AgMag

Teacher Guide

Volume 25, Issue 1 2010/2011

Why Ag in the Classroom?

In times past, people were very aware of the role agriculture played in their lives. It meant survival! Nearly everyone—men, women and children—worked the land.

Agriculture still means survival. That will never change. But as time goes on, fewer and fewer people have close contact with farming. They're not aware of their own - and the nation's - total dependence on agriculture. Think about it:

- Only about 2 out of 100 Americans work in production agriculture (farming). This small group meets the food and fiber needs of the nation as well as many people abroad.
- Agriculture, along with its related occupations, is the nation's largest industry. It generates billions of dollars each year; one out of every five jobs depends on it in some way. It has massive impact on the American economy, greatly influences the U.S. international balance of trade and directly affects the number of jobs here at home.

Our citizens must be agriculturally literate in order to make responsible decisions affecting this giant lifeline. Building that literacy in tomorrow's leaders is what Ag in the Classroom is all about.

Academic Standards Connection

The student Minnesota AgMag and other educational materials from Minnesota Agriculture in the Classroom can meet many of the academic standards. These materials can serve as a wonderful "real life" connection and supporting piece as you incorporate the standards into your classroom activities. Here are a few examples of potential connections:

SOCIAL STUDIES

(Minnesota History Strand) Standard: The student will demonstrate knowledge of Minnesota's indigenous peoples.

(Economics Strand) Standard: The student will understand the concept of interdependence in relation to producers and consumers.

SCIENCE

(History and Nature of Science Strand) Standard: The student will understand how science is used to investigate interactions between people and the natural world.

(History and Nature of Science Strand) Standard: The student will recognize that science and technology involve different kinds of work and engage men and women of all backgrounds

LANGUAGE ARTS

(Reading and Literature Strand) Standard: The student will use a variety of strategies to expand reading, listening and speaking vocabularies.

MATHEMATICS

(Data Analysis, Statistics and Probability Strand) Standard:The student will represent and interpret data in real-world and mathematics problems.

Hello Out There (Resources)

MINNESOTA AGRICULTURE IN THE CLASSROOM

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Great resources available! Tell your primary level colleagues about our **new AgMag Jr.,** tell your middle school and junior high science colleagues about the **"Fields of Energy" DVD** and tell your media specialist about our **children's literature book bundle.**

Now Available! New full-color Minnesota Commodity Card Set (20 Cards)

If your students are studying the states, have them visit the National Ag in the Classroom website (click on State Profiles, then State Websites on the home page) to learn about each state's unique agriculture. You'll also find a wealth of teacher resources available (mostly free) from other state programs: **www.agclassroom.org**

MAITC FOUNDATION

MN Ag in the Classroom faithfully continues to provide educators with free educational resources. But, that doesn't mean you can't help support us with a small donation to the cause. Check us out at: **www.maitcfoundation.org**

MINNESOTA HISTORICAL SOCIETY

For great Minnesota historical pictures go to the Society's Photo and Art Database at: **www.mnhs.org/collections**

You might also want to consider visiting one of these very student-friendly historical sites for great hands-on learning:

- Oliver H. Kelley Farm at Elk River
  www.mnhs.org/kelleyfarm
- FarmAmerica at Waseca
  www.farmamerica.org
- Mill City Museum at Minneapolis
  www.millcitymuseam.org

About Your AgMag

Your AgMag is distributed primarily to teachers in grades studying Minnesota (usually fourth or sixth) or for use in science. If the magazine fits better into the curriculum program at another grade level, we encourage you to pass the material on to the appropriate teachers.

Offered at no cost to you, the AgMag is a product of Minnesota Agriculture in the Classroom. You'll receive three issues this school year: October, December and March.

This first issue of your AgMag is designed to help you:

- provide students with a general understanding of agriculture and human dependence upon it, today and in the past.
- strengthen understanding of the role agriculture plays in students' daily lives and introduce careers related to agriculture.
- build awareness of Minnesota agriculture, its economic importance and how the state's geographic features influence agriculture.
- offer insights about how machines and technology changed agriculture over the past 100 years.
- promote food safety and build awareness of both personal and government responsibility in keeping food safe.

Integration

Your AgMag materials are created by experienced classroom teachers. An Editorial Review Committee provides content ideas and reviews each issue.

Some teachers use the magazine as a separate lesson; others integrate magazine content into specific areas of the curriculum. The subject matter and skills listed will help you select appropriate agriculture activities to integrate into other curriculum areas.

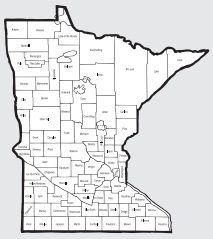
Language Arts, Reading Literacy: Use the articles and activities to develop a variety of skills: outlining; nonfiction reading; reading for the main idea; vocabulary development (bold words, pretest/post-test, activities throughout the AgMag, reproducible pages in Teacher Guide).

Math: Interpret state agriculture rankings and an annual precipitation graph.

Creative Writing: Many of the articles are great launchers for creative writing. Examples: tracing family history to agricultural roots, life in an early Indian village or on a settler's farm, tracking a foodborne illness.

Geography, Map Skills: See activities on pages 4 and 5. Locate the Minnesota communities named throughout the AgMag on a state map. Use the reproducible Minnesota map in the Teacher Guide as a handy aid for a variety of Minnesota concepts.

Map Ideas (reproducible, page 6)



- Color the top-producing counties for various commodities. As a guide for coloring, Commodity Cards can be downloaded and printed from the Minnesota Agriculture in the Classroom website: **www.mda.state.mn.us/maitc**
- Locate and label major Minnesota cities, major rivers and highways.
- Locate your town or community. Identify counties to the north, south, east and west of your county. Where is your county seat? What is your largest city?

History, Social Studies, Science and Current Events: See the cover and the articles and activities on pages 6, 7 and 8.

In This Guide: Don't Miss...

- SHOW WHAT YOU KNOW pretest and post-test on page 4. Check your students' knowledge of key agricultural concepts before and after reading the AgMag!
- Discussion prompters, background information, extended activities and answers.
- Two reproducible activities: "Tracking Trouble" and Minnesota Map. See "Map Ideas" in column 1.

Highlights of Your Three 2010-11 Issues Include:

October: Overview: Agriculture is Everywhere
- Agricultural production, processing, distribution
- Major Minnesota agriculture crops/growing areas
- Minnesota agribusinesses and cooperatives
- How machines and technology changed agriculture over the past 100 years
- Food safety

December: Overview: Agriculture, the Land and You!
- The production/processing/distribution cycle (highlighting sugarbeets)
- New developments in agriculture
- Global connections
- World hunger and population trends
- How machines and technology changed agriculture over the past 100 years

March: Overview: Caring for Our Natural Resources
- The food, land and people connection
- Gardening for kids
- Earth-friendly agriculture
- Minnesota's natural resources
- How machines and technology changed agriculture over the past 100 years

Glossary

Some words in your AgMag may be unfamiliar to your students. These words often appear in bold type or in italics. Many are defined in the articles. Words you might wish to pre-teach are: **agriculture, by-products, tallow** (cover); **livestock, industry, food, fiber, turf and landscaping materials, production, processing, distribution** (pg 2); **logo** (pg 3)**; soil types, terrain, rainfall, growing season, precipitation** (pg 4); **foodborne illnesses, epidemiologist, food recall, contaminated** (pg 6); **organic, conventionally grown food** (pg 8).

Discussion Prompters

Cover (Social Studies)

1. Agriculture is everywhere. What are the agriculture connections on this page? *(Food, clothes, potato, furniture, bedding, guitar, books, magazine, curtains, photo frames, box, shoes and more.)*
2. Why is it important for all people to know about agriculture? (*We all depend on agriculture for food, clothing and shelter. It's important to understand how our needs are supplied as we make decisions about using land, protecting resources, keeping food safe and much more.)*
3. The Silver Anniversary seal is to mark the 25th year of the Minnesota AgMag. You'll find notes from the first AgMag in this issue.

Student Pages 2 and 3 (Social Studies, Economics, Science)

1. What have you eaten or worn today that came from an animal? A tree or plant? The soil? Which came from beef or dairy cattle? Hogs? Poultry?
2. Why do we say agriculture depends on natural and renewable resources? *(The things that are produced, processed and distributed all are dependent on soil, sun, air and water in some way. Animals and plants are considered renewable resources.)*
3. After students match the jobs to Production, Processing and Distribution, discuss some of the careers that are unfamiliar to them. Guide students to see that each category includes many different and some overlapping roles.
4. Food production stories and advertising are always in the media. Compile a media journal of ads and articles about Minnesota agribusinesses and cooperatives. Why are logos important? *(They provide a quick visual way to identify companies and products.)* What Minnesota products are often advertised?
5. Target Field is loaded with agriculture connections. *(Sod, trees, food, etc.)* Have students brainstorm others. Bats shown are those of Joe Mauer.

Student Pages 4 and 5 (Geography, Map Skills)

1. What geographical features of Minnesota make it a good state for agriculture? *(Variety of terrain and soil types, climate, rainfall, weather.)*
2. What makes the Red River Valley (Northwest area) such a high-producing crop area? *(Rich, fertile soils, adequate moisture, large flat areas for mechanized agriculture.)*
3. Which of the four regions has a main crop that people may not always think of as agriculture? Explain your answer. *(The northeast region. In the past, natural forests were cut down and not replanted. Today, forests are replenished and trees are considered a renewable crop.)*
4. Discuss annual precipitation as an average of data collected over many years. Remind students of weather events such as drought and flooding. What effect do these have on farmers? How could deviations eventually impact our food supplies and prices? Many parts of Minnesota had good weather this year and produced record crops.

Student Page 6 (Current Events, Science, Social Studies)

1. How does your family learn about food recalls? *(TV news, newspapers, mail, in-store signs, word-of-mouth, phone messages if a store can trace customer purchases, as they can at membership stores such as Costco, Sam's, etc.)*
2. Why is it important to pay attention to food recall notices? *(You might get sick if you eat the recalled food product. Your purchase price will be refunded.)*
3. What do your school cafeteria helpers do to keep your food safe? If you pack your own lunch to bring, what can you do to make sure it's safe? *(Be sure students get copies of the Tracking Trouble reproducible on page 5 of this Guide.)*

Student Page 7 (History, Social Studies, Cultural Diversity)

1. Mention that cities were the first places to get electricity. When President Roosevelt created the Rural Electrification Administration in 1935, only 10 percent of rural Americans had electricity. This lack of power prevented farmers from modernizing. It also forced some people to live in unhealthy conditions. Many rural Americans lived in homes with poor heating or poor sanitation. Most farmers had no indoor running water and no way to refrigerate their food. Google "Rural Electrification Act" to discover more.

2. In the 1930s many farm families moved to cities. What was happening in the 1930s to make many families leave their farms? (Dust storms stripped millions of tons of top soil from fields, making land unproductive and harming livestock. The Great Depression fiancially ruined many farm families.) *(More farm work could be done by machine so some members of the famiy could work elsewhere.)*

3. What do cows think of robot milkers? (*Cows actually like the robot. They are calmer, have less infection and disease problems. They give more milk as they are milked three or more times a day instead of twice a day. The cows actually enter the robot on their own when they are ready to give milk.)*

ANSWERS: AgMag

COVER

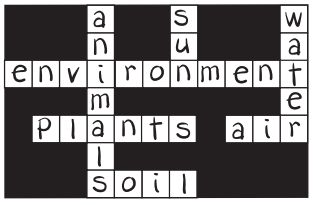
Connections to agriculture: *See Discussion Prompter number 1 on page 2.*

AGRICULTURE; MORE THAN FARMING, Pg. 2

List labels: **A.** *Production*; **B.** *Processing*; **C.** *Distribution*

Photos: C; B; A

Crossword



CELEBRATING MINNESOTA AGRICULTURE, Pg. 3

1. Gold'n Plump – chicken – packaged chicken
2. Hormel – hogs – pepperoni and ham
3. Minn-Dak Sugar – sugarbeets – sugar
4. John Deere – steel – farm machinery
5. Boise – trees – paper
6. Kemps – milk – ice cream
7. Pioneer – corn seed – ethanol
8. Old Dutch – potatoes – potato chips
9. Malt-O-Meal – oats – cereal and snacks

BASEBALL AG CONNECTIONS, Pg. 3

Uniforms . . . . . cotton
Catchers mitt . . . . . leather
Bats . . . . . wood
Ice cream. . . . . milk
French fries . . . . . potatoes
Home plate . . . . . rubber
Tickets/programs . . . . trees
Baseball covers . . . . . cowhide
Pretzels . . . . . wheat

GROWING AREAS, Pgs. 4 and 5

1. C *(Northwest)* **2.** B *(Southwest)* **3.** D *(Central/Southeast)*
4. A *(Northeast)*

Leading sugarbeet county: *Polk*

Name the animal: *Alpaca*

Name the crop: *Wheat*

Name the growing area: Northwest

MINNESOTA RAINFALL: WHAT AND WHERE, Pgs. 4 and 5

1. *Least rainfall: Northwest; Most rainfall: Central/Southeast*

2. *Specific crops need different amounts of moisture.*

3. *Above normal: Crops drown out or wash away. Yield is reduced. Below normal: Drought causes crops to wither or die. Yield is reduced.*

Your turn:
Hay and Pastureland: *Central/Southeast*
Sugarbeets: *Northwest*
Corn and Soybeans: *Southwest*
Forest and Pine Trees: *Northeast*
Wheat: *Northwest*

TRUE OR FALSE, Pg. 6

True

CRACK THE CODE, Pg. 8

The Produce Marketing Association (PMA) assigns the produce number codes. An organic code means it was grown and processed using organic farming methods: no toxic and persistent pesticides, bioengineered genes or toxic fertilizers.

Organic foods: **2.** Red pepper and **3.** Broccoli

MINNESOTA AGBRAGS, Pg. 8

Minnesota's biggest ag customers: Canada, China and Mexico

25 YEARS AGO, Pg. 8

Minnesota has less farms today because many people left farming to work at other jobs. Their land was bought and combined with other land to form larger farms. Today's farmer, with modern machinery, farms more acres. That means there are less total farms.

ANSWERS: Teacher Guide

SHOW WHAT YOU KNOW

1. *b* **2.** *a* **3.** *b* **4.** *b* **5.** *a* **6.** *c* **7.** *b* **8.** *c* **9.** *a*

TRACKING TROUBLE, Pg. 7

1. Separate
2. Chill
3. Cook
4. Clean

Note to Teachers:
You are encouraged to send the Pretest and Post-test results to Ag in the Classroom to help document student learning. Use the attached postage-paid evaluation card.

Name _____

Check one ☐ Pretest ☐ Post-test

Show What You Know!

Take this short quiz before you read your AgMag, then again after reading the magazine. See the improvement!

1. Agriculture involves the growing and harvesting of food, fiber, forests and
a. metals. **b.** sod. **c.** plastic.

2. An **acre** is a land area about the same size as
a. a football field. **b.** a school gym. **c.** a classroom.

3. The same crops grow well all over Minnesota.
a. true **b.** false

4. In agriculture, **production** means
a. getting farm products from farm to consumer.
b. growing of raw food and fiber.
c. packaging products so they're ready for sale.

5. What percent of Minnesotans work is in food and fiber industries?
a. 10 **b.** 40 **c.** 2

6. In the 1930s, what huge and helpful change came to farms?
a. Telephones
b. The steel plow
c. Electricity

7. Minnesota's first farmers were
a. Cherokee Indians.
b. Dakota and Ojibwe Indians.
c. Apache Indians.

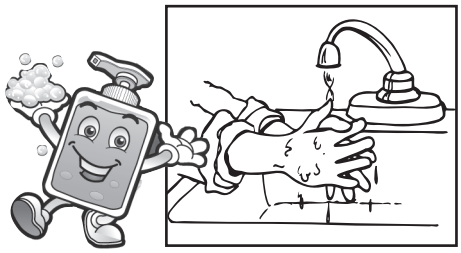
8. In 2009, Minnesota ranked first of all 50 states in production of
a. soybeans and wheat.
b. ice cream and butter.
c. sugarbeets, turkeys, sweet corn and green peas for processing.

9. Minnesota is a national leader in tracking down
a. foodborne illnesses.
b. computer viruses.
c. stolen tractors.

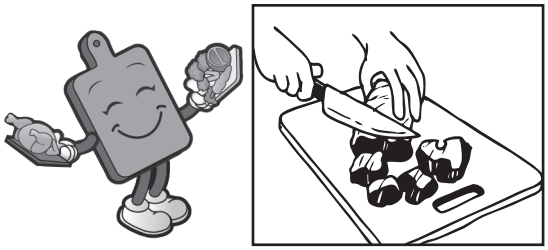
Tracking Trouble

Bacteria can be lurking just about anywhere: in your kitchen, on your plate and even on your hands. Foodborne bacteria can't be seen, smelled or tasted. Yet, this invisible enemy can multiply and make you sick. Cross-contamination is the scientific word for how bacteria can be spread from one food product to another. This easily happens when handling raw meat, poultry, eggs and seafood. The safe way: Keep these foods and their juices away from ready-to-eat foods! That's not all. We consumers need to handle and cook food properly. Teach your family these important food safety tips:

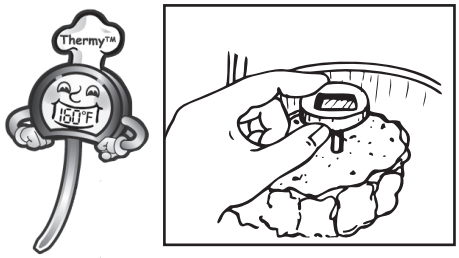
Be Food Safe



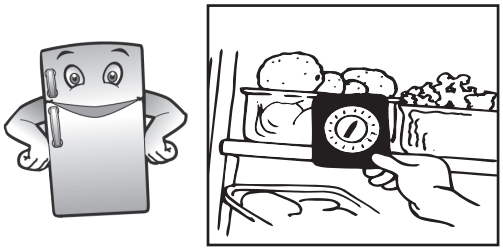
Clean. Wash hands with soap and warm water for 20 seconds before and after handling food.



Separate. Keep raw meat and poultry apart from foods that won't be cooked.



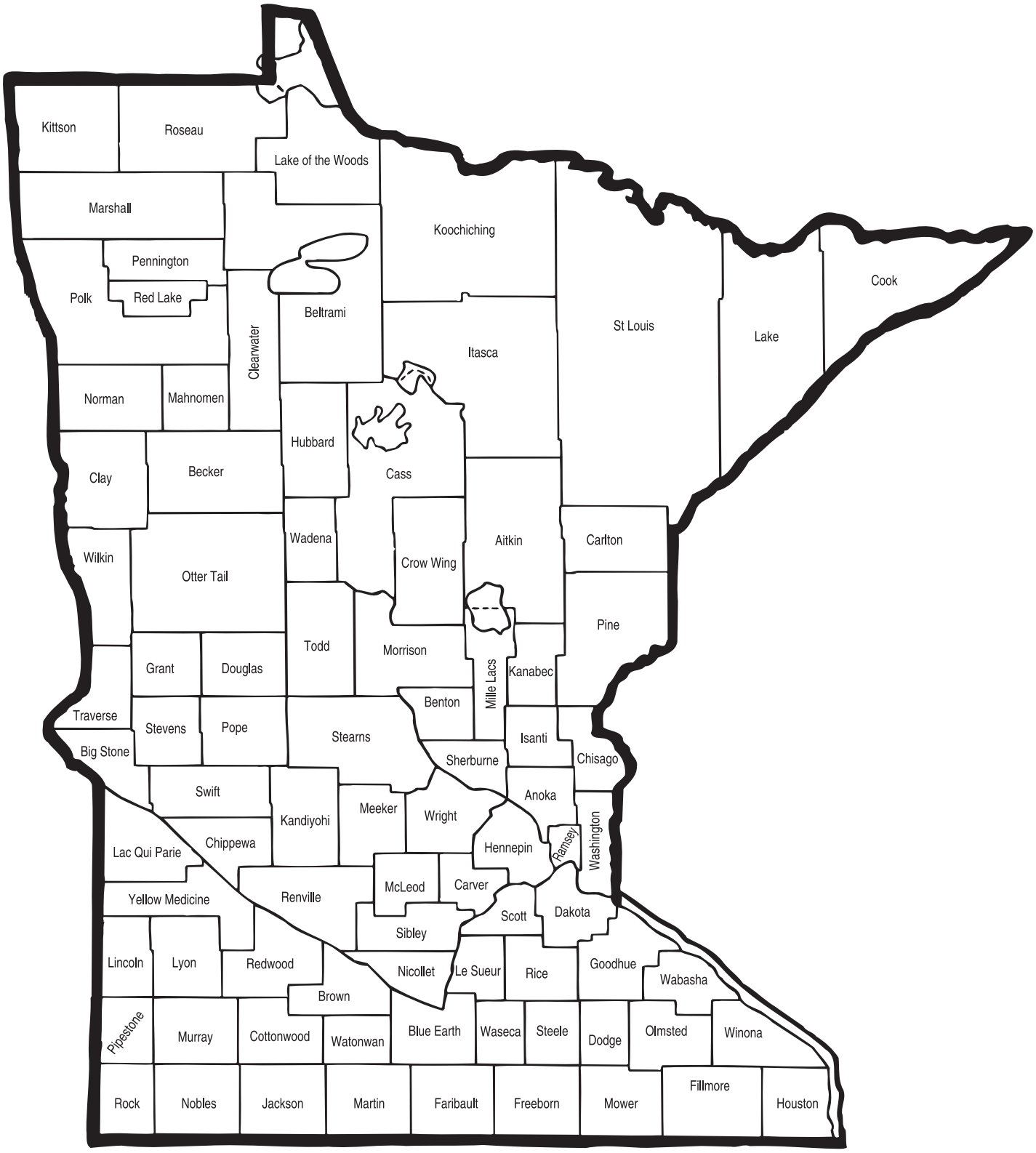
Cook. Use a food thermometer — you can't tell food is cooked safely by how it looks.



Chill. Chill leftovers and takeout foods within two hours. Keep the refrigerator at 40°F or below.

These kids are going on a picnic. See the Be Food Safe chart. Identify the step you'd teach these kids to keep them food safe.	**Safe Step**
Javier used the same wood cutting board to form raw hamburger patties and slice the hamburger buns and pickles.	
Cassandra took the potato salad out of the cooler and set it under the tree so the cooler could hold the sodas.	
Armando grilled the burgers until they looked done.	
Josh cut up carrots, celery and apples without washing them or his hands.	

Remember **Food can be contaminated even if it looks, smells and tastes normal. Now you know how to be food-smart and food-safe!**



Minnesota

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