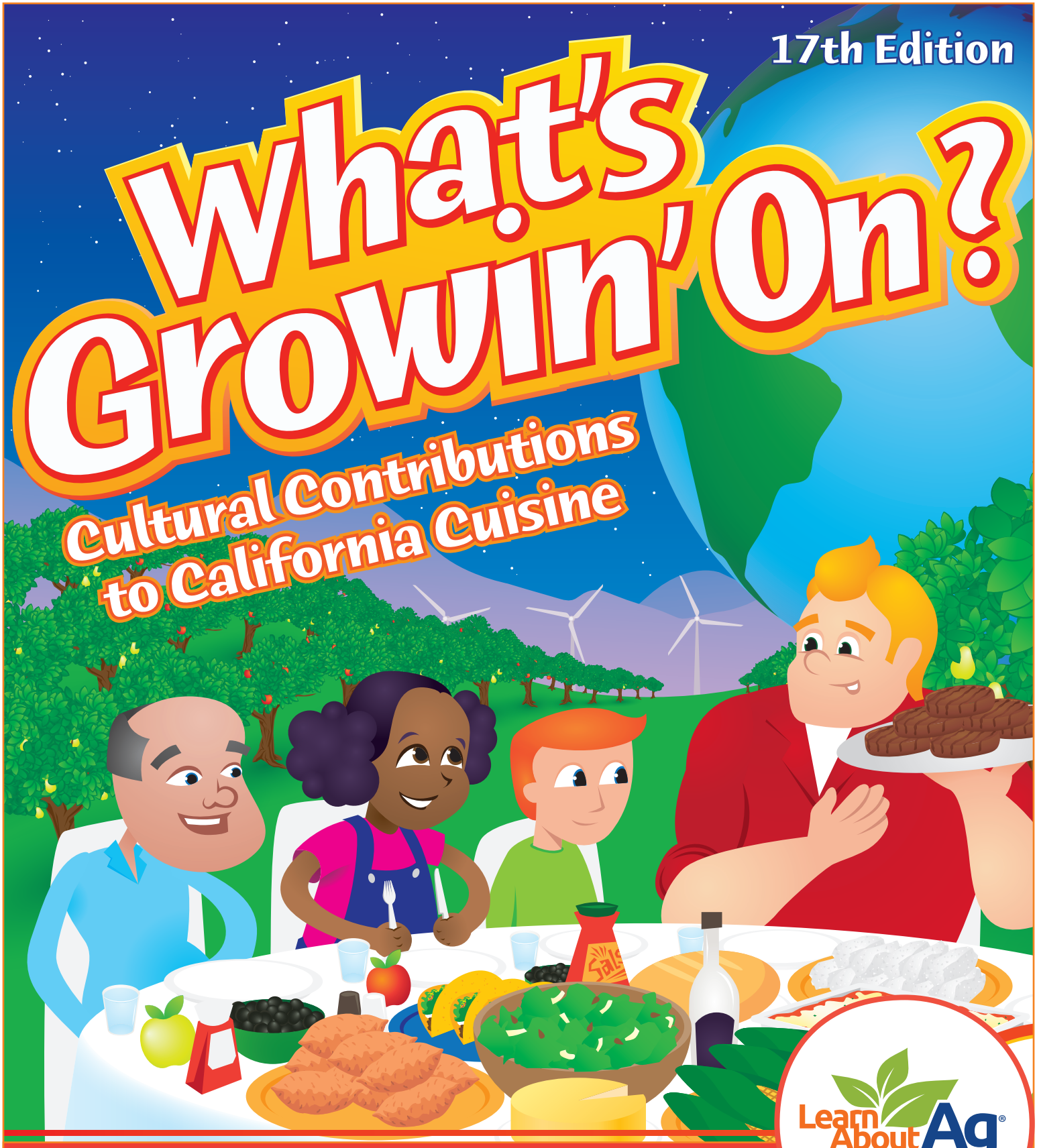
17th Edition

What's Growin' On?

Cultural Contributions to California Cuisine



Learn About Ag®
California Foundation for Agriculture in the Classroom

Extra! Extra! Classroom Extensions

A NEWSPAPERS IN EDUCATION SUPPLEMENT

LearnAboutAg.org | info@LearnAboutAg.org

Table of Contents

California Foundation for Agriculture in the Classroom
2600 River Plaza Drive, Sacramento, CA 95833 • (916) 561-5625 • (800) 700-AITC • *info@LearnAboutAg.org* • *LearnAboutAg.org*

Introduction

Welcome! Thank you for your interest in California Foundation for Agriculture in the Classroom's student activity newspaper, ***What's Growin' On? Cultural Contributions to California Cuisine.*** Developed by educators like you and reviewed by industry experts, ***What's Growin' On?*** offers fun and engaging ways to teach and practice core academic skills while sharing the importance of agriculture in our lives.

EXTRA! EXTRA! Classroom Extensions contains ideas and opportunities for extending the content presented in the student newspaper. Activity ideas are varied to help you meet the different learning styles of students in your classroom. Opportunities for group work, hands-on activities, and visual displays support the needs of ELL students as well as challenge GATE students.

The agriculture-themed examples and activities found in ***What's Growin' On? Cultural Contributions to California Cuisine*** are designed to motivate and inspire your students by connecting classroom lessons to real-life experiences. This is accomplished by weaving agriculture into academics so students can better relate to the food they eat, water they drink, clothes they wear, homes they live in, and open spaces they enjoy. Additionally, using the newspaper as an instructional tool allows young people to discover the relevance of their classroom studies by reading news stories, acquiring knowledge, forming opinions, and broadening their understanding of the world they live in.

California Foundation for Agriculture in the Classroom is dedicated to increasing the awareness and understanding of agriculture among California's educators and students. We provide educators with resources and programs that enhance agricultural literacy. To request a free teacher resource packet or a classroom set of the current edition of ***What Growin' On? Cultural Contributions to California Cuisine***, order online at *LearnAboutAg.org/wgo* or contact us via e-mail *(info@LearnAboutAg.org)* or phone (800-700-2482).

California Foundation for Agriculture in the Classroom
2600 River Plaza Drive, Sacramento, CA 95833 • (916) 561-5625 • (800) 700-AITC • *info@LearnAboutAg.org* • *LearnAboutAg.org*

Reasons for the Seasons

Extension Ideas

Exploring the Angle of the Sun
Learn how the sun's angle affects the temperature on Earth in this exploration. Tape a ruler so it extends 10 inches beyond the head of a flashlight. Use the ruler as a guide as your shine the flashlight on a weather themometer placed on a black sheet of paper. Shine the flashlight downward for exactly five minutes. Record the temperature. After the thermometer returns to room temperature, repeat the experiment. This time hold the flashlght at a 45-degree angle. After five minures, record the temperature. Which angle produced the higher temperature? Where on the Earth do the sun's rays hit most directly year-round?
Standard: NGSS: MS-ESS1-1

Plant a Seasonal Garden
Plant a winter or summer garden. Use online resources to help you determine the best crops to plant and when. Keep in mind the right seasons for each crop. Use California Foundation for Agriculture in the Classroom's *California CROP Circles* as a guide (*learnaboutag.org/resources/gardens/crop.pdf*). Each regional circle illustrates proper planting and harvesting times for 18 crops commonly found in California gardens. Math problems on the back of each page strengthen math and critical thinking skills.
Standard: NGSS: MS-LS1-5

Preserve It!
Many fresh fruits and vegetables can be picked in season and preserved for later enjoyment. Fresh, frozen, canned, dried, or 100 percent juice—you can enjoy the taste of seasonal fruits and vegetables year-round. 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.
Standards: CC ELA: W.3-8.7

The Cost of Eating with the Seasons
Can you save money by only eating seasonal produce? Pick a fresh fruit or vegetable that is available year-round but has a definitive peak season (there are many example of on page three of *What's Growin' On?*). Monitor the price of your chosen fruit or vegetable over time. Create a line graph with price on the y-axis and date on the x-axis. Discuss the relationship between cost and seasonality with your class, and hypothesize seasonal factors that would influence cost.
Standard: CC Math: 3.MD.3

California Foundation for Agriculture in the Classroom
2600 River Plaza Drive, Sacramento, CA 95833 • (916) 561-5625 • (800) 700-AITC • *info@LearnAboutAg.org* • *LearnAboutAg.org*

Resources

California Foundation for Agriculture in the Classroom (*learnaboutag.org*)

- **Thematic Unit:** *California Walnuts: A Walnut Orchard Through the Seasons* (Grades K-3)
- **Resource:** *CROP (California Regions of Optimal Planting) Circles* (Grades 6-12)

Utah Agriculture in the Classroom (*utah.agclassroom.org)*

- **Lesson Plan:** *Bartering Through the Seasons* (Grades 3-5)

NASA (*nasa.gov*)

- **Lesson Plan:** *Seasons* (Grades 7-9)

Websites

- Seasonal Produce Guide
  snaped.fns.usda.gov/seasonal-produce-guide
- NASA Space Place
  spaceplace.nasa.gov/seasons/en/

Books

- Dufek, H. ***A Year on the Farm with Casey and Friends.*** Octane Press, 2015.
- Splear, E.L. ***Growing Seasons.*** Putnam Juvenile, 2000.

Latin America

Extension Ideas

The Three Sisters
One of the best-known planting techniques among native people groups from Latin America to North America is inter-planting corn, beans, and squash. Test the scientific validity of the legend by planting corn, beans, and squash in your school garden and observe how they grow. Construct a scientific explanation to summarize how the structures of the three plants benefit each other.
Standard: NGSS: MS-LS1-5

Soup Mix Mathematics
Purchase a bag of mixed beans, typically labeled "soup mix." Scoop ¼ cup onto a tray or paper plate. Sort the beans into groups based on their variety. Determine the percentage of each variety, then convert to degrees. Create a circle graph titled "Soup Mix Bean Ratios" to illustrate the quantity and variety of beans in each bag.
Standards: CC Math: 6.RP.A.3.C, 7.RP.A.3

Forget Your Plate, Put Corn on Your Palette
Many Mesoamerican legends revolve around maize, and its image appears in the region's crafts, murals, and hieroglyphs. Research Mesoamerican art themes and styles. Print and share your favorite examples with the class. Allow your findings to inspire your own art project celebrating maize.
Standard: CA Visual Arts: Grade 6: 5.3

Bean Dissection
Soften large bean seeds such as kidney or lima beans by soaking them in water overnight. The next day, remove them from the water and place them in a dish on a sunny windowsill. Cover the beans with damp paper towels and keep moist for several days until they begin to sprout. Dissect and label the different parts of the bean, including the embryo, endosperm, and seed coat.
Standard: NGSS: 3-PS2-1

Ancient Engineering
Latin American cuisine uses large quantities of ground corn, called cornmeal, to create everything from tortillas to tamales. Using materials that were available in ancient Mesopotamia, design a process for turning dried corn into corn meal. Make a plan, create a model, and determine how to test your design to determine success.
Standard: NGSS: MS-ETS1-1

California Foundation for Agriculture in the Classroom
2600 River Plaza Drive, Sacramento, CA 95833 • (916) 561-5625 • (800) 700-AITC • *info@LearnAboutAg.org* • *LearnAboutAg.org*

Resources

California Foundation for Agriculture in the Classroom (*learnaboutag.org)*

- **Resource:** *Dry Bean Fact Sheet* (Grades 6-12)
- **Resource:** *Corn Fact Sheet* (Grades 6-12)

Minnesota Agriculture in the Classroom (*minnesota.agclassroom.org)*

- **Lesson Plan:** *Magic Beans and Giant Plants* (Grades 3-5)
- **Lesson Plan:** *Three Sisters Garden* (Grades 3-5)

Nebraska Corn Board (*nebraskacorn.gov)*

- **Lesson Plans:** *The Corn Curriculum* (Grades 3-12)

My American Farm (*myamericanfarm.org)*

- **Online Game:** *Amazing Grains* (Grades 3-5)

Websites

- The Bean Institute
  beaninstitute.com
- National Corn Growers Association
  ncga.com/worldofcorn

Books

- Andrews, A. ***The Kid Who Changed the World.*** Thomas Nelson, 2014.
- Gibbons, G. ***Corn.*** Holiday House, 2009.
- Johnson, S.A. ***Tomatoes, Potatoes, Corn & Beans.*** Atheneum, 1997.
- Landau, E. ***A True Book: Corn*****.** Children's Press, 1999.
- Paulsen, G. ***The Tortilla Factory.*** HMH Books for Young Readers, 1998.
- Romero Stevens, J. ***Carlos and the Cornfield.*** Cooper Square Publishing, 1999.
- Sayles Hughes, M. ***Spill the Beans and Pass the Peanuts.*** Lerner Publishing Group, 1999.

Oceania

Extension Ideas

Animal Agriculture Poll
Predict the most popular meat (beef, poultry, lamb, or pork) among your classmates. Create an opinion poll to survey the class and determine if you're right. Create a bar graph illustrating your results.
Standard: CC Math: 3.MD.B.3

Heat It Up: Food Safety Investigation
Cooking meat causes chemical changes that make it easier to chew and more enjoyable to eat. How does heat cause changes in meat? Research safe minimum cooking temperatures for meat (beef, poultry, lamb, and pork). Purchase a cut of meat. Insert a meat thermometer and cook the meat. Observe and record changes at regular intervals as the internal temperature rises—such as changes in opacity, firmness, shrinking, browning, moisture loss, and fat breakdown. Create a poster to teach others about visual observations that indicate when meat has reached the desired internal temperature.
Standard: NGSS: MS-PS1-2

Livestock Nomenclature Match
Randomly distribute pairs of cards that include livestock words and their meanings, such as "female sheep" and "ewe." Students will read their card and find a classmate with a corresponding term or definition. Once students have created a matching pair, they may stick their cards to the board. Use dictionaries to determine the precise meaning of more challenging terms. Discuss the agricultural products that come from each animal species.
Standards: CC ELA: L.3-5.4.D

Breed Investigation
Research and give a presentation about a breed of cattle, pork, poultry, or sheep. Include information about breed traits, origins, advantages, and disadvantages. Present your findings to the class.
Standards: CC ELA: W.3-8.7; SL.3-8.4

Resources

California Foundation for Agriculture in the Classroom (*learnaboutag.org*)

- **Thematic Unit:** *Steer Toward STEM: Careers in Animal Agriculture* (Grades 3-5)
- **Resource:** *Bon a la Beef* (Grades 3-12)
- **Resource:** *Farm to You: Beef* and *Farm to You: Pork* (Grades 5-12)

FoodMASTER - Food, Math, and Science Teaching Enhancement Resource *(foodmaster.org)*

- **Curriculum:** *Meat, Fish, Poultry, and Eggs* (Grades 6-8)

Utah Agriculture in the Classroom (*learnaboutag.org*)
- **Lesson and Web Quest:** *At Home on the Range* (Grades 3-8)
- **Kit:** *Ranch Starter Kit* (Grades 6-12)

California Academy of Sciences (*calacademy.org*)
- **Lesson:** *Sustainable Grazing* (Grades 4-12)

American Farm Bureau Foundation (*myamericanfarm.org*)
- **Game:** *The Steaks Are High* (Grades 3-5)
- **Game:** *An Egg-citing Poultry Adventure* (Grades 3-5)

Websites
- Chicken Check In
  chickencheck.in
- Meat Mythcrushers
  meatmythcrushers.com
- National Geographic Kids
  kids.nationalgeographic.com/animals

Books
- Anderson, S. and J. Buggey. ***Beef Cattle in the Story of Agriculture.*** American Farm Bureau Foundation, 2013.
- Friedman, M. ***A True Book: Australia and Oceania.*** Scholastic Library Publishing, 2009.
- Gibbons, G. ***Pigs.*** Holiday House, 1999.
- Meredith, S. ***Chickens on the Farm.*** Rourke Educational Media, 2010.
- Schuh, M. ***Sheep on the Farm.*** Capstone Press, 2001.

Western Europe

Extension Ideas

Where's the Cheese, Please?
You may have only tried cheese crafted from cow's milk, but milk from a variety of domesticated animals can be used to make cheeses around the world. Use print and digital resources to determine which animal species produce these cheeses: feta, buffalo mozzarella, bergkäse, halloumi, pecorino, manchego, Roquefort, camembert, cheddar. Locate and label the country or region of origin for each cheese variety on a map.
Standards: CA History-Social Science: HSS Analysis Skill K–5, HSS Analysis Skill 6–8

The Squeeze on Cheese
Research how the molecular structure of milk changes at various stages of cheese making. Create a simple multimedia presentation that explains the science behind turning milk into cheese. Share your presentation with the class.
Standards: NGSS: 5-PS1-1

Say Cheese!
Cheese is a popular word among English speakers, but it doesn't always mean what we think it does. What common phrases use the word cheese? For example, we might say "that looks so cheesy" or "she's the big cheese." Brainstorm a list of common cheese phrases and sayings. Choose a phrase, research it's meaning, and create a corresponding illustration.
Standards: CC ELA: L.3-8.5

Move Over Miss Muffet
Milk is a colloid, a mixture of two substances that cannot be easily separated. These substances include curds (casein) and whey (liquid). Cheese is essentially milk curds pressed together and heated over time. Pour one cup of milk and two tablespoons vinegar into a small pot and cook on a medium heat until the curds float to the top. Use cheesecloth to strain the curds from the remaining whey. Measure the mass of the curds. Compare curd mass from whole milk, skim milk, and heavy cream.
Standards: NGSS: 5-PS1-4; CC Math: 3.MD.A.2

Resources

California Foundation for Agriculture in the Classroom (*learnaboutag.org*)
- **Thematic Unit:** *Milk Matters! Discovering Dairy* (Grades 3-5)
- **Activity:** *Say Cheese Ag Bite* (Grade 9-12)

FoodMASTER - Food, Math, and Science Teaching Enhancement Resource *(foodmaster.org)*
- **Curriculum:** *Milk and Cheese* (Grades 3-5) and *Cheese* (Grades 6-8)

National Agriculture in the Classroom (*naitc.org*)

- **Lesson:** *Milk: The Scoop on Chemical and Physical Changes* (Grades 9-12)

Websites

- Dairy Council of California
  healthyeating.org
- The California Milk Advisory Board
  realcaliforniamilk.com
- Discover Dairy
  discoverdairy.com

Books

- Peterson, C. ***Extra Cheese, Please!*** Boyds Mills Press, 2003.
- Basel, R. ***From Milk to Cheese.*** Capstone Press, 2006.
- Leeper, Angela. ***Dairy Plant.*** Heinemann Library, 2004.

Middle East

Extension Ideas

Online "Date"abase
According to the Food and Agriculture Organization of the United Nations (FAO), Egypt is the world's largest producer of dates, followed by Iran, Algeria, Saudi Arabia, and United Arab Emirates. Use the FAO's online database (*fao.org/faostat*) to research the gross production value of each country. Create an infographic, such as a world map featuring production values or a bar graph comparing production values. Present your infographic to the class.
Standard: CC Math: 6.SP.B.5

I Love Olives
Conduct an olive taste test in the classroom. Include California grown green ripe olives and black ripe olives, as well as olives from around the world. Try Kalamatas (Greece), Castelvetrano (Italy), Niçoise (French), Manzanilla (Spain), or Beldi (Morocco). Make scientific observations about color, texture, smell, size, and taste.
Standard: NGSS: MS-LS-1.8

How Much Moisture?
Moisture content is an important property to be managed in the harvesting, storage, marketing, and processing of dates. Deterioration (darkening and loss of flavor) increases with increasing moisture content. To test the moisture content of dates, take approximately 100g of the fruit (without pit) and grind or chop the sample to obtain small particles. Spread out on a metal pan and bake in an oven at low heat for approximately 6 hours. The moisture content, W, as percentage by mass of the sample (grams per 100 grams), is equal to:

$$W = \frac{M_1 - M_0}{M_1 - M_2} \times 100$$

where

M_0 is the mass, in grams, of the dish and lid. [1, 2, 3]
M_1 is the mass, in grams, of the dish and lid, and the test portion before drying.
M_1 is the mass, in grams, of the dish and lid, and the test portion after drying.

Safe moisture content for storage of dates is between 24 and 25 percent. Compare your results with your class to determine the mean.
Standards: NGSS: MS-PS1-4; CC Math: 6.EE.A.2, 7.EE.B.4

California Foundation for Agriculture in the Classroom
2600 River Plaza Drive, Sacramento, CA 95833 • (916) 561-5625 • (800) 700-AITC • *info@LearnAboutAg.org* • *LearnAboutAg.org*

Resources

California Olive Industry (*calolive.org*)

- **Curriculum:** *Food for Thought* (Grades 3-5)

Websites

- California Olive Industry
  calolive.org
- Shields Date Garden
  shieldsdategarden.com
- California Date Commission
  datesaregreat.com

Books

- Gunderland, G.B. ***Olives, Where Are You?*** Austin Macauley, 2018
- Taylor, J.M. ***The Olive in California.*** Ten Speed Press, 2000.

Cultural Cuisine Near and Far

Extension Ideas

Where in the World Did My Food Come From?

Are hamburgers really from Hamburg? You might be surprised by the origins of your typical family meals. Keep a journal of evening meals eaten throughout the week. Use research tools to determine the country of origin for each meal. Make a list of agricultural products used and identify which ingredients were likely produced in California. Of the ingredients produced in California, identify the geographical regions where they were likely produced.

Standard: CA History-Social Studies: Grade 3: 3.1

Not So Secret Recipe

Write down a favorite recipe from home to share with your class. Be sure to use specific cooking measurements and include the step-by-step process. After you have recorded your recipe, alter the ingredient quantities to provide enough servings for your entire class. Don't forget to show your math.

Standard: CC Math: 6.RP.A.3.D

Paper Tacos

Using a variety of craft materials to represent the tortilla and toppings, create your own three-dimensional taco. Then, use the USDA's food composition database (*ndb.nal.usda.gov*) to research and analyze the nutritional content of your taco. Be sure to highlight the important nutrients, such as energy, protein, and fiber, as well as vitamins.

Standards: CA Health: Grade 4: 3.1.N; Grades 7-8: 1.6.N

From There to Here

There are numerous steps involved in the production and distribution of a commodity. We call this process the supply chain, and it take a lot of organization, planning, and communication to be completed successfully. After choosing a specific agricultural product from the newspaper, research the steps it takes to move that product from the farm to the consumer. Design a poster illustrating the links in the supply chain, and present it to your classmates.

Standards: CC ELA: W.3-8.7, SL.3-5.4

Resources

Minnesota Agriculture in the Classroom *(minnesota.agclassroom.org)*

- **Poster:** *Where Does Your Pizza Come From?* (Grades 3-6)

American Farm Bureau Foundation for Agriculture *(myamericanfarm.org)*

- **Resource:** *Pizza Ag Mag* (Grades 4-6)
- **Game:** *Where in the World* (Grades 3-5)

Illinois Agriculture in the Classroom *(agintheclassroom.org*)

- **Resource:** *Pizza Commodity Reader* (Grades 6-12)

Utah Agriculture in the Classroom *(utah.agclassroom.org*)

- **Curriculum:** *The Columbian Exchange of Old and New World Foods* (Grades 5-12)
- **Lesson Plan:** *Pizza Time!* (Grades 3-5)

Websites

- Smithsonian Magazine (History of Pizza and Tacos) *smithsonianmag.org*

Books

- Detlefsen, L. ***Right This Very Minute.*** Feeding Minds Press, 2019.
- Hardesty, C. ***Grow Your Own Pizza: Gardening Plans and Recipes for Kids.*** Fulcrum Publishing, 2000.
- Nieminen, L. ***Tacos! An Interactive Recipe Book*****.** Phaidon Press, 2017.
- Peterson, C. ***Extra Cheese, Please!*** Boyds Mills Press, 1994.
- Sturges, P. ***The Little Red Hen (Makes a Pizza).*** Puffin Books, 2002.

Asia

Extension Ideas

Imperial Eggs
A Fabergé egg is a jeweled egg created by the House of Fabergé in Russia. The elaborate and expensive eggs were gifted within the royal family between 1885 and 1917. Today, each egg is worth millions of dollars. Research the history of the eggs, and create a timeline that briefly summarizes the commissioning of each egg.
Standards: CA History-Social Studies: Grade 3: 3.1; Grade 10: 10.7

Rice TV
See rice farming up close and personal, as you follow California rice grower Matthew Sligan at *ricefarmingTV.com.* Each educational episode features insider information about what it takes to produce rice. After watching an episode (or two!) discuss some of the challenges rice farmers face, and the solutions they try.
Standards: CC ELA: L.3-8.1

Super Egg Strength
Are egg shells fragile or strong? Collect four raw eggs. Crack off the smaller ends of the eggs and dispose of the inside. Rinse the egg halves with water. Make each shell dome the same size using scissors to trim the edges. Arrange the shells on a flat surface and make a quadrant. Balance a book evenly on the shells, and add books until a shell breaks. Record your findings and compare with your class. Discuss how an egg's shell supports survival, growth, and reproduction.
Standard: NGSS: 4-LS1-1

Resources

California Foundation for Agriculture in the Classroom (*learnaboutag.org*)

- **Resource:** *Rice Fact Sheet* (Grades 6-12)
- **Resource:** *Egg Fact Sheet* (Grades 6-12)
- **Activity:** *A Journey Through a Rice Mill Ag Bite* (Grades 9-12)
- **Activity**: *The Bouncing Egg* (Grades 3-8)

FoodMASTER - Food, Math, and Science Teaching Enhancement Resource *(foodmaster.org)*

- **Curriculum:** *Chapter 9: Grains* and *Chapter 7: Eggs* (Grades 3-5)

Discovery Education (*blog.discoveryeducation.com/blog/tag/egg*)

- **Videos:** *The Good Egg Project Education Station* (Grades 3-12)
- **Lesson:** *Walking on Eggshells* (Grades 3-8)

American Egg Board (*aeb.org/eggs-in-schools*)

- **Lesson Plans:** *Eggs in the Classroom* (Grades K-12)
- **Game:** *Eggville Escapades* (Grades K-3)

Utah Agriculture in the Classroom (*utah.agclassroom.org*)

- **Lesson Plan:** *More Than One Grain of Rice* (Grades 3-8)

American Farm Bureau Foundation for Agriculture *(myamericanfarm.org)*

- **Game:** *An Eggciting Poultry Adventure* (Grades 3-5)
- **Curriculum:** *Agriculture and the Environment* (Grades 6-8)

Websites

- American Egg Board
  aeb.org/eggs-in-schools
- Rice Farming TV
  ricefarmingtv.com

Books

- Demi. ***One Grain of Rice.*** Scholastic, 1997.
- Dooley, N. ***Everybody Cooks Rice.*** Carolrhoda Books, 1992.
- Llewellyn, C. ***What's for Lunch? Eggs.*** Franklin Watts, 2003.
- Morrison, M. ***Rice.*** National Geographic, 2002.
- Singer, M. ***Eggs.*** Holiday House, 2008.
- Spilsbury, L. ***Rice.*** Heinemann, 2001.

North America

Extension Ideas

Celebrate Soul Food
Celebrate the influence of African and African-American traditions and customs on American culture. The taste of Southern cooking—or soul food—is shaped by the way enslaved Africans prepared food and by the use of foods native to Africa, such as black-eyed peas, okra, and yams. Have students choose a traditional Southern food and examine its origin, traditional preparation, and migration to North America. Students will present their research digitally and include maps and timelines.
Standards: CA History-Social Science: HSS Analysis Skill K–5, HSS Analysis Skill 6–8; CC ELA: SL.3-5.4

Coastal Cuisine
Thriving shellfish industries can be found in all coastal regions of the United States. There are two groups of shellfish: Crustacea (such as shrimp, crab and lobster) and Mollusks (such as clams, mussels, oysters and scallops). Dissect and identify the internal and external structures that function to support survival, growth, behavior, and reproduction. Make a Venn diagram comparing Crustacea and Mollusks.
Standard: NGSS: 4-LS1-1

The Many Flavors of BBQ
There are many distinct styles of BBQ across North America—Carolina, Kansas City, St. Louis, California, and Texas (just to name a few). Research and make your own regional BBQ sauce to share with the class. Conduct a taste test of the different sauces, and have students guess the region of origin for each sauce based on the ingredients and flavor.
Standard: NGSS: MS-LS-1.8

Resources

California Foundation for Agriculture in the Classroom (*learnaboutag.org*)

- **Resource:** *Dry Bean Fact Sheet* (Grades 6-12)

North Carolina Farm Bureau Ag in the Classroom (*ncagintheclassroom.com*)

- **Lesson:** *Overfishing and Aquaculture* (Grades 3-8)

National Agriculture in the Classroom (*naitc.org*)

- **Lesson:** *Agricultural Production Regions in the United States* (Grades 9-12)

Utah Agriculture in the Classroom (*utah.agclassroom.org*)

- **Curriculum:** *Changes & Challenges* (Grades 6-8)

Websites

- California Dry Bean Advisory Board
  calbean.org
- Growing A Nation: The Story of American Agriculture
  agclassroom.org/gan

Books

- Kimmel, E. ***Jack and the Giant Barbecue.*** Two Lions Press, 2012.
- Dickmann, N. ***Protein (Healthy Eating with MyPlate).*** Heinemann Raintree, 2012.
- Ganeri, A. ***From Bean to Bean Plant.*** Heinemann Library, 2006.
- Saunders-Smith, G. ***Beans.*** Capstone Press, 1997.
- Blaisdell, M. ***Surprising Beans.*** Picture Window Books, 2008.

California Foundation for Agriculture in the Classroom
2600 River Plaza Drive, Sacramento, CA 95833 • (916) 561-5625 • (800) 700-AITC • *info@LearnAboutAg.org* • *LearnAboutAg.org*

Africa

Extension Ideas

Feel the Burn
How can you relieve the burning sensation after sampling an Aji Chombo or similarly hot pepper? Brainstorm different methods for relieving the discomfort of eating spicy foods. Design an experiment to test the efficacy of these different methods. Consider what data may be generated, and how data can be compared to determine the best solution.
Standard: NGSS: MS-ETS1-4

Sweet Stamping
Cut a sweet potato into thick slices. Use a paperclip to carve away the potato's flesh to create a simple design. After patting the potato dry, use a paintbrush to apply acrylic paint to the design. Stamp your design on paper, hold for several seconds to transfer paint completely. Once you get the hang of it, research patterns from a specific region of Africa. Use your research findings as inspiration for creating your next sweet potato stamp.
Standards: CA Art: 4.VA:Cr1.2, 6.VA:Cr1.2

The Science of Spice
Watch the TedEd Video "The Science of Spice" (*youtu.be/qD0_yWgifDM*). Record the physiological responses generated by spicy food. Divide the class into three groups, and instruct each group to make a jelly pepper using the same recipe, but featuring a different pepper (for example: serrano, habanero, and jalapeño). Compare flavors and spiciness. Note your own physiological response to eating the pepper jelly.
Standard: NGSS: MS-LS-1.8

Resources

North Carolina Sweet Potato Commission (*ncsweetpotatoes.com*)
- **Resources:** *Healthy Living, Math,* and *Technology Lesson Plans* (Grades K-5)
- **Activity Book:** *Digging for Sweet Potatoes* (Grades K-5)

New Mexico State University: Chile Pepper Institute (*cpi.nmsu.edu*)
- **Resource:** *The Story of Chile Peppers* (Grades 4-12)

New Mexico Agriculture in the Classroom (*newmexico.agclassroom.org*)
- **Lesson:** *The Whole Enchilada* (Grades 6-8)

Websites
- Sweet Potato Council of California
  casweetpotatoes.com
- Family and Consumer Sciences Chile Pepper Web Quest
  tinyurl.com/spicywebquest

California Foundation for Agriculture in the Classroom
2600 River Plaza Drive, Sacramento, CA 95833 • (916) 561-5625 • (800) 700-AITC • *info@LearnAboutAg.org* • *LearnAboutAg.org*

- The Food Timeline
  foodtimeline.org
- North Carolina Sweet Potato Commission
  ncsweetpotatoes.com

Books

- Ayres, K. ***Up, Down, and Around.*** Candlewick Press, 2007.
- Boone, D. ***Chile Pepper Pete.*** CreateSpace Independent Publishing, 2013.
- de Las Casas, D. ***The Gigantic Sweet Potato.*** Pelican Publishing, 2010.
- Lindsey, K. ***Sweet Potato Pie.*** Lee & Low Books, 2008.
- Monroe, J. ***George Washington Carver: Scientist and Inventor.*** Capstone Press, 2006.

Eastern Europe

Extension Ideas

Delicious Drupes
Walnuts and almonds are considered “drupes” because they have a fleshy fruit surrounding a shell with a seed inside. Other drupes include apricots, cherries, dates, pecans, peaches, and plums. Look up the definition of drupe in a dictionary online. Rewrite the meaning in your own words, and create a related illustration. In groups, share out and discuss.
Standards: CC ELA: RI.3.1,5, RF.3-5.2, SL.3-5.1, SL.3.6

Scientific Sketches
Luther Burbank, an American Horticulturist (1849-1926), developed the Paradox walnut, a hybrid between a black walnut and an English walnut. Burbank grafted Paradox black walnut rootstock onto English walnuts. Have students research, draw, and diagram an example of Mr. Burbank’s tree:

- The three parts of a walnut tree: rootstock, graft union, and scion
- English walnut in shell and opened: shell, shell-opened, and kernel
- Walnut cluster: leaf, fruit, shell, hull, and stem
- Flowering walnut branch: leaf, female flower, and catkin

Standards: NGSS: 4-LS1.A, MS-LS1.B

Almond Archive
Create a timeline by placing events in the correct chronological order.

A.D. 1900	California’s almond industry was well established.
Today	Almonds are California’s largest tree nut crop in total dollar value and in acreage.
1400 B.C.	First record of almonds growing.
A.D. 600-900	Almonds growing well in Spain, Morocco, Greece, and Israel
1352 B.C.	King Tut is buried with almonds, in preparation of his journey to the afterlife.
A.D. 1700	Franciscan Padres brought the almond tree from Spain to California.
A.D. 2000	California almond crops cover more than half a million acres in the San Joaquin and Sacramento Valleys.
2000 B.C.	Hebrew literature mentions almonds (Genesis 43).
A.D. 100	Romans showered newlyweds with almonds.

Standard: CA History-Social Science: Historical and Social Sciences Analysis Skills: Chronological and Spatial Thinking

Resources

California Foundation for Agriculture in the Classroom (*learnaboutag.org*)

- **Resource:** *Almond Fact Sheet* (Grades 6-12)
- **Resource:** *Walnut Fact Sheet* (Grades 6-12)
- **Thematic Unit:** *California Almonds: An Almond Story* (Grades 3-5)
- **Lesson Plans**: *A Walnut Orchard Through the Seasons* (Grades 2-3), *The Importance of Grafting* (Grades 4-5), *Naturally Nutritious* (Grades 6-8)

Almond Board of California (*almonds.com*)

- **Activity Book:** *An Almond Story* (Grades 3-5)
- **Video:** *An Almond Story* (Grades 3-8)

Websites

- Almond Board of California
  almonds.com
- Blue Diamond Growers
  bluediamond.com
- Walnut Marketing Board
  walnuts.org

Books

- Bryant, B. and B. Fentress. ***Almonds: Recipes, History, Culture.*** BF Publications, 2014.
- Hauck, P.E. ***A Timeless Journey Told by Mr. Walnut.*** Dab Publishing Company, 2000.
- Munoz, F. ***Almonds: Shake, Sweep, and Eat.*** Independent Publishing, 2019.

Fields of Green

Extension Ideas

Join the Field
Agricultural career options go well beyond farming and ranching. Invite a school academic counselor to visit your classroom and share their insight about pursuing an agriculture-related career. Prepare questions addressing agriculture-based colleges and universities, possible majors, and actions students can take today to prepare for their future careers.
Standard: CTE Standards for Career Ready Practice: 3

County Close-Up
Locate your county on a map of California (*learnaboutag.org/resources/learn/map.pdf*). Identify the top commodities produced in your county, identify why your county is best suited to produce certain commodities, and discuss how history, immigration, location, soil, climate, and water resources may affect the local agriculture industry.
Standards: CA History-Social Science: Grade 3: 3.1, 3.5

California Agriculture Opinion Survey
In small groups, develop surveys to learn the public's knowledge about California agriculture. Topics might include California's top ten commodities or top export markets. Ask your teacher or parent to review your survey and provide suggestions for improvement. Conduct surveys at school or in a safe, public place. Upon completion of the survey, illustrate your results with charts and graphs.
Standard: CC Math: 3.MD.B.3

Deepen with Data
Each year, the California Department of Food and Agriculture (CDFA) collects and summarizes production statistics for the entire state. Visit *cdfa.ca.gov/statistics* to review the most recent data. Gather and categorize information to create an informative poster to share with your class. List print and digital sources at the bottom.
Standards: CC ELA: W.3-5.8

Resources

California Foundation for Agriculture in the Classroom (*learnaboutag.org*)
- **Lesson Plan:** *An Ag Interview* (Grades 9-10)
- **Lesson Plan:** *That Was Then, This Is Now* (Grades 3-6)
- **Lesson Plan:** *A Day Without Dairy* (Grades 3-5)

National Center for Agricultural Literacy (*agliteracy.org*)
- **Lesson Plan:** *Journey 2050 Lesson 4: Economy* (Grades 6-8)

Utah Agriculture in the Classroom (*utah.agclassroom.org*)

- **Lesson Plan:** *Food Miles* (Grades 3-5)
- **Lesson Plan:** *Where Does It Come From?* (Grades 3-5)

The Food Project (*thefoodproject.org*)

- **Curriculum:** *Food Systems* (Grades 5-8)

Office of Education and the Environment (*calepa.ca.gov*)

- **Lesson Plan:** *California's Economy* (Grade 3)
- **Lesson Plan:** *The Dollars and Sense of Food Production* (Grade 2)

Websites

- Dirt to Dinner
  dirt-to-dinner.com
- NASA Crop Intensity Maps
  svs.gsfc.nasa.gov/3629

Books

- Butterworth, C. ***How Did That Get in My Lunchbox?*** Candlewick Press, 2013.
- Karas, G.B. ***On the Farm, at the Market.*** Henry Holt and Co, 2016.
- Priceman, M. ***How to Make an Apple Pie and See the World.*** Dragonfly Books, 1996.
- Rotner, S. ***Grow! Raise! Catch! How We Get Our Food.*** Holiday House, 2017.