insects and diseases. The forest scientists discover better ways to grow trees and use the forest. Some foresters take care of the trees in towns and cities. They are known as “urban foresters.”



Activity

Become a forester yourself! Foresters often have to determine the height of trees.

How Big Is Your Tree?

Try this activity to help determine the height of a tree or other tall objects like a telephone pole or a building.

1. Measure the length of the tree’s shadow.
2. Stand right next to the tree and have someone measure the length of your shadow. Be sure you take these measurements at the same time of day.
3. Measure your own height.
4. You now have three measurements: your height, the length of your shadow and the length of the tree’s shadow. You will use a ratio to determine the height of the tree:

To calculate how tall your tree is, use the following formula:

$$\text{Your height} \times \frac{\text{tree's shadow}}{\text{your shadow}} = \text{tree's height}$$

Example: If a 4-foot student with a 6-foot shadow finds a tree with a 48-foot shadow:

$$4\text{-foot student} \times \frac{48\text{-foot tree shadow}}{6\text{-foot student shadow}} = \mathbf{32\text{-ft. tree!}}$$

Standards:

Grade 3 English-Language Arts: Reading 2.6, 2.7; Math: Number Sense 1.1, Measurement and Geometry 1.1 **Grade 4** English-Language Arts: Reading 2.2; Math: Number Sense 3.3, 3.4 **Grade 6** Math: Number Sense 1.2

Gardening - Are You Diggin' It?

One of the best-known Native American gardening techniques is the Three Sisters Garden in which corn, beans and squash are grown together. This is a form of companion planting, wherein each crop grows better in combination with the others than when grown alone.

In the Three Sisters garden, the corn provides support for the bean vines. Beans are legumes. Legumes have bacteria living on their roots that help them absorb nitrogen from the air and convert it into a form that plants growing nearby can use. Corn, which requires a lot of nitrogen to grow, benefits most. Lastly, the squash plants grow and spread their prickly leaves over the ground. The large leaves stop sunlight from reaching the soil, preventing the growth of weeds. The prickly leaves also keep away any animals that might try eating the corn or beans.



Activities

1. Create a garden “word wall.” Find words/terms and pictures in the newspaper and make your own garden. Write down how the plants interact with one another and benefit each other.

2. Look in the advertising section of the newspaper. Find careers involved in the horticulture industry. Pretend you are offering a job. Write your own advertisement for “position wanted.”

Standards:

Grade 3 English-Language Arts: Reading 2.6 Grade 4 English-Language Arts: Reading 2.2, Writing 1.1 Grade 6 English-Language Arts: Writing 1.1

Lesson Objectives and Answer Keys

Lasting Connections (page 2)

All students will write compositions that describe and explain familiar objects, events, and experiences.

Responses will vary.

Timber! Word Scramble (page 3)

Students will spell words related to agriculture.

Answer Key: 1. food 2. shelter 3. paper 4. lumber 5. recreation 6. transportation 7. fuel 8. clothing 9. tools 10. plywood

ATVs...Today's Horsepower (page 4)

All students will construct simple and compound sentences, identify parts of speech, and reserach information.

Responses will vary.

“That was Then, This is Now” (page 5)

All students will examine and analyze information, then illustrate what they discover by utilizing clear and coherent writing strategies and drawing.

Answer Key: 1. U.S., Finland, France 2. 24% 3. Make sure each student draws the correct flag 4. Responses will vary

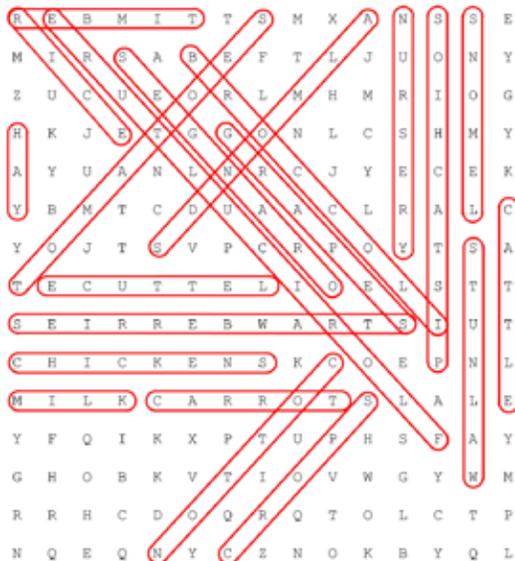
“That was Then, This is Now” (page 6)

All students will identify farming tools and examine classroom items, determining what farmers and ranchers have made available. Also, students will calculate the number of pounds of commodities produced on a specified amount of land.

Answer Key: 1. Responses will vary 2. Responses will vary 3. Sweet Corn 69,600 lbs., Oranges 174,588 lbs., Lettuce 210,000 lbs., Potatoes 220,200 lbs., Strawberries 256,800 lbs.

California's Top Commodities (page 7)

All students will recall words related to agriculture.



Lesson Objectives (continued)

The Price of Food Today (page 8)

All students will examine, classify, and write prices of food. Also, students will analyze their findings and write a paragraph.

Responses will vary.

Tomatoes... (page 9)

All students will research and list information, and create a recipe.

Responses will vary.

Tomato Products (page 10)

Answer Key: Across 3. paste 4. sauce 5. pizzas 7. fresh 8. cherry Down 1. catsup 2. stewed 4. soup 6. salsa 7. fried

Cattle Connection (page 11)

All students will research beef products and exercise division-classification and comparison. Students should be writing their explanations using complete sentences.

Responses will vary.

“Wood” You Like to Know... (page 12)

All students will calculate and measure the height of a tree, comparing it to their own height.

Responses will vary.

Gardening - Are You Diggin’ It? (page 13)

All students will create a list of spelling words related to agriculture. Also, students will write compositions that describe and explain familiar objects, events and experiences.

Responses will vary.