

Why Agriculture?

Teaching about agriculture in the United States is an ideal way for students to learn what their state is all about and provide real-life connections to science, math, and social studies concepts. Agriculture is a topic that students can easily connect to because they encounter it often. Who doesn't enjoy talking about food? Nearly everything we eat, wear, use -- even the fuel that powers the cars and buses they ride in -- comes from plants and animals grown on farms. Agriculture provides perfect real-world connections to STEM and makes learning relevant to students.

Helping students understand the farm-to-table connection is important in our consumer-driven society. Teaching students to be agriculturally literate connects their learning to everyday life. That is what the *Ag Today* series is all about.

About Ag Today

Ag Today is a great supplement to your science, social studies, and language arts curriculum. Each issue is chock-full of discussion topics, new vocabulary, and other materials that you can easily integrate into lessons. Major highlights of this and future issues include:

Theme: Agriculture is Everywhere

- Overview of Agriculture
- Major agriculture crops and livestock
- Agriculture products
- Agricultural careers

Theme: Food, Health & Lifestyle

- Carbohydrates, proteins, fats, minerals, vitamins, and water
- USDA My Plate
- Safe food handling

Theme: Agriculture and the Environment

- Natural resource management
- Agriculture in global ecosystems

Theme: Culture, Society, Economy & Geography

- Agriculture and the development of civilizations
- Geography determines what things will grow
- Religion and customs dictate culture
- Global trade and economics

Theme: Plants & Animals for Food, Fiber & Energy

- Domestication of plants and animals
- What plants and animals need to grow
- Biotechnology

Theme: Science, Technology, Engineering & Math

- Science and technology to increase food production
- Safe, healthy, abundant food
- Sustainable systems for a growing population

Integration Ideas

This resource can help supplement a number of different things you are probably already teaching. Here are a couple of suggested ideas.

Science & Math

- Construct a graph or pie-chart showing the pounds of food an average American eats per year. (pg. 6)
- Convert the pounds of one food type to a fraction or percent of the total pounds of food. (page 6)
- Identify the STEM involved in producing pork.(pg. 4 & 5)

Social Studies

- Discuss how pork production in the Midwest impacts local and global economies. (pg. 4 & 5).
- Explore supply and demand as it relates to food and agriculture.
- Research and discuss food customs of other cultures.

Language Arts

- Ask students to annotate or make "thinking tracks" in the margins as they read *Ag Today* jotting down thoughts and questions. Then discuss their thinking tracks in small groups.
- Compare nutrition labels of three foods and explain which is the healthiest choice using vocabulary introduced in this issue.

Alignment with Standards and Lexile

Subject	Code	Lexile Measure = 810L
		Essential Concept and Skill
Science	4-PS3-4	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.
Science	4-LS1-1	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
Science	5-ESS3-1	Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
Science	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
Social Studies	Economics: 2	Make effective decisions as consumers, producers, savers, investors, and citizens.
Social Studies	History: 3D	Investigate the influence of geography on the history of the state or region and identify issues and approaches to problems such as land use and environmental problems
Social Studies	NCSS: GC9	Global connections of many types (social, political, economic, cultural, and environmental) have increased at the personal, local, national, and international levels. New global connections have created opportunities and challenges.

Glossary

Some words in *Ag Today* may be unfamiliar to your students. These words often appear in bold type. Many are defined in the articles. Words you might wish to review with your students after reading the magazine are: **dairy farm** (pg. 1), **servicing, foodborne illness, cross-contamination** (pg. 2), **carbohydrates, protein, fats, vitamins, minerals** (pg. 3), **predators, cured, marinated, distribution centers**, (pgs. 4-5), **allergens** (pg. 6), **calories** (pg. 7), **domesticated, culture, sushi, and Mediterranean diet** (pg. 8).

Discussion Prompters

Cover (Food for an active lifestyle)

1. What types of foods are grown or produced in different parts of the country? Why is that? (*Strawberries from California, oranges from Florida, corn from Iowa. Each part of the country has different climate, soil, and resources.*)
2. Why should we eat a lot of different kinds of foods? (*Different kinds of foods provide different nutrients for our body. For example, dairy is a good source of calcium and fruits are a good source of vitamins.*)

Student Page 2 (Serving Size and Food Safety)

1. Describe what a serving of food is. Why is it important? What are some examples of serving size? (*A serving is the amount of food recommended. It is important to not over eat.*)
2. What are some examples of serving size? (*A serving of pork is 3 ounces. A serving of vegetables is ½ cup. A serving of bread is 1 slice. A serving of milk is 1 cup.*)
3. What are some ways to keep food safe? (*Wash your hands, wash preparation surfaces, cook to recommended temperature, use clean utensils.*)
4. What are some other careers in food preparation and food service? (*Chef, food scientist, baker, butcher, waiter, hostess, dishwasher, sous chef.*)

Student Page 3 (Nutrition)

1. What are the five essential nutrients that the body needs? (*carbohydrates, protein, fats, vitamins, and minerals*)
2. Describe what different nutrients do for our bodies. (*carbs give us energy, protein builds tissue, fats help us absorb vitamins, vitamins help your body function, and minerals help with things like keeping bones strong*)
3. What other careers are available in food nutrition? (*food chemist, meat scientist, nurse, health educator, food sales representative.*)

Student Pages 4 and 5 (From the farm to you)

1. Many pigs are raised in the same states that raise a lot of corn and soybeans. Why is that? (*Two primary components of a pig's diet are corn that provides carbohydrates and soybeans that provide protein. Less transportation of the feed means more efficient production.*)
2. Why are pigs raised indoors? (*Raising pigs in barns protects them from weather and predators. They have sensitive skin that can be sunburnt in the summer and little hair to keep them warm in the winter. They don't have strong defenses to ward off predators like coyotes. Even birds of prey like eagles could take the baby piglets.*)
3. Where do pigs go when they leave the farm? (*meat processing plants where the meat is cut, ground,*

smoked or cured.)

4. What nutrients does meat provide in a healthy diet? (*meat is rich in protein and also provides many minerals for a healthy diet*)
5. Describe the process or journey meat takes to get from the farm to your plate? (*Animals are raised on a farm. When they are big enough they are transported by truck to processing plants. At the processing plant they are cut and packaged.*)

Student Page 6 (America's Table)

1. Which foods are commonly grown in the United State and where are they produced? (*oranges- Florida, corn- Iowa, wheat- Kansas, blueberries- Michigan, apples- Washington, potatoes- Idaho, sunflowers- North Dakota, etc.*)
2. Where do we get the food not typically grown on U.S. farms? (*we import it and transport it from other countries*)
3. How does what we eat compare to the USDA MyPlate recommendations? Should Americans be eating more or less of anything? (*Americans eat more meat, fat and sugar than is recommended. We should eat more fruits and veggies.*)
4. What does this label tell us? (*serving size is 2 oz., calories per serving is 200, 7g of protein, 6.5g fat, 41g of carbs, etc.*)

Student Page 7 (Play & Safety)

1. What are three things you can do to have an active lifestyle? (*exercise during TV commercials, play tennis, swim, do chores, plant a garden, etc.*)
2. What are two ways to stay safe on a farm? (*don't spook animals, wear appropriate clothes, don't play with chemicals, etc.*)
3. In a grocery store, where should you start shopping? (*around the perimeter*)

Student Page 8 (What the world eats)

1. Why do some cultures eat insects? (*They are high in protein and fat*)
2. Why do people around the world eat different foods? (*they eat what is available to them locally and what can be grown in their climate*)
3. How is the Japanese diet different from the Italian diet? (*Japanese diet is a lot of rice, fish, and seaweed. Italian diet is a lot of pasta, olives, tomatoes.*)
4. How does the U.S. diet compare to the rest of the world? (*Americans eat a lot more total calories and more of those calories come from meat, fat, sugar, and dairy.*)

Show what you know - Key

1. They give us energy and keep our essential body functions working correctly
2. True – they are rich in protein and fat
3. Weather and predators
4. B. 145 degrees Fahrenheit
5. C. Iowa
6. Don't spook animals, don't play with chemicals
7. 2,870 divided by 2 = 1,435
8. Vitamin C comes from oranges, calcium comes from milk
9. D. All of these

Name: _____

Check one: Pretest

Post-test

Show what you know!

Take this short quiz before you read *Ag Today*, then again after reading the magazine. See the improvement!

1.

Explain why essential nutrients like carbohydrates, protein, fats, vitamins and minerals are all important parts of a healthy diet.

2.

Insects are eaten in some cultures as food. Circle one: True False
Explain why you think this.

3.

Most pigs in the Midwest are raised in barns. This protects them from _____ and _____.

4.

What internal temperature should pork be cooked to kill potential bacteria?

- a. 100 degrees Fahrenheit
- b. 145 degrees Fahrenheit
- c. 165 degrees Fahrenheit

5.

Which of the following states is the top pork producing state?

- a. Illinois
- b. Florida
- c. Iowa

6.

One way to stay safe on farms is to wear the appropriate clothing like gloves, hats, and long pants. What is another way you can stay safe on a farm? Explain.

7.

For some people, nearly half of their calories come from grain! If you ate 2,870 calories each day how many calories would come from grains like bread and rice? Show your thinking process.

8.

Describe one vitamin or mineral we need in our diet and where it comes from.

9.

Many people work with pigs in their career. Which of the following people work with pigs?

- a. Veterinarian
- b. Pork Buyer
- c. Farm Manager
- d. All of these

Name: _____



What do you eat?

Record everything you eat for one day. Be sure to include breakfast, lunch, dinner and all snacks. Then, calculate how many servings of fruits, vegetables, protein, grains and dairy using the key below.

- 1 serving of **fruit** = 1/2 cup fruit or 1 whole apple, banana, or orange;
- 1 serving of **vegetables** = 1/2 cup cooked vegetables or 1 cup raw leafy greens
- 1 serving of **protein** = 1 tablespoon peanut butter, 1 egg, or 2-3 ounces meat
- 1 serving of **grains** = 1 slice bread, waffle or pancake, 1/2 cup cooked rice or pasta, or 1 cup cereal
- 1 serving of **dairy** = 1 cup milk or yogurt or 1 ounce cheese

Create a bar graph of what you ate by coloring one box for every serving of food you ate in the grid below.

Servings	8					
	7					
	6					
	5					
	4					
	3					
	2					
	1					
		Fruits	Vegetables	Protein	Grains	Dairy

How does your graph compare to the USDA's MyPlate recommendations?