

10th edition

What's Growin' On?

CA Crop Talk - Specialty Crops Edition



Extra! Extra! Classroom Extensions



California Foundation for
Agriculture in the Classroom

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Introduction

Welcome! Thank you for your interest in the California Foundation for Agriculture in the Classroom's (CFAITC) student activity newspaper, *What's Growin' On? CA Crop Talk—Specialty Crops Edition*. Developed by educators like you, *What's Growin' On?* offers fun and engaging ways to teach and practice core academic skills while demonstrating the importance of our food and fiber system.

The *Extra! Extra! Classroom Extensions* guide contains ideas and opportunities for extending the content presented in the student activity newspaper. Depending on the needs of your specific classroom, this teacher's guide includes inquiry-based lab ideas, related literature, and methods for incorporating technology into each learning experience. CFAITC encourages teachers to continue sharing life-long lessons outside the pages of the student newspaper, and have provided a list of field trip and guest speaker ideas that may strengthen student learning and comprehension. Finally, recognizing that each student in your classroom has uniquely different learning styles and educational needs, we have provided GATE and ELL adaptations that can help tailor each topic to the diverse abilities of your students. We hope you are able to deepen your student's learning through these lesson ideas.

The agriculture-themed examples and activities found in *What's Growin' On?* are designed to motivate and inspire your students, connecting classroom lessons to real-life experiences and circumstances. This is accomplished by weaving **agriculture** into teaching so students can better relate to food they eat, 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 new 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. CFAITC provides 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's Growin' On?* contact CFAITC via e-mail (info@LearnAboutAg.org) or phone (800-700-2482).

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Pumpkins & Squash: Treasures of the New World

Extension Ideas

1. **Be a Botanist.** Using the pumpkin diagram on page three of *What's Growin' On? CA Crop Talk—Specialty Crop Edition*, students work in groups to dissect a pumpkin. Instruct students to separate and label the pumpkin parts. Dissect other members of the Cucurbita family to identify similar (and different) anatomical structures.
2. **Game Time.** After students have read and discussed the material, use a Jeopardy-style game format to reinforce pumpkin parts, origins, and growth patterns. Categories could include “Before the Carve” (outer appearance), “Digging In” (what’s inside), “Edible Delights” (nutrition facts), and “Veggie Tales” (other Cucurbits and their uses).
3. **Balm Like an Egyptian.** How would you like to preserve your carved pumpkin to make it last longer? Using techniques to sterilize and seal surfaces in order to kill the growth of fungi, mold, bacteria, and insects, students can “embalm” pumpkins the same way the ancient Egyptians embalmed mummies. For more detail about the experiment, visit www.pumpkinpatchesandmore.org/carvedpumpkins.
4. **Giant Pumpkins.** Many communities in California have joined the giant pumpkin craze, hosting everything from fair competitions to citywide festivals to show off their prodigious pumpkins. Investigate the origin of “biggest produce” contests, typical contest rules and guidelines, growing tips, and state and world records. Students may even want to grow a giant pumpkin of their own!



Guest Speaker Idea

Find a local professional pumpkin carver (or artist) and invite them to do a demonstration for your class. Before your guest arrives, brainstorm a list of questions students would like to ask.

Field Trip Idea

This website provides a detailed list of California's pumpkin patches, corn mazes, hay rides, and other agriculture-based Halloween experiences! The list includes everything from local growers to elaborate farm stands with mountains of pumpkins and world record-breaking corn mazes. All sites have plenty of pumpkins to choose from. To create an educational experience your students will never forget, look for sites that have extra activities, like a corn maze, spook house, or hayride. There is usually a small fee for the mazes and hay rides. To find a pumpkin patch near you, visit www.pumpkinpatchesandmore.org/list/geography/United%20States/California.

Technology Opportunity

Brainstorm ways to use technology to carve a pumpkin. Some carvers have found success using power tools, such as a Dremel rotary tool. Watch a video online (www.youtube.com/watch?v=w6pNOQdLGWU) or give a live demonstration.

Inquiry Opportunity

Create a research opportunity that encourages students' curiosity about seed germination. First, encourage students to research the ideal environment for seed germination. Next, have students create a hypothesis around the question "how long does it take for a pumpkin seed to germinate?" Have students predict and write down how many days it will take. Distribute a clear plastic cup to each student. Have students dampen a paper towel, wad it up, and place it in the bottom of their cup. Nestle the seed on a side of the cup, between the cup wall and the paper towel. Keep track of the progress of the seeds each day with your students, making a note of when seeds sprout and sketching each day's progress. Don't forget to revisit their original hypothesis, identify variables, compare observations, and illustrate findings with a graph.



GATE Adaptation

Explore the buoyancy of pumpkins using the scientific method. Have student predict whether a variety of pumpkins will sink or float. Provide a large bucket of water and different varieties and sizes of pumpkins. Students should make a tri-fold display to show the entire process when finished: problem, hypothesis, materials, results, and conclusion.

Books About Pumpkins and Squash

Ayres, Katherine. **Up, Down, and Around**. Candlewick Press, 2007. When two children help plant a garden, they learn that peppers grow up, potatoes grow down, and pumpkin vines twine around and around. ISBN 978-0-7636-4017-0

Bauer, Joan. **Squashed**. Putnam Juvenile, 2001. Ellie Morgan's life would be almost perfect if she could get her potentially prizewinning pumpkin to put on about 200 pounds before the Rock River Pumpkin Weigh-In. ISBN 978-0-14-240426-3

Berger, Melvin. **Growing Pumpkins**. Newbridge Educational Publishing, 2007. This early science reader shows pumpkins from seed to fully grown, ready to be taken home. ISBN 978-1-4007-6175-3

Burckhardt, de Ann L. **Calabazas**. Capstone Press, 1999. This book, with Spanish text, shows the growing and harvesting of pumpkins. ISBN 978-1-56065-786-6

Evangelista, Gloria. **In Search of the Perfect Pumpkin**. Fulcrum Publishing, 2001. Share the adventures of the Pucci family as they search for the perfect pumpkin only to find it in their backyard. ISBN 978-1-55591-994-8

Farmer, Jacqueline. **Pumpkins**. Charlesbridge, 2004. This book introduces the pumpkin plant, including its anatomy, growth cycle, and historical importance. ISBN 978-1-57091-557-4

Fridell, Ron and Patricia Walsh. ***Life Cycle of a Pumpkin***. Heinemann Library, 2001. Learn how leaves protect pumpkins, how large they can grow, and look inside of them. ISBN 978-0-431-08460-2

Gibbons, Gail. ***The Pumpkin Book***. Holiday House, 2000. The life cycle of the pumpkin is clearly depicted in this picture book. How pumpkins are used at Thanksgiving and Halloween is also discussed. ISBN 978-0-8234-1636-3

Harris, Calvin. ***Pumpkin Harvest/La Cosecha de Calabazas***. Capstone Press, 2009. This book describes and illustrates the fall pumpkin harvest in both English and Spanish. 978-1-4296-3262-1

Keeler, Renee. ***Our Pumpkin***. Creative Teaching Press, 1995. A book about how to use math with a pumpkin. ISBN 978-1-57471-002-1

Koontz, Robin. ***Pick a Perfect Pumpkin***. Picture Window Books, 2011. Learn where pumpkins come from and how to harvest them. ISBN 978-1-4048-6011-7

Kroll, Steven. ***The Biggest Pumpkin Ever***. Cartwheel Books, 1993. Two mice raise and harvest a very large pumpkin. ISBN 978-0-590-46463-5

Krudwig, Vickie Leigh. ***Cucumber Soup***. Fulcrum Publishing, 1998. This counting picture book, full of whimsical insects, introduces students to many garden critters. ISBN 978-1-55591-380-9

Ray, Mary Lyn. ***Pumpkins: A Story for a Field***. Harcourt, 1996. In this fictional story, a field and pumpkins make one think about what is important in life. ISBN 978-0-15-201358-5

Rockwell, Anne. ***Pumpkin Day, Pumpkin Night***. Walker & Company, 2001. Jeffrey finds a perfect pumpkin that is not too big and not too small. ISBN 978-0-8027-7614-3

Rustad, Martha E. ***Pumpkin Harvest***. Capstone Press, 2008. In fall, pumpkins turn orange and are picked from patches. Check out pumpkins during and after the harvest. ISBN 978-1-4296-0026-2

Sloat, Teri. ***Patty's Pumpkin Patch***. G. P. Putnam's Sons, 1999. Patty's pumpkin patch is busy all year from plowing to planting to weeding to picking. This book shows in alphabetical fashion the creepy-crawly and feathered friends that live there. ISBN 978-0-399-23010-3

Titherington, Jeanne. ***Pumpkin Pumpkin***. Mulberry, 1986. A young boy plants a pumpkin seed and, after watching it grow, carves it and saves some seeds to plant in the spring. ISBN 978-0-688-09930-5

White, Linda. ***Too Many Pumpkins***. Live Oak Media, 2004. Rebecca Estelle finds a creative way to share her pumpkins when she accidentally plants and produces too many. ISBN 978-1-59112-831-1

CFAITC Resource

Check out CFAITC's resource, ***Fruits and Vegetables for Health***, a fourth through sixth grade unit, that contains five lessons designed to teach students about the production, distribution, and nutritional value of California-grown produce. Students will gain knowledge in geography, language arts, science, nutrition, and math as they learn about the process through which fruits and vegetables are transported from California farms to kitchen tables. Healthy eating is emphasized throughout. www.LearnAboutAg.org/lessonplans

Pistachios are Nut-tastic

Extension Ideas

1. **Culinary Creations.** Challenge students to create menu items featuring that little green snack—pistachios. Appetizers, salads, breads, main dishes, and desserts can be considered. Plan a “pistachio potluck” as a festive way to celebrate St. Patrick’s Day (and green foods). For recipe ideas, visit www.food.com/recipe-finder/all/pistachio.
2. **Meet Pete Pistachio.** Create a storyboard that illustrates the steps required to produce the perfect pistachio. Create characters of interest, intriguing destinations, challenges, and triumphs. Students can tell their stories of “Pete Pistachio” to one another, the whole class, or they can develop the story in written form with greater detail. Follow “Pete” from seed to package and meet the people who help him become most desirable. Submit the best stories to the *Imagine this...* Story Writing Contest (www.LearnAboutAg.org/imaginethis).
3. **Who’s the Heavyweight?** Give each student a cup of pistachios to crack and separate the shells from the meat. Students can take turns weighing the shells and the meat separately. Have a class discussion on their findings. What percentage of an in-shell pistachio is waste? What are some creative ways farmers can recycle the shells? What is the cost of shelled or in-shell nuts? Is one a better deal? Why might farmers prefer to sell pistachios in-shell or shelled?



Guest Speaker Idea

Invite a representative from a local nut company or fruit stand to share information about popular flavors, consumer packaging, and product shelf life.

Field Trip Idea

Show students firsthand how pistachios and other nuts are grown. Schedule your field trip during pistachio harvest, which usually begins in early September and continues for four to six weeks. Observe California pistachios as they are mechanically shaken from the tree (in under a minute) and visit the processing plant to see how machines remove the hull, or outer shell. The following farms grow pistachios in the San Joaquin and Sacramento Valley: Braga Organic Farms (Madera), Fiddymment Farms (Lincoln), Setton Farms (Terra Bella), and Yurosek Farms (Bakersfield).

Technology Opportunity

Producing pistachios starts the moment a seed is planted. Take a look into the process of planting, harvesting, drying, roasting, and packaging pistachios. Visit www.settonfarms.com to view a 12-minute video that illustrates the process. Have students record the many uses of technology they observe, including water delivery methods, in a graphic organizer.

Inquiry Opportunity

Pistachios are full of all kinds of goodness beneath their shells. But did you ever wonder how they compare to other nuts? Create an infographic to visually represent information, data, and knowledge about the nutritional value of pistachios. Students may wish to compare the nutrient value of pistachios to different nuts.

GATE

Help students discover the practicality of pistachio production by visiting www.nationmaster.com. Search geography, climate, and agriculture statistics by country. Instruct students to determine which countries are best suited to grow pistachios based on a variety of factors. Students will then draw and label a world map to show their findings. Later, students may write a summary of their findings and share conclusions about emerging patterns or themes.

CFAITC Resource

Check out CFAITC's resource, Agricultural Fact and Activity Sheets. These fact sheets include one page of current facts about agricultural commodities or natural resources including information on their history, production, top producing regions, varieties, and economic value. The second page features ideas for teachers. A pistachio fact sheet is available. www.LearnAboutAg.org/factsheets

Fancy Free, Floral-ly

Extension Ideas

1. **Draw a Still Life.** Cut flowers have a limited shelf life, and after a few days most flowers are not fresh enough to use in florist-quality arrangements. Contact a local flower shop and ask for a donation of soon-to-be wilted flowers. Use donated flora to practice flower arrangements in the classroom. Divide the flowers evenly and instruct students to think of symmetry in their arrangement as well as complementary colors. Once the arrangement is complete, students can draw a still life. If possible, use watercolor pencils. Donate arrangements to a local elder care center.



2. **A Rose By Any Other Name.** Flower names for girls (such as Iris, Lily, and Daisy) are really blooming! Bring in a baby name book and research the history of specific flower names. Discuss origin, popularity, and similarities with the actual flower.
3. **Build a Greenhouse.** Students can use a plastic bottle to create a miniature greenhouse. Cut about a third off the top of a 2- or 3-liter plastic soft drink bottle with a pair of scissors. Then, smooth out the edges by lightly rubbing sandpaper over the top. Students fill the container with 4-6 inches of soil and plant flower seeds of their choice. Place the greenhouse near a window that gets a lot of sun and water regularly. Inverting the top of the bottle and placing it back on the container will help collect dew and water the seeds. Check the temperature and humidity regularly to insure proper growth of established plants. For older students, use the model to illustrate and learn about the greenhouse effect.

Guest Speaker Idea

Invite a floral designer to your classroom to demonstrate the use of flowers in arrangements. The designer can introduce students to different flower varieties, assist the class with pruning techniques, explain the use of color and shape, and reinforce the importance of academic skills students are learning now.

Field Trip Idea

The California Cut Flower Commission (www.cffc.org) lists local growers on their website, under the "Industry" tab. Visit a grower near you and become informed about seasonal availability of flowers, varieties, and transportation.

Technology Opportunity

Use video to illustrate the greenhouse effect. Brainpop (www.brainpop.com) hosts several videos related to the greenhouse effect. Watch “Greenhouse Effect” (subscription required) or “Global Warming” (no subscription required) to learn more. Instruct students to fill out a Venn diagram during the video to keep track of similarities and differences between real greenhouses and the greenhouse effect.

Inquiry Opportunity

Create a research opportunity that encourages students' curiosity about flower preservation. First, encourage students to research why cut flowers deteriorate over time. What biological processes are evident? Challenge students to determine the best treatment for cut flower preservation. Treatments may include lime or lemon juice, lemon-lime soda, pennies, bleach, chlorine, aspirin, and more.

Brainstorm with the class potential treatments and why they think they will or will not effectively preserve flowers. Students should identify variables, establish a control, and select three different treatments for their flower. Students work in groups to determine the effectiveness of each treatment based on a set criterion. These criteria might include color, wilt factor, smell, and more.

GATE Adaptation

Instruct students to design a small flower plot for their backyard, using flowers suitable for their region. Students can research the characteristics of the flowers they plan to plant and keep in mind the following design tips:

- Flowers that grow taller should be placed in back.
- Different textures add interest to the viewers.
- Choose colors that complement each other.
- Annuals or perennials can be mixed together.
- Thematic flower beds feature plants with a similar feature, such as honeybee gardens, native plants, butterfly gardens, and tolerant plants.

Students may wish to illustrate their plan using colored pencils. Allow the class to select their favorite design and then create a replica in a large container.

Books About Flowers

Godwin, Sam. ***A Seed in Need***. Picture Window Books, 2001. Follow the life cycle of a sunflower seed in this colorful book. ISBN 978-1-4048-0920-8

Guillain, Charlotte. ***Spot the Difference: Flowers***. Heinemann Library, 2008. This book introduces children to the parts of a flower using intriguing photos of a variety of plants to provide child-friendly examples. ISBN 978-1-4329-0952-9

Gunderson, Jessica. ***The Sunflower Farmer***. Picture Window Books, 2008. Troy's dream is to be a farmer like his grandfather, so his mother helps him plant sunflowers but a disaster strikes. Does the flower survive? ISBN 978-1-4048-2293-1

Heller, Ruth. ***The Reason for a Flower***. Putnam Publishing Group, 1999. Brief text and lavish illustrations explain plant reproduction and the purpose of a flower. Uses unique flowering plants as examples. ISBN 978-0-698-11559-0

Hibbert, Clare. ***The Life of a Sunflower***. Raintree, 2004. Describes the life cycle of a sunflower, from seed to flower. ISBN 978-1-84443-312-4

James, Felix. ***From Field to Florist***. National Geographic, 2001. This nonfiction primary reader shows how flowers get from the field to the florist shop. ISBN 978-0-7922-8736-0

Lovejoy, Sharon. ***Sunflower Houses***. Workman Publishing, 2001. Garden discoveries, tips for growing plants, folklore, and crafts for children of all ages. ISBN 978-0-7611-2386-6

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

Royston, Angela. ***Strange Plants***. Heinemann Library, 1999. Discover what flower grows 10 feet tall, which plants eat insects, and what spores are. ISBN 978-0-431-00184-5

Spilsbury, Louise and Richard Spilsbury. ***Where Do Plants Grow?*** Heinemann Library, 2006. Explains how plants survive in a desert, why some flowers have furry petals, and which trees do not lose their leaves in fall. ISBN 978-1-4034-7367-7

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

Wellington, Monica. ***Zinnia's Flower Garden***. Puffin Books, 2005. Young readers will see how Zinnia's garden grows from seeds to flowers. ISBN 978-0-14-240787-5

Lovejoy, Sharon. ***Roots, Shoots, Buckets & Boots***. Workman Publishing, 1999. Twelve easy-to-implement ideas for theme gardens that parents, teachers, and kids can grow together are described in this book, including moon gardens and sunflower houses. ISBN 978-0-7611-1765-0

Parker, Steve. ***Sunflowers, Magnolia Trees and Other Flowering Plants***. Compass Point Books, 2010. This book explores the history of flowering plants and examines how they reproduce and obtain energy. Readers learn how flowering plants are used in agriculture. ISBN 978-0-7565-4222-1

Whitehouse, Patricia. ***Flowers***. Heinemann Library, 2002. This book introduces the physical characteristics, life cycle, and role of flowers in the world of plants. ISBN 978-1-58810-729-9

Worth, Bonnie. ***Oh Say Can You Seed?*** Random House Books, 2001. Learn all about flowering plants with the Cat in the Hat. ISBN 978-0-375-81095-4

CFAITC Resource

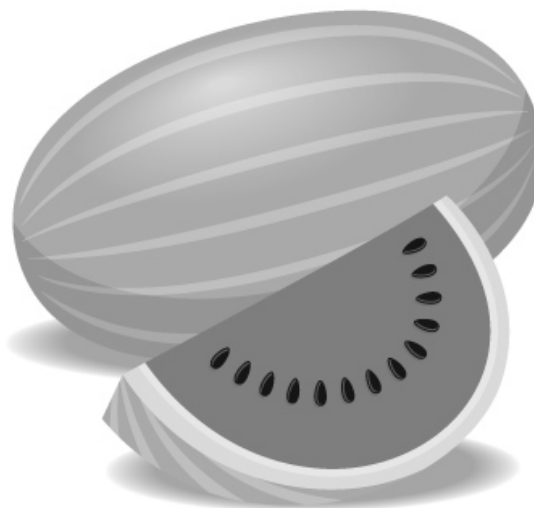
Check out CFAITC's resource, ***Agricultural Fact and Activity Sheets***. These fact sheets include one page of current facts about agricultural commodities or natural resources including information on their history, production, top producing regions, varieties, and economic value. The second page features ideas for teachers. A cut flower fact sheet is available.

www.LearnAboutAg.org/factsheets

Mmmarvelous Melons

Extension Ideas

1. **Measure Up.** Instruct students to compare the size (circumference and length) and weight of various melons in both standard and metric measurements. Display the results in inequalities and have students discuss their findings. Practice academic vocabulary such as: less than, greater than, circumference, pounds, ounces, grams, kilograms, millimeters, centimeters, inches, feet, customary units, metric units, etc.
2. **Rebus Word Puzzle.** Honeydew, watermelon, cantaloupe, and other melons can be easily represented by a rebus. A rebus is an allusional device that uses pictures or symbols to represent words or parts of words. It was a favorite form of heraldic expression used in the Middle Ages to denote surnames. For example, an image of two gates with a head would be a rebus for “Gateshead.” Have the class brainstorm a list of melon varieties and create rebuses to represent them. Students can quiz each other by taking turns showing their rebus and guessing its meaning.
3. **Making Math.** An important aspect of nutrition is understanding the concept of energy balance. Our bodies need energy to move, work, and play. The foods we eat contain the energy we need (in the form of calories) to be active. If we consume too many calories or are not active enough to balance the calories we take in, we gain weight. When students become aware of serving sizes and the caloric value of a serving, they can make better choices for themselves. Using the nutrition facts labels for a variety of melons (www.harvestofthemonth.cdph.ca.gov/EdCorner/nutrition-labels.asp) instruct students to create word problems. Focus on serving sizes and calorie, vitamin A, vitamin C, and fiber content. Pair students up to solve each other’s word problems, and then have them choose between the two to share with the class.



Guest Speaker Idea

Invite a local certified farmers market coordinator to visit your class to discuss the variety of melons produced locally. Ask the expert for tips in selecting a melon that is in-season and at peak ripeness.

Field Trip Idea

Take a trip to a local nursery that sells melon transplants. How are different varieties similar or different at this stage? Compare color, leaf size, blossom appearance, size, and stems. Discuss proper fertilizing and watering practices, pest control, and the best time to plant.

Technology Opportunity

A Web quest is an inquiry-oriented lesson in which most or all of the information that students explore and evaluate comes from the Web. This Web quest uses the book *Watermelon Day* by Kathy Appelt to teach interesting facts about watermelons and help students decide if a watermelon is a fruit or a vegetable.

www.westallegheny.k12.pa.us/mckee/reading_activities/grade%202/WebQuest.htm

Inquiry Opportunity

Many fruits and vegetables are harvested by hand. Modern technology, such as pick-up machines and conveyors, help farmers harvest melons. Cantaloupes are harvested with "sack" crews who empty the melons into bulk trailers. Crenshaw melon and other specialty melons are easily damaged and require special care in handling and transport to the packing area. Design a device which could protect the fruit from damage during harvest. Discuss the benefits of harvesting at different times of the day. For additional information, visit vric.ucdavis.edu/postharvest/fruitveg.htm.

GATE Adaptations

Agritourism involves any agriculturally-based operation or activity that brings visitors to a farm or ranch. Create an agritourism plan that takes visitors on a melon tour. Research the California regions that are best suited for melon growth and design a route to visit several melon farms. What areas would be designated for the different varieties? What activities could you come up with for visitors to do that would incorporate learning about melon production, distribution, and retail? Students can submit a brochure advertising their tour as a final project.

Books About Melons

Appelt, Kathi. ***Watermelon Day***. Henry Holt and Company, 1996. A young girl watches a watermelon's growth all summer, waiting for it to ripen. ISBN 978-0-8050-2304-6

Hickman, Pamela and Heather Collins. ***A Seed Grows***. Kids Can Press, 1997. This book, with fold-out pages, describes a watermelon plant's life cycle from seed to harvest. ISBN 978-1-55074-200-8

Moser, Lisa. ***Watermelon Wishes***. Clarion Books, 2006. When Charlie spends the summer growing watermelons with Grandpap, his secret wish is to do it all over again the next year. ISBN 978-0-618-56433-0

Perkins, Lynne Rae. ***Home Lovely***. Greenwillow Books, 1995. A lonely young girl living in an isolated trailer makes new friends and gains knowledge by growing flowers and melons. Along the way, she beautifies her home. ISBN 978-0-688-13687-1

Salas, Laura Purdie. ***Lettuce Introduce You: Poems About Food***. Capstone Press, 2009. Poems in various forms celebrate everything from watermelon to Brussels sprouts. ISBN 978-1-4296-1703-1

CFAITC Resource

Check out CFAITC's resource, ***A Garden Plot The Tale of Peter Rabbit***. This unit uses *The Tale of Peter Rabbit* and other stories by Beatrix Potter as a vehicle to teach reading, writing, and science concepts. This unit encourages students to think about where their food comes from, distinguish between fact and fiction, observe roots and soil, and write about personal experiences they have while caring for the personal gardens they create.

www.LearnAboutAg.org/lessonplans

Agricultural Fact and Activity Sheets include one page of current facts about agricultural commodities or natural resources including information on their history, production, top producing regions, varieties, and economic value. The second page features ideas for teachers. A cantaloupe fact sheet is available. www.LearnAboutAg.org/factsheets

Extension Ideas

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- A detailed black and white illustration of a variety of fruits and vegetables, including apples, grapes, carrots, and leafy greens, arranged in a dense, overlapping cluster. The illustration is rendered in a clean, stylized line-art style with some grey shading for depth. It includes items like a bunch of grapes, several apples, a carrot, a leafy green plant in a pot, and various other produce items.

Invite an economist into your classroom to discuss the importance of California's agriculture industry. Ask about the potentially negative consequences of a natural disaster, drought, or invasive species infestation on California's economy. How long would it take to recover? Would other states or countries be impacted? How would our lives personally be impacted? Students should chart the causes and effects as they are discussed.

Today there are more than 400 different commodities grown in California! In fact, if California were a country, its agricultural value would rank between fifth and ninth among countries in the world. Take advantage of California's unique climate and diverse production by visiting a farm in your own backyard. Help students plan questions to ask the farmer about the commodities they produce and where their product is sold.

Technology Opportunity

Study Stack is an online tool used to create virtual flashcards for studying any subject. On this site, students can create their own flashcards or use the California commodity cards already developed (www.studystack.com/flashcard-312862). Students may pair up and practice their agricultural knowledge, or connect to a classroom projector to quiz the whole class.

Inquiry Opportunity

Water is an essential resource for growing crops. Create a research opportunity that encourages students' curiosity about how water moves through soil. Students can design a water permeability test using 2-liter bottles with the bottoms cut off, colored water, and natural earth materials such as sand, gravel, ash, silt, and clay. Each group of students should invert their bottle, and fill a third of it with their choice of layered earth material. Each group will determine the appropriate method for testing water permeability (time, color of soil, etc.). Challenge students to answer the following questions: 1) How does water filter into the ground? 2) What are some of the things that control water filtration? 3) How can agriculturalists conserve water?

GATE Adaptation

How do other countries get crops that are grown exclusively in California? For a complete listing, visit www.agclassroom.org/kids/stats/california.pdf. Help students investigate the import/export process for commodities that are only grown in California. They should include transportation methods, costs, and destination countries. Create a classroom bulletin board that features a large map. Students can add trade routes (string) and import/export locations (push pins).

Books About California's Top 20 Commodities

Milk and Cream

Gibbons, Gail. **The Milk Makers**. Aladdin, 1987. Text and pictures explain how cows produce milk and how it is processed before being delivered to stores. ISBN 978-0-689-71116-9

Leeper, Angela. **Dairy Plant**. Heinemann Library, 2004. Take a field trip to a dairy plant and learn how milk is processed into butter, cheese, and ice cream. ISBN 978-1-4034-5166-8

Peterson, Cris. **Clarabelle: Making Milk and So Much More**. Boyds Mills Press, 2007. This book is about how cows produce much more than just milk. ISBN 978-1-59078-310-8

Grapes

Adler, Karen. **California Grapes**. Karen Adler Books, 2004. This children's book helps students understand how grapes came to California and the process involved in getting them from the vineyard to their tables. ISBN 978-0-9679772-4-9

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

Cattle

Urbigkit, Cat. ***Cattle Kids***. Boyds Mills Press, 2007. Cowboys and cowgirls take part in many aspects of livestock operations. ISBN 978-1-59078-508-9

Wallace, Bill and Carol. ***That Doggone Calf***. Holiday House, 2009. Cookie, a calf, thinks he is going to be in charge of the cattle, but Hoss, the dog, is not about to give up his job. ISBN 978-0-8234-2228-9

Strawberries

Gibbons, Gail. ***The Berry Book***. Holiday House, 2002. This nonfiction book introduces students to different types of berries, and explains how varieties are cultivated and harvested. Includes recipes for blackberry jam, blueberry pie, and raspberry ice cream. ISBN 978-0-8234-1697-4

Tomatoes

Graham, Pamela. ***Big Red Tomatoes***. National Geographic, 2001. Learn the unique life cycle of the tomato in this early science reader. ISBN 978-0-7922-9221-0

Landau, Elaine. ***Tomatoes***. Children's Press, 2000. In this true-to-life book, learn how tomatoes grow and the history of them. ISBN 978-0-516-26773-9

Walnuts

Hauck, Phillip E. ***A Timeless Journey Told by Mr. Walnut***. Dab Publishing Company, 2000. The walnut has made a special place for itself within the cultures of the world. In this book, students discover the folklore and history of the walnut, while learning about botany, horticulture, and production agriculture. ISBN 978-0-9662228-7-6

Flowers and Foliage

James, Felix. ***From Field to Florist***. National Geographic, 2001. This nonfiction primary reader shows how flowers get from the field to the florist shop. ISBN 978-0-7922-8736-0

Saunders-Smith, Gail. ***Flowers***. Capstone Press, 1998. Learn the anatomy and function of flowers through colorful photographs and primary text. ISBN 978-1-56065-769-9

Hay

Paulsen, Gary. ***The Haymeadow***. Yearling, 1994. John Barron is asked to spend the summer taking care of six sheep and is not quite sure how he will survive. ISBN 978-0-440-40923-6

Rice

Spilsbury, Louise. ***Rice***. Heinemann, 2001. Find out where rice is grown and what happens to it on the way from the farm to your table. ISBN 978-1-4034-4050-1

Dooley, Norah. ***Everybody Cooks Rice***. Carolrhoda Books, 1992. A girl's adventure at dinnertime introduces her to a variety of cultures and the ways that rice is used in the evening meal. ISBN 978-0-87614-591-3

Chickens

Hibbert, Clare. ***The Life of a Chicken***. Raintree, 2004. Describes the life cycle of a chicken, from egg to broiler or laying hen. ISBN 978-1-84443-308-7

Ray, Hannah. ***Chickens***. Crabtree Publishing, 2008. In this book, learn about chicken anatomy, life cycle, different breeds, and uses. ISBN 978-0-7787-4050-6

Oranges

Keller, Kristin Thoennes. ***From Oranges to Orange Juice***. Capstone Press, 2004. Follow along as oranges from an orange grove are taken to a factory and made into orange juice. ISBN 978-0-7368-2636-5

Spilsbury, Louise. ***Oranges***. Heinemann, 2002. Find out how oranges are grown and how they get from the farm to your table. ISBN 978-1-4034-4048-8

Trumbauer, Lisa. ***The Story of Orange Juice***. Yellow Umbrella Books, 2006. From pollination to processing plant, this narrative follows the transformation of fruit on the tree into juice in your glass. ISBN 978-0-7368-5838-0

Cotton

Nelson, Robin. ***From Cotton to T-Shirt***. Lerner Publications Company, 2003. Discover how a cotton T-shirt is created from start to finish in this simply-written, emerging reader book with colorful photographs. ISBN 978-0-8225-4661-0

Yu, Norman. ***Cotton Comes from Plants***. National Geographic, 2003. Learn how cotton is grown and made into the clothes we wear. ISBN 978-0-7922-4331-1

Carrots

Saunders-Smith, Gail. ***Carrots***. Capstone Press, 1997. This primary reader describes carrots from growing to processing to eating. ISBN 978-1-56065-488-9

CFAITC Resource

Check out CFAITC's resource, ***Edible Numbers***. This unit, for grades three through six, introduces students to the numerous commodities California farmers produce. Through a series of activities, students analyze, using mathematical and scientific processes, the food they buy at the grocery store and understand that it ultimately comes from plants or animals. This lesson also includes grocery ad scavenger hunts.

Agricultural Fact and Activity Sheets include one page of current facts about agricultural commodities or natural resources including information on their history, production, top producing regions, varieties, and economic value. The second page features ideas for teachers. More than 30 different commodity facts sheets are available. www.LearnAboutAg.org/factsheets

Have a Berry Special Day

Extension Ideas

1. **Taste Test.** Bring in samples of fresh, frozen, and dried berries for the class. Have students use all their senses by comparing appearance (color, shape and size), taste, aroma, firmness of fruit, and texture of the berries. Students should record their findings in a graphic organizer. Later students can collect data from their classmates and create a wordle to graphically represent the class's aggregate observations. To create a wordle online, visit www.wordle.net.
2. **Design a Berry Advertisement.** In small groups or individually, have students choose a berry and design a commercial or poster, advertising a "Berry Beauty." The advertisements should promote the berries' attractiveness, nutritional value, versatility, and availability. Students who chose to design a commercial will then act it out for the class; students who designed a poster will do a brief oral presentation. For information on the nutritional value of berries, visit nutrition.about.com/od/healthyfood1/a/berries.htm.
3. **Berry Beautiful Paint.** Make a berry-based paint. For instructions on how to make paint from berry juice, visit the website www.ehow.com/how_4884547_make-paint-berries.html. Instruct students to use a pencil to create a large sketch of the berry they would like to paint. Use the berry-based paint to fill-in the sketch. Once the paint is dry, have students outline their berries with black marker, which will create a more finished product. Note: Berry juice may stain clothing and countertops. Protect clothing and surfaces and have tools on hand to clean up any messes.



Guest Speaker Idea

A grocery store produce manager must handle all berry shipments with care. Invite a produce manager to your class to explain shipping, cold storage requirements, and the frequency of product turnover. Before the manager comes to class, make a class KWL chart (which tracks what students know (K), want to know (W), and have learned (L) about the topic) to pique interest and focus the discussion. After the speaker has finished, be sure to fill in what the class learned.

Field Trip Idea

Visit a local nursery that sells berry plants. Compare and contrast the plant growth patterns (height, spacing) and environmental requirements (sun, water, soil) for each type of berry. Identify the varieties of blueberries, strawberries, blackberries, and raspberries best for your region. Did you know that raspberries can vary in color—including red, yellow, purple, and black? For more information, visit www.raspberries.us/varieties.htm.

Technology Opportunity

Food safety practices are important in every stage of food production, preparation, and consumption. Best management practices have been developed by agriculture and government agencies, and each step in the process is inspected or monitored. View a video on how one California company makes food safety a priority during the planting, harvesting, inspection, storage, and shipment of strawberries. To view, visit calgiant.com/foodsafety.

Inquiry Opportunity

Create a research opportunity that encourages students' curiosity about acids and bases. Students can create their own litmus paper using white construction paper and a handful of blackberries. Visit www.stevespanglerscience.com/experiment/berry-ph-paper-sick-science for step-by-step instructions. Have students research the science behind using berries as a pH indicator. Challenge learners to test their litmus paper on a variety of liquids, including juice, milk, and soda. Students should create a hypothesis before testing each liquid, record their results, and compare their findings with others. Each group must conclude whether the homemade litmus paper is or is not an accurate way to measure pH.

ELL Adaptation

Smoothies have become a popular way to consume fruit. Split the class into five groups, and instruct each group to create their own version of a berry smoothie using the same five ingredients (berries, milk, yogurt, juice, and ice). Pour small sample cups and distribute to the class. After each group has tasted a smoothie, practice sentence building to promote vocabulary and use of adjectives. Each member of the group adds on to the description of a simple sentence that was started by the first person to describe their smoothie. For example, person #1 says, "The smoothie was **cold**." Person #2 says, "The **tart** smoothie was **sweet** and cold." Person #3 says, "I **enjoyed** the tart smoothie that was sweet and cold **like ice cream**." Person #4 says "I enjoyed the tart, **refreshing**, smoothie that was sweet, **fresh** and cold like ice cream." Capture each group's sentence on the board and compare the adjectives used to describe the smoothie.

Books About Berries

Gardella, Tricia. **Blackberry Booties**. Scholastic Books, 2000. Mikki Jo wants to give her new baby cousin the perfect gift but doesn't know how to make anything. What she does know is how to pick blackberries. But babies don't eat blackberries, so Mikki figures out how to make the perfect gift. ISBN 978-0-531-30184-5

Gibbons, Gail. **The Berry Book**. Holiday House, 2002. This nonfiction book introduces students to different types of berries, and explains how varieties are cultivated and harvested. Includes recipes for blackberry jam, blueberry pie, and raspberry ice cream. ISBN 978-0-8234-1697-4

Giesecke, Ernestine. **Wetland Plants**. Heinemann Library, 1999. Discover how many kinds of wetlands exist, why Venus flytraps eat insects and spiders, and where cranberries grow. ISBN 978-1-4034-0529-6

Sloat, Teri and Betty Huffman. **Berry Magic**. Alaska Northwest Books, 2004. An Alaskan folk story about Anana, a young girl who spreads different types of berries in her village's fields. ISBN 978-0-88240-575-9

Trapani, Iza. ***Here We Go Round the Mulberry Bush***. Charlesbridge Publishing, 2006. The traditional nursery rhyme is expanded into a lively story when pesky insects and animals invade the garden. ISBN 978-1-57091-663-2

CFAITC Resources

Agricultural Fact and Activity Sheets include one page of current facts about agricultural commodities or natural resources including information on their history, production, top producing regions, varieties, and economic value. The second page features ideas for teachers. A strawberry fact sheet is available. www.LearnAboutAg.org/factsheets

Fruits and Vegetables for Health, a fourth through sixth grade unit, contains five lessons designed to teach students about the production, distribution, and nutritional value of California-grown produce. Students will gain knowledge in geography, language arts, science, nutrition, and math as they learn about the process through which fruits and vegetables are transported from California farms to kitchen tables. Healthy eating is emphasized throughout. www.LearnAboutAg.org/lessonplans

Underground Edibles

Extension Ideas

1. **Above Ground Observations.** Gather examples of root vegetables, such as carrots, beets, radishes, rutabagas, kohlrabi, and turnips from a farmers' market. Make sure these examples still have their green tops attached and smaller secondary roots. Have students note the similarities and differences in appearance, taste, texture, and fragrance. Cut each vegetable longitudinally and instruct students to identify and record the vegetable's anatomical parts.
2. **Potato Stamps.** For this art activity, students will create stamps out of potatoes. First, cut the potato in half. Have students use cookie cutters to imprint an image or draw their own design on the flesh. Help students cut around their design, leaving about ¼ inch raised. Instruct students to use alternating stamps to create a pattern. Teachers may use this activity to reinforce concepts of color (i.e., create a pattern using “cool” colors, mimic the color sequence found in a rainbow), stamp on different colored backgrounds to show positive and negative space, or let the students explore on their own. For more information, visit www.msfb.com/Programs/AITC/potato.pdf.
3. **Literary Connection.** Read the book, *Tops and Bottoms*, by Janet Stevens to the class (even upper grades enjoy picture books every now and then). Stop half way through and have students predict the ending. Finish the book and instruct students to create their own story that teaches readers about roots, tubers, and bulbs.



Guest Speaker Idea

Invite a chef to visit your class and demonstrate how to cook their favorite “underground edibles” dish. Ask the chef to emphasize the nutritional value of eating fresh vegetables and share a “kid-friendly” recipe with the students as well.

Field Trip Idea

There are more than 100 Community Supported Agriculture (CSA) programs in California. CSAs grow a variety of products, including many roots, tubers, and bulbs. Find a CSA near your community (www.localharvest.org/csa) and schedule a visit to their farm to find out how they are helping Californians buy local agriculture products. If possible, subscribe your classroom to the farm's CSA, so your class can try new produce, including underground edibles, on a regular basis.

Technology Opportunity

A Web quest is an inquiry-oriented lesson in which most or all of the information that students explore and evaluate comes from the Web. In this Web quest, students learn about the phytochemicals found in fruits and vegetables (including carrots and onions), and the benefits of eating these foods as part of a balanced diet.

glencoe.mcgraw-hill.com/sites/007877800x/student_view0/unit2/webquest.html

Inquiry Opportunity

Create a research opportunity that encourages students' curiosity about onions. Challenge students to research why cutting onions makes people cry, and develop a method for cutting onions that does not cause one's eyes to water. Students should create a hypothesis, summarize their research, and record their steps. Buy fresh onions and have students demonstrate their strategies for reducing tears. Time how long it takes for the "subjects" eyes to react. Rate each strategy based on its effectiveness. As a class, discuss the chemical and biological processes involved.

ELL Adaptations

Practice using vocabulary about underground edibles by playing the "I Am, They Are" game. Create cards that highlight facts about tap roots, fibrous roots, tubers, and bulbs. The card should read:

"I am a (tap root/fibrous root/tuber/bulb), but they
are (description of a different type of underground edible)."

Distribute the cards to each student or pair of students. Start the game by reading your card, "I am a tap root, but they are planted in the ground and act as an underground storehouse." The students with "bulb" cards should stand as they realize their definition. The first student standing says their card next, "I am a bulb, but they have leathery skin and have growing points where new plants can develop." Again, "tubers" would stand. The game continues until each card has been read. Since there will be multiples of each type of underground edible, there are many different outcomes to the game and no right order.

Books About Roots, Tubers and Bulbs

Bodach, Vijaya Khisty. **Roots**. Capstone Press, 2007. Describes different types of roots, how they help the plant get food, and some that we eat. ISBN 978-0-7368-6345-2

Coy, John. **Two Old Potatoes**. Alfred A. Knopf, 2003. A father and daughter plant two old potatoes they found in a cupboard and learn how this vegetable grows. ISBN 978-0-375-92180-3

Davis, Aubrey. **The Enormous Potato**. Kids Can Press, 1997. See what happens when a farmer plants a potato eye. Who can pull it out of the ground? ISBN 978-1-55074-386-9

de Las Casas, Dianne. **The Gigantic Sweet Potato**. Pelican Publishing, 2010. Join Ma Farmer in growing a sweet potato from the market to needing help picking, so she can make her sweet potato pie. ISBN 978-1-58980-755-6

Hester, Denia. ***Grandma Lena's Big 'Ol Turnip***. Albert Whitman & Company, 2005. Grandma Lena grows a turnip so big that she needs help pulling it out of the ground and eating it. ISBN 978-0-8075-3027-6

Monroe, Judy. ***George Washington Carver: Scientist and Inventor***. Capstone Press, 2006. Learn how George Washington Carver found hundreds of uses for peanuts and sweet potatoes. ISBN 978-0-7368-4345-4

Peck, Jan. ***The Giant Carrot***. Dial Books for Young Readers, 1998. Little Isabelle's family decides to plant a carrot seed, and each will do their part to make it grow. ISBN 978-0-8037-1823-4

Saunders-Smith, Gail. ***Carrots***. Capstone Press, 1997. This primary reader describes carrots from growing to processing to eating. ISBN 978-1-56065-488-9

Tagliaferro, Linda. ***The Life Cycle of a Carrot***. Capstone Press, 2007. Simple text and photos illustrate the transformation from seed to carrot. ISBN 978-0-7368-6713-9

Tolstoy, Aleksei and Niamh Sharkey. ***The Gigantic Turnip***. Barefoot Books, 2005. This nineteenth century Russian story shows how a farmer and his wife pull a gigantic turnip out of the ground with the help of their friends. ISBN 978-1-905236-72-5

Zuckerman, Larry. ***Potato: How the Humble Spud Rescued the Western World***. North Point Press, 1999. Tells the story of how this vegetable, once regarded as trash food, had a revolutionary impact on Western history. ISBN 978-0-86547-578-6

CFAITC Resources

Agricultural Fact and Activity Sheets include one page of current facts about agricultural commodities or natural resources including information on their history, production, top producing regions, varieties, and economic value. The second page features ideas for teachers. A carrot fact sheet is available. www.LearnAboutAg.org/factsheets

Fruits and Vegetables for Health, a fourth through sixth grade unit, contains five lessons designed to teach students about the production, distribution, and nutritional value of California-grown produce. Students will gain knowledge in geography, language arts, science, nutrition, and math as they learn about the process through which fruits and vegetables are transported from California farms to kitchen tables. Healthy eating is emphasized throughout. www.LearnAboutAg.org/lessonplans

Superb Herbs

Extension Ideas

1. **Be a Botanist.** Grocery and produce markets carry a variety of fresh herbs. Collect various culinary herbs for students to sketch and label. Students should note appearance, scent, touch, and taste in a pictorial journal. Older students should also identify the leaf type and scientific classification. After the study, create an herb identification quiz. Students will match the name of each herb to the correct specimen.
2. **Plant an Herb Garden.** Search for “herb garden” on Lowe’s Creative Ideas website (www.lowescreativeideas.com) to find an idea that works for your class. Ideas include themed pots (pizza garden, Mexican herbs), large container gardens, and indoor gardens. Before deciding on what herbs to plant, have students interview a family member to find out what fresh herbs they would use the most. Discuss how cultures use different herbs and spices to create a distinct flavor.
3. **Helpful Herbs.** Using the “Medicinal Herbs Word Search” on page fourteen of *What’s Growin’ On? CA Crop Talk—Specialty Crop Edition*, research how each herb can be used for medicinal purposes. Identify potential dangers and toxicity levels. Remind the class to never use a medicinal herb without consulting with a doctor. Consultants at health food stores can also guide you to safe medicinal herbs. The National Institute of Health has a helpful handout: ntp.niehs.nih.gov/files/herbalfacts06.pdf.
4. **Harvesting Herbs.** Learn how to harvest herbs by watching an instructional video. Students can practice what they learn by harvesting herbs from a garden or the school landscape. Check out this informative video: video.about.com/herbgardens/How-To-Pick-Herbs.htm.



Guest Speaker Idea

Invite a farmer to your classroom to explain the day-to-day responsibilities of managing an herb farm. Be sure to ask the farmer how the herbs are grown, harvested, and transported to consumers. As a thank you, create and share a snack that features one of the herbs the farmer produces.

Field Trip Idea

Show students firsthand how herbs are grown. Lavender farms are popular attractions in many areas. Growers can introduce different varieties of lavender (English, French, and Spanish), culinary and medicinal uses, and demonstrate craft ideas. The following farms are just a sampling of the many lavender farms located in California: Lavender Hollow Farm (Escalon), The Lavender Farms in Lincoln (Lincoln), Clairmont Farms (Los Olivos), Keys Creek Lavender Farm (Valley Center), Green Acres Lavender Farm (Atascadero), and Cache Creek Lavender (Rumsey). Search online for a farm near you.

Technology Opportunity

Instruct students to create an electronic spreadsheet to organize information about herbs. Students can research and record the herb's name, available form (fresh, dry, frozen, whole seeds, ground) and what foods they complement. This information can be made readily available to the household chef. Advanced students can record the cost per ounce of each form and create an appropriate graph to illustrate their findings.

Inquiry Opportunity

Create a research opportunity that encourages students' curiosity about plant physiology. Collect various culinary herbs. Challenge the student to determine what percent of the fresh herb is water. Students can test their hypothesis by developing a scientific process to dry the herbs and measure the water loss. Instruct students to present an oral summary of their findings. They should include information about the role of water in plant physiology and theorize why dry herbs have a higher concentration of flavor.

ELL Adaptations

The word "herb" has a silent "h" at the beginning of the word—at least in the American English pronunciation. As a class, brainstorm other words that begin with a silent "h" and instruct students to use all the words in a sensible paragraph. For example:

The *heir* took ownership of the property and business after the tragic death of the father. He was heard speaking to his mother, "I am *honored* that dad thought so highly of me as to entrust me with this great responsibility." The mother told him it was because of his ability to be *honest* and fair with customers, that he was chosen. To pay *homage* to his father, the son built a memorial at the father's favorite place to sit in the town's public park. At any *hour* of the day, people can be seen sitting on the bench and enjoying the beauty of the park.

Books About Herbs

Bass, Jules. ***Herb, the Vegetarian Dragon***. Barefoot Books, 2005.

In this light-hearted book, readers see that people with various eating preferences can learn to co-exist in the same community. ISBN 978-1-902283-36-4

Biggs, Matthew et. al. ***Vegetables, Herbs & Fruit***. Laurel Glen, 2002. This illustrated encyclopedia features detailed information, tips, and advice on edible plants and gardening. ISBN 978-1-55407-126-5

Pallotta, Jerry. ***The Spice Alphabet Book***. Charlesbridge, 1994. Information on the history, sources, and uses of herbs, spices, and other natural flavors. ISBN 978-0-88106-898-6

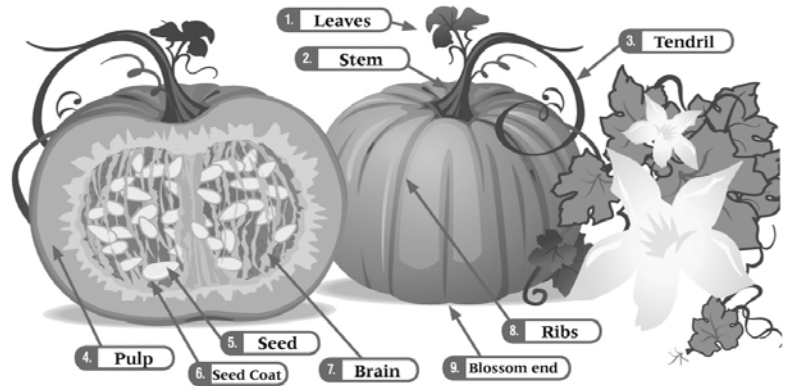
Turner, Jack. ***Spice: A History of Temptation***. Alfred A. Knopf, 2005. An original history of the spice trade and the appetites that fueled it, including discussions on spice myths, archeology, and literature. ISBN 978-0-375-70705-6

What's Growin' On? Activities Answer Key

Page 3: Pumpkins & Squash

Identify the parts of the pumpkin.

1. Leaves
2. Stem
3. Tendril
4. Pulp
5. Seed
6. Seed Coat
7. Brain
8. Ribs
9. Blossom End



Solve the Punnett square.

- How many of the offspring are dark green? **2**
 What is the percentage of dark green offspring? **50%**
 Convert the percentage into: Fractions: $\frac{1}{2}$ Decimals: **.50**
 How many of the offspring are yellow? **2**
 What is the percentage of yellow offspring? **50%**
 Convert the percentage into: Fractions: $\frac{1}{2}$ Decimals: **.50**

	B	b
b	Bb	bb
b	Bb	bb

Page 8–9: California Grows...

Identify climate regions and top crops grown in each (answers may vary).

Mountain Region: Cattle & Calves, Almonds, Hay, Rice

Pacific Region: Grapes, Woody Ornamentals, Strawberries, Milk

Central Valley Region: Milk, Rice, Almonds, Cattle & Calves

Desert Region: Milk, Cattle & Calves, Woody Ornamentals, Hay

Page 10: The Garden Center

Match the scientific name to the common name.

1. d
2. e
3. a
4. c
5. b

- | | |
|--------------------------------|--------------------------------|
| 1. Juniperus chinensis 'Aurea' | a. Flowering Pear |
| 2. Myrsine africana | b. Chinese (Tropical) Hibiscus |
| 3. Pyrus calleryana | c. Canary Island Pine |
| 4. Pinus canariensis | d. Gold Coast Juniper |
| 5. Hibiscus rosa-sinensis | e. African Boxwood |

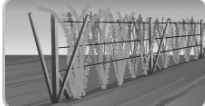
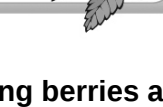
Drip irrigation in the garden.

1. Determine the square area ($A = l \times w$) of your garden. **2,400 sq. ft.**
2. How many feet of irrigation tubing will you need to irrigate all 10 rows? **1,200 ft.**
3. What will the total cost be if the irrigation tubing costs \$0.05 per foot? **\$60**

Page 11: Have a Berry Special Day

Match the berries.

Activity Match the berries below to how they are grown and what they look like.

How they are grown	Type of Berry	What it looks like
	Strawberry	
	Blueberry	
	Blackberry	
	Raspberry	

Calculate the costs of purchasing berries at the U-Pick farm.

- $\frac{1}{2}$ a pound of raspberries: **\$1.63**
 $\frac{1}{4}$ pound of blueberries: **\$0.82**
 $1\frac{3}{4}$ pounds of strawberries: **\$5.23**

Page 12: Underground Edibles

Rearrange the circled letters.

1. Potato
2. Turnip
3. Beet
4. Carrot

Square Roots

How many onion seeds can you plant? **81**

Perimeter: **18 ft.**

Area: **20.25 ft²**

Activity It grows in soil, but can I eat it? There are many underground edibles that are a part of our diets! Rearrange the circled letters in the facts below to learn more about underground edibles.

The first food ever grown in outer space.

Used in the 1700s to provide feed for cattle during the winter.

Since the 1700s, it has been used as a natural dye.

Originally purple in color, this vegetable originated in central Asia.

Page 13: Food Safety is a Team Effort

Crossword

Across

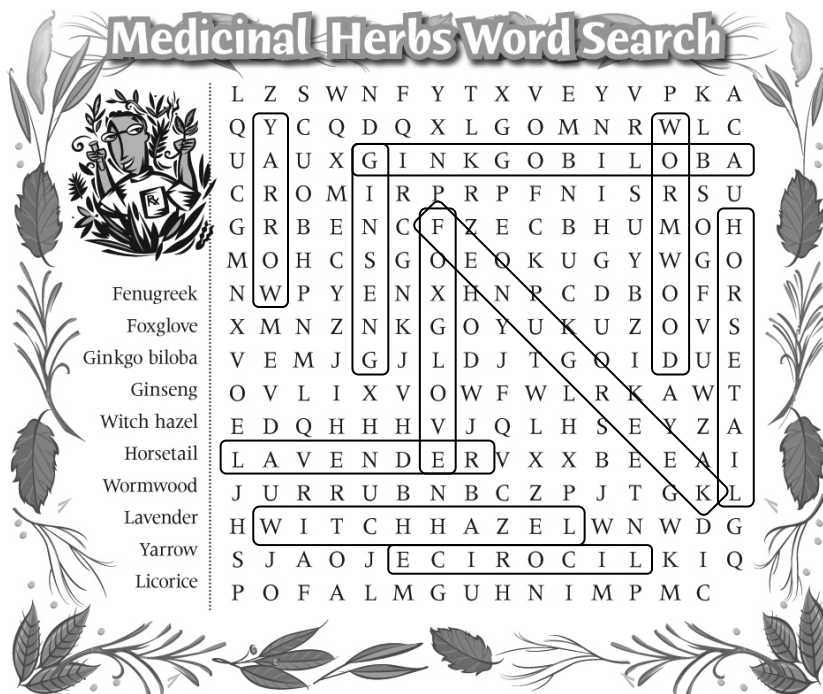
2. Coldchain
3. Monitor
6. Sanitary
7. Rind

Down

1. Pathogen
2. Crop
4. Clamshell
5. Grower

Page 14: Superb Herbs

Word Search



Convert the ingredients.

- 4 tablespoons dried oregano = **1/4** cup fresh oregano
1 1/3 tablespoons dried thyme = **1/12** cup fresh thyme
8 tablespoons dried basil = **1/2** cups fresh basil