AgMag

The Magazine of Minnesota Agriculture in the Classroom

AGRICULTURE IS EVERYWHERE

CAN YOU LIVE WITHOUT AGRICULTURE?

When you woke up in your bed this morning, you already had your first meet-up with agriculture. Somewhere in your bedding were materials made of fibers from cotton plants.

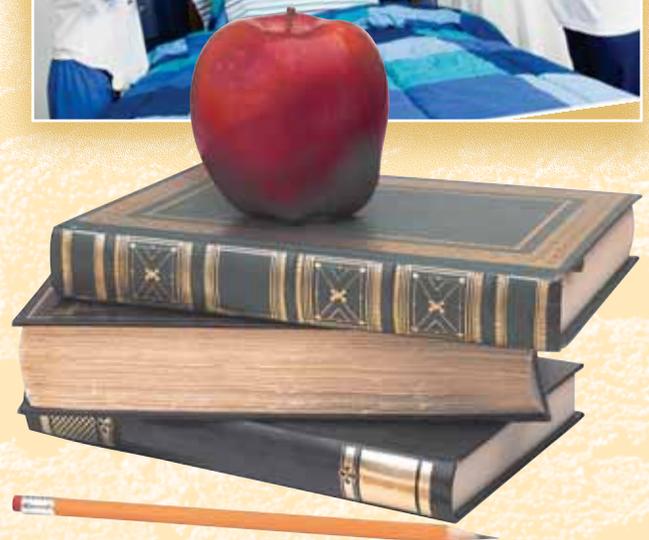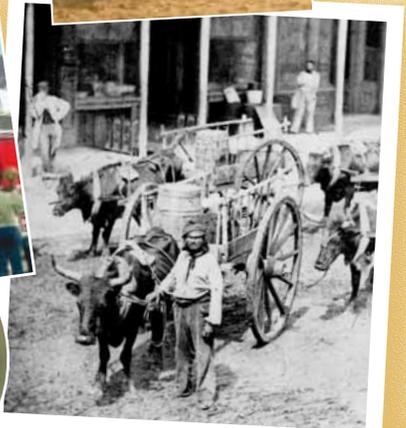Did you wash or shower with soap? That soap is made from fat from cattle and oil from corn and soybeans.

Did you have cereal, eggs, milk, bacon, pancakes, buttered toast or juice for breakfast? Thank agriculture again!
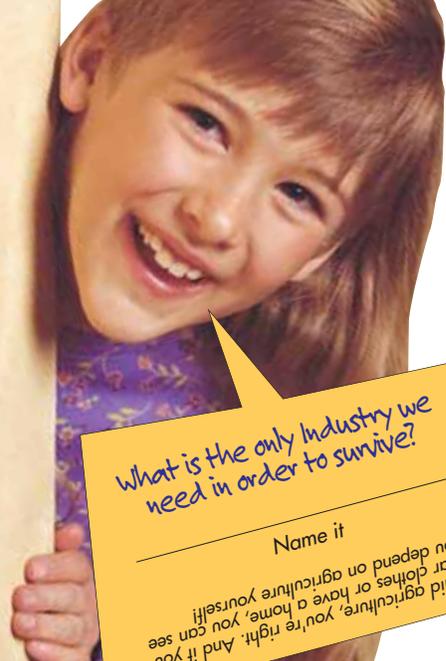
Did you pack a lunch in a paper bag, or finish today's math by writing on paper? That paper comes from another agricultural crop—trees. Corn and soybean **by-products** help hold the ink on the paper.

How did you get to school? Did you walk in shoes of leather? Did you pass a city park, a golf course, an orchard or nursery? Did you see a windbreak or a sod farm? All of these are agriculture, too.

CAN YOU HAVE AN AG-LESS DAY? THERE'S JUST NO WAY!

How does each of these photos show a connection to agriculture?

WHAT IS AGRICULTURE?

Maybe you said agriculture is farming. You thought of planting and harvesting crops and forests, or raising **livestock** and poultry. Maybe you said it was milking cows or selling fruits and vegetables. It's all this and more.

Agriculture is the industry that grows, harvests and brings us food, fiber, forests, turf and landscaping materials.

What is the only industry we need in order to survive?

_____
Name it
_____

If you said agriculture, you're right. And if you eat, wear clothes or have a home, you can see how you depend on agriculture yourself!

- **Food** comes from plants and animals.
- **Fiber** is the raw material from plants and animals that we use to make cloth and clothing, rope and more. Cotton, linen, silk, wool, sisal and hemp are fibers.

- **Forests** give us tree fiber that becomes lumber, furniture and pencils; pulp for paper; and wood for hundreds of other things.

- **Turf and landscaping** materials include flowers, ornamental plants and turf (sod) for beauty, pleasure and recreation.

Agriculture brings us almost everything we eat, wear or use each day.

Sun, Soil, Plants, Air, Water, Animals, Environment

Agriculture depends on workers and businesses. Even more, it depends on Earth's natural and renewable resources. Build the word puzzle and see what these resources are!

W
A r
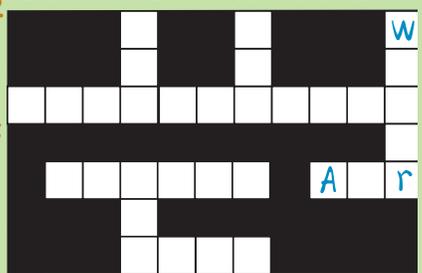
AGRICULTURE IS MORE THAN FARMING!

Agriculture is our nation's largest industry. More than 20 million Americans work in agriculture. They have jobs in:

Production:
growing and harvesting.

Processing:
changing raw materials into forms we can use.

Distribution:
getting the products to us.

Which part of agriculture does each group of workers below fit into? Label the three groups: production, processing, distribution. Circle a career that interests you. How can you find out more about it?

A. _____

- Rancher
- Forester
- Seed grower
- Veterinarian
- Dairy farmer
- Farm equipment dealer
- Greenhouse manager
- Animal genetics researcher
- Soil scientist
- Plant biologist
- Sod farmer
- Gardener

B. _____

- Food safety inspector
- Cereal chemist
- Sawmill worker
- Corn canning factory worker
- Food biosecurity specialist
- Woolen mill engineer
- Fashion designer
- Leather tanner
- Nutritionist
- Carpenter
- Butcher

C. _____

- Exporter
- Truck driver
- Train engineer
- Restaurant server
- Greenhouse sales clerk
- Grocer
- Barge captain
- Ad writer
- Pizza delivery driver
- Farmers' market vendor
- Food store inspector

By each photograph, write the letter of the list it fits into.

Photos Courtesy University of Minnesota Agricultural Experiment Station

Celebrating

MINNESOTA AGRICULTURE!

Agriculture is Minnesota's leading industry. Agriculture represents thousands of jobs and millions of dollars in our state. Whether you live in the city or country, it's a sure bet many of your friends or neighbors and maybe even you rely on agriculture for jobs. About one in every five Minnesota workers (20%) has a job connected to agriculture.

What food, fiber, turf/landscape or forest businesses are in your community? Do you know anyone who works for an ag business or on a farm?

Match each company/organization to the raw (direct from the farm or soil) and processed products.

A **logo** is a sign or symbol that stands for a company. Circle the ag business logos you might see in your kitchen.

Hormel Foods

Land O'Lakes, Inc.

Old Dutch

Malt-O-Meal

Gold'n Plump

Crystal Sugar
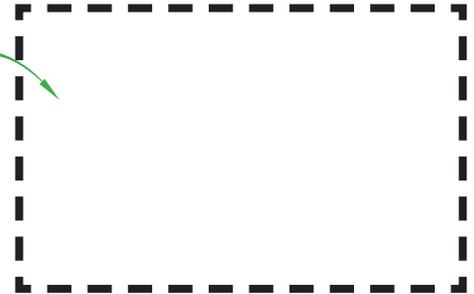
American Crystal Sugar Company

Hey, that's me!
Try your hand at designing a logo that stands for you! Start with your initials.

Company/Organization	Raw Product	Processed Product
1. Cargill	hogs	corn syrup (for pop and juices)
2. Hormel	trees	sugar
3. American Crystal Sugar	oats	paper
4. John Deere	corn	cereal and snacks
5. Boise	steel	pepperoni and ham
6. Schwan's	sugarbeets	farm machinery
7. Land O' Lakes	milk	ice cream
8. Old Dutch	potatoes	potato chips
9. Malt-O-Meal	milk	cheese and butter

MINNESOTA AGBRAGS

- Minnesota is ahead of other states in requiring the use of ethanol and **biodiesel** in our vehicles. These cleaner-burning new fuels are made from our own Minnesota corn and soybeans.

- The U.S. is the world's largest exporter of farm products. Can you name Minnesota's three biggest ag customers? (HINT: These are their flags.)

- In 1800 it took 373 human hours to produce 100 bushels of wheat. In 1987, it took less than 3 labor-hours. The reason is modern machinery.
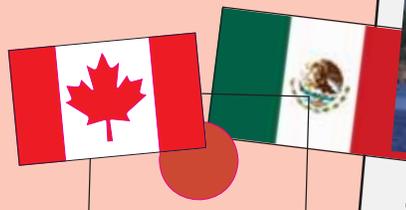
Millions of tons of wheat, corn, soybeans, oats, sunflowers and other grains are shipped overseas each year from the Port of Duluth. Docks for oceangoing ships line 49 miles of harbor in Duluth/Superior.

Photo Courtesy University of Minnesota Agricultural Experiment Station

Do you know which Minnesota city **leads North America** in soybean processing?

Mankato

Now **turn the page** to see what grows where in Minnesota!

Minnesota Grown

What makes Minnesota such a terrific state for agriculture? It starts with a great variety of **soil types** and **terrain** that's good for farming. Add the right weather pattern. That means the right amount of rainfall at the right time in the right place during our **growing season**. All of this makes our state tops in many crops!

What grows where? Check out the map and clues. You'll discover Minnesota's four main growing areas. In which do YOU live?

Match these clues with the names of the areas. Write the name of each area in its region on the map.

Clues

1. Flat land with fertile prairie soils. Enough moisture to be a big producer of cash grains: wheat, oats, soybeans, barley, sunflowers, sugarbeets, dry beans and potatoes.

2. Fertile soils, more moisture. Location farther south gives longer growing season. Big producer of crops and livestock. Corn, soybeans, cattle and hogs are examples.

3. Hilly region dotted with hay and pasture lands. Leading area for dairy cattle. Other livestock and crops, too.

4. Rough, rocky areas and less fertile forest soils. Few field crops, but many pine and hardwood forests.

Areas

A. Northeast

B. Southwest

C. Northwest

D. Central/Southeast

Ag Talk

Livestock and Crops: Agricultural animals and the crops farmers raise mainly to feed them.

Cash Grains: Crops farmers raise to sell for money.

Did you know?

Minnesota is #1 in the nation for raising turkeys! Kandiyohi County has the most turkeys. Circle it on the map.

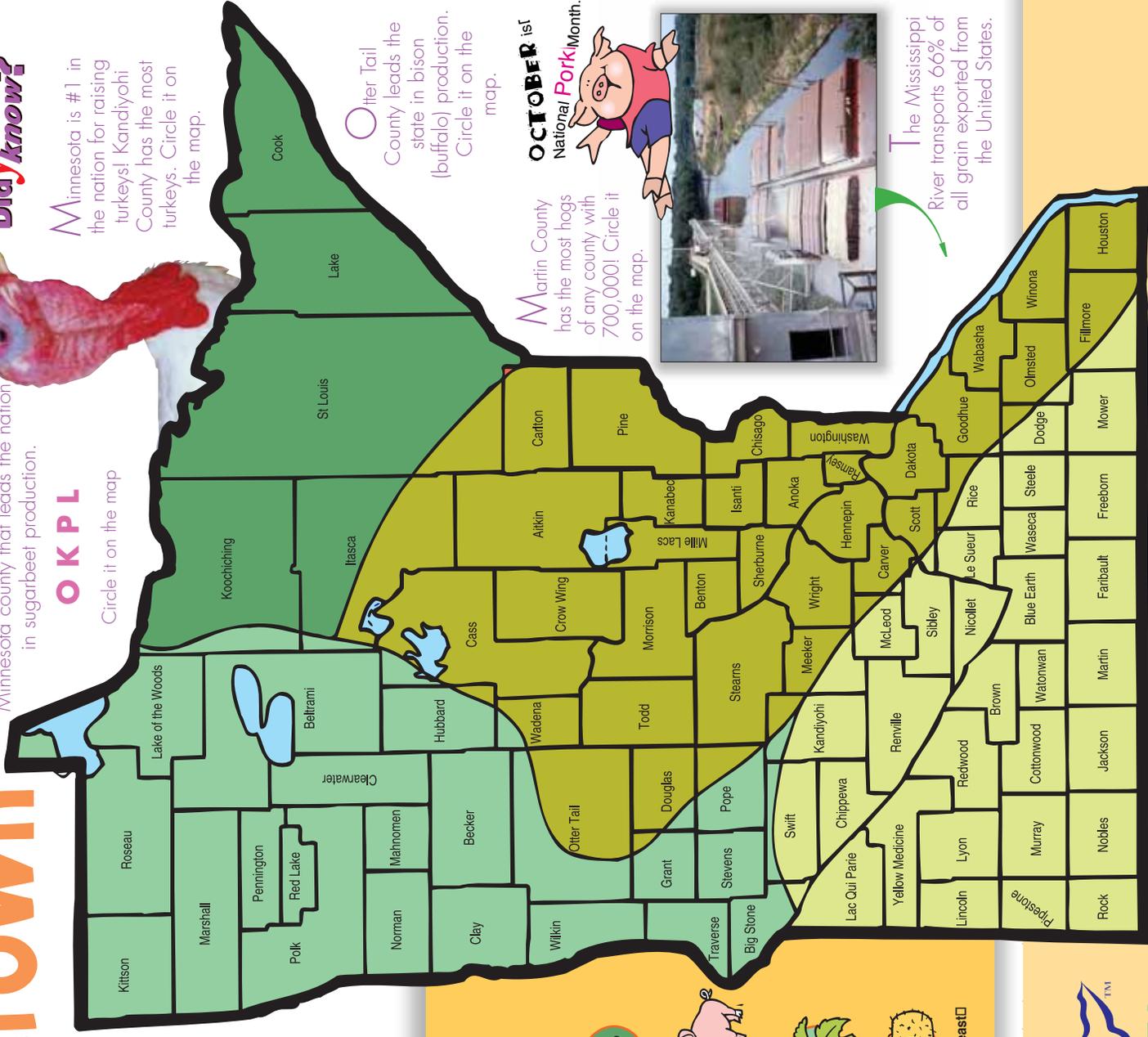Unscramble the letters to name the Minnesota county that leads the nation in sugarbeet production.

O K P L

Circle it on the map

Otter Tail County leads the state in bison (buffalo) production. Circle it on the map.

OCTOBER is National *Pork* Month.

Martin County has the most hogs of any county with 700,000! Circle it on the map.

The Mississippi River transports 66% of all grain exported from the United States.

Find it on the Map!

MINNESOTA GROWN ™

County labels on map

Cook, Lake, St Louis, Koochiching, Lake of the Woods, Beltrami, Itasca, Aitkin, Carlton, Pine, Kanabec, Chisago, Washington, Ramsey, Dakota, Anoka, Isanti, Mille Lacs, Sherburne, Hennepin, Carver, Scott, Mower, Dodge, Olmsted, Fillmore, Winona, Wabasha, Goodhue, Rice, Le Sueur, Nicollet, Steele, Waseca, Freeborn, Faribault, Blue Earth, Martin, Watonwan, Brown, Sibley, McLeod, Meeker, Wright, Stearns, Benton, Morrison, Crow Wing, Cass, Hubbard, Clearwater, Becker, Mahnomen, Norman, Clay, Wilkin, Otter Tail, Todd, Wadena, Douglas, Pope, Grant, Stevens, Traverse, Big Stone, Swift, Kandiyohi, Chippewa, Lac Qui Parle, Yellow Medicine, Renville, Redwood, Cottonwood, Jackson, Nobles, Rock, Murray, Lyon, Lincoln, Pipestone, Roseau, Kittson, Marshall, Pennington, Red Lake, Polk, Mille Lacs

Marshall - wheat
Redwood - soybeans
Brown - green peas
Clay - sugarbeets
Stearns - dairy

Martin - hogs
Morrison - beef cows
Otter Tail - bison
Anoka - sod

Koochiching - paper
Aitkin - bluegrass seed
Kandiyohi - turkeys
Lincoln - sheep

Jackson - corn
Roseau - canola
Sherburne - potatoes
Norman - sunflowers

St. Louis - wood products
Renville - tilapia (fish)
Dakota - farmers' market
Winona - hay

1. Find each county. Use this code to put colored dots on the map: green for forest products; blue for field crops or cash grains; red for dairy and livestock.

2. Look at your dots. What do you notice about where things grow in Minnesota? Unscramble the letters to discover five things that make each growing area different from the others. Hint: All the words appear somewhere on pages 4 and 5.

iosl yptes _____

thwaeer _____

llafinar _____

rraiten _____

gingorw saseno _____

Northwest

Question

You'll find this grain in bread and other baked goods, pasta, cereal and more. What's the crop?

Your Answer _____

Northeast

Question

About one third of Minnesota is covered by forests. What's the crop?

Your Answer _____

Southwest

Question

Name this crop used for animal feed, human food and fuel.

Your Answer _____

Central/Southeast

Question

You'll see livestock and orchards all through this area. Name the crops.

Your Answer _____

Think & Discuss

■ Why don't the same crops grow equally well across Minnesota?

■ Why is the growing season shorter in northern Minnesota than in southern Minnesota?

■ Why do we find lots of corn and soybean crops in major livestock areas?

Where do we stand?

Minnesota ranks in the **top ten** producers in the nation in these products! (2005 ag commodities)

1st in sugarbeets, turkeys, sweet corn and green peas for processing **2**nd in cultivated wild rice, canola **3**rd in soybeans, hogs, spring wheat, American cheese **4**th in corn, oats, dry beans, flax seed, mink pelts **5**th in honey, total cheese, ice cream, ag exports **6**th in sunflowers, milk cows, milk production, red meat **7**th in hay, potatoes **8**th in barley **9**th in wheat **10**th in cattle/calves on feed, chickens, eggs

AgMag

TOP 10

Sizzling Summer

*Photos Courtesy University of Minnesota Agricultural Experiment Station*

Weather was a hot topic in summer 2006. July's scorching heat brought Minnesota 17 days above 90 degrees. We sweated out our first days over 100 degrees in over a decade. Lack of rain over many weeks made things worse. July is normally one of our wettest months, but not in 2006. Rain is needed to help pollination of corn. It's necessary for the growth of wheat, alfalfa, soybeans, sugarbeets and all other crops.

The hot temperatures and lack of rain (drought) brought hardship and misery across Minnesota and the Midwest. It brought power failures and forest fires. It brought big worries to farmers. The dry June weather ripened wheat early. Farmers harvested hay and drought-damaged corn for silage to save what they could from their bone-dry fields. Cattle grew thin when grass was gone and ponds dried up. Farmers had to sell cows and calves when food and water became scarce.

In July, 51 percent of the U.S. had moderate to extreme drought, mostly over the plains and Midwest. Much of northwestern and central Minnesota was in severe drought. How is the situation today? Did rains come in time? Find latest maps and news on the

ON THE WEB

U.S. Department of Agriculture's national Drought Monitor:

www.drought.unl.edu/dm/12_week.gif
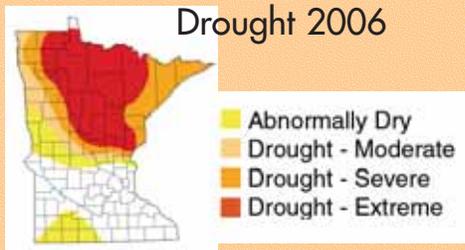
The heavy rains of August 1 improved the drought conditions for the southern half of our state. It was called a million-dollar rain for farms needing a good soaking. But Governor Pawlenty asked federal leaders to declare an agricultural drought disaster in 36 counties, mostly in the northern two-thirds of the state.

A majority of climate scientists believe that heat waves will become more common in the 21st century. Heat waves and global warming are very strongly connected, say scientists. Will the hot, dry weather pattern stay with us? We can only wait and see.

HOME Connection

You can't make rain or send cool breeze when it's hot and dry. Still, each of us can take actions that add up to BIG help for our strained resources and electric power grids during hot weather. How can you and your family help conserve our resources?

Drought 2006

- Abnormally Dry
- Drought - Moderate
- Drought - Severe
- Drought - Extreme

Did you know?

- The hottest temperature ever recorded in our state was 114 degrees F. This record was set July 29, 1917, in Beardsley. Moorhead tied the record on July 6, 1936.

- On July 30, 2006, the heat index reached 120 degrees F. in Glenwood, MN. (The heat index is a number combining temperature and humidity to produce a "feels like" reading, much like windchill in the winter.)

TRANSPORTATION CONNECTS AGRICULTURE, PLACES AND PEOPLE

Long before white settlers arrived and long before statehood, who was here? For hundreds of years the Ojibwe (Anishinabe) and the Dakota Indians had lived in villages along Minnesota's lakes and rivers. Settling by rivers gave them the water they needed for survival. It gave them fish. It gave them a ready route for travel when they moved for food or gatherings with other Indians. They went by canoe, horseback or foot, carrying all they needed.

When trappers, explorers and early settlers came, they also traveled and settled by waterways. Lake Superior, the Mississippi and other rivers were main travel and trade routes.

In the early 1820s Fort Snelling was built on the hill where the Mississippi and Minnesota Rivers meet. By 1823 the first steamboat plowed up the Mississippi to the fort. Can you imagine the amazement the Indians felt? The movement from muscle-powered to fuel-powered transportation had begun.

Photo Courtesy Minnesota Historical Society

Photo Courtesy Minnesota Historical Society

People arrived by steamboat, barge, stagecoach and Conestoga "prairie schooner" wagons. Between 1849 and statehood in 1858, Minnesota was the fastest-growing place in the U.S.! Most settlers became farmers, making a living off this rich land. They grew crops to eat plus crops to sell. Imagine you are a farmer. What do you have to sell? Who will buy your products? How will you get your products to your buyers? Once again, people turned to the rivers. The rivers carried wheat and other crops across the growing country.

In 1862 railroads arrived in Minnesota. Trains would change transportation in big ways. Still, until the 1880s, riverboat traffic thrived.

NEWCOMERS POUR IN

By the mid 1830s, steamboats full of immigrants and settlers arrived. They came for new land and new lives. Ox carts and wagonloads of settlers came, too. They all had to decide where to live. Many folks settled near the river. Others spread out into the country beyond. With axes and oxen, horses and simple tools they broke sod and built farms. John Deere's steel plow was invented in 1837. The plow made it easier for farmers to break the tough prairie sod. Imagine you are a new arrival back then. How will you decide where to live? What will you need in order to survive? How will you get those things?

RIVER OF GOODS

Rivers brought many things people needed as they settled in new places. Solve the puzzle to see nine items that moved on the waterways.

```
S  T  O  V  E  S  P  A  W
S  J  S  U  G  A  R  O  H
F  U  R  N  I  T  U  R  E
F  N  O  C  L  O  T  H  A
U  I  M  F  L  O  U  R  T
R  E  B  M  U  L  O  M  Y
S  D  P  A  N  S  B  N  B
```

Pre to early 1800s	1823	1849	1858	1862	1880
American Indians and early explorers traveled mainly on foot, by canoe or horseback	First steamboat to Fort Snelling	Minnesota becomes a territory	Minnesota becomes a state	First train to St Anthony	Riverboat traffic peaks

GRAB BAG

Acres of PIZZA

Americans eat 75 acres of pizza every day.

An acre is about the size of a football field.

Name the things from agriculture in your favorite pizza.

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

It's all thanks to agriculture!

CALLING IT HOME

When people settled, they named their new communities. Sometimes they chose names from the old country. Some names described the land or place. Other communities were named after people, and many places had Indian names.

Find examples of each type of name on a Minnesota map. The Minnesota Historical Society makes it easy to find out more about the meaning of the names of Minnesota people, towns and villages, lakes and streams. Go to:

ON THE WEB
mnplaces.mnhs.org/upham/

Red River | Lake of the Woods
PEMBINA
ITASCA
Lake Superior
MAHKAHTA
St. Croix River
WAHNAHTA
BENTON
DAHKOTAH
WASHINGTON
RAMSEY
Minnesota River
Mississippi River
WABASHAW
Missouri River

Minnesota Territory: 1849-1858

How and when did settlers first arrive where you live? How was your community named? Trace three rivers that help define Minnesota's borders. Mark Fort Snelling with an X.

## On the WEB ON THE WEB WWW
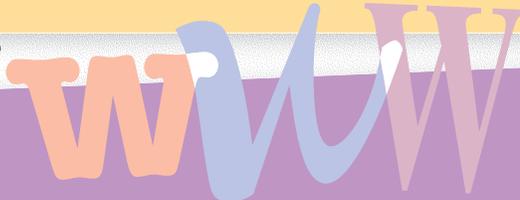
In 1804, explorers Lewis and Clark left on a journey to map new territory from the Mississippi River to the Pacific Ocean. What did their new map look like? How did they make it? Visit "Lewis and Clark: Mapping the West" at
www.edgate.com/lewisandclark

Journey across the country in a covered wagon! Discover how transportation has changed our nation here:
www.americanhistory. si.edu/onthemove/ exhibition

Did you know?

Minnesota has a new state fruit: the Honeycrisp apple. Fourth-grade students (now fifth-graders) at Anderson Elementary in Bayport, MN, wrote letters and met with state lawmakers, who made the apple official in July. The apple was developed at the University of Minnesota.

MINNESOTA STATE FAIR

Three lambs born at the Miracle of Birth Center
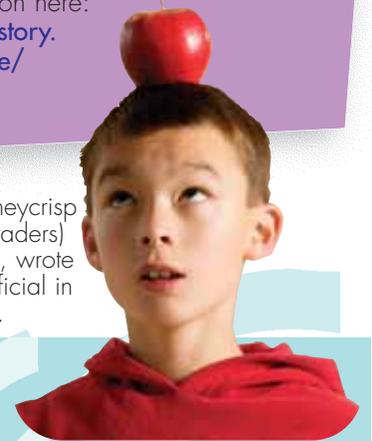
Did you know?

Over one million fairgoers took time to learn more about animal agriculture at the Fair's new birthing center. During the 12 days of the fair, 203 newborns were born. That included 128 piglets, 13 dairy calves and 62 lambs. One day 27 piglets and 5 lambs were born.

★ During a typical year, about 20,000 gallons of milk are served at the all-you-can-drink booth.

★ An average 500,000 corn dogs are eaten at the Fair each year.

★ Of all food items available, the fried candy bars have the most calories.

ON THE WEB
How many rolls of toilet paper are used at the Fair? Thank a tree! Go to **www.mda.state.mn.us/maitc** for the answer!

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