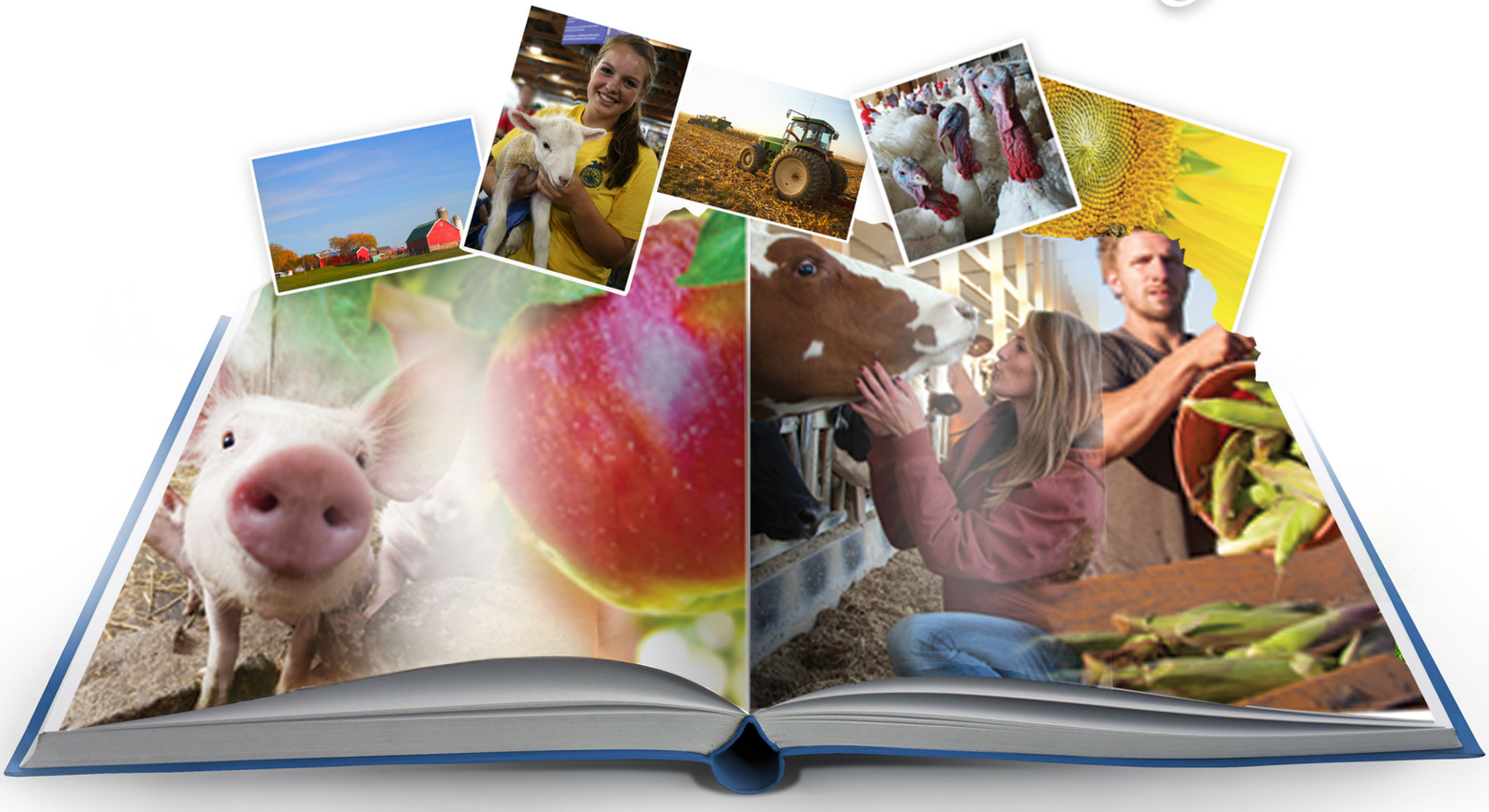
Agricultural Literacy



Minnesota Agriculture in the Classroom

Grades 3-5

Book Bundle

About

Minnesota Agriculture in the Classroom

Program Overview

Minnesota Agriculture in the Classroom (MAITC) was established in 1985 as a unique public/private partnership between the Minnesota Department of Agriculture (MDA) and the state's agriculture and education communities. Today, the MDA support is for ongoing educational materials development, teacher professional development, and program marketing and outreach, while the MAITC Foundation raises and manages private sector funds to fulfill program needs. This successful collaboration has garnished the program important credibility and continuity within the state's education community while consistently being able to offer free educational resources to a myriad of audiences wanting to immerse themselves in learning about agriculture.

Our Vision: Agriculture is valued by ALL

Our Mission: Increasing agricultural literacy through K-12 education. An agriculturally literate person understands and can communicate the source and value of agriculture as it affects quality of life.

Program Premise: Our resources feature standards-based authentic agricultural content to enhance student learning. MAITC's overarching objective is to integrate, or embed, agriculture into core subjects such as social studies, science, English language arts and nutrition.

MAITC Teacher Professional Development

MAITC provides high-quality workshops tailored to the needs of practicing and future teachers. We currently support K-12 teacher professional organizations and nearly 20 Colleges of Education via presentations with science or social studies methods classes. For more information contact MAITC Education Specialist, Sue Knott, at sue.knott@state.mn.us or 651-201-6486.

Educational Resources

Find us fast at www.mda.state.mn.us/maitc: We offer many educational resources such as our student AgMag Series, AgMag Jr., Food for Thought geography resource, Minnesota School Garden Guide, Ag Literacy Grants, Children's Literature Book Bundles, Ag-based K-12 Lessons Library, teacher tours, and other supplemental resources. All MAITC resources are FREE except for the new grade level K-2 and 3-5 book bundles (see more details below). For more information contact:

Al Withers – MAITC Program Director
alan.withers@state.mn.us or 651-201-6688

Sue Knott – MAITC Education Specialist
sue.knott@state.mn.us or 651-201-6486

About the MAITC Children's Literature Book Bundles and Educator Guides

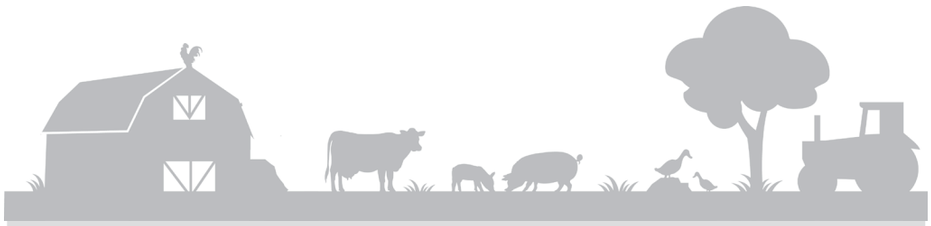
Each Educator Guide introduces you to the ten books in the bundle (K-2 or 3-5) and serves as a reference guide for each of the books. They are designed to stimulate appropriate discussion and to extend student learning beyond the book content itself. The books and suggested activities, lessons, and resources offer easy connections to many curricular areas.

Book Bundle Ordering Information

Each MAITC Children's Literature Book Bundle includes ten books, along with the Educator Guide. The cost of each bundle is $100, plus tax and $10 for shipping/handling. For more information and/or to order, contact:

Finney Company in Apple Valley, MN: (800) 846-7027 or (952) 469-6699; email info@finneyco.com

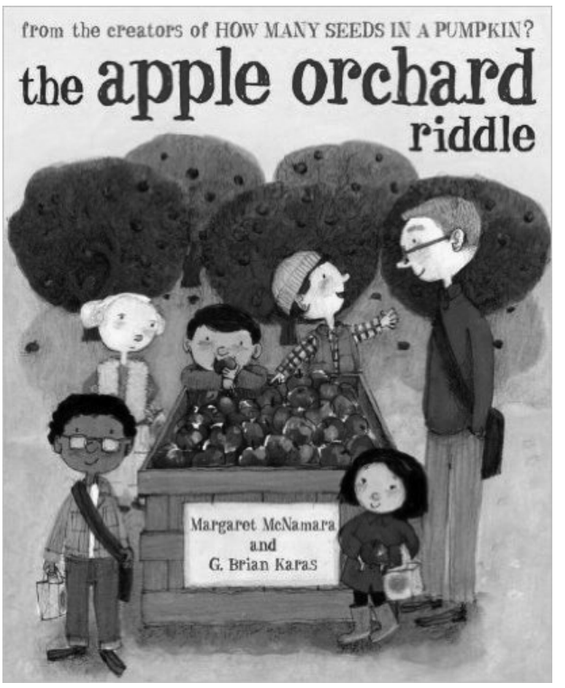
Minnesota Department of Agriculture



Book Bundle

Contents

The Apple Orchard Riddle



Author: Margaret McNamara **AR Points:** .5
Illustrator: G. Brian Karas

Minnesota Academic Standards

English Language Arts

4.1.2.2, 5.1.2.2 Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.

Agriculture Focus

Explore the day-to-day activities that occur on an apple farm. The process of making apple cider is highlighted.

Summary

Mr. Tiffin's class takes a field trip to an apple orchard where they learn how the apples are picked, peeled and turned into cider. One student, Tara, solves the riddle Mr. Tiffin presented: Show me a little red house with no windows and no door, but with a star inside.

Listening Questions to Ask *Before* Reading

- Can you name any apple varieties? (Honeycrisp, Red Delicious. Golden Delicious, Granny Smith, Rome, McIntosh, Fuji)
- How do you pick an apple off a tree? (twist the stem until the fruit comes off the branch)
- How are apples preserved so we can enjoy them all year? (canning, freezing, dehydrating to name a few)

Discussion Questions to Ask *After* Reading

- What are some foods you have eaten with apples in them?
- Have you ever been to an apple orchard? What kinds of things did you see there? Did you pick apples?
- Name the key steps in making apple cider.
- What information and observations helped Tara solve Mr. Tiffin's riddle?

Words to Know

Cider: juice which is pressed from apples

Orchard: a group of fruit-bearing trees

Pulp: the chopped up tiny apple pieces left after being pressed

Sterilize: to make (something) free from bacteria or other living organisms

Lessons and Activities

Earth as an Apple
Minnesota Apple Pie

Art: Slice apples in half and use ink or paint to create apple printed stationery or cards.

Language Arts: Students find the "star" and write an adventure story of what that star sees or how/where it travels and ends up growing into a tree producing more stars.

Math: Taste test different apple varieties and tally student's favorites. Have students make a bar-graph or pie chart to record the data.

Science: Cook up apples to show changing states of matter: Solid = apple slices, Semi-solid = applesauce, Liquid = apple juice or cider

Related MAITC Resources

Agriculture is Everywhere! Poster

Lessons and Related MAITC Resources are all available FREE at **www.mda.state.mn.us/maitc**

Auntie Yang's Great Soybean Picnic

Author: Ginnie Lo
Illustrator: Beth Lo

Lexile: AD960L
AR Points: .5

Minnesota Academic Standards

English Language Arts

3.1.3.3, 4.1.3.3, 5.1.3.3 Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.

Agriculture Focus

Soybeans were originally cultivated in northeastern China 5,000 years ago and are a staple ingredient in many Asian cuisines. In the United States major uses include animal feed (commodity soybean), as protein and oil food products. The Great Soybean Picnic features edamame, the immature soybean, where the pods are boiled or steamed and served with salt. The book focuses on cultural connections while highlighting family traditions and community.

Summary

This story follows two Chinese-American sisters and their family as they discover a soybean field on a Sunday drive in Illinois. Excited by their discovery, the family hosts an annual soybean picnic for the neighbors.

Listening Questions to Ask *Before* Reading

- How many soybeans are usually in a pod? (two to four pea-sized beans)
- What country is the leading producer of soybeans? (United States)
- What country is the leading importer of soybeans? (China)
- What are some major uses for soybeans? (livestock feed, vegetable oil as a food ingredient, used in making inks, paints, cosmetics, and as a fuel – biodiesel)

Discussion Questions to Ask *After* Reading

- What are some traditions that you share with your family?
- Why is it important to Auntie Yang that they stay in contact with other Chinese people in the United States?
- Name some foods made from soybeans.
- Besides foods, what are other products made from soybeans?

Words to Know

Edamame: immature green soybeans usually in the pod

Mao dou: Chinese word for soybeans

Lessons and Activities

Seed Cycle
Seed Tasting

Geography: Compare the topography, climate, soil and additional growing conditions of China and Minnesota or the United States. What are the similarities and differences? How and why are soybeans grown in each location?

Language Arts: Create a senses poem to describe a soybean without saying the actual word within the poem.

Math: Obtain actual soybean pods from a soybean grower. Have students count the number of beans in each pod. Find the central tendencies: mean, mode, median for the class/classes.

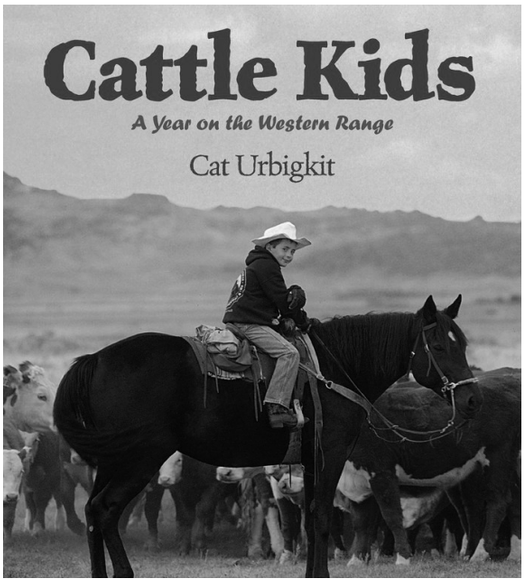
Science: Taste soy milk, soy nuts, tofu and other foods made from soybeans. Discuss how they are alike or different than other similar foods.

Related MAITC Resources

Agriculture Commodity Cards
Agriculture By-Products Poster

Lessons and Related MAITC Resources are all available FREE at **www.mda.state.mn.us/maitc**

Cattle Kids – A Year on the Western Range



Author: Cat Urbigkit **AR Points:** .5

Minnesota Academic Standards

English Language Arts
3.2.3.3, 4.2.3.3, 5.2.3.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

Agriculture Focus

Discover the many aspects of life on a farm or ranch, in this case a western beef ranch. Gain insight into the cattle industry and the role "farm kids" play on the farm or ranch.

Summary:

This glossy pictorial essay shows how children fit into life on a modern cattle ranch. The author describes the various tasks that take place during a typical year, such as birthing, branding and grazing.

Listening Questions to Ask *Before* Reading

- What type of work can be done by kids on a cattle ranch? (feeding, general help with animal care, gathering cattle with horses, sorting cattle)
- What's the difference between a cattle farm/ranch and a dairy farm? (cattle farms raise beef for food; dairy farms raise cows for milk)
- Why do cattle have ear tags? (so the farmer/rancher can identify each animal and for easy record keeping of that animal throughout its life)
- What tools might a cattle kid use on the ranch? (horses, ropes, herding dogs, saddles, pitch forks)

Discussion Questions to Ask *After* Reading

- Would you like to live on a farm or ranch and be a cattle kid? Why or why not?
- Do you think being a cattle kid would be mostly fun or a lot of work? Why?
- What are some ways people use cattle? (for food, hides for leather, by-products such as medicines and paint brushes)
- What sort of care do beef cattle need? (consistent feed ration and access to fresh water, help with birthing, medical care when sick (vaccination), clean and appropriate shelter, proper exercise and grazing)
- How is open range beef ranching different from a Minnesota beef farm? (the mere volume of land available for grazing allows for a different type of feeding and land use)

Words to Know

Branding: the process of placing the ranch's symbol/trademark into the animal's hide; used for identification and ownership

Breed: a specific type of beef animal, such as Hereford or Angus

Bull: male cattle used for breeding

Calf: young (up to a yearling) animal of the bovine species

Corral: an area that is surrounded by a fence and that is used for holding animals (such as cows and horses) on a farm or ranch

Cow: female cattle

Cow-calf: on a cow-calf farming operation, mother cows raise calves on the farm/ranch, then the calves are shipped to market later in the year; mother cows remain on the farm/ranch to continue the cycle

Forage: plant material that livestock eat or that is cut and fed to them; the process of animals searching for food

Heifer: young female that hasn't yet given birth

Herd: a large group of animals, especially hoofed mammals, that live, feed or migrate together

Pasture: an area of land covered with grass and other plants for grazing animals

Ranch: a type of farm where cattle or other animals are bred and raised

Steer: a young male that has been castrated

Yearling: an animal that is one to two years old

Lessons and Activities

Animal Life Cycles

Art: Invent a new tool or equipment to help on the cattle farm; draw a picture or make one using toothpicks, tinfoil or other "found" materials. Name it and describe to the class what it does.

Language Arts: Visit a cattle farm or interview a cattle farmer; write a story about what you would like or not like about living on a cattle farm.

Language Arts: "Hay" and "hey" are homophones; make a silly poem using hay and hey and other homophones.

Other: Make a list of favorite foods made with beef. Try a beef recipe.

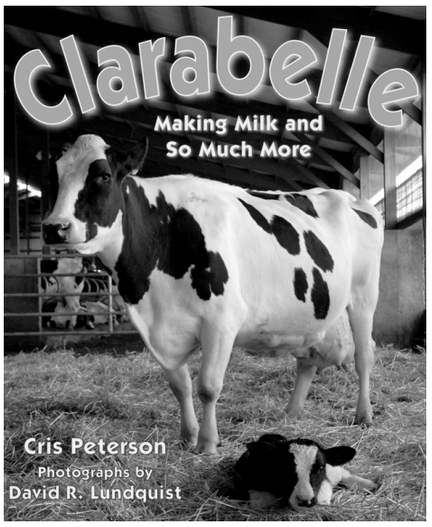
Other: Bullfighting is a traditional sport in Spain and Mexico; Hindus believe cows are sacred; Western rodeos feature bull riding and cow roping. Research these or other cattle-related activities, events or beliefs; describe how they began and where they happen(ed) in a report.

Related MAITC Resources

Agriculture Commodity Cards
Farm Animal Bookmark
Where Does Your Cheeseburger Come From? Poster

Lessons and Related MAITC Resources are all available FREE at **www.mda.state.mn.us/maitc**

Clarabelle; Making Milk and So Much More



Author: Cris Peterson
Photography: David Lundquist
Lexile: NC1180L
AR Points: .5

Minnesota Academic Standards

English Language Arts

3.2.3.3, 4.2.3.3, 5.2.3.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

Science

3.4.3.2.1 Give examples of likenesses between adults and offspring in plants and animals that can be inherited or acquired.

5.4.1.1.1 Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.

Agriculture Focus

Investigate the basic features of dairy farms and the day-to-day activities on a farm. The illustrations and non-fiction text promote an understanding of technology utilized in agriculture to create dairy products and energy. Wisconsin is a leading dairy state and the black-and-white Holstein is, by far, the most popular breed of dairy cattle in the United States.

Summary

This book features Clarabelle and her newborn calf on a modern-day Wisconsin dairy farm. Readers are introduced to the latest technologies that enable farmers to create electricity and other by-products with the help of their dairy herds. You'll learn that Clarabelle is a virtual four-footed milk-producing factory.

Listening Questions to Ask *Before* Reading

- How much does a milking cow weigh? (nearly 1,500 pounds)
- How many compartments are in a cow's stomach? (four)
- What do cows eat? (hay, corn and soybean meal, and they drink a lot of water)
- What is some technology that is used on dairy farms? (milking machines, milk testers and anaerobic digesters)

Discussion Questions to Ask *After* Reading

- Have you visited a farm? What was similar on that farm to the one in the story?
- What are some of your favorite dairy products?
- What kinds of jobs are there to do on a dairy farm?

Words to Know

Alfalfa: a high quality, high protein hay crop grown widely in the United States; a very important perennial forage for Minnesota's dairy industry

Bacteria: tiny one-celled organisms that play many roles in nature (on a dairy farm, various types of bacteria can work to break down plant material in a cow's stomach)

Calve: when a female dairy animal gives birth to a calf

Cud: previously swallowed food that is returned to the mouth of a cow and chewed again

Manger: the open box or trough where food for farm animals is placed

Protein: a nutrient that builds, maintains and replaces tissues in your body. Muscles, organs and the immune system are made-up mostly of protein. Food sources for protein are beef, poultry, fish, eggs, dairy products, nuts, seeds, beans and lentils.

Silage: chopped and fermented corn or alfalfa plants that are stored in covered piles or silos and used as feed for cattle

Teats: nipples through which cow milk is extracted

Lessons and Activities

Grass to Glass: Amazing Dairy Cows
Ice Cream in a Bag

Art: The black-and-white patterns on Holsteins, the most popular dairy cow, are as unique to each cow as fingerprints are to people. Make cow pictures with black finger-print spots.

Language Arts: As a class, make a list of the possible jobs and careers that relate to dairy farming. Have students research a job and write a short report outlining responsibilities of the job.

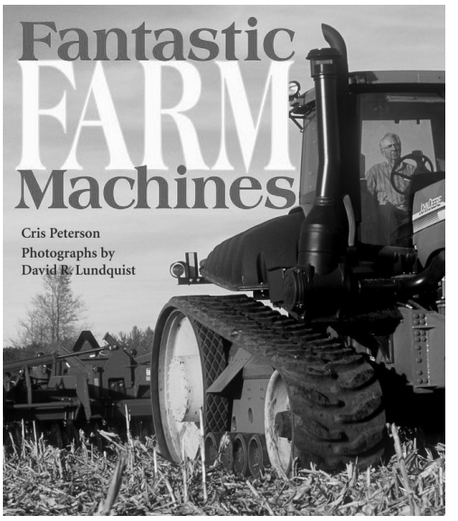
Other: Research the different breeds of dairy cows and use Venn-diagrams to compare and contrast between breeds.

Related MAITC Resources

Agriculture Commodity Cards
Farm Animal Bookmark

Lessons and Related MAITC Resources are all available FREE at **www.mda.state.mn.us/maitc**

Fantastic Farm Machines



Author: Cris Peterson
Photographer: David Lundquist
AR Points: .5

Minnesota Academic Standards

English Language Arts

3.2.1.1, 4.2.1.1, 5.2.1.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

3.2.7.7, 4.2.7.7, 5.2.7.7 Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).

Science

5.2.2.1.1 Give examples of simple machines and demonstrate how they change the input and output of forces and motion.

Agriculture Focus

Gain an understanding of the technology involved in modern agriculture through words and pictures as information is shared about a variety of farm machines used by farmers (producers). Through the text, the reader learns about many agricultural tasks that are done on the farm, the different machines and their functions that help producers complete these tasks, along with personal and easy to relate to experiences of the producer/author of the book.

Summary

This book introduces the reader to twelve different machines that help farmers get their work done, while demonstrating various farm tasks and technology involved in today's farming. Color photographs showing a range of close-up to distant aerial shots of farm machines and the work that they do are included on each page, enhancing the content of this book.

Listening Questions to Ask *Before* Reading

- What are the most important machines used on the farm? (tractors)
- What machines are used to get the fields and soil ready for planting? (chisel plow and soil finisher)
- Plants need water to grow. What do farmers use to supply abundant water to their plants? (irrigation pivots)
- Sometimes farmers spray their crops to protect them from insects and weeds. What equipment do farmers have in the sprayer cab to control the amount of spray that they put on their crops? (computers)
- What do some farmers do with the manure or droppings from their animals? (spread it on the fields to fertilize and help the crops grow)

Discussion Questions to Ask *After* Reading

- The machines in this book help farmers get their work done. How do you think farmers got some of this work done before these machines were invented?
- This book talks about twelve different machines that are used on the farm. Can you think of some other machines used on farms?
- People are constantly inventing machines to help us work and make our lives easier. What are some machines that you use to help you with your work or to make life easier? What did people do before those machines were invented?

Words to Know

Fertilizer: chemical or natural products used to help plants grow

Grains: the seed part of cereal plants, such as wheat, corn, rye and rice

Hopper: equipment that holds or stores crops during the harvest

Husks: the outside layer of grain such as corn, wheat and oats

Irrigate: to move water from a natural water source to a field for plants

Manure: animal droppings

Seedbed: the surface area of the soil in which the seeds will be planted

Activities

After discussing the machinery in this book, talk about other machinery and inventions that have helped make our lives easier such as cars, airplanes, telephones, computers, etc. Students can work in small groups or individually to think about machines they would like to invent that would help them. Have students draw pictures of these machines, label parts when possible and give the machine a title.

History: Look at pictures of pioneer farming to see how they worked the soil, planted and harvested crops. Using books about modern day farming compare the machines and types of farming used years ago to what we use today.

Language Arts: Have students interview relatives and older acquaintances and then write reports about what life was like 25, 50, 75 years ago as far as machines and technology. What are some of the biggest changes they have seen, and what are some of the machines that we are still using today? This information could be put into a class timeline of changes in technology.

Science: Check out California Agriculture in the Classroom's downloadable lesson to learn more about simple machines. Simple and Complex Machines Used in Agriculture.

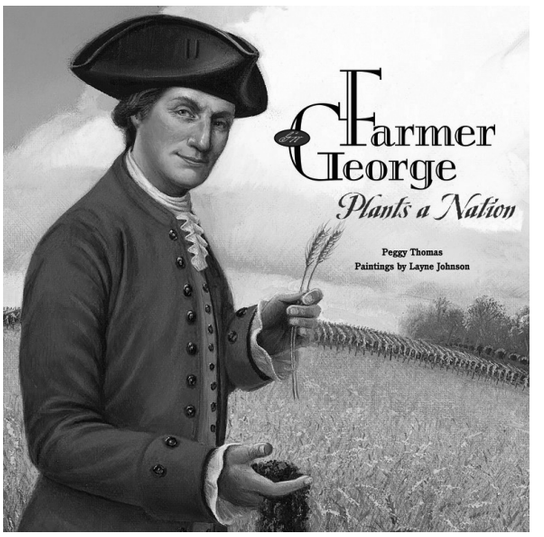
Other: Invite retired farmers into the classroom to discuss the changes technology has brought to farming in their lifetime. Encourage them to bring pictures, samples of machines and other hands-on materials to help the students better understand the presentation.

Related MAITC Resources

History of Minnesota Agriculture Timeline Poster
Agriculture: Serving Science and Society DVD

Lessons and Related MAITC Resources are all available FREE at **www.mda.state.mn.us/maitc**

Farmer George Plants a Nation



Author: Peggy Thomas
Illustrator: Layne Johnson

Lexile: AD970L
AR Points: .5

Minnesota Academic Standards

English Language Arts
3.2.1.1, 4.2.1.1, 5.2.1.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

Social Studies
4.2.3.3.1 Define the productivity of a resource and describe ways to increase it.

5.1.2.2.1 Identify historically significant people during the period of the American Revolution; explain how their actions contributed to the development of American political culture.

5.3.4.10.1 Explain how geographic factors affected land use in the North American colonies.

Agriculture Focus

Explore the life and times of George Washington as the first leader of our country, but also as an inventor, scientist and the most forward-thinking farmer of his time. Washington was a pioneer in crop rotation, manure management and fertilizers, as well as an inventor of a plow to plant grain and cover it with soil and a sixteen-sided barn that allowed horses to tread wheat.

Summary

In addition to being a General in the American Revolution and the first president of the United States, George Washington was also a farmer. Through personal letters and excerpts from his diary, readers learn about his efforts to create a thriving farm at Mount Vernon, Virginia.

Listening Questions to Ask *Before* Reading

- Where is Mount Vernon located? (Virginia)
- What kind of experiments did George do on his plantation? (experimented with different fertilizers and composting, crop rotation, seeds)
- What jobs did George have during his lifetime? (professional surveyor, inventor, General, first President of the United States, and long-time farmer)

Discussion Questions to Ask *After* Reading

- Have you ever invented anything?
- How did George spread the news about all he learned while farming? How is that information spread today?
- How have farm machines changed over the years? Do we still use donkeys? How about plows?

Words to Know

Compost: organic residues or mixture of organic residues and soil which have been piled, moistened and allowed to undergo biological decomposition

Harrow: a piece of farm equipment made of a heavy frame with teeth or upright discs used to break up and smooth off plowed ground

Mule: the cross between a horse and a donkey; believed to be stronger than a horse and more agile than a donkey

Plow: the agricultural implement which is used to cut, break, or turn a soil layer in preparing land for planting, seeding, or carrying out other agricultural practices

Sprout: to begin to grow or shoot buds

Stercorary: a dung house; a place (such as a covered pit) for the storage of manure

Lessons and Activities

Composting for Better Soil
It All Begins with Soil
Plan It, Map It
Soil Sorting
Yo Seeds, Wake Up!

Health and Science: Keep a food diary for one day. Trace all the food eaten in one day back to its raw plant or animal. Compare these plants and animals with the crops and livestock raised at Mount Vernon.

History: Research Mount Vernon and write a short report on the history of the agricultural site.

Related MAITC Resources

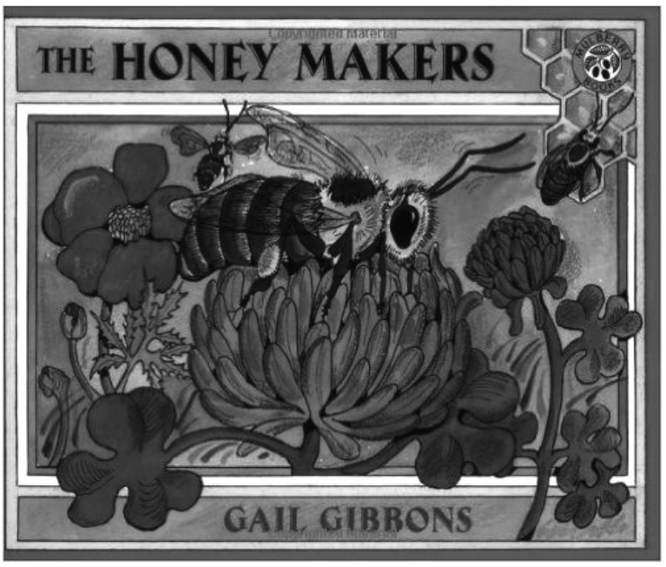
History of Minnesota Agriculture Timeline Poster

Lessons and Related MAITC Resources are all available FREE at **www.mda.state.mn.us/maitc**

The Honey Makers

Author: Gail Gibbons

Lexile: 770L
AR Points: .5



Minnesota Academic Standards

English Language Arts

3.2.7.7, 4.2.7.7, 5.2.7.7 Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).

Science

3.4.1.1.1 Compare how the different structures of plants and animals serve various functions of growth, survival and reproduction.

5.4.1.1.1 Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.

5.4.4.1.1 Give examples of beneficial and harmful human interaction with natural systems.

Agriculture Focus

Explore the fascinating world of the honeybee and the many different roles and jobs that bees perform. The seasons and tasks involved in raising honeybees and honey are highlighted along with pollinators and pollination.

Summary

This book focuses on the physical structure of honeybees and how they live in colonies, as well as how they produce honey and are managed by beekeepers.

Listening Questions to Ask *Before* Reading

About how many bees live in a colony, or group? (50,000)

The cells that make up honeycomb have how many sides? (six)

Which bee is the largest in the colony? (the queen)

When a new honeybee chews its way out of the cell, is it a baby? (no, adult bee)

What is pollination? (when bees carry pollen from plant to plant, which helps the plants grow fruit or seeds)

How do the bees communicate? (dance)

Discussion Questions to Ask *After* Reading

What would a garden of green beans look like without pollination?

Why are honeybees important to humans?

How are honeybees different from wasps?

How can you help honeybees?

Words to Know

Colony: a group of honeybees

Honeycomb: a structure of hexagonal cells of wax, made by bees to store honey and eggs

Larva: a very young form of an insect that looks like a worm; the immature, wingless, feeding stage of an insect that undergoes complete metamorphosis

Nectar: sugary fluid in plant flowers that honeybees use to make honey

Pollen: powder that fertilizes plants and helps fruit and seeds to grow

Pollinate: to distribute pollen from plant to plant

Pollination: to transfer pollen from an anther (male part) to the pistil (female part) of the plant

Proboscis: the mouth-like tube that sucks up nectar

Pupa: the wormlike baby stage of a honeybee

Lessons and Activities

Buzzy, Buzzy, Bee
Disappearing Honeybees
The Honey Files

Language Arts: “Busy as a bee” is a simile; make a class list of other animal similes and discuss how these might have begun.

Phys Ed: Break into groups and try the two bee dances described in the book.

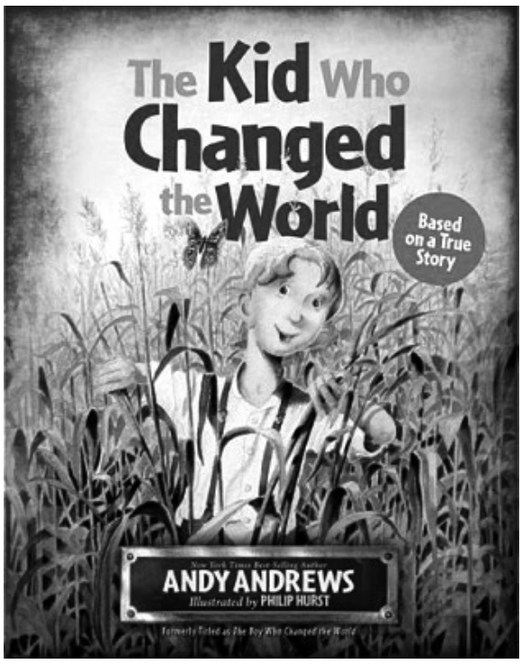
Science: Plant a “bee garden” of yellow flowers, especially squash or beans. Observe the flowers and keep a record of bee visits and plant growth.

Science: Collect a variety of flowers or use stargazer lilies and identify the stamen; shake the flowers over black construction paper to see the pollen.

Other: Make a recipe with honey (to substitute sugar with honey, use 50% less honey and 20% less moisture).

Lessons and Related MAITC Resources are all available FREE at **www.mda.state.mn.us/maitc**

The Kid Who Changed the World



Author: Andy Andrews
Illustrator: Phillip Hurst

AR Points: .5

Minnesota Academic Standards

English Language Arts
3.1.3.3, 4.1.3.3, 5.1.3.3 Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.

Science
3.1.3.2.2 Recognize that the practice of science and/or engineering involves many different kinds of work and engages men and women of all ages and backgrounds.

Social Studies
4.2.3.3.1 Define the productivity of a resource and describe ways to increase it.

Agriculture Focus

Discover the story of Norman Borlaug who is credited with saving more than two billion people from starving by developing new types of wheat, corn and rice. Also learn about his connection to other prominent historical figures, like Henry Wallace and George Washington Carver, who gave Borlaug the opportunity to develop seeds that grew into super plants.

Summary

This story explores the ripple effect, that everything you do matters. Through each character's story, readers will see that they, too, can be the kid who "changes the world."

Listening Questions to Ask *Before* Reading

- What is the butterfly affect? (every time something happens, something else happens)
- Who is Norman Borlaug? (An American plant scientist, humanitarian and winner of the Nobel Peace Prize in 1970; fondly called "the father of the Green Revolution" and largely credited with teaching the world to feed itself and whose work has been credited with saving two billion lives worldwide)
- Name three crops widely grown and eaten around the world. (corn, wheat and rice)

Discussion Questions to Ask *After* Reading

- What was the relationship between each of the characters in the story?
- George Washington Carver invented 266 things from the peanut that we still use today? Can you think of what a few of those things may be?
- What characteristics do you think Norman Borlaug's super plants have that allowed them to save two billion people?

Words to Know

Special seeds: for this story, these are the hybridized seeds of corn, wheat and rice developed by Norman Borlaug to feed a hungry world

Super plants: for this story, these are the plants of corn, wheat and rice that grew from the special seeds developed by Norman Borlaug to feed a hungry world

Lessons and Activities

Heredity in Corn
Soybeans to Car Parts

Art: Make a web diagram illustrating how the characters in the story are connected.

Language Arts: Students create "Bucket lists" of ways they can help people who are hungry. The class picks an item, organizes, advertises and conducts the activity to help raise funds and/or food.

History: Divide your class into four groups, each researching a different character from the story to create biography reports.

Science: Start seeds in small pots to be used for outdoor Earth Day plantings or for Mother's Day gifts.

Other: Organize and conduct a food drive for the local food shelves.

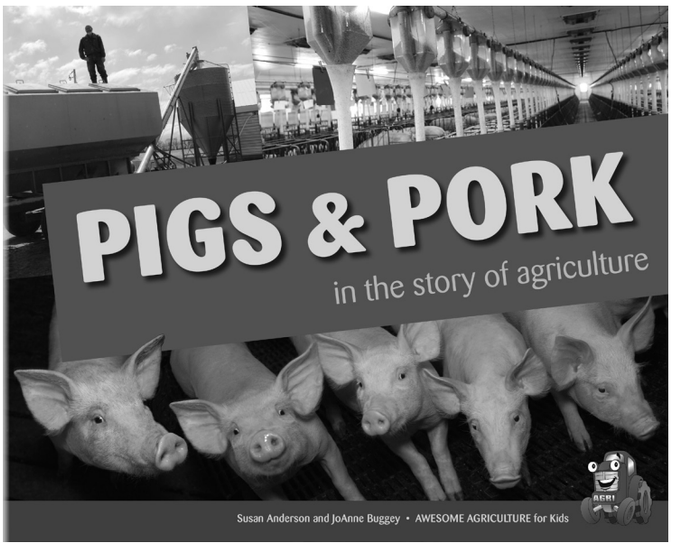
Related MAITC Resources

History of Minnesota Agriculture Timeline Poster

Lessons and Related MAITC Resources are all available FREE at **www.mda.state.mn.us/maitc**

Pigs & Pork: in the Story of Agriculture

Authors: Susan Anderson and JoAnne Buggey



Minnesota Academic Standards

English Language Arts

3.2.1.1, 4.2.1.1, 5.2.1.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

Agriculture Focus

Explore the path from farm to grocery store through pork production, processing, distribution, marketing and consumerism. The book features real photos and includes a “Did you know” and “It’s a Fact” section on each page.

Summary

This book introduces readers to the five stages of the agricultural cycle and explains how pigs and pork make their way from farm to table.

Listening Questions to Ask *Before* Reading

- What are some by-products we get from pork processing? (bristles on brushes, drum heads, chew toys for dogs, heart valves for humans)
- Where does bacon come from on a pig? (the belly)
- Can you name a few pig breeds? (Landrace, Yorkshire, Duroc, Hampshire)

Discussion Questions to Ask *After* Reading

- What are some of the steps or stages that pigs and pork follow from farm to table?
- How do farmers take care of their pigs so they are comfortable and healthy?
- What is your favorite pork product?
- Have you ever seen piglets? Where were you?
- What states raise the most pigs in the United States?
- What do pigs eat?

Words to Know

Boar: a male pig

By-product: a secondary product resulting from a manufacturing process or chemical reaction

Carcass: the body of a dead animal, in particular, one that is processed for food

Export: to send goods or services to another country for sale or exchange, such as with agricultural commodities like corn, soybeans and animal feed

Piglet: newborn pig

Pork producers: farmers who raise pigs

Pork: the meat from pigs

Sow: mother pig

Lessons and Activities

Truth or Hogwash

Art: Draw a picture that represents each of the five parts of agriculture described in the book: production, processing, distribution, marketing and consumerism.

Language Arts: Have students retell a traditional tale or nursery rhyme that has a pig connection. Or retell another familiar tale, switching the main characters to pigs. An example to share with the students is The True Story of the 3 Little Pigs! by Jon Scieszka, Illustrated by Lane Smith, told from the wolf’s point of view.

Science: Further explore the nutrient cycle as it relates to hog production. Pigs make manure, farmers store it, it is spread on fields to fertilize crops while some of the crops become feed for pigs, and the cycle repeats.

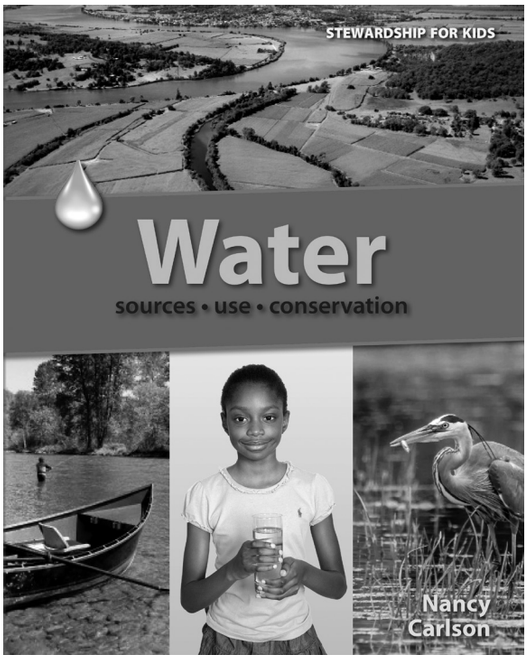
Other: Research the different breeds of pigs found on page 9. Use Venn-diagrams to compare and contrast between breeds.

Related MAITC Resources

Agriculture Commodity Cards
Farm Animal Bookmark
Agriculture By-Products Poster
Where Does Your Pizza Come From? (Intermediate) Poster

Lessons and Related MAITC Resources are all available FREE at **www.mda.state.mn.us/maitc**

Water:
Sources, Use, Conservation



Author: Nancy Carlson

Minnesota Academic Standards

English Language Arts
3.2.2.2, 4.2.2.2, 5.2.2.2 Determine the main idea of a text and explain how it is supported by key details; summarize the text.

Science
4.3.2.3.1 Identify where water collects on Earth, including atmosphere, ground, and surface water, and describe how water moves through the Earth system using the processes of evaporation, condensation and precipitation.

4.3.4.1.1 Describe how the methods people utilize to obtain and use water in their homes and communities can affect water supply and quality.

Social Studies
4.3.4.9.1 Explain how humans adapt to and/or modify the physical environment and how they are in turn affected by these adaptations and modifications.

Agriculture Focus

This book introduces watersheds, river basins, ground water and wetlands. Additionally, the book illustrates the partnership between American agriculture and the supply of abundant, available and clean water that produces the food and fiber we all eat and use.

Summary

This informational book encourages kids to think differently about water while also encouraging them to become good stewards of water.

Listening Questions to Ask *Before* Reading

- What is irrigation? (using water that is not rainfall to provide water for crops and animals)
- How much of the available water on earth is fresh water? (2.5%)
- What happens to the rain that doesn't soak into the ground? (it is called overland flow or runoff)

Discussion Questions to Ask *After* Reading

- This book discussed water as a natural resource. What other natural resources do you know of? How are they similar and different to water?
- What are the steps of the hydrologic or water cycle?
- Which of the five divides that determine which way a river flows in the United States are you closest to?

Words to Know

Aqueduct: a pipe (or canal, reservoir or tunnel) to carry water from one place to another

Aquifer: a layer of underground rock or sand that can absorb and hold water

Conserve: to use carefully and not waste

Percolate: to run slowly through something that has many small holes in it

Reservoir: a man-made body of water to store water from snowmelt or excessive runoff water from heavy rains

Water table: the highest underground level at which the soil and rocks in a particular area are saturated with water

Lessons and Activities

Wad-a-Watershed
Water Cycle

Math: How many ways do you use water every day? How much water do you use? (showering 5 gal/min, toilet flushing 6 gal, brushing teeth 2 gal, hand washing 2 gal, automatic dishwasher 15 gal/load, washing machine 20-30 gal/load).

Science: Work with your local Soil and Water Conservation District or the Minnesota Department of Natural Resources to conduct water tests and analysis, clean-up and monitoring of a local river, stream or body of water.

Other: Research annual rainfall in your area and compare to national averages for your state and surrounding states. Why might the averages be different?

Lessons and Related MAITC Resources are all available FREE at **www.mda.state.mn.us/maitc**