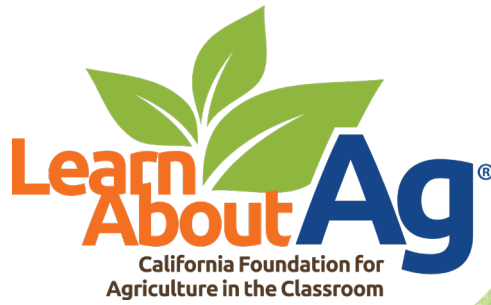


# California Farm Day



## Welcome to California Farm Day!

Think about your clothes, paper, shoes, toothpaste, medicine, and basketballs. Do you ever wonder what these products have in common? They all come from agriculture. California farmers and ranchers produce more than 400 different crops that are made into the things that we use every day. This workbook will help you explore the top 10 commodities in California!

**LearnAboutAg.org**



# California's Top Commodity – Dairy and Dairy Products!

Did you know that the most common dairy breed in California is the black and white Holstein? California produced 39.8 billion pounds of milk in 2017 and yogurt, ice cream, cheese, and butter are all dairy products. Approximately 1.73 million dairy cows produce milk on approximately 1,300 dairies located throughout the state. California's available land, mild climate, and plentiful feed supply make it a desirable and productive location for dairies. A dairy cow must give birth to a calf to produce milk.



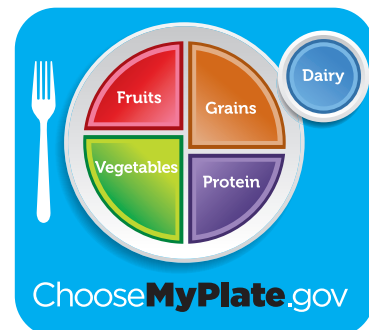
## Healthy Food Scramble

Unscramble the words to finish each sentence.

- Yidra \_\_\_\_\_ foods are an important part of a healthy diet.
- Milk is a good source of lmccua \_\_\_\_\_ which is important for strong bones.
- Gtyour \_\_\_\_\_ and ceeshe \_\_\_\_\_ are examples of dairy foods.
- Milk has rtpneoi \_\_\_\_\_ which is good for building muscle.
- Children ages 9 and older, as well as adults, should consume erhte \_\_\_\_\_ servings of dairy foods each day.

## MyLunch

MyPlate is an illustrated guide from the United States Department of Agriculture of what a balanced meal looks like. It should include: grains, protein, vegetables, fruits, and dairy. What should you put on your plate? Draw or write foods for your own MyPlate for lunch. Make sure you create a balanced meal. See [www.choosemyplate.gov/about](http://www.choosemyplate.gov/about) for more details of what each food group contains, as well as portions. Share your balanced meal with your classmates.



## Cheese Around the Clock

How might you and your family enjoy cheese (or other dairy products) around the clock? If you get stuck, the Dairy Council of California ([healthyating.org](http://healthyating.org)) hosts dozens of healthy recipes that include cheese.



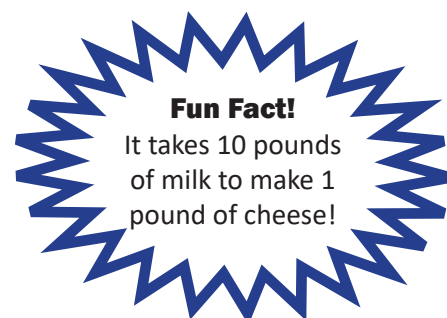
Mealtime	Meal Idea
Breakfast	
Morning Snack	
Lunch	
Afternoon Snack	
Dinner	
Dessert	

### Standards:

CC ELA: L.4.2.D; L3.3.A (Healthy Food Scramble Activity)

CA Health Education: Grade 4: 6.1.N (MyLunch Activity)

CA Health Education: Grade 4: 6.1.N; Grade 5: 5.1.N (Cheese Around the Clock Activity)



# California's 2nd Top Commodity – Almonds!

Did you know a handful (one ounce, about 23 almonds) has the same amount of calcium as  $\frac{1}{4}$  cup of milk and the same amount of fiber as an apple or orange? California produces 100% of the United States almonds and about 80% of almonds purchased in the world! The largest almond-growing region in the world is California's Central Valley, an area stretching nearly 500 miles. Top producing counties include Kern, Fresno, Stanislaus, Merced, and Madera.

## Fun Fact!

There are more than 40 different varieties of almonds commercially grown.



## Swedish Toscas (Almond Tarts)

Solve the questions below to discover a recipe for Swedish Toscas!

*Ingredients:*

- $\frac{3}{4}$  Tablespoons butter +  $\frac{1}{2}$  tablespoons butter = \_\_\_\_\_ tablespoons butter
- $\frac{1}{8}$  cup sugar +  $\frac{1}{8}$  cup sugar = \_\_\_\_\_ cup sugar
- $\frac{1}{2}$  cup flour +  $\frac{3}{4}$  cup flour = \_\_\_\_\_ cup flour
- $\frac{3}{8}$  cup slivered almonds = \_\_\_\_\_ cup slivered almonds
- $\frac{3}{8}$  cup brown sugar = \_\_\_\_\_ cup brown sugar
- $\frac{3}{2}$  tablespoons cream = \_\_\_\_\_ tablespoons cream



## Fractions of Fractions

The Swedish Toscas recipe above makes 12 tarts. Please use the answers above and determine what the recipe would be if you only wanted to make six tarts. Write the recipe below.

## 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 the space below.

## Fun Fact!

Almond hulls can be used as cattle feed.

Standards:

CC Math: 3.NF.A.3, 4.NF.B.3.B, 4.NF.B.3.D (Swedish Toscas Activity); Standards: CC ELA: RI.3.1,5, RF.3-5.2, SL.3-5.1, SL.3.6 (Delicious Drupes Activity)

# California's 3rd Top Commodity – Grapes!

Did you know that grapes have been an important part of agriculture for more than 300 years? California produces 99% of the nation's commercially grown grapes and they are not only consumed as fresh table grapes, but also as raisins, and in wine. California's table grapes are produced in the Coachella and San Joaquin Valleys, which include Fresno, Kern, Kings, Madera, Riverside, and Tulare counties. Fresh table grapes are available in California from January through May. Grapes of all colors make a healthy snack. Grapes are an excellent source of vitamin K, and contain 7% of the recommended daily intake for potassium.



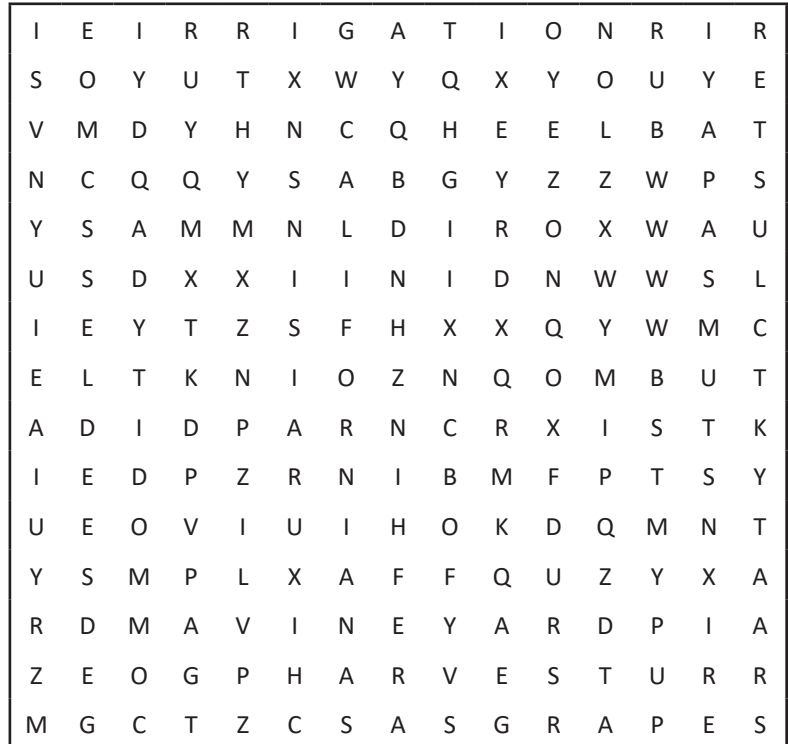
**VINEYARD  
IRRIGATION  
GRAPES  
SEEDLESS  
COMMODITY  
RAISINS**

**ANTIOXIDANT  
CLUSTER  
HARVEST  
TABLE  
CALIFORNIA**

## RED or GREEN

Survey your class to determine if red grapes or green grapes are more popular. Record tallies below. Create a bar graph depicting your results.

Grape	Tallies
Red	
Green	



## Recipe Conversion!

You need to follow a recipe to make a sweet spread for your breakfast toast. The recipe is in grams, but you only have a measuring device for ounces. Convert the recipe for ounces. 1 gram = 0.035 ounces

Ingredient	Grams	Ounces
Raisin juice concentrate	5000	
Cinnamon	15	
Raisin paste	1200	
Cream cheese	400	
Vanilla extract	70	



## “Grape Structures STEM Challenge”

Be an engineer using only grapes and toothpicks and create the tallest structure that you can. Talk about which structures are strongest and the tallest. What made them work so well? Try a new design with what you learned, share with your class, and then eat your creation!

Standards:

CC: Math: 5.MD.A.1 (Recipe Conversion); NGSS: 3-5-ETS1-3 (Grape Structures STEM Challenge)

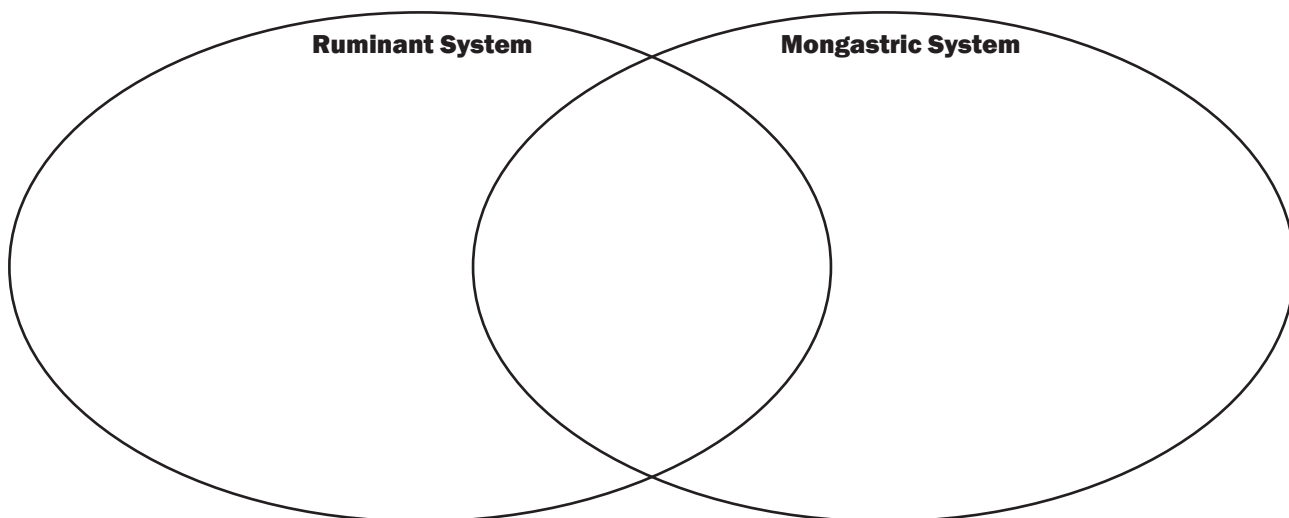
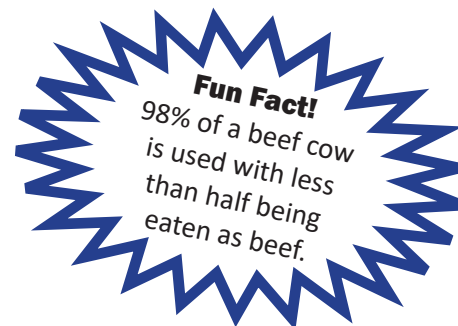
# California's 4th Top Commodity – Cattle and Calves!

The five most popular sports in the United States depend on by-products from cattle: baseball, football, basketball, soccer, and volleyball. All the balls are made from leather which is the hide of the animal. There are beef cattle grown in every county in California except San Francisco! There are approximately 660,000 beef cattle on about 11,000 ranches throughout the state. Most beef cattle in California graze on land that cannot be used for raising other crops. Cow-calf producers make up the largest segment of California cattle operations. These ranchers have herds of breeding cows, replacement heifers (young cows), and bulls.



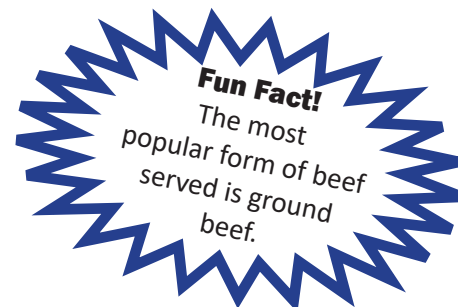
## The Chambers of Secrets

The reason that cattle are able to eat grass, and why humans cannot, is because they have a four-chambered stomach. Humans only have a single-chambered stomach. Explore the difference between a cow's stomach (ruminant system) and a human's stomach (monogastric system) using the Beef Fact and Activity Sheet and compare and contrast the two systems using the Venn Diagram below.



## Cowboy Poetry

Cowboy poetry is as old as cowboys themselves! The tradition began on the long cattle drives of the 1880s. A cowboy poem is a narrative type of poetry with a western theme. Use the information you've learned about beef from the California Farm Day presentation and do your own research to write a cowboy poem in the space below that you memorize or read to your class.

A large, empty rectangular box with a black border, intended for students to write their cowboy poem.

### Standards

CC ELA: WHST.6-12.4, WHST.6-12.6, SL 6-12.5; NGSS: 5-LS2-1, MS-LS2-3 (Chamber of Secrets Activity);

CC ELA: W.3.10, W.4.10, W.5.10, W.6.10, W.6.9A (Cowboy Poetry)

# California's 5th Top Commodity – Strawberries!

Did you know the average strawberry has 200 seeds? Strawberries that thrive along California's coast are able to be grown year-round because of the ideal climate conditions. During peak season, April, May, and June, about 72 million pounds of strawberries are harvested per week! Within 24 hours of being picked, the berries are loaded into refrigerated trucks and transported across the country and the world. 88% of the berries grown in the United States come from California. Berries are sold as fresh or frozen, or they are used as ingredients in other products. The leading counties in strawberry production include Santa Barbara, Orange, Ventura, San Diego, Monterey, Santa Cruz, and San Luis Obispo.



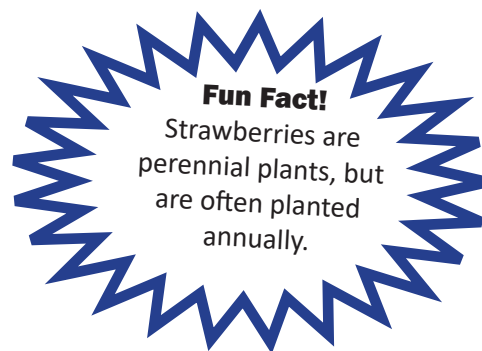
## Strawberry Geography

Using the information on this page, identify the top producing counties in California where strawberries are grown on the map below.



### Research the answers to these True/False Questions.

1. Strawberries have lots of Vitamin C. \_\_\_T/\_\_\_F
2. Strawberries each have about 50 seeds. \_\_\_T/\_\_\_F
3. California produces about 88% of the strawberries grown in the United States. \_\_\_T/\_\_\_F
4. Strawberries grow on trees. \_\_\_T/\_\_\_F
5. The country of Belgium has a strawberry museum. \_\_\_T/\_\_\_F



## Pests in Strawberry Production

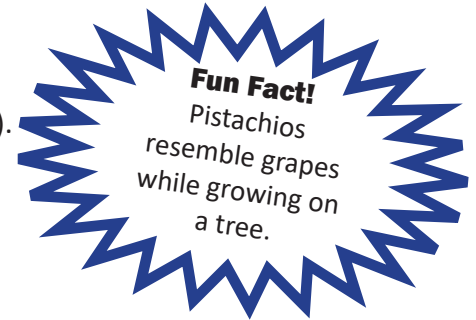
Research different pests that affect strawberry production and methods for controlling these pests from the California Strawberry Commission. Write a paragraph with your findings in the space below.

Standards:

History-Social Science: HSS-3.1. HSS-4.1 (Strawberry Geography); CC ELA: RI.3-4.5, W.3-6.2, W.3-6.7 (Pests in Strawberry Production)

# California's 6th Top Commodity – Pistachios!

Pistachios are native to Afghanistan, Iran, and Turkey because of the low mountains and barren, dry foothills in the elevated deserts. To produce at maximum capacity, trees need long, hot, dry summers and moderately cold winters. Pistachio trees often begin in the nursery where rootstock seeds are planted, germinated, and grown in pots for 15 months. The rootstock is then planted in an orchard to help the tree adapt to soil, climate, and other environmental conditions, before being budded with an edible cultivar (variety). It takes approximately six years after the tree is planted in the orchard before the first harvest.



## Technology in Pistachio Production

Producing pistachios starts the moment a seed is planted. Look into the process of planting, harvesting, drying, roasting, and packaging pistachios. Visit [www. Settonfarms.com](http://www.Settonfarms.com) to view various videos that illustrate the process. Record the many uses of technology observed, including water delivery methods in the space below.

## Design an Orchard

Orchards are planted in different patterns with different spacing. A common pattern is square with spacing of 22 feet x 22 feet. Plan out your own orchard with a scale drawing. Calculate how many trees you will plant per acre and then using graph paper, map out where your trees will be. Use one inch graph paper and show your calculations.

Steps:

1. Make calculations: 1 acre – 43,500 square feet; Tree spacing – 22 ft x 22 ft = 484 square feet per tree = 90 trees
2. Using 1 inch graph paper, scale your drawing to 1 inch = 22 feet.
3. Map out where your trees will be, can you get 90 trees on your page? If not, you will need to show less than 1 acre.
4. Add your math calculations, scale and labeling.
5. Decorate your orchard, name your ranch, and color.
6. Challenge: Research other orchard planting patterns and spacing. Do another scale drawing.

Standards:

CC: ELA 3-5.W.5.2 (Technology in Pistachio Production Activity);

CC Math: 3.OA.A.3, 4.OA.A.1, 5.G.A.2, 6.NS.2, 3, 6.G.1, NGSS: 5-ESS3-1 (Design an Orchard Activity)

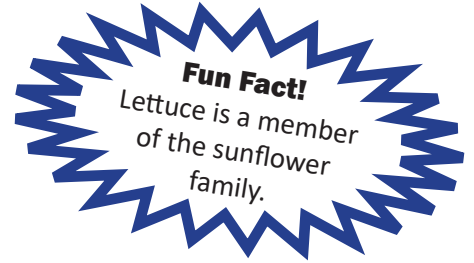


# California's 7th Top Commodity – Lettuce!

Did you know that Americans consume 30 pounds of lettuce per person each year? Lettuce, a leafy vegetable used in salads, sandwiches, and other dishes, has a long history in California. Lettuce began to be cultivated commercially in California in the 1930s. California is the leading producer of lettuce producing more than 73% of all lettuce grown in the United States. It grows year round in California. Monterey and Imperial counties are the top producers of lettuce. There are three main kinds of lettuce: head, leaf, and romaine. Head lettuce is round and tight and shaped like a cabbage. Iceberg lettuce is an example of head lettuce. Leaf type is loose and leafy. Butter, Red and Green Leaf are examples of leaf lettuce. Romaine is tall with slender leaves and very common.



**Identify the 3 types of Lettuce Below**



## Lett-uce Experiment: Create a Rainbow Phloem & Xylem Lab

Xylem and phloem are two tissues found in plants which transport substances that plants need to live. Xylem cells are responsible for transporting water and dissolved nutrients from the roots up the stem to the leaves. Phloem cells are responsible for transporting a sugary sap (that is made in the leaves during photosynthesis) to the rest of the plant. Conduct a class experiment to see how the xylem and phloem function in different varieties of lettuce. Start by collecting one variety of lettuce. Place one leaf in each cup of water colored with food dye. Carry out two investigations; change out the variety of lettuce (the variable) each time. Compare observations from the first and second investigations and discuss the differences you found with your class.

Lettuce Variety Observation	Lettuce Variety Observation:
Day 1:	Day 1:
Day 3:	Day 3:
Day 5:	Day 5:

## How Long Do You Grow?

Using a calendar, compute the answer:

When to harvest? When lettuce is planted in the summer, it takes 65 to 80 days to grow. If it was planted on June 5, what would be the earliest day it could be harvested? \_\_\_\_\_

When to Plant? If lettuce is planted in late fall, it could take as long as 130 days to grow. If you want to harvest on January 12, when should you plant? \_\_\_\_\_



# California's 8th Top Commodity – Walnuts!

Did you know that by-products of walnuts include cosmetics, oil, sand blasting materials, snow tires, and even pet litter? California geography plays big a role in the success of walnuts in our state. The mild climate and fertile soils make ideal growing conditions. California grows 99% of the walnuts grown in the United States and we produce 35% of the world's walnut crop. So Californians aren't the only ones eating walnuts; they are exported and enjoyed around the world!

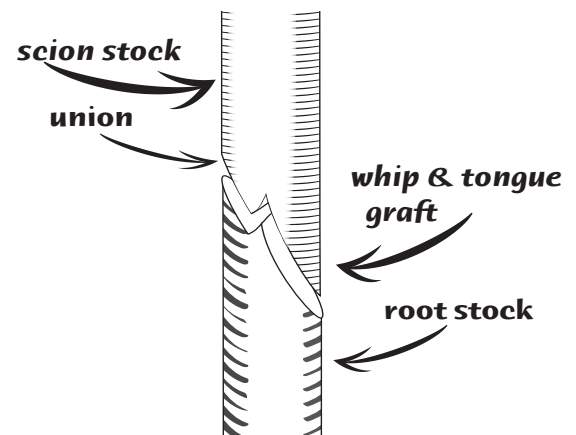


## STEM Activity: Let's Graft

Did you know you can spot a walnut tree by its base? Most California walnut trees are grafted, which means they are actually made of two types of walnut trees! Grafting is the process of putting two plants together so they become one. The point where the two come together is called a union. Black walnuts are used for rootstock because they do not get root disease as easily as other varieties. So why don't we just grow Black walnuts? Black walnuts taste very strong and are smaller. This is why farmers graft a tastier variety such as English walnut onto the Black walnut rootstock. The tree grafted to the top is called the scion stock. A process called "Whip and Tongue" is the most common form of grafting with California walnuts.

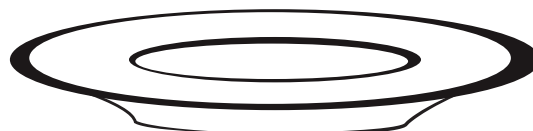
Using two different colored straws, clear tape and scissors, graft the two straws together.

- Pick one straw. This is your rootstock. Make a sloping diagonal cut, about 1" long.
- On the same straw, make a second cut about 1/3 of the way down from the top of the first cut. This cut should be almost parallel to the first. The straw should now look like it has a tongue!
- Repeat the process on the second straw. This represents your scion stock.
- Line the two pieces up together and tape!
- Share pictures with your class.



## How Would You Use Walnuts?

The fact that walnuts are great for you is another reason for their popularity in California. Walnuts are packed with vitamins, minerals, and polyunsaturated fat (the "good" fat!) and contain fiber and protein. Walnuts are also used in foods around the world. In China, walnuts are used in mooncakes, popular during the mid-autumn festival. In Turkey, walnut baklava is a popular dessert, and in Germany, sweet strudel is made with walnuts. Draw your favorite meal using walnuts on the plate below!



Standards:

NGSS: MS-LS1-4, 4-LS1-1, MS-LS1-2, 3-5-ETS1-1, 5-LS2-1 (Let's Graft Activity)

# California's 9th Top Commodity – Floriculture!

Greenhouses, cut flowers, bedding plants, house plants, and foliage all make up the floriculture industry in California. More than 250 cut flower growers from San Diego to the Oregon border make California the top flower-producing state in the country! Careers in the floral industry include farming and growing, transporting, designing, and landscaping. California dominates the domestic cut flower industry because of its favorable Mediterranean climate, which allows for year-round production of an enormous variety of flowers. The leading county is Santa Barbara. Other major producing counties include San Diego, Monterey, San Luis Obispo, Santa Cruz, Humboldt, and Ventura.



## A Rose by Any Other Name

Plants have both scientific and common names. The scientific name is Latin and consists of two parts: the first part indicates the genus and the second part indicates the species. Common names are more like nicknames and can be one word or more. Some plants have multiple common names. Draw a line to match the scientific name to the common name. Hint: Often a variation of the common name can be found within the scientific name. Use the QR code to check your answers.

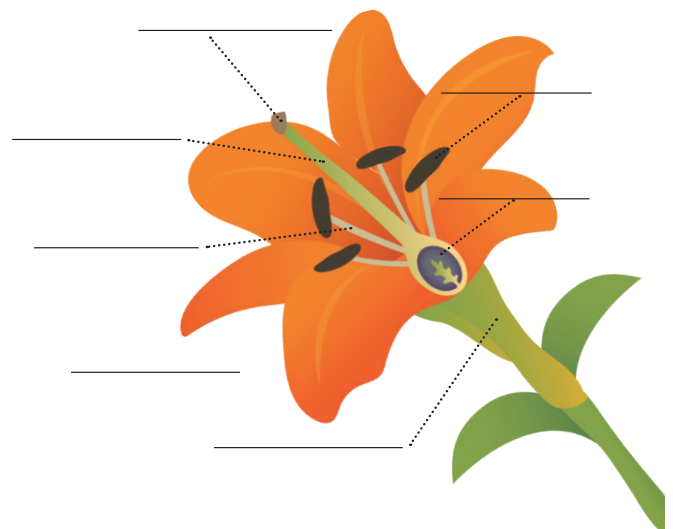
<u>Common Name</u>	<u>Scientific Name</u>
Lavender	<i>Boroago officinalis</i>
Borage	<i>Viola x wittrockiana</i> <i>Viola tricolor</i>
Daylily	<i>Rosa spp.</i>
Hibiscus	<i>Lavandula angustifolia</i>
Pansy	<i>Hemerocallis fulva</i>
Squash	<i>Hibiscus rosa-sinensis</i>
Rose	<i>Cucurbita spp</i>



## Complete Flower Parts

Using a dictionary, find the definitions of the terms below and write them in the space provided. Once complete, use the definitions to properly identify the plant part below. Write them in the space provided.

Petals \_\_\_\_\_  
Sepal \_\_\_\_\_  
Stigma \_\_\_\_\_  
Style \_\_\_\_\_  
Ovary \_\_\_\_\_  
Stamen \_\_\_\_\_  
Filament \_\_\_\_\_



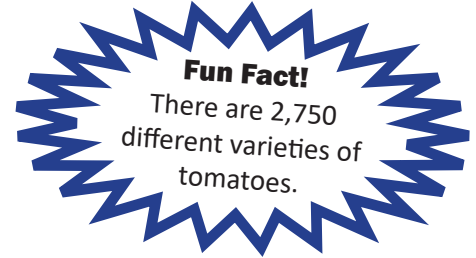
Standards:

CC ELA: RF.3-5.3 (A Rose by Any Other Name Activity)

NGGS: 3-5-LS1-1; CC ELA: R.I.3-6.4, RST.6-8.4 (Complete Flower Parts Activity)

# California's 10th Top Commodity – Tomatoes!

Did you know that the trucks driving down the highway during tomato season (June - October) hold about 300,000 tomatoes? Tomatoes are a seasonal fruit, and harvested at their peak between late June and early October. Processing tomatoes are canned within 4-6 hours of harvest and 96% of all processed tomato products eaten in the U.S. come from California. California also leads the world in the production of processing tomatoes! Fresno County leads production followed by Yolo, San Joaquin, Kings, and Merced counties.



## **Activity Tomatoes on Trial**

In 1893, the U.S. Supreme Court heard a case to determine whether the tomato was a fruit or a vegetable. In the case of “Nix v. Hedden,” the tomato was declared a vegetable, along with cucumbers, squash, beans, and peas. Use the historical report from the trial (<http://www.findlaw.com/cgibin/getcase.pl?court=US&vol=149&invol=304>) to record at least three arguments as to why tomatoes should be classified as a fruit or a vegetable.

The Great Debate	
Fruit	Vegetable
1.	1.
2.	2.
3.	3.

## **STEM Activity: Transportation Math**

Processed tomatoes have to get from California to states all over the country. Pretend you are a truck driver, starting out in Sacramento, California, and have six cities throughout the country to deliver to. Using information from the table, calculate the following:

- How many miles is it round trip to deliver your load? Please fill in the table.
- How long will it take you to get to each city along the route if you are traveling at 60 mph? Round to the nearest hour, fill in the table.
- If your truck gets 5 mpg in diesel, how many gallons of diesel will you use? Round to the nearest tenths place, fill in the table.
- Using an average diesel cost of \$3.25 per gallon, how much will you spend on your trip in diesel? Fill in the table.
- Total all of your columns: mileage, hours driven, gallons used, and \$ spent on diesel.
- CHALLENGE: How many days will it take you to go round trip (return to Sacramento)? You can only drive 11 hours per day and only 60 hours per week.

Destination: city to city	Mileage (in miles)	Hours Driven (nearest hour)	Gallons Used (round to tenths)	\$ Spent on Diesel (round to the nearest hundredths)
Sacramento - Boise	555			
Boise- Sedona	878			
Sedona- Kansas City	1,138			
Kansas City- New Orleans	845			
New Orleans- Chicago	926			
Chicago- Brooklyn	779			
Brooklyn- Sacramento	2,833			
Totals				

Standards:

CC ELA: RI.5.2(Tomatoes on Trial Activity); CC Math: 5.NBT.5, 6.NS.3, 7.NS.2 (Transportation Math Activity)