

What's Growin' On?

California Agriculture on the Move



A NEWSPAPERS IN EDUCATION SUPPLEMENT

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How does food travel

from the farm to your home? In this edition of *What's Growin' On?* we'll explore agricultural transportation—the movement of agricultural commodities such as apples, milk, flowers, nuts, cattle, fish, cotton, and lumber to destinations all over the world.

You might be surprised by the detailed coordination it takes to enjoy a snack like grapes in our homes. Imagine a farmer's grapes are ripe and ready to pick. First, the farmer assigns a crew to harvest the crop. Some members of the crew pick the grapes and some pack the fruit, usually into bags which are placed into specially-designed boxes. The boxes of grapes are moved to a cold storage where they are stored in refrigerated rooms. When they are sold, the grapes are placed in trucks that have refrigerated vans to keep the grapes cold as they're transported to a grocery distribution center, or hauled to a train **hub**, shipping port, or airport terminal. Each of these methods of transportation have their own set of requirements, but they all have one thing in common—refrigeration—to keep the product fresh and ready for you to eat. You can read more about the key role refrigeration plays throughout this newspaper.

It takes many people, lots of hard work, coordination, and planning to move California's \$47 billion agriculture industry from the farm to your table. Read on to see how each mode of transportation keeps *California Agriculture on the Move!*

Read All About It!

For the past 16 years, California Foundation for Agriculture in the Classroom has produced *What's Growin' On?* to help students discover the many ways agriculture impacts their daily lives. This year's edition, *California Agriculture on the Move*, is inspired by the journey our food and fiber takes from the farm to destinations here and **abroad**. The articles and activities featured in *What's Growin' On?* are designed to educate students about infrastructure—the roads, rails, buildings, facilities, and people that work to make transportation happen.

Each annual edition of *What's Growin' On?* is developed by educators and reviewed by leading agriculture industry experts to provide relevant and accurate information. The activities on the following pages are aligned to third through eighth grade Standards for California Public Schools including Common Core and Next Generation Science Standards.

Extra! Extra!
Download a teacher's guide with classroom extensions and lesson ideas. Available at LearnAboutAg.org/wgo.

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Free Copies for CA Teachers!
Place *What's Growin' On?* in the hands of your students by ordering a free classroom set. Order online while supplies last, LearnAboutAg.org/wgo.

Answers available online!
Visit LearnAboutAg.org/wgo.



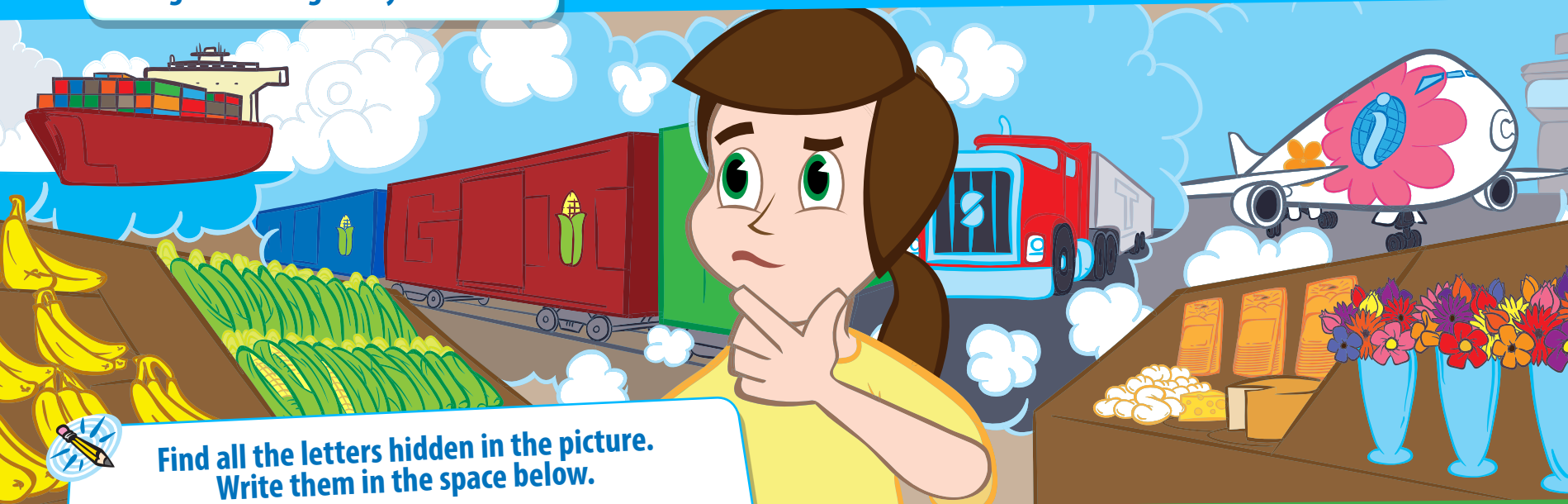
Let's Move!

A supply chain is the steps involved in the production and distribution of a **commodity**.

Logistics is the detailed coordination it takes to deliver a product to the consumer. Many farmers respond immediately to the demands of their consumers, moving a product from the field to the grocery store in as little as hours! It takes a lot of organization, planning, and communication for us to enjoy a safe and abundant food supply.



Have you ever wondered how your food gets to the grocery store?



Find all the letters hidden in the picture.
Write them in the space below.

Scavenger Hunt

Standards: CC ELA: RI.3-8.1

Be the first person in your class to find the answers! Search this newspaper and write your answers below.

What tractors were called in 1907: _____

The miles of railroad track in California: _____

A commodity often shipped by air: _____

A crop planted when fields are flooded with water: _____

Another word for farm animals: _____

The optimal temperature for storing garlic: _____

The port that farmers built: _____

A type of truck that transports milk: _____

The person who coordinates the loading of a ship: _____

How fast cargo planes travel: _____

Unscramble the letters to discover how agriculture gets from farm to fork!

Start your Engines

Farming is hard work.

Early farmers used horses and mules to help make their work easier. Today, tractors have replaced horses and mules while increasing agricultural production. In 1868, the first steam-powered tractors were introduced. Henry Ford produced the first gasoline powered tractor in 1907. Back then, tractors were called “automobile plows.” After 1910, gasoline powered tractors were used extensively in farming.



Did You Know?

Horsepower is a unit used to measure the power of an engine. The term was used to compare the power of steam engines with the power of draft horses.



Activity

Follow Marcus, a California farmer, as he works a day on his farm. Name all six modes of transportation he uses throughout the day.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____



1
Marcus starts his day by using his pickup truck to drive around the farm.

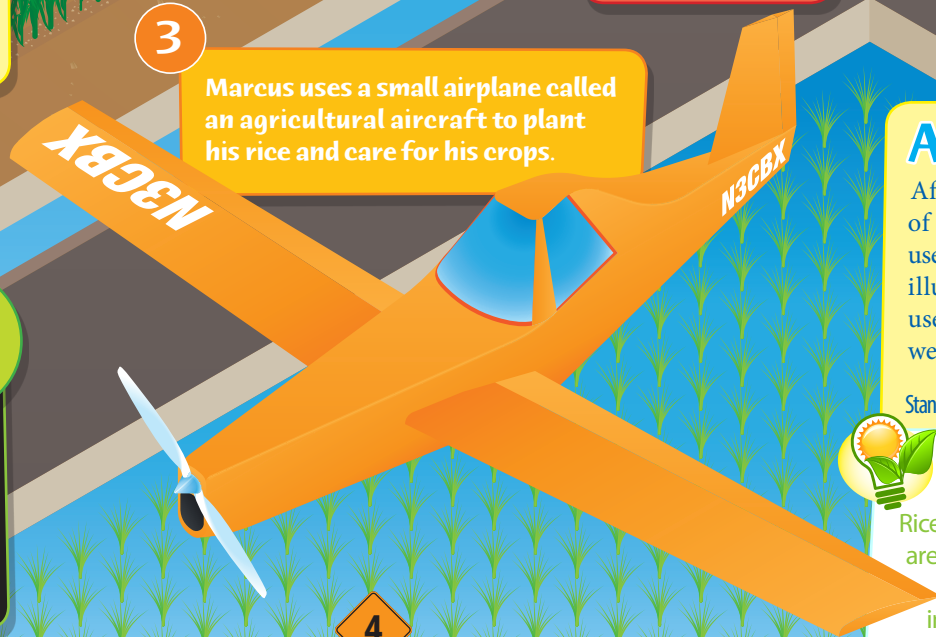


2

An **ATV (all-terrain vehicle)** makes moving through fields and orchards easier and faster.

3

Marcus uses a small airplane called an agricultural aircraft to plant his rice and care for his crops.



4

TECH CHECK

Create a poem inspired by tractors. Visit LearnAboutAg.org/tractorpoem to use an interactive poem builder to craft your own lyrical masterpiece. Create an audio recording of your poem and play it for the class.

Standards: CC ELA: SL.3-5.5



Activity

After reading about the types of transportation a farmer uses, create a comic strip panel illustrating how you would use transportation if you were a farmer.

Standards: CA Visual Arts: 3-8.2.0



Did You Know?

Rice is planted while the fields are flooded with water. Farmers use planes to drop the seed into the flooded fields below.



4

Marcus uses a **tractor** to haul the harvested watermelons. The watermelons are placed in **bins** and loaded onto trailers to be taken to the packing shed.

5

Forklifts are used to lift and move products short distances. They move the heavy bins into the packing shed for washing, sorting, and labeling.

6

A semi-truck is loaded with **produce** to deliver to a grocery store near you!

Newspaper Activity

Use the classified ads to find a tractor for sale. Record the year, make, and model of the tractor. Use online resources to find a photo and additional information. Create your own ad using the photo and information you gathered.

Standards: CC ELA: RF.3-5.4; W.3-12.8; L.3-12.3

Activity

Standards: CC ELA: W.3-12.2

Interview a farmer in your community to discover how they use tractors and other types of transportation. Take notes during your interview and use your notes to write an informational paragraph.

Sources:
www.farmcollector.com,
www.lhf.org,
www.naitc.usu.edu

5



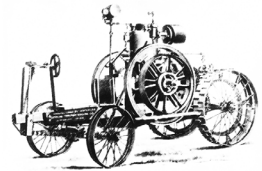
Activity: Tractors through Time

Tractors have certainly changed over the years. These photos are shown in chronological order, from the oldest to most recent. Use the dates in the box to label each picture with the correct year.

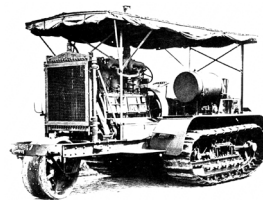
Standard: CA History-Social Science: 8.6

1914 1907 1890 1925 1905 1934 2018

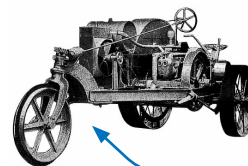
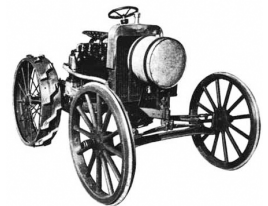
The first gas powered tractor was invented by John Froelich.



The Holt traction tractor was invented to work unstable soil.

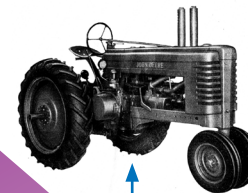
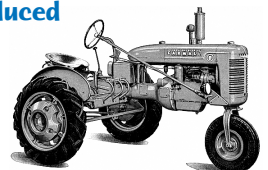


Henry Ford's first gasoline powered tractor model.



The Bull Tractor Company introduced the first tractor intended for small farmers.

The Farmall tractor was produced by International Harvester.



John Deere survived the Great Depression by manufacturing the most popular Deere models in company history—Model A and Model B.

Today's tractors use modern technology to make production more efficient.



Where the Rubber Meets the Road

As you walk or ride around town,

you see trucks everywhere. Trucks are the most common mode of transportation for moving agricultural products. They are the lifeline of agriculture because they can go practically anywhere. Here we'll explore some of the common trucks used in agriculture.



Did You Know?

In California, a loaded truck and trailer cannot exceed 80,000 pounds. This limitation reduces wear and tear on the roads and increases safety.



Tanker Truck

Tanker trucks carry liquids, including milk, in enclosed cylinders. Milk tankers have special stainless steel bodies which are heavily **insulated** to keep the milk cold during transportation to the processing plant. Milk tanker drivers are trained milk graders. Tanker drivers evaluate milk for food safety based on temperature, sight, and smell.



Activity

Standards: CC Math:
3.NBT.2; 4.NBT.4

Cows are milked by milking machines 2-3 times every day. The milk is piped immediately to a refrigerated storage tank, and kept at 40 degrees Fahrenheit to ensure freshness and safety. At the processing plant, milk is pasteurized by heating the milk to 162 degrees Fahrenheit to destroy harmful bacteria, germs, and yeast. The milk is then cooled immediately to 39 degrees Fahrenheit. Compare the temperature of the milk when it's stored, pasteurized, and cooled. How much greater is the temperature of the milk during pasteurization than in the storage tank?

Step	Temperature
Stored	
Pasteurized	
Cooled	



Container Trailer

Container trailers move shipping and storage containers containing nuts, grains, and other **shelf-stable** agricultural products. The trailer has a **hydraulic** lift to move the containers onto a ship or train.

Activity

Standards: CA Music:
3.2.2; CC ELA: W.3-12.4

Adapt the words of the song, *The Wheels on the Bus*, to fit trucks and their **cargo**. Create hand motions that go along and act out the song together.



Flatbed Trailer

Flatbed trailers can move a variety of items, from **produce bins** and nut boxes, to farm equipment. As the name implies, it has a level surface and no sides or top. They are great for quick unloading and loading and for loads of abnormal size.

Activity

I Spy! On your next family trip, take turns guessing the contents of trailers as you approach them. Give points for each correct guess.



Van Trailer

Van trailers can be non-refrigerated—called dry vans—and carry shelf-stable foods. They can also be refrigerated—called reefers—and carry flowers, eggs, milk, or fresh **produce**. **Food safety** is the top priority for individuals responsible for transporting food. In reefers, the temperature is carefully monitored while food products are being moved to and from distribution centers. Maintaining the proper temperature is critical to preventing bacterial growth.

1
2
3
4
5
6
7
8
9

Activity

Standards:
CC ELA: W.3-8.2, 3

Write a fictional story about agricultural products and their adventures on our roadways. Submit your story to the *Imagine this... Story Writing Contest*. Visit LearnAboutAg.org/imaginethis for details.

3 4

5

6

8

9

Did You Know?

Over 32 million trucks are on the road every day in America!

Sources:
www.truckingmovesamerica.com, www.calforestfoundation.org,
www.anl.gov/articles.extension.org/pages/64391/livestock-trailer-safety,
www.hereford.org, www.milkfacts.info



Logging Trailer

In the past, logs were hauled by oxen or horses. Today, a logging trailer is used to carry logs. A crane is used to load the logs. The logs are often unloaded at their destination by rolling them off the side.



Activity

Logging trailers are not the only trailers used to move forestry products. Different products require different trailers.

Match the forestry product with the trailer needed to transport it.

Forestry Product	Trailer
Seedlings	Logging Trailer
Harvested Trees	Reefer Trailer
Wood Chips	Dry Van Trailer
Paper	Flatbed Trailer
Lumber	Container Trailer

2



Keep on Trucking!

Across

- the type of engine found in most trucks
- refrigerated van trailer
- carries goods from ships and trains
- animals used to haul logs in the past
- used to transport milk

Down

- carries logs from forest to mill
- can move produce bins and farm equipment
- a trailer that moves farm animals
- a non-refrigerated van trailer



Livestock Trailer

Livestock trailers move farm animals between locations, haul show animals to county fairs, and transport animals to processing plants. The **stock density** in trailers is important in reducing the animal's stress and their potential for injuries and illness.



Activity

Standards: CC Math:
3-4.MD.2; 4.NBT.3

You are transporting cattle to new pasture in northern California and you've come across a vehicle **weigh station**. You are carrying 25 calves inside your trailer, and they weigh an average of 750 pounds each. Your **tractor** and trailer weigh 30,000 pounds. Calculate your **gross weight** and express in both pounds and kilograms. Round to the nearest whole number.



Did You Know?

The trucks on this page have diesel engines. Diesel engines are more efficient in utilizing fuel than gas engines. They are common in heavy trucks where extra gas would add to the cost of transportation.



Did You Know?

On average, milk is transported to your grocery store or school on refrigerated trucks within two days of leaving your local dairy farm. That's just two days from your farm to your school cafeteria!

The development of California agriculture

went hand in hand with the development of the railroad. **Perishable** products, particularly those that were unique to California farms, found vast new markets reachable as more and more rail lines went across the country. Rail-links—connections made between major routes—made **transcontinental** food shipments possible. Until the 1970s, California's agricultural products were moved out mostly by rail. In today's economy, 3-4 percent of California's agricultural **exports** are delivered by trains. However, **intrastate** rail delivery of **commodities** is still important with many rail **hubs** located throughout the state.

Activity

Design and produce a poster that artistically illustrates important information from these pages. Use YouTube or other online resources for tips on drawing railroad tracks with one point perspective.

Standards: CA Visual Arts: 3.1.3; 4.5.3; 5.2.1, 5.2.6, 5.5.1; 6.2.1, 6.2.2, 6.2.4

Activity

Standards: CC Math: 3.OA.5-7; 5.NF.1, 2

Thanks to the invention of refrigerated rail cars, California crops can be shared with the rest of the United States. California is one of the few states that grows crops such as peaches, avocados, and kiwi fruit. Often, these crops are loaded onto refrigerated railcars and transported throughout the nation. To keep **produce** tasting farm fresh, each item has an optimal temperature it must be stored at. Convert each optimal temperature from Fahrenheit to Celsius.

$$(^{\circ}\text{F} - 32) / 1.8 = \text{Temperature in Celsius}$$

Produce	Storage Temp. in $^{\circ}\text{F}$	Storage Temp. in $^{\circ}\text{C}$
Peaches	32	
Pears	29	
Avocados	44	
Asparagus	36	
Garlic	26	
Mandarin Oranges	39	

Refrigerator cars,

also known as reefers, have been in development since the 1860s and are still used today. Thanks to advancements in technology, refrigerated transportation on rail is the reason why many people all around the nation can enjoy California's bounty.



Activity

Standards: CC
ELA: RI.3-5.3, 7

On the map provided, use your pencil to trace the path that each commodity takes from its origin to destination.

Exports

- Garlic
- Tomatoes
- Avocados
- Artichokes
- Kiwifruit

Destination

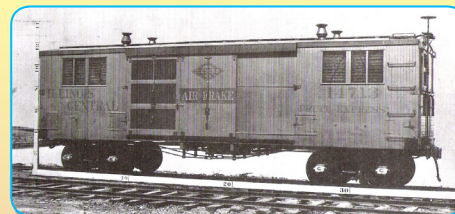
- El Paso, TX
- Boston, MA
- Kansas City, MO
- Seattle, WA
- Chicago, IL

Seattle

Oakland
Sacramento
Stockton

Los Angeles

El Paso



Stocked with ice blocks to keep produce chilled, the first reefers relied on icing stations located at regular intervals along the track.

Right Track



Did You Know?

Today, California railroads operate more than 6,863 miles of railroad tracks throughout the state. Half of the railroad miles in the state are operated by Union Pacific Railroad.



Did You Know?

In the 1920s California produce farmer Bruce Church had the idea to form an ice company to ship fresh heads of lettuce across the country in ice-packed railroad cars. People started calling this produce "iceberg lettuce" and the name stuck.

The Pacific Railroad Act was chartered

in 1862 and marked the beginning of the Transcontinental Railroad. The act gave the Central Pacific and the Union Pacific Railroad Companies the job of building a railroad that would link the United States from east to west. Over the next seven years the companies raced toward each other from Sacramento, California on one side and Omaha, Nebraska on the other, meeting at Promontory, Utah, on May 10, 1869.

The geography of the continental United States presented many challenges as the workers laid track across natural features such as mountains, rivers, canyons, and deserts.



Activity

Using the map on this page, draw at least five major geographical features that made building the Transcontinental Railroad difficult.

Standards: CC ELA: RST.6-8.7



Did You Know?

With the establishment of the Transcontinental Railroad in 1869, growers could supply their oranges thousands of miles away to the eastern markets. Rail connections made it possible for citrus to be the "second California gold rush."



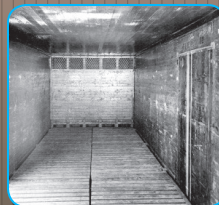
Newspaper Activity

Imagine you are a newspaper reporter writing an article on rail transportation and California agriculture. Write an informative article to examine the topic. Look through your local newspaper, either the print or online version, and decide what section of the newspaper your article would be found in.

Standards: CC ELA: RL.3-5.2; W.3-5.2, 3; RL.6-12.2; W.6-12.2, 6, 8

Sources: dot.ca.gov, www.cncargocool.com, www.ers.usda.gov, www.freshexpress.com, www.up.com, www.californiarailroadmuseum.com, www.history.com, www.loc.gov, www.aar.org

Starting in the 1930s, reefers were made using large pieces of plywood (due to the lack of steel during WWII) and cooled by circulating fans.



Modern day reefers have a variety of new technological features. **GPS**, data logging systems, and remote diagnostic testing allow customers and train companies to monitor their **cargo** with real-time data.

Ports: The Gateway of



Newspaper Activity

Recently, the L.A. Times printed an article with the headline, *Labor Dispute at Ports Hits State Manufacturers, Farmers, Even Recyclers*. Make a table to brainstorm the different ways each of these industries would be impacted by the closure of California's ports.

Standards: CC ELA: W.3-6.1



Activity

Standards: CC Math: 3.OA.8; 4.NBT.3, 4; 5.NBT.6; 6-7.RP.3

What is the total value of the agricultural **exports** featured on this map? Round to the nearest billion. Out of the total value of exports, what percentage does Australia **import**?

California exports agricultural products all over the world. Here's a quick look at seven countries, what they import, and the total value of imported products.

Did You Know?

In 2016, the United States shipped an estimated 1,270,000,000 pounds of almonds to other countries.

Mexico

Almonds, Dairy, Table Grapes
\$1,059,500,000

European Union

Almonds, Wine, Walnuts
\$3,896,300,000

United Arab Emirates

Almonds, Walnuts, **Compressed Hay**
\$518,300,000

Japan

Almonds, Rice, **Compressed Hay**
\$1,591,800,000

Vietnam

Almonds, Walnuts, Dairy Products
\$306,500,000

India

Almonds, Walnuts, Cotton
\$664,600,000

Australia

Walnuts, Table Grapes, Dairy Products
\$273,800,000

Did You Know?

It takes 2½ to 3 weeks for a vessel to travel from the Port of West Sacramento to Japan!

Did You Know?

Containers can be placed on trucks, ships, trains, and planes without unloading the cargo.

Did You Know?

30 million boxes of bananas are imported to the port of Hueneme each year.

Sources: www.dot.ca.gov, www.portofhueneme.org, www.portoflosangeles.org, www.cityofwestsacramento.org, www.cdffa.ca.gov, www.bluediamond.com

Not all California products travel

on roads or rails. With the Pacific Ocean as a western border, farmers can transport **commodities** via ocean waters. In fact, the Port of Hueneme (wy-neem-ee) in Southern California is known as "the port that farmers built."

A port contains one or more harbors where ships can dock. California is home to 11 public ports spanning 1000 miles of coast between the Port of Humboldt on the rugged north coast to the Port of San Diego. Some ports are located inland, with man-made, 30-35-foot-deep **channels** linking ports to California's coastline. Ports are a major economic force and are critically important elements to the growth of California and the nation's economy. California exports more than 20 billion dollars of agricultural commodities each year.

Ports

- 1 Humboldt Bay
- 2 West Sacramento
- 3 Richmond
- 4 Benicia
- 5 Oakland
- 6 Stockton
- 7 San Francisco
- 8 Redwood City
- 9 Hueneme
- 10 Los Angeles
- 11 Long Beach
- 12 San Diego

Trade and Transport

From the Orchard to the Open Sea

Take a closer look at a supply chain as we explore how almonds travel from the orchard to the open sea and countries all over the world!

In the orchard, mechanical tree shakers knock almonds to the ground, where they dry before they are swept into rows and picked up by machine. They are transported to processing facilities by a belly dump truck. These special trucks open at the bottom of the trailer for unloading.

1

Activity

Standards: NGSS: 3-5-ETS1-1, 3

Build a cargo ship out of aluminum foil that can carry agricultural products and see how long it will stay afloat. Compete with others in your class in a controlled environment. After initial testing, make improvements and test again.

Extra! Extra!

For an additional challenge, visit LearnAboutAg.org/agbites and check out #18: Ag TransPORTation.

2

After almonds have been hulled, sorted, graded, and cleaned at the processing facility, they travel to the manufacturing facility and are packed into large bags called supersacks, large boxes called triwalls, or smaller retail packages. The finished product is placed in a dry van and transported to a distribution center.

3

Distribution centers move almonds to customers throughout the world in trucks, rail cars, airplanes, and ships. Almonds heading out to sea are loaded into 20-foot and 40-foot ocean containers, which are specially designed to be loaded on ships. Ships can typically hold between 8,000 and 22,000 containers.

4

A **stevedore** coordinates the loading of the ship. Once the ship is loaded, it is turned over to a **maritime pilot** who will navigate the ship to the ocean. Pilots maneuver ships through channels that have been dredged to a depth of 29-35 feet. Once the vessel reaches the ocean the pilot turns the vessel over to the captain, the person in command of the ship.

Activity

Pilot this vessel through the channels to get to the port.

Air transportation is the fastest

of all types of transportation, and is used for high value and **perishable** products. Most air transportation is headed to foreign destinations, typically on the other side of the Pacific or Atlantic Oceans. Careful packaging, handling, and refrigeration allows these commodities to be shipped to destinations all over the world.

Refrigeration is key to successful air transportation. From the moment a **commodity** is harvested, to the moment it arrives at a store, cool temperatures slow ripening and retain freshness. Airplanes transport agricultural commodities in refrigerated **cargo** areas or refrigerated cargo containers. Commodities traveling by air from California can arrive in another country as quickly as 48 hours after harvest. Commodities shipped by air include asparagus, cherries, strawberries, blueberries, leafy greens, grapes, raspberries, and more.

Air transportation of California commodities is limited because shipping by air is expensive.

Three rules apply to determine if air shipping is a good idea.

- 

1 Commodities sent by air must be unavailable **abroad**.
- 

2 Commodities must be able to get a high price at market.
- 

3 Commodities must be so perishable that they cannot be sent by ship.

Seasonality describes **produce** available locally during a specific season of the year. Produce that is not produced locally must be sourced from afar, sometimes from countries thousands of miles away. This great distance also increases the cost of the product in the store.

abroad	commodity	market
asparagus	container	packaging
blueberries	destination	perishable
canada	export	pivot
cargo	grapes	refrigeration
cherries	japan	strawberries
china	korea	

TECH CHECK

Farmers use GPS, mobile scanners, and smart phones to track their product from the moment it leaves the field to its ultimate destination—your plate. This real time data increases delivery efficiencies and food safety.

Up, Up,

Activity

Choose a California commodity and give three reasons why it should be shipped by air. Share with a partner for practice, then present to your class.
Standards: CC ELA: SL.3-8.4

Air Transport Word Search

HUBQOQIKYYTVYPIVOTXP
ICLCUQLZOPACKAGINGKE
DAWVNQEHKRYLYPIYBLKR
CBBWREFRIGERATIONHBI
ERSXZPTVAQUABBSMRLLS
XOTKIZCGGKWLBAEDEKNH
PARPNJMIESMRVOEVJVGA
ODAZQEDESTINATIONEQB
RBWBLUEBERRIESDOETIL
TLBGNWVCANADAHMFJELE
GWEJGESHAGOCONTAINER
BXRAORGXPXSNOKBRNGMZ
CKRPNNAMBTDRSCXQGQAD
HWIPHDPQBPXPFPATPXRK
IWEHRSVEEKPVAJAPANKD
NJSKFEPUFWSYRIZZULEL
AWXCOMMODITYAXQCMMTW
SMPCARGONWLNGBUMNCIC
TIBZISVNDFWJUBXXXTYTL
QQFKBCHERRIESPDOESFF

and Away!



Activity

Learn about air-borne California **commodities** and solve the problems in the agricultural fields below.



Did You Know?

Transportation is the largest single cost to the international flower industry.



Activity

Standards: CC ELA: RI.3-5.3; RST.6-8.7; WHST.6-8.4, 7; NGSS: 5-LS2-1

Design an experiment to test the influence of environment (dry, hot, wet, dark, etc.) on perishable fruits, vegetables, or flowers. Observe and record changes in appearance, smell, and texture. Retest in a different environment.

Day	Appearance	Smell	Texture
1			
2			
3			
4			
5			

Leafy greens are transported via air to international locations because they are highly perishable.

If angle ABF is 50 degrees what is the measurement of angle DFB ? Standard: CC Math: 4.MD.7

Cherries are shipped via air to Canada, Korea, Japan, and many more markets.

Agricultural fields are typically $\frac{1}{2}$ mile by $\frac{1}{2}$ mile. What is the area in square feet? (Hint: $5,280 = 1$ mile) Standard: CC Math: 5.MD.1

Blueberries are **exported** to Japan in refrigerated air cargo containers.

Determine the area of this plot if $DE=2000$ feet and $EI=1800$ feet.

Standards: CC Math: 3.MD.7; 4.MD.3

Asparagus growers export nearly 20 percent of their production to countries including Canada, Japan, and Switzerland.

Find the perimeter of this field if $EG=2800$ feet and $EI=1800$ feet. Standards: CC Math: 3.MD.8; 4.MD.3

Why are some fields planted in a circle?

Center pivot irrigation is a method of crop irrigation in which equipment rotates around a center point and crops are watered with sprinklers. A circular area centered on the pivot is irrigated, often creating a circular pattern in crops when viewed from above.



Activity

Standards: CC Math: 4.MD.5, 6; 5.MD.1; 6.MD.3

This circular field is growing three different crops. First, convert each percentage to degrees. Then, use a protractor to draw a pie chart illustrating the table below.

(Percent/100) x 360 = degrees

Crop	Percent	Degrees
Corn	20%	
Alfalfa	35%	
Sugar Beets	45%	



That's Punny!
To be a pilot, you must have a positive altitude!



Did You Know?

Cargo planes travel approximately 550 MPH.

Show What You Know!



Activity

Make a poster promoting one mode of transportation and highlighting at least three realistic destinations. Present your poster to the class. Keep track of all the destinations presented by recording them on a map.

Standards: CC ELA: SL.4.5; RH.6-8.7

Mode of transportation:

Destination 1:

Destination 2:

Destination 3:

Using the information found in this newspaper, complete the diagram to compare the four types of transportation. Record similarities and how each mode of transportation is unique.

Standards: CC ELA: CCRA.R.8



Activity

Standards:
CC ELA: CCRA.R.2

Choose one mode of transportation and list its benefits and limitations.

Mode of transportation:

Benefits:

Limitations:



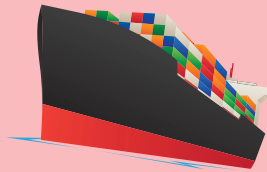
Newspaper Activity

Write an opinion piece about which mode of transportation would be best for transporting a specific agricultural commodity. Support your point of view with reasons and information. Identify the topic of your writing below.

Standards: CC ELA: W.3-5.1

Mode of transportation:

Commodity:



Glossary

Abroad

In or to a foreign country or countries.

ATV (All-Terrain Vehicle)

A small open motor vehicle with one or two seats and three or more wheels designed for use on rough ground. Also known as a quad or three-wheeler.

Bin

A box, frame, or enclosed place used for storage.

Cargo

Goods carried on a ship, plane, or vehicle.

Channels

A passage through which water flows.

Charter

A written grant by a country's legislative or sovereign power.

Commodity

A product of agriculture that can be bought and sold.

Compressed Hay

A bale of hay that has been compacted into a smaller size for ease of transport and handling.

Export

To send goods or materials to another country.

Food safety

A scientific discipline describing handling, preparation, and storage of food to ensure it is safe for consumption.

GPS

A navigational system using satellite signals to fix the location of a radio receiver on or above the earth's surface.

Gross weight

The total weight of an object, including the weight of its container and the material used for packing.

Hub

A center of activity.

Hydraulic

Operated by pressure transmitted when a quantity of liquid is forced through a small hole or through a tube.

Import

To receive goods or materials from another country.

Insulate

To separate from conducting bodies by means of nonconductors to prevent transfer of electricity, heat, or sound.

Intrastate

Existing or occurring within a state.

Maritime Pilot

A sailor who maneuvers ships through dangerous or congested waters, such as harbors or channels.

Perishable

Likely to spoil or decay.

Produce

Farm-produced crops and goods, such as fruits, vegetables, and grains.

Seasonality

Of, relating to, or restricted to a particular season.

Shelf-stable

Not likely to spoil or decay.

Stevedore

A person who loads and unloads boats in port.

Stock density

The degree of compactness of livestock in an area or space.

Tractor

A powerful motor vehicle that has large rear wheels used for pulling farm implements and trailers and carrying heavy loads.

Transcontinental

Extending or going across a continent.



Activity

Standards:
CC ELA: L.3-8.6

Choose ten words in the glossary and create an agricultural transportation illustrated dictionary. Identify whether each word is a noun, adjective, or verb.

Resources

California Association of Port Authorities

californiaports.org

California Cut Flower Commission

www.cffc.org

California Department of Food and Agriculture

www.cdfa.ca.gov

California Department of Transportation

www.dot.ca.gov

California State Railroad Museum

www.californiarailroad.museum

California Trucking Association

www.caltrux.org

Dairy Council of California

www.healthyeating.org

Federal Railroad Administration

www.fra.dot.gov

Freight Rail Works

www.freightrailworks.org

Show-Me Farm Safety

farmsafety.mo.gov

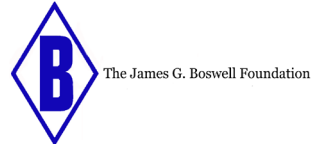
United States Department of Food and Agriculture

www.usda.gov

To request a free copy of *What's Growin' On? Extra! Extra! Extensions* to enhance the use of this newspaper, visit LearnAboutAg.org/wgo or call (800) 700-AITC (2482).

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A family of Growing companies.



What is global trade?

California produces so much food that not only do we help feed our neighboring states; we get to share our tremendous output with 150 countries around the globe. Global trade is the exchange of goods or services between different countries. Through trade, countries buy the goods they need from other countries (imports). Countries can also earn money by selling goods to countries (exports).

Global trade is all about making connections and moving things.

Imports



Exports



California Foundation for Agriculture in the Classroom is a 501(c)(3) non-profit organization that provides educators with free standards-based resources about California agriculture. The Foundation's vision is an appreciation of agriculture by all.



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