Thank a Farmer!

Have you ever stopped to think about where your lunch comes from? Not the cafeteria or your refrigerator at home, but where it really comes from? Your apples and grapes? Your chicken and string cheese? Have you ever wondered where the clothes that you are wearing came from before they were bought at the store? What is your t-shirt made of? Your sweater? Your favorite pair of jeans? What about the paper you write on, the books you read, and the room you’re sitting in? All of these things have one thing in common—they were produced with care by a farmer!

Farming sure has changed over the past century! Today’s farmer feeds more than eight times as many people as they did 50 years ago. One farmer can feed 155 people around the world! Farmers can be men or women, young or old, representing a wide variety of ethnic groups. Farmers use progressive technology to make sure agriculture products are getting to you fast, fresh, and safe. Today’s farmer may even use social media tools to communicate with consumers and market their products. Farmers take on many different roles on the farm, often filling in as accountant, doctor, conservationist, researcher and so much more.

Inside this newspaper, you’ll find tons of ways that we depend on farmers and you’ll learn about how agriculture is an essential part of our lives. Farmers feed our nation and the world, but they are all local to somewhere. Get to know your local farmers, get to know your food, and don’t forget to say “thank you!”
Have You Heard it Through the Grapevine?
Cultivating an awareness of California table grapes

6000 B.C.
Vitis vinifera grapes (common grape vine) are first cultivated near northern Iran between the Black and Caspian seas.

3000 B.C.
Cultivation reaches Egypt and Phonecia (modern day Lebanon, Syria and Israel).

500 B.C.
Viticulture reaches Spain, Portugal and France, and then spreads across Europe to the British Isles.

1839
Kentucky-native William Wolfskill plants the first table grape vineyard in California.

1849
Colonel Agoston Haraszthy personally brings 100,000 table grape cuttings to California and planted them to provide fruit to the miners of the California gold rush.

1860
English settler William Thompson plants a Mediterranean grape called the “Oval Kishmish” near Yuba City, north of Sacramento. This popular green variety is now known as the Thompson Seedless.

1970
Annual per capita consumption of grapes in the United States reaches 2.5 pounds.

Today
Annual per capita consumption has reached 8.4 pounds. The major table grape growing regions are the San Joaquin and Coachella Valleys. California produces 98% of the nation’s commercially grown table grapes.

A Grape Source of Nutrients
Grapes of all colors make a healthy snack. One serving of grapes (3/4 cup) is just 90 calories, has no fat or cholesterol, and virtually no sodium. Grapes are a source of potassium, as well as some calcium and vitamin C.

Activity
Test your brain power with a “bunch” of brain busters! All the answers can be found by reading this page.

True or false? Growers harvest grapes when they are fully ripe.

Name one of two California valleys which produce the most table grapes.

Who planted the first table grapes in California?

California produces ______ percent of the nation’s commercially grown table grapes.

True or false? After harvesting, grapes become significantly sweeter.

Activity
Use the information on the nutrition label to determine how many cups of grapes you would need to eat to meet your recommended daily values of vitamin C, potassium and fiber.

Did You Know?
Grapes are actually considered berries with an average of 100 berries per bunch.

Table Grape Nutrition Facts
Serving Size 3/4 cup (126g/4.5 oz.)

<table>
<thead>
<tr>
<th>Amount Per Serving</th>
<th>Calories 90</th>
<th>% Daily Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fat g</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Saturated Fat g</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Trans Fat g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cholesterol mg</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Sodium mg</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Potassium mg</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Total Carbohydrates g</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>Dietary Fiber g</td>
<td>1g</td>
<td>4%</td>
</tr>
<tr>
<td>Sugars g</td>
<td>20g</td>
<td></td>
</tr>
</tbody>
</table>

Protein g

<table>
<thead>
<tr>
<th>Vitamin A, % Daily Value*</th>
<th>Vitamin C, % Daily Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Nutrients

A Grape’s Worth?

Use your local newspaper to find supermarket ads for grapes. Compare the prices of grapes at five different stores. Determine the mean, median and mode for the given prices.

Standards: Mathematics- Grade 3: NS 3.3; Grade 4: NS 1.2, 2.1, 3.4; Statistics, Data Analysis and Probability (SDP) 1.2; Grade 5: SDP 1.1; Grade 6: SDP 1.1

Source: California Table Grape Commission www.freshcalifornia grapes.com, California Foundation for Agriculture in the Classroom www.LearnAboutAg.org, United States Department of Agriculture www.MyPyramid.gov
Did You Know?

Farmers markets have existed since humans began farming the land, nearly 10,000 years ago. Historically, when families produced more food or materials than they needed, they would meet in the town square to sell their excess harvest. Farmers markets became a traditional way of selling local agricultural products. Today, a weekly market day is still part of normal life in villages and town squares throughout the world.

Benefits

For producers: Producers can directly **market** and sell their products, which can **supplement** farm income.

For consumers: Consumers are exposed to locally produced food and the opportunity to interact with the farmers who grew it.

For communities: Farmers markets bring money into the local economy and provide easier access to fresh, nutritious food which may otherwise be limited.

Regulations

California farmers markets follow a set of rules and regulations to ensure public health and safety. Some examples include:

- Dried fruits and nuts sold unpackaged must be displayed in a covered container.
- All produce and their containers must be stored at least six inches off the ground.
- No live animals allowed within 20 feet of any area where food is stored.
- All produce must meet the California Department of Food and Agriculture (CDFA) quality standards.

For additional regulations, visit [www.LearnAboutAg.org/markets](http://www.LearnAboutAg.org/markets).

Activity

**Calculate the percentage increase for each year of U.S. farmers markets between 1994 and 2010. Predict how many U.S. farmers markets will operate in 2011.**

**Standards:** Math- Grade 5: Algebra and Functions (AF) 1.1; Statistics, Data Analysis and Probability (SDP) 1.3; Mathematical Reasoning (MR) 1.0, 2.3, 3.3; Grade 6: Number Sense (NS) 1.2m 1.4, 2.3; AF 2.3; SDP 3.2; MR 1.0, 2.4, 3.3; Grade 7: NS 1.3, 1.6; MR 1.0, 2.5, 3.3

FACT: California has more than 650 certified farmers markets.

**Tech Check**

Find a certified farmers market near you by visiting [cafarmersmarkets.com](http://cafarmersmarkets.com). How many markets are in your city, county or region?

City:
County:
Region:

**Standards:** ELA- Grade 3: Reading 2.1, 2.3, 2.6; Grade 4: Reading 2.2; Grade 5: Reading 2.1; Grade 6: Reading 2.1

California farmers are as diverse as the food and fiber they produce! Across the state, men and women have dedicated their lives to growing and raising safe, nutritious and beautiful agricultural bounty.

America’s farmers are the world’s most productive. Today, each U.S. farmer produces food and fiber to feed 155 people each year in the U.S. and abroad. Use the chart below to create a graph illustrating changes over the past 70 years.

**Farmer Fun Facts**

**Match the correct answer to each question.**

1. There are more than _________ farms and ranches in California.
2. Families own more than ___% of all California farmland. The rest is owned by non-family corporations.
3. The average size of a California farm is _______ acres.
4. California farmers grow more than ______ different crops and livestock commodities.
5. The average age of the American farmer is ______ years old.

**Answers:** 97 349 400 57 75,000

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of People Fed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1940</td>
<td>19</td>
</tr>
<tr>
<td>1950</td>
<td>27</td>
</tr>
<tr>
<td>1960</td>
<td>46</td>
</tr>
<tr>
<td>1970</td>
<td>73</td>
</tr>
<tr>
<td>1980</td>
<td>115</td>
</tr>
<tr>
<td>1990</td>
<td>129</td>
</tr>
<tr>
<td>2000</td>
<td>139</td>
</tr>
<tr>
<td>2010</td>
<td>155</td>
</tr>
</tbody>
</table>

**Standards:** Mathematics- Grade 4: Statistics, Data Analysis, and Probability (SDAP) 1.3; Mathematical Reasoning (MR) 2.3; Grade 5: SDAP 1.2; MR 2.3; Grade 6: SDAP 2.1, 2.2


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In your local newspaper, identify a current event that affects farmers. Write a paragraph response summarizing the event and discussing whether it negatively or positively impacts farmers. Examples may include land use, water availability, fuel prices, weather and more.

**Standards:** ELA- Grade 3: Reading 2.1, 2.4; Writing 1.1; Written and Oral English Language Conventions (WOLC) 1.0; Grade 4: Reading 2.2; Writing 1.3, 1.8; WOLC 1.0; Grade 5: Reading 2.3; WOLC 1.0; Grade 6: Reading 2.1, 2.4; WOLC 1.0

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**Tech Check**

Farmers Wear Many Hats

Farmers today wear many “hats”—meaning they take on many responsibilities and must be highly-skilled to be successful. Farmers and ranchers may also be the farm accountant, chemist, manager, salesperson and multiple other roles! Visit kids.cfaitc.org/wgo/jobs to share your ideas about the types of “hats” farmers wear.

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To meet more California farmers, please visit www.knowacaliforniafarmer.com.

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**Know Your Farmer**

Introducing the people behind the food

Dave, Mary Ann, Alayna & Matthew Renner
Renner Dairy, Ferndale, CA
Milk produced by 400 Holstein and Brown Swiss cows
Name one healthy dairy product you eat or drink: ______________________

Gordon Mizuno
Mizuno Resources, LLC, Tracy, CA
Asparagus
Name two adjectives that describe asparagus: _____________________ ________________

Kenny Watkins
Watkins Ranch, Linden, CA
Cattle
Name one product that comes from cattle: ________________________

Luawanna Hallstrom
Harry Singh & Sons, Oceanside, CA
Tomatoes
Name one product that contains tomatoes: _________________________

Wilja Happé
Farmers’ West Flowers & Bouquets, Inc. Carpinteria, CA
Cut Flowers and Greens
Name a place where you can buy plants and other nursery products: ______________________

To meet more California farmers, please visit www.knowacaliforniafarmer.com.
All About Organics!
Learning what USDA Organic means

"If your family chooses organic food, chances are good it comes from right here in California, which is the leading farming state in the nation and number one in organic production. Whether it is organic or conventionally grown, don’t forget to eat healthy and support California farmers and ranchers.”

– Secretary Karen Ross, California Department of Food & Agriculture

Activity

Objectively compare the look, taste, touch and smell of organic and conventionally grown fruits and vegetables. Record your observations in a chart or Venn diagram.

Standards: ELA- Grade 3: Written and Oral English Language Conventions (WOLC) 1.2, 1.8; Grade 7: WOLC 1.3. Mathematics- Grade 3: Mathematical Reasoning (MR) 1.1; Grade 4: MR 1.1; Grade 5: MR 1.1; Grade 6: MR 1.1; Grade 7: MR 1.1

Understanding Organic Labeling

Consumers have many choices when purchasing raw, fresh and processed products. USDA labeling indicates items that contain variations of organic agricultural ingredients.

What it says... What it means... What to look for...

<table>
<thead>
<tr>
<th>USDA Organic Seal</th>
<th>Contains only organic ingredients.</th>
<th>USDA Organic Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>USDA Organic Seal</td>
<td>Contains 95% or more organic ingredients. Some agriculture products are not commercially available in organic form, so this label allows for exceptions.</td>
<td>No USDA Organic Seal; cannot use the term “organic” anywhere on the primary display panel.</td>
</tr>
<tr>
<td>USDA Organic Seal</td>
<td>Contains 70% or more organic ingredients and may list up to three of the organic ingredients on product packaging.</td>
<td>No USDA Organic Seal: cannot use the term “organic” anywhere on the primary display panel.</td>
</tr>
<tr>
<td>USDA Organic Seal</td>
<td>Organic ingredients may be present, but not in a large enough quantity for special labeling.</td>
<td>The term “natural” may be used on the primary display panel.</td>
</tr>
<tr>
<td>USDA Organic Seal</td>
<td>For meat and poultry, it means no artificial ingredients or added color and is only minimally processed. For most other products, the claim may be truthful, but it is not regulated.</td>
<td></td>
</tr>
</tbody>
</table>

California Leads the Nation

Nearly 20% of the nation’s certified organic farms are in California! Other top states include Washington, Wisconsin, Pennsylvania, Minnesota, Oregon and New York. Use the data illustrated in the graph below to estimate the total number of organic farms in each state and complete the chart.

<table>
<thead>
<tr>
<th>State</th>
<th>Number of Organic Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td></td>
</tr>
<tr>
<td>Wisconsin</td>
<td></td>
</tr>
<tr>
<td>Washington</td>
<td></td>
</tr>
<tr>
<td>New York</td>
<td></td>
</tr>
<tr>
<td>Oregon</td>
<td></td>
</tr>
<tr>
<td>Pennsylvania</td>
<td></td>
</tr>
<tr>
<td>Minnesota</td>
<td></td>
</tr>
</tbody>
</table>

Did You Know?

Many colleges are offering degrees and specialized training in organic or sustainable agriculture. Santa Rosa Junior College offers a degree in Sustainable Agriculture, while Cal Poly, San Luis Obispo gives students the opportunity to work on an 11-acre organic farm while earning a minor in sustainable agriculture. For a complete list, visit www.nal.usda.gov/afsic/pubs/edtr.


Standards: Mathematics- Grade 4: Statistics, Data Analysis, and Probability (SDP) 1.1, 1.3; Grade 5: SDP 1.4; MR 2.3; Grade 6: MR 2.4; Grade 7: MR 2.5
Composting is the purposeful decaying of organic matter, such as yard and food waste. The decomposition of these materials is performed by living organisms. Compost provides many benefits—when added to soil, it increases nutrient levels, holds water and improves plant growth.

A healthy compost recipe includes layers of greens and browns. After layering, add water until it is moist, but not saturated. Make sure that the bacteria in your compost gets sufficient air by turning the pile often and well. The more often the pile is rotated, the quicker it will decompose. For best results, create a compost pile in a dry, covered area.

**Beneficial Decomposers**

**Microorganisms:** Microscopic organisms that can’t be seen with the naked eye. They do the bulk of the early work in the compost pile.

**Bacteria:** Single-celled organisms that use nitrogen and carbon (among other nutrients) to grow and reproduce. Bacteria is so abundant, there could be billions in a single handful of soil.

**Fungi:** Single or multicellular organisms that break down the cellulose and lignin in a compost pile. Fungi tend to be more present during the final stages of decomposition.

**Macroorganisms:** Visible decomposers that prefer lower temperatures. They feed on the piles’ earlier inhabitants—bacteria.

**Springtails:** White, blue or black organisms that feast on fungi, mold and decomposing plant material. Approximately 1/16 - 1/4 inch long, springtails can jump using their spring-like tail.

**Ants:** Insects that make compost richer in phosphorus and potassium by moving minerals from one place to another. Ants feed on fungi, seeds, sweets, scraps, other insects, and sometimes other ants.

**Garbage to Garden Treasure**

**Taking a Closer Look at Compost**

**What Goes in the Compost Pile?**

- **Bacteria:** Single-celled organisms that use nitrogen and carbon (among other nutrients) to grow and reproduce. Bacteria is so abundant, there could be billions in a single handful of soil.
- **Fungi:** Single or multicellular organisms that break down the cellulose and lignin in a compost pile. Fungi tend to be more present during the final stages of decomposition.
- **Macroorganisms:** Visible decomposers that prefer lower temperatures. They feed on the piles’ earlier inhabitants—bacteria.
- **Springtails:** White, blue or black organisms that feast on fungi, mold and decomposing plant material. Approximately 1/16 - 1/4 inch long, springtails can jump using their spring-like tail.
- **Ants:** Insects that make compost richer in phosphorus and potassium by moving minerals from one place to another. Ants feed on fungi, seeds, sweets, scraps, other insects, and sometimes other ants.
- **Microorganisms:** Microscopic organisms that can’t be seen with the naked eye. They do the bulk of the early work in the compost pile.

**Activity**

Identify which items from the list on the right would be added to the compost pile. Sort them by greens, browns or garbage (not suitable for composting). Draw an arrow to the correct layer for each item.

**Standards:** Science - Grade 3: 3c; Grade 4: 2b, 2c, 3d; Grade 6: 6a, 6b, 6c; Grade 8: 6a, 6b

**Coffee filter**

**Plastic bag**

**Straw**

**Meat**

**Oil**

**Sawdust**

**Dried leaves**

**Tea bags**

**Fresh grass clippings**

**Diseased plant material**

**Vegetable peels**

**Paper plate**

**Shoe laces**

**Cheese**

**Ashes**

**Have You Heard of Vermicomposting?**

Vermicomposting is a composting technique that primarily uses earthworms as decomposers.

**Standards:** Science - Grade 3: 3c; Grade 4: 2c; Grade 6: 6a, 6b, 6c; Grade 8: 6a, 6b

**Sources:** New Mexico State University www.nmsu.edu, Life Lab www.lifelab.org

**Casting out – castings are the product of worm digestion and contain concentrated nutrients such as nitrogen, phosphorous, and potassium. Incorporate worm castings into the garden soil for improved plant health!**
Farm to school is a national movement to bring seasonal products from local farms to the school cafeteria for your enjoyment!

Activity

Draw a line to match each salad bar item to the farm or ranch they were likely produced on.

Eating a Rainbow

Often, you can tell the health benefits of a fruit or vegetable just by looking at it! Each color of the rainbow provides a unique benefit to your health. The more colors you eat the greater variety of health benefits you will enjoy.

Research the health benefits of eating every color of the rainbow and record your findings in the appropriate color of the rainbow.

Red:
Orange/Yellow:
Green:
Blue/Purple:
White:

Create a plan to eat at least one fruit or vegetable from each color group this week:

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
</table>

Did You Know? More than 30 million children eat school food five days a week, 180 days a year. What do you think would happen if these students had more access to nutritious and fresh agricultural products?
Following food from the farm to the cafeteria

Identify which MyPyramid food group (Grains, Vegetables, Fruits, Milk, Meat & Beans) each salad bar item belongs to. Write the food group, along with the recommended daily serving, under each item.

<table>
<thead>
<tr>
<th>Food group</th>
<th>Food group</th>
<th>Food group</th>
<th>Food group</th>
<th>Food group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Standards:** Health Education- Grade 4: 1.2.N; Grade 5: 1.1.N; Science- Grade 3: 1b; Grade 4: 2a

**Physical Activity**

Physical activity is another key component to a healthy body. Physical activity must be moderate or vigorous to provide health benefits. In the space provided, draw a picture of yourself being inactive. Next to that drawing, create a picture of a physical activity you could choose to do instead. As a class, share the benefits of choosing to be physically active.

### Did You Know?

**Mustard**

Mustard grows on plants that can reach ten feet tall. Bearing bright yellow flowers, mustard plants produce tiny seeds in a pod, much like beans or peas. These seeds are harvested and crushed to create the popular condiment. Once crushed, a cold liquid such as vinegar, water or wine (or a combination of these) is added, along with salt and spices. Some mustards are simmered, then cooled. Other mustards are stored and aged over time.

Historically, mustard was known for its medicinal purposes before its modern culinary use. Ancient civilizations used it for muscle pain, toothaches, indigestion and to increase blood circulation. More recent folklore suggests sprinkling mustard powder in socks to prevent frostbite.

**Ketchup**

In the 1600s Dutch and British sea merchants brought back a salty pickled fish sauce called ‘ketsiap’ from China. The original ketchup was more similar to soy or oyster sauce. The British were the first to begin calling the condiment “catsup.” Colonial Americans borrowed and tinkered with British catsup recipes, creating mushroom and walnut-based versions. In the mid-nineteenth century, entrepreneurs created a product that appealed to Americans’ taste for sweet foods and sold catsup made with tomatoes, vinegar, sugar, cinnamon, cayenne and salt. The Heinz Company was the first to commercially produce ketchup in the 1870s.

**Relish**

Relish refers to individual fruits or vegetables that have been sliced, diced and chopped into small bits and flavored with vinegar, salt, sugar and spices. One of the most common types of relish is pickle relish. Pickles are actually fermented cucumbers. When you ferment a cucumber, you allow special bacteria to grow in the jar. These “good” bacteria do not cause spoilage in cucumbers. Rather, by producing acid and eating the cucumber’s sugars, these bacteria change the vegetables flavor and texture, turning it into a pickle!

### Activity

**Discovering America’s Favorites: Mustard, Ketchup and Relish**

Sarah Josepha Hale was a cookbook writer who developed recipes for walnut and tomato ketchup. Research this historical figure and write a summary about her contributions to American society.

**Standards:** ELA: Grade 3; Writing 1.3; Grade 4: Writing 1.2; Grade 5: Writing 1.2, 1.6; Grade 6: Writing 1.2; Grade 7: Writing 2.3; Grade 8: Writing 2.3

**Tech Check**

Visit www.exploratorium.edu/cooking/pickles to enter a virtual kitchen and try your hand at making pickles from scratch, starting with a fresh cucumber. Click on “Experience the Thrill of Pickle Making.”

**Newspaper Activity**

Select a condiment company and follow them for four weeks on the stock market. Record the stock prices, at regular intervals, on a chart. Use the information about the stock price to create a line graph. Draw a trend line. If this trend continues, what will the stock price be in another week?

**Standards:** Mathematics: Grade 4: Statistics, Data Analysis, and Probability (SDP) 1.0; Mathematical Reasoning (MR) 3.0; Grade 5: SDP 1.0; MR 3.0; Grade 6: SDP 1.0; MR 3.0

What’s Bugging You?
Identifying garden visitors and learning about integrated pest management

Integrated pest management (IPM) is a method for controlling pests at home, at school or on the farm. IPM uses a variety of strategies which may include introducing beneficial insects, altering the growing environment, observing insect life cycles and applying pesticides when needed.

Why do we control pests?
Some garden visitors are beneficial or harmless, while others may be troublesome or harmful. These troublesome pests need to be controlled in order to keep our environment healthy and our food abundant and safe.

How do we control pests?
There are many ways to control pests. Here are a few examples of IPM strategies:

• Plant a resistant plant variety that is not attacked by the pest.
• Put down a layer of chipped-bark mulch to control weeds.
• “Pest-proof” your environment by keeping it clean, sealed and well-maintained.
• Introduce beneficial bugs that will help control harmful bugs.
• Apply environmentally-safe pesticides when other methods are unsuccessful. Try materials such as soaps and oils.

Beneficial vs. Harmful
Determining which bugs help and which bugs hurt.

<table>
<thead>
<tr>
<th>Beneficial</th>
<th>Harmful</th>
</tr>
</thead>
<tbody>
<tr>
<td>You find ladybugs crawling on your tomato plants, feasting on aphids.</td>
<td>You have weeds growing in your newly planted vegetable garden.</td>
</tr>
<tr>
<td>Bees are buzzing around your garden pollinating the blossoms of trees and shrubs.</td>
<td>The lettuce plants in your school garden are being eaten by slugs.</td>
</tr>
<tr>
<td>Some lettuce growers plant flowering plants such as sweet alyssum between rows to provide pollen and nectar for syrphid flies, which feed on and eliminate harmful aphids.</td>
<td>Aphids are sucking the liquid from the leaves and buds of your beautiful rose bushes.</td>
</tr>
</tbody>
</table>

Activity
Write your own examples in the chart provided. Include one beneficial and one harmful pest. Use additional resources to conduct further research.

Sensational Synonyms
A synonym is a word that can be interchanged with another word without changing the meaning of the text. Use the vocabulary box to identify synonyms for “harmful.” Also identify synonyms for “beneficial.”

<table>
<thead>
<tr>
<th>Detrimental Destructive Useful</th>
<th>Negative Advantageous Effective</th>
<th>Positive Damaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmful</td>
<td></td>
<td>Beneficial</td>
</tr>
<tr>
<td>1.</td>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>

Did You Know?
People who study the life cycle, classification and habits of insects are called entomologists.

Bug Walk
As a class, walk around the school and collect a variety of insect species. Upon returning to the classroom, identify the species and determine if they are beneficial or harmful insects. For tips on collecting and identifying bugs, visit extension.entm.purdue.edu/4hyouth.

Source: Purdue University; www.ag.purdue.edu; University of California Cooperative Extension, ucanr.org; U.S. Environmental Protection Agency; www.epa.gov

Standards: Science- Grade 3: 3a; Grade 4: 2b; Grade 6: 5c, 5d

Standards: ELA- Grade 3: Reading 1.4, 1.7, 1.8; Grade 4: Reading 1.2, 1.3, 1.5; Grade 5: Reading 1.2, 1.3
Eating with the seasons means you are buying and consuming fruits, nuts and vegetables soon after they are harvested. To find out if you are eating food that is in season, visit www.LearnAboutAg.org/seasonal.

Preserve it!

Many fresh fruits and vegetables can be picked in season and preserved for later enjoyment. Fresh, frozen, canned, dried or 100% juice—you can enjoy the taste of seasonal fruits and vegetables year-round.

Activity

Choose a fruit or vegetable and research ways it can be preserved. Create a poster-sized flow chart that illustrates the process of preservation. Present your poster and findings to your class.

Greenhouse climates are controlled by fans and heaters to create an environment that can extend the typical growing season. These products are still considered in season!

Did You Know?

Most annual edible plants can be planted in one season and harvested in the next. Use the chart below to determine when to harvest each crop.

<table>
<thead>
<tr>
<th>Plant</th>
<th>Fall (Sept-Nov)</th>
<th>Winter (Dec-Feb)</th>
<th>Spring (March-May)</th>
<th>Summer (June-Aug)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beets</td>
<td>Broccoli</td>
<td>Carrots</td>
<td>Corn</td>
<td></td>
</tr>
<tr>
<td>Lettuce</td>
<td>Spinach</td>
<td>Cucumbers</td>
<td>Sunflowers</td>
<td></td>
</tr>
<tr>
<td>Chard</td>
<td>Kale</td>
<td>Peppers</td>
<td>Pumpkins</td>
<td></td>
</tr>
<tr>
<td>Peas</td>
<td>Bok Choy</td>
<td>Potatoes</td>
<td>Tomatoes</td>
<td></td>
</tr>
</tbody>
</table>

Try growing these crops in your school or home garden! Visit www.LearnAboutAg.org/cropcircles for a regional planting and harvesting guide.

Standards:
- Science- Grade 3: 3b; Grade 4: 3b; Grade 5: 6a; Grade 6: 5c

Activity

Monitor the price of a seasonal fruit or vegetable over time. Create a comparison chart to determine if the price reflects the seasonality of the produce. Monitor the price using newspaper ads and online resources or take a visit to the store.

Standards:
- Mathematics- Grade 3: Number Sense (NS) 2.1, 3.3; Algebra and Functions (AF) 2.1; Mathematical Reasoning (MR) 2.3, 2.6, 3.1, 3.3; Grade 4: NS 1.2, 1.6, 2.1; Statistics, Data Analysis, and Probability (SDP) 2.1; MR 1.1, 2.3, 2.6, 3.0; Grade 5: NS 2.1; MR 1.1, 2.3, 2.6, 3.0; Grade 6: MR 1.1, 2.4, 3.0; Grade 7: MR 1.1, 2.5, 3.0
Roasted Asparagus (Serves 3-4)
1 bunch asparagus
2 tbsp. olive oil
Preheat oven to 400°F. Clean asparagus and remove tough ends. Lay asparagus on a lightly greased baking sheet. Sprinkle with olive oil, minced garlic and parmesan cheese. Roast at 400°F for 5-10 minutes.

Mint and Honey Fruit Salad
(Serves 4)
2 peaches
2 plums
2 cups strawberries
Clean and cube peaches, plums and strawberries. Place fruit in bowl. Steep mint in 1 cup hot water. Remove mint leaves from water and discard. Add honey to hot water. Mix well and let cool. Toss fruit with honey dressing.

Stir Fry (Serves 5-8)
1 head of celery
3 carrots
1 bunch of broccoli
2 tsp. olive oil
Chop vegetables. Heat the oil in a large frying pan. When oil is hot, add vegetables, water, soy sauce and garlic. Cook for approximately five minutes. Vegetables should soften slightly when done.

Breakfast Frittata (Serves 6)
6 eggs
1/2 cup milk
1 cup shredded Cheddar cheese
1/4 cup parmesan cheese
Heat oven to 350 degrees F. Beat eggs, milk, salt and pepper in medium bowl until blended. Add cheese, chard, oregano and basil; mix well. Spoon evenly into 12 muffin cups with liners, about 1/4 cup each. Bake in 350 degrees F oven until just set, 20 to 22 minutes. Cool on rack 5 minutes. Remove from cups; serve warm.

Activity
Create a list of adjectives that describe the appearance, smell, taste and texture of the recipe you prepared.

Standards: ELA- Grade 3: Written and Oral English Language Conventions (WOLC) 1.2, 1.8; Grade 7: WOLC 1.3

Activity
To Make More... or Less?
You're having friends over to share a healthy meal. Select a recipe from this page and double it to accommodate for the extra guests. How much of each ingredient will you need?

Oh no! You just found out many of your friends can't make it. Copy using the original recipe and divide it in half to serve a smaller group.

Activity
What makes a well-balanced meal?
MyPyramid offers nutritional guidelines for balanced eating. Select a recipe from this page and determine the food groups represented. Make a list of additional healthy foods you would serve with the recipe to create a complete, balanced meal.

Standards: Health Education- Grade 4: 1.2.N; Grade 5: 1.1.N, 5.1.N

Poultry Power: Investigating Chicken Eggs

The risk of getting a foodborne illness from eggs is very low. However, you can protect yourself from Salmonella, a bacteria that may be found in eggs, by cooking eggs and egg dishes to 160° or until firm.


Eggs... sized-up!

Egg size, typically noted on the carton, tells consumers the minimum required weight for a dozen eggs. Use the information given to determine the average weight of each egg. Represent your answer in decimal form, round to the nearest 10th.

<table>
<thead>
<tr>
<th>Size</th>
<th>Weight Per Dozen</th>
<th>Average Weight (in ounces)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jumbo</td>
<td>30 ounces</td>
<td></td>
</tr>
<tr>
<td>Extra Large</td>
<td>27 ounces</td>
<td></td>
</tr>
<tr>
<td>Large</td>
<td>24 ounces</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>21 ounces</td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>18 ounces</td>
<td></td>
</tr>
<tr>
<td>Pee wee</td>
<td>15 ounces</td>
<td></td>
</tr>
</tbody>
</table>

Standards: Mathematics- Grade 3: Number Sense (NS) 2.5; Measurement and Geometry (MG) 1.1; Mathematical Reasoning (MR) 2.3; Grade 4: NS 1.2, 3.2, Algebra and Functions (AF) 1.4; Grade 5: NS 2.3; AF 1.1; Statistics, Data Analysis, and Probability (SDP) 1.1; MR 2.6; Grade 6: NS 2.0; AF 1.0; Grade 7: MG 1.0

Egg Folklore

Myths from China, Egypt, Finland and India credit eggs with the creation of Earth. Ancient Persians were the first people known to exchange eggs dyed in festive colors to celebrate summer equinox. In France, red eggs were offered to ensure a good harvest. Mexico has a tradition of cracking confetti-filled eggs on people’s head to celebrate birthdays. The Navajos of North America believed that a sacred figure, the Great Coyote Who Formed in the Water, hatched from an egg.

Standards: History-Social Science- Grade 3: 3.2.1; ELA- Grade 3: Reading 3.2; Grade 4: Reading 3.1

Did You Know?

California produced approximately 5.3 billion eggs in 2009, ranking it 5th in the nation for egg production.


Did You Know?

The Incredible Nutritional Egg

Research the health benefits of the nutrients listed below. Record your findings.

- Iron: ________________________________________________
- Vitamin A: __________________________________________
- Vitamin D: __________________________________________
- Phosphorus: __________________________________________
- Calcium: ____________________________________________
- Thiamine: ____________________________________________
- Riboflavin: __________________________________________
- Protein: ____________________________________________


Activity

Use the descriptions of each functioning part to label the egg.

Standards: Science- Grade 3: 3a; Grade 6: 5c; Grade 8: 3b

Anatomy of an Egg

Like all living things, eggs consist of functioning parts that protect the egg and provide nutritional benefits for us!

- **Shell**: Made mostly of calcium carbonate (CaCO3) and covered with more than 17,000 pores, the shell provides protection.
- **Shell membrane**: Two strong transparent membranes protect the egg. Made partly of keratin, a protein that’s also in human hair.
- **Yolk**: The yellow portion of the egg is a major source of iron, vitamin A, vitamin D, phosphorous, calcium, thiamine and riboflavin.
- **Albumen**: Commonly known as the “egg white,” the albumen contains approximately 40 different proteins.
- **Air cell**: A pocket of air caused by the contraction of the contents while the egg cools after being laid.
- **Chalazae**: This cord-like strand anchors the egg yolk in the center of the white.

Activity

Locate the countries referenced in “Egg Folklore” on a class map.

Standards: History-Social Science- Grade 3: 3.2.1; ELA- Grade 3: Reading 3.2; Grade 4: Reading 3.1
### Resources:
- American Egg Board
  - [www.aeb.org](http://www.aeb.org)
- California Certified Farmers’ Markets
  - [www.cafarmersmarkets.com](http://www.cafarmersmarkets.com)
- California Department of Food and Agriculture
  - [www.cdfa.ca.gov](http://www.cdfa.ca.gov)
- California Farm to School
  - [www.cafarmtoschool.org](http://www.cafarmtoschool.org)
- California Table Grape Commission
  - [www.freshcaliforniagrapes.com](http://www.freshcaliforniagrapes.com)
- Exploratorium
  - [www.exploratorium.edu](http://www.exploratorium.edu)
- Know Your Farmer, Know Your Food
  - [www.usda.gov/knowyourfarmer](http://www.usda.gov/knowyourfarmer)
- Life Lab Science Program
  - [www.lifelab.org](http://www.lifelab.org)
- MyPyramid
  - [www.mypyramid.gov](http://www.mypyramid.gov)
- National Agricultural Statistics Service
  - [www.nass.usda.gov](http://www.nass.usda.gov)
- National Farm to School Network
  - [www.farmtoschool.org](http://www.farmtoschool.org)
- Network for a Healthy California
  - [www.harvestofthemonth.com](http://www.harvestofthemonth.com)
- New Mexico State University
  - [cahe.nmsu.edu](http://cahe.nmsu.edu)

### Activity
Choose five words from the glossary and write the words on the numbered lines. Find each word in the dictionary and write the guide words for that page in the area provided.

<table>
<thead>
<tr>
<th>Glossary Words</th>
<th>Guide Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>1._______________</td>
<td>____________</td>
</tr>
<tr>
<td>2._______________</td>
<td>____________</td>
</tr>
<tr>
<td>3._______________</td>
<td>____________</td>
</tr>
<tr>
<td>4._______________</td>
<td>____________</td>
</tr>
<tr>
<td>5._______________</td>
<td>____________</td>
</tr>
</tbody>
</table>

### Standards:
- ELA- Grade 3: Reading 2.7; Writing 1.3
- Grade 4: Reading 2.2

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**Accountant:** Someone who maintains and balances business accounts.

**Carbon:** An elemental building block of molecules that make up all organisms on Earth. Carbon is stored in plant tissues through photosynthesis and is emitted back into the atmosphere through respiration.

**Cellulose:** A substance which makes up the essential parts of tissues and fibers in plants, wood, linen and paper.

**Chemist:** A scientist who specializes in chemistry.

**Classification:** The act of distributing things into classes or categories of the same type.

**Climate:** The general atmospheric conditions for a location; including rainfall, temperature, humidity, etc.

**Condiment:** A relish, sauce or seasoning added to food to enhance a flavor or to complement the dish.

**Conventional:** A type of agriculture system that generally relies upon technological innovations, uniform crops and labor efficiencies to achieve a high yield.

**Culinary:** Related to, or connected with, cooking or kitchens.

**Decomposition:** The process by which tissues of dead organisms break down into simpler forms of matter.

**Entrepreneur:** Someone who organizes a business venture and assumes the risk for it.

**Foliage:** A cluster of leaves.

**Greenhouse:** A building made of glass or plastic; for growing plants under controlled conditions.

**Inactive:** Lacking activity or motion.

**Lignin:** A naturally occurring glue-like compound that is found in trees and certain plants. Lignin binds wood fibers together.

**Market:** To engage in the commercial promotion, sale, or distribution of a product.

**Membrane:** A thin skin-like layer or film.

**Microclimate:** A local atmospheric zone where the climate differs from the surrounding area.

**Mince:** A cooking technique in which food ingredients are finely chopped.

**Nitrogen:** A nutrient essential to living things like plant growth and building proteins. Often added to agricultural and garden soils.

**Organic matter:** The residues of dead plants and animals in various stages of decomposition.

**Pesticides:** A method used to eliminate pests, especially insects.

**Phosphorus:** A chemical element found in soil in various mineral forms, but only small amounts are readily available to plants at any one time. It stimulates early growth and root development.

**Pore:** A tiny hole, or mass of holes, that allow passage of a liquid or gas.

**Preserve:** To treat food in a way that prevents it from spoiling.

**Repel:** To put off or force away.

**Steep:** To let sit in a liquid to extract a flavor.

**Supplement:** Something that completes or makes an addition.

**Vigorous:** A forceful and energetic action or activity.
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- Newsletters
- Kids’ Corner (kids.cfaitc.org)

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