



Why Ag in the Classroom?

Agriculture means survival. Over time, fewer and fewer people have close contact with farming and the total agricultural sector. They're not aware of their own and society's total dependence on agriculture. Our citizens must be agriculturally literate in order to make responsible decisions affecting this giant lifeline.

Teaching students to be agriculturally literate brings their learning to life! Helping students understand the farm to table connection is important in our consumer-driven society. That is what the student Minnesota AgMag Series is all about.

Integration Ideas

Social Studies

- Use the information from Powerhouse Livestock (page 7) as the start to creating a historical timeline that illustrates the role of agricultural plants and animals in Minnesota History.
- Research trading partnerships and agreements that Minnesota and the United States have developed with other countries. Chart, graph or create visual diagrams that illustrate what products we are sending to the world and what products we are using from the world.

English Language Arts

- Ask students to identify key ideas and details and build their vocabulary through the AgMag's informational text.
- Use agriculture as an inspiration for creative writing activities and group discussions. Ideas: Stories from the points of view of plants or animals that depend on humans; predictions for agriculture in 2050 (or future years); letters to children in other countries with descriptions about agriculture here and questions about agriculture there.

Science and Math

- Identify the STEM involved in producing Minnesota's Powerhouse Livestock (page 7) and using these animals as food and other products we rely on each day.
- Utilize and expand the graph and chart on page 8.

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 **consumers, interdependent** (cover); **raw materials, natural and renewable resources, agriculture cycle, livestock, manure** (pages 2-3); **farrow to finish, weaned, rations, by-products**, (pages 4-5); **export, import, less-developed countries, food shelves** (page 6), **beef cattle, dairy cattle** (page 7), **populous, developed countries** (page 8).

MINNESOTA AGRICULTURE IN THE CLASSROOM

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Minnesota School Gardens: A Guide to Gardening and Plant Science
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Minnesota K-12 Academic Standards

Subject	Standard Code	Benchmark
Social Studies	6.2.3.5.1	Describe the movement of goods and services, resources and money through markets in a market-based economy.
Social Studies	6.4.4.23.2	Identify the major Minnesota political figures, ideas and industries that have shaped or continue to shape Minnesota and the United States today.
Science	5.4.1.1.1	Describe how plants and animal structures and their functions provide an advantage for survival in a given natural system.
Science	5.4.4.1.1	Give examples of beneficial and harmful interaction with natural systems.
Math	5.2.1.1	Create and use rules, tables, spreadsheets and graphs to describe patterns of change and solve problems.
English Language Arts	6.5.1.1	Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

Discussion Prompters

Cover (Social Studies)

1. What makes "Agriculture, the Land, and You" a good title for this page? (Each of the products mentioned in the article and many shown in the photos started out with a connection to the land, the soil. They end up being used by people.)
2. What connections to agriculture do you see in these photos? (Food, clothing, shelter, products in store, sports uniforms, wooden gym floor, ball, kids preparing food, paper, pencil and more.)

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

1. How many things in your classroom came from agriculture?
2. 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? From pigs? Corn or soybeans?
3. Why do we say agriculture depends on natural and renewable resources? (The agricultural products 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.)
4. What foods do NOT come from plants and animals? (Mushrooms and yeast are fungi, not plants.)

Student Pages 4 and 5 (Science, Social Studies)

1. The hog industry is a huge part of animal agriculture in Minnesota and many other places. China is the world's leading producer; the U.S. is second. Why is the Midwest such an important region for hog farming? (Because the rations fed to pig are usually based on corn, soybeans and barley. These crops are heavily grown in the Midwest.)
2. Most hog farmers keep clean, modern buildings to raise their animals, rather than letting them roam outdoors. What are some of the risks for pigs being raised outdoors? (Pigs can be harmed by hot and cold weather, sunburned by too much sunlight and attacked by animal predators.)

3. Rules for inspecting pork are set by the United States Department of Agriculture (USDA). All pork sold in retail shops has been inspected. Look for the Passed and Inspected by USDA seal to know the pork is wholesome and free from disease. What do we have to do to make sure our pork is safe to eat? (Keep it properly frozen or refrigerated, touch it only with clean hands, counters and utensils, cook it to proper temperatures, refrigerate leftovers promptly.)

Student Page 6 (Social Studies)

1. What does the population trend of the future (more people in cities and less-developed countries) mean for agriculture? (Production must keep increasing in order to feed everyone. Transportation and distribution will be even more important than they are today. Growing urban populations will use resources in greater quantities than their fewer rural neighbors who produce the food. Conserving land, water and energy resources and using new technologies to increase production will grow in importance. Marketing new products will continue to be a growing business.)
2. Because of war, drought, political instability, high food prices, poverty and joblessness, hunger now affects one in six people in the world. (Estimate is from the United Nations.) The main reasons for hunger in the United States are caused by poverty and unemployment. How can we help hungry people? (Second Harvest, mentioned in this article, is just one food shelf supplier. Explore local resources.)
3. Why might food grown in a country not be easily available to local people? (Exporting food is big business in many parts of the world. If money can be made by selling locally grown food to others, it may not be readily available to local people.)

Student Page 7 (History, Social Studies)

1. The countries of Luxembourg (300 lbs./person), the United States (276 lbs./person) and Australia (267 lbs./person) eat the most meat per capita each year. India (7 lbs./person) eats the least. Why? (Meat is easily available in the top countries and family incomes are high enough to afford it. India's huge population means less meat is available per person and most family incomes are too low to afford it. As incomes rise, people eat more meat.)
2. What is the most widely consumed red meat in the world? (Goat is eaten by about 70% of the world's population.)

ANSWERS: AgMag

Cover: See Discussion Prompters above.

AGRICULTURE CYCLE, Pg. 2

1. Producing 2. Processing 3. Distributing
 4. Marketing 5. Consuming
- Photos top to bottom: 1, 5, 2, 4, 3
 - Products with more steps use more energy, especially in processing. Example: Fresh potatoes are picked, cleaned, graded, packaged and ready for consumers. Potato chips add slicing, baking or frying, seasoning and inspection to the cycle.
 - Sun, air, water and soil are the resources from which all agricultural products develop.

MAKIN' BACON AND MORE, Pg. 5

1. B 2. C 3. D 4. E 5. A

THINK AND DISCUSS, Pg. 5

- More hogs are produced in states that raise corn and soybeans because those grains are main hog foods.
- Pigs were first brought into the area that became the United States by Spanish explorers and by early European colonists.

MORE MOUTHS TO FEED, Pg. 6

The world gains about 9,000 people per hour and 216,000 each 24-hour day.

MINNESOTA'S POWERHOUSE LIVESTOCK, Pg. 7

The largest concentration of horses in the state is in the metropolitan Twin Cities area because horses are used for pleasure, recreation, competitions, etc. rather than for work as they were in the past. The urban areas have more people owning horses for these modern uses.

TALKING TURKEY AND HOGS, Pg. 8

Turkeys and hogs are raised in the many of the same states. These states have climates and soils that produce the feeds these animals need.

WORLD POPULATION GRAPH, Pg. 8

The population growth will be much faster in less developed countries.

ANSWERS: Teacher Guide

WHY ARE THEY HUNGRY?

Across: 5. transportation; 10. crop; 12. drought; 13. spoiling.

Down: 1. stealing; 2. wars; 3. government; 4. poverty; 6. storage; 7. trade; 8. processing; 9. floods; 11. pests.

The two main causes of hunger in the United States: poverty and unemployment

SHOW WHAT YOU KNOW s

1. producing, processing, distributing, marketing, consuming
2. b 3. c 4. b 5. b 6. a 7. c 8. b 9. b

Agriculture in a Hungry World

Why Are They Hungry?

There is enough food to feed everyone in the world. So why are some people starving? They simply can't get the food they need. Solve the crossword puzzle and you'll see some of the reasons food does not reach people who need it in many parts of the world.

List some places you've been hearing about in the news where people suffer from hunger. What are some reasons their needs are not met?

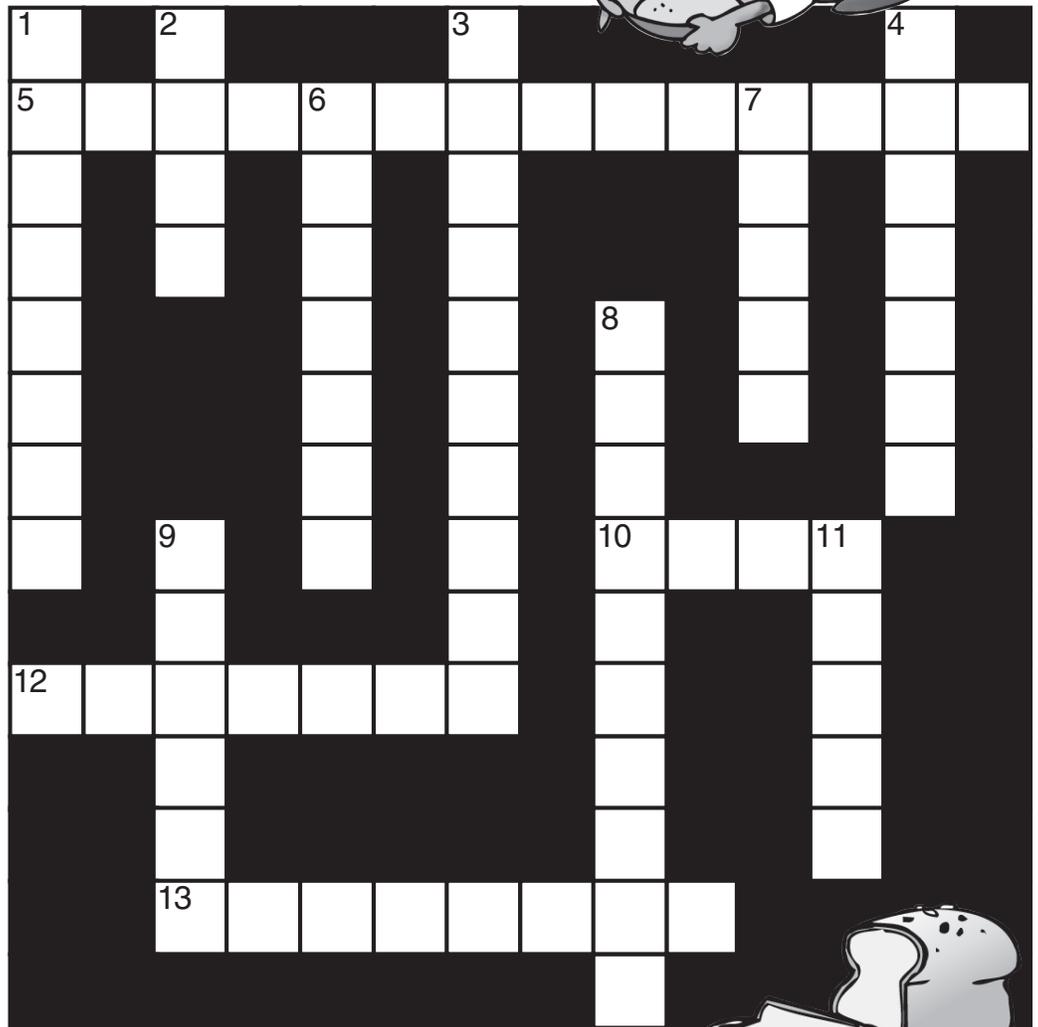


ACROSS

- 5 Reliable ways of moving things from place to place
- 10 Poor growing season; _____ failure
- 12 Too little rain to grow crops
- 13 Rotting and molding

DOWN

- 1 Robbing
- 2 Fighting in or among nations
- 3 Leaders of a country
- 4 Too little money
- 6 Clean, dry places to keep food
- 7 Buying and selling between countries
- 8 Changing raw products into forms we can use
- 9 Overflowing of rivers and streams
- 11 Insects and rodents



The two main causes of hunger in the United States are:

v p o r e y t

t u y n m e n m p l o e

Food supplies are hurt when certain things happen. Sometimes land and water quality goes down. Pollution, natural disasters like floods, droughts, insects and over-planting one kind of crop can cause this damage. Sometimes people don't have the technology to produce and protect crops.

It takes all the world working together to solve hunger problems.

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. Name five steps in an agriculture cycle.

a. _____ b. _____ c. _____ d. _____ e. _____

2. These are the source of food for every other living thing.

a. animals b. plants c. fungi

3. More than half the world's population depends on this plant for a daily meal.

a. wheat b. corn c. rice

4. How many people are living in the world today?

a. over three million b. about seven billion c. over twenty million

5. Pork includes

a. legs, thighs and drumsticks.
b. bacon, ham and pepperoni.
c. T-bone steaks and hamburger.

6. Minnesota's leading agricultural exports are soybeans, corn, pork and livestock feed. Which country is the top buyer of our ag exports?

a. China b. Brazil c. Australia

7. An average pig litter is

a. 3-4 piglets. b. 4-8 piglets. c. 10-14 piglets.

8. The world's less-developed countries include

a. Japan and Australia.
b. Bangladesh and Uganda.
c. United States and Canada.

9. Minnesota has thousands of horses. The majority of them live

a. in the Red River Valley.
b. in the metropolitan Minneapolis-St Paul area.
c. in southwestern Minnesota.

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