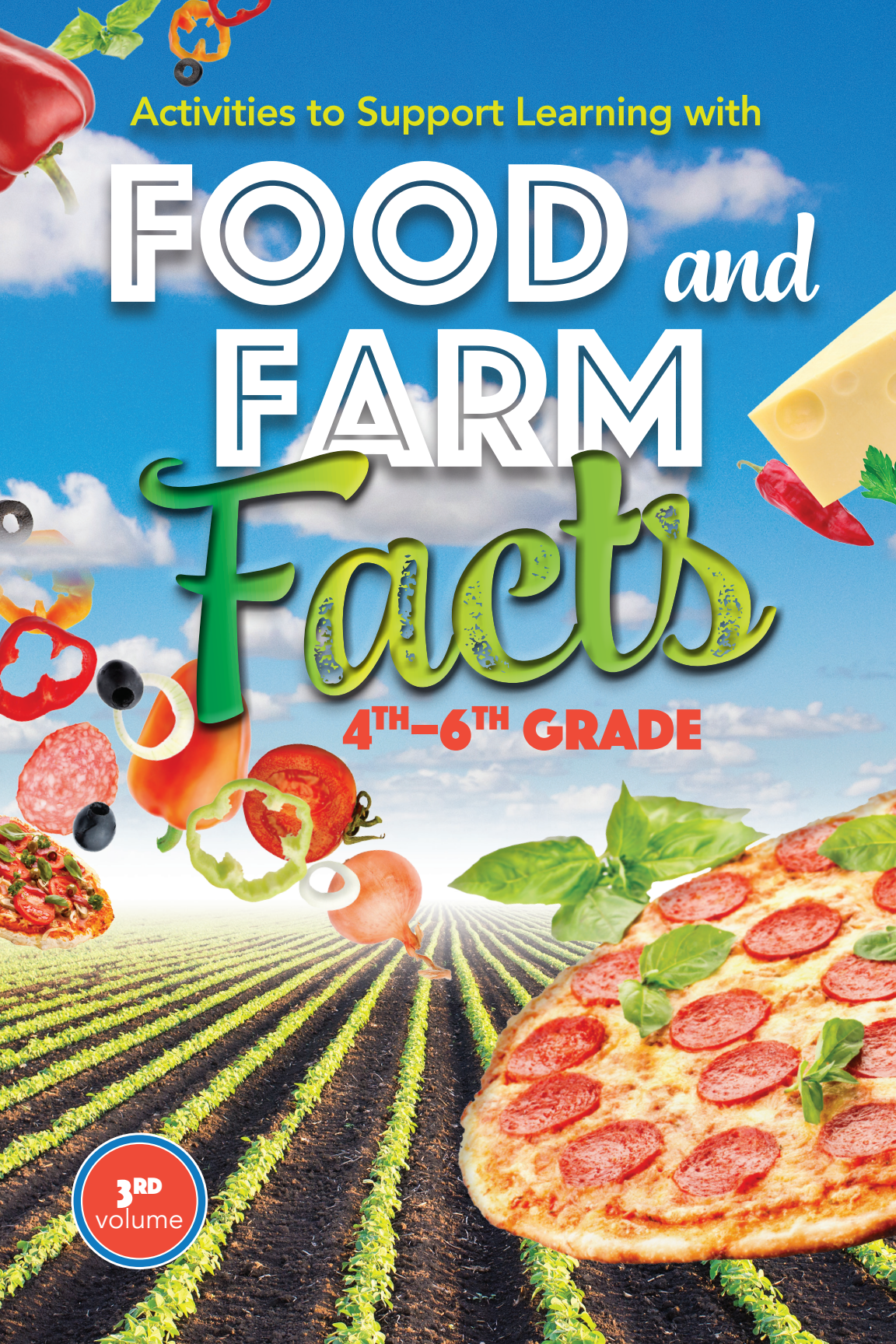

Activities to Support Learning with
FOOD and FARM
Facts
4TH–6TH GRADE
3RD volume

30 minutes

MATH

Food and Farm Facts Section: **CONSUMERS**

How Much Does FOOD COST?

Students create a map showing how much people pay for food in different countries.

Standards: Number and Operations — Fractions, The World in Spatial Terms, Markets — Price and Quantity Determination, Role of Money

Materials:

- *Food and Farm Facts* (page 5)
- World map (one per student)
- Play money
- Newspaper grocery store advertisements
- Scissors (class set)
- Glue (class set)

Activity Sequence:

1. Provide each student with a map of the world.
2. Have students cut out their favorite foods from the newspaper and glue them around the edges of their map, creating a border.
3. Tell students that food is more expensive in different parts of the world.
4. Bring a student volunteer forward and give $100 of play money. Have the students imagine they are very hungry and that a slice of pizza costs $10. Ask for $10 from the student and calculate the percentage as a fraction on the board (10/100 or 10%).
5. Repeat this process for each of the countries listed on page 5.
6. For each country listed in *Food and Farm Facts*, have students find the country on their map, then color and label with the percentage this country pays for food.

Discussion:

- Why do you think some countries have to pay more for food than others?
- Why is paying less for food a good thing?

Learn More!

Check out the Food and Ag Resource Guide for great learning activities aligned to the *Pillars of Agricultural Literacy* at www.agfoundation.org/ag-resource-guide.

FOOD & AG RESOURCE GUIDE

60 minutes

MATH

Food and Farm Facts Section: **CONSUMERS**

Budget BOUNDARIES

Students apply knowledge of percentages to create a budget used for purchasing foods.

Standards: Number and Operations — Fractions

Materials:

- *Food and Farm Facts* (page 5)
- Magazines (class set)
- Computers with Internet access (one per group)
- Coloring pens, pencils or crayons (class set)
- Drawing paper (one per group)
- Scissors (class set)
- Glue sticks (class set)
- Calculators (class set)

Activity Sequence:

1. Divide students into six working groups, and assign each group a country listed on page 5 of *Food and Farm Facts*.
2. Teach students how to create a basic budget, showing total amount available and expected cost of items. Add a third column to calculate percentage of total budget. Explain the correlation between fractions and percentages.
3. Have groups assume they make $1,000 each month. Give each group a percentage of their $1,000 that must be used on food, based on the information provided on page 5 (i.e., France 13%).
4. Invite students to look online or in magazines to "shop" for items with their remaining budget.
5. On a large piece of paper, have students list their budget and draw/cut and paste items they plan to purchase.
6. Have student groups share budgets. Compare items student groups purchased with relation to the percentage of budget available for food and other items.

Discussion:

- Why do Americans pay the least for food?
- Where does the money go that we use to pay for food?

Learn More!

Enjoy family time as you discover how food gets from the farm to your grocery cart. Print the free *Farm to Cart* board game at www.agfoundation.org.

15 minutes

SCIENCE

Food and Farm Facts Section: **ENVIRONMENT**

Stop That SOIL!

Students discover the importance of soil conservation through an erosion demonstration.

Standards: Earth's Systems

Materials:

- *Food and Farm Facts* (page 20)
- Tray containing soil
- Tray containing soil and grass
- Pitcher of water
- Bucket to collect runoff
- Whiteboard, chalkboard or large piece of paper

Activity Sequence:

1. Prepare a large tray of soil (a cookie sheet or potting tray will work.).
2. Prepare a tray with soil and grass by digging a section out of the ground where grass is already growing or planting seed in a tray and allowing it to grow.
3. Ask students to look at both trays and hypothesize. Suggested format: "If it rained on tray 1, then…" "If it rained on tray 2, then…" Write hypotheses in front of the class for students to see.
4. One at a time, pour water over each sample to test the hypotheses. Collect runoff in a bucket.
5. Evaluate runoff and ask students to determine if they should accept or reject their hypotheses.

Discussion:

- What does ground cover, like grass, do for soil when it rains?
- Why is soil important?
- What do farmers do to protect soil?

Learn More!

Discover how farmers care for soil and water by playing *Thrive* on www.MyAmericanFarm.org

30-60 minutes

SCIENCE

Food and Farm Facts Section: **PRODUCTION**

Growing in a GLOVE

Students plant seeds in gloves to observe the plant life cycle.

Standards: From Molecules to Organisms — Structures and Processes

Materials:

- *Food and Farm Facts* (page 24)
- Clear plastic food service gloves (one per student)
- Cotton balls (five per student)
- Beans/seeds (five per student)
- Small cups of water (one per group or work area)
- Permanent marker
- Tape

Activity Sequence:

1. Give each student one glove and five cotton balls.
2. Have students dip cotton balls in water, and place one cotton ball in each fingertip of the glove.
3. Have students place one seed in each fingertip between the plastic and the cotton ball.
4. Write students' names on gloves and tape in a window.
5. Water regularly to keep cotton balls moist.
6. Have students capture their observations in a notebook or on paper log as seeds sprout and grow.

Discussion:

- How is this similar/different to what farmers do to grow food for you and me?
- What was challenging about this activity? What challenges do you think farmers face?
- What was fun about this activity? What do you think farmers enjoy about growing food for you and me?

Learn More!

Discover plant and animal lifecycles by playing *That's Life!* on www.MyAmericanFarm.org.

20 minutes

SCIENCE

Food and Farm Facts Section: **PRODUCTION**

The Great TRAIT SEARCH

Students discover how scientists create genetically modified organisms.

Standards: Heredity: Inheritance and Variation of Traits

Materials:

- *Food and Farm Facts* (page 22)
- Green strips of colored paper (8 per each student)
- Blue strips of colored paper (8 per each student)
- Small stickers (one per student)
- Glue and/or staplers

Activity Sequence:

1. Prepare colored paper strips for students and set out glue/staplers.
2. Students build two DNA chains. One made of green paper (8 strips each) and one made of blue paper chain (8 strips each). Students place stickers on any blue chain loop.
3. Teach students the 4 steps of how to make a GMO[1]:
   a. Identify a trait – Explain that the stickers are the special trait (e.g. drought tolerant).
   b. Isolate the genetic trait of interest – Students break the sticker chain loop from its original chain.
   c. Insert the desired trait – Students glue/staple the sticker chain loop into the middle of the green chain loop.
   d. Have a discussion about how the new GMO plant would grow with the added desired gene.

Discussion:

- What's the history of genetically modifying crops?
- What crops are GMOs?
- Why do farmers use GMOs?

Learn More!

Check out STEM Maker Space Challenges on Purpleplowchallenge.org.

[1]Powell, C. (2015, August 9). *How to make a GMO.* Retrieved from http://sitn.hms.harvard.edu/flash/2015/how-to-make-a-gmo/

Purple Plow
Uncovering STEM Solutions

ENGLISH LANGUAGE ARTS

30-60 minutes

Food and Farm Facts Section: **MODERN FARMERS**

Families FEEDING OTHERS

Students discover that each American farm feeds 165 people per year.

Standards: Text Types and Purposes, Production and Distribution (Writing)

Materials:

- *Food and Farm Facts* (page 10)
- 165 of the same items (students bring from home, e.g. corn kernels)
- Writing paper

Activity Sequence:

1. The day before the activity, ask each student to bring in 165 items of the same thing (e.g., 165 kernels of corn, 165 pennies, 165 cotton balls, etc.).
2. The next day, have students share the items they brought.
3. Ask students to describe what farmers do. Share with students that farmers care for the land, plants and animals to provide safe and nutritious food.
4. Inform students that each American farm produces enough food to feed 165 people per year!
5. Have students imagine being a farmer. Have them look at their 165 items and imagine each as a person. That's a lot of people they each can feed!
6. In class or as a take-home activity, have students write a short story about how farmers feed 165 people per year.

Discussion:

- Why is it a great thing that farmers produce food for more people than just their family?
- What are your favorite foods? Do you grow them? Who grows them for you?

Learn More!

Discover how agriculture intersects with different areas of our life by exploring the *Pillars of Agricultural Literacy* at www.agfoundation.org/resources/ag-pillars.

PILLARS of AGRICULTURAL LITERACY

15 minutes

ENGLISH LANGUAGE ARTS

Food and Farm Facts Section: **ENVIRONMENT**

Environment FILL-IN

Inspired by popular Mad Libs™, students practice vocabulary knowledge as they discover how farmers care for animals and the environment.

Standards: Text Types and Purposes (Writing), Craft and Structure (Reading)

Materials:

- *Food and Farm Facts*
- Story Sheet, see below (printed, one per pair of students)
- Writing paper (one per student)

Activity Sequence:

1. Copy or reprint this Story Sheet prior to class:

   If I owned a farm, I would grow_____ (1. fruit, vegetable or other plant) and raise_____ (2. animal). I would take care of the soil by _____ (3. verb) and _____ (4. verb), because we know that _____ (5. plural noun) need good soil to grow. My animals would be healthy and comfortable, because I would give them _____ (6. plural noun) and _____ (7. plural noun). Healthy animals make delicious _____ (8. meat product), _____ (9. dairy product) and eggs. The air would be _____ (10. adjective) at my farm, and the water would be _____ (11. adjective). I know this would be hard work, but that's ok, because I'm a farmer! My job is to take care of plants, animals and the environment!
2. Have students read through the entire *Food and Farm Facts*.
3. Have students number a sheet of writing paper 1–11.
4. For each number, give students the word clue above and ask students to write one word by that number that follows the clue (e.g., Clue: plural noun, Word: dogs).
5. After all students have written their word lists, have students pair up.
6. Give each pair a copy of the story, and have students read their story to their partner by inserting their word list at each appropriate number location (e.g., "…I would give them dogs, and...").

Discussion:

- What would this story sound like if a farmer wrote it? Try going over it as a class.
- Why do farmers care for animals and the environment?

Learn More!

Discover how agriculture really interacts with the environment by exploring *Addressing Misconceptions*, a tool available at www.agfoundation.org/resources/addressing-misconceptions.

ENGLISH LANGUAGE ARTS

45 minutes

Food and Farm Facts Section: **TIMELINE**

From Then, TO NOW

Students will research agricultural history, then create and deliver a presentation on key dates and events.

Standards: Presentation and Knowledge of Ideas

Materials:

- *Food and Farm Facts* (pages 32-33)
- Paper
- Markers
- Access to internet (optional)

Activity Sequence:

1. Break students into groups of five and assign each group a time period:
   a. 8000 B.C. – 1837
   b. 1843 – 1879
   c. 1881 – 1922
   d. 1928 – 1970
   e. 1979 – 2001
   f. 2008 – 2017
2. Instruct groups to read over their time periods in the "Agricultural History" timeline on pages 32-33.
3. Within their groups, have the students choose five of the most important dates to give a short presentation on (five minutes or less). Presentations need to include the 5 selected dates and their significance in brief detail. Allow students to research additional information about their dates.
4. Student groups present to the class in chronological order.

Discussion:

- Why is it important to learn about agricultural history?
- What agricultural inventions, laws, or people helped us the most?
- What types of agricultural inventions or policies will make history in the future?

Learn More!

Read more about agriculture in one of our "recommended publications" www.agfoundation.org/recommended-pubs.

American Farm Bureau Foundation for Agriculture

30-45 minutes

HEALTH

Food and Farm Facts Section: **CONSUMERS**

Designing MY PLATE

Students illustrate a guide to nutritious eating based on the USDA's "Choose MyPlate" found in *Food and Farm Facts*.

Standards: Health Promotion and Disease Prevention

Materials:

- *Food and Farm Facts* (page 9)
- Drawing paper or printable from www.choosemyplate.gov (one per student)
- Coloring pencils, pens or crayons (class set)
- Poster paper (five sheets)

Activity Sequence:

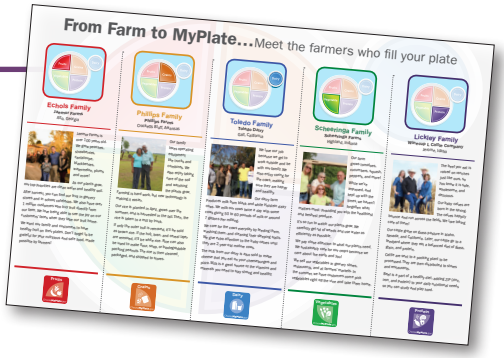
1. Review the USDA's "Choose MyPlate" found in *Food and Farm Facts* (page 9).
2. Break students into five groups: fruits, vegetables, grains, protein and dairy.
3. On a poster, have each group brainstorm as many items as they can that are nutritious choices within the food group. Display posters.
4. Give each student a blank sheet of paper, and have students create the "MyPlate Guide" or give each student a printable. Direct students to create a meal with components in each of the five MyPlate areas. Students should draw pictures to illustrate their meal choices in each food group area.
5. Students leave papers on their desk and the class walks around the room looking at their classmates' ideas.

Discussion:

- If each farmer grows something different, how many different farmers do we depend on each day for food?
- Why is eating a nutritious diet important?
- In what food group do you need to eat more/less?

Learn More!

Learn more about food groups with the *My Food Connection* poster available at www.dmsfulfillment.com/FarmBureau.



30 minutes

SOCIAL SCIENCE

Food and Farm Facts Section: **TRADE AND ECONOMICS**

Where Does MY FOOD Come From?

Students collect data on country of origin for a sampling of fresh and canned goods from home or the grocery store.

Standards: Specialization and Trade

Materials:

- *Food and Farm Facts* (page 15)
- White board, chalkboard or large sheet of paper

Activity Sequence:

1. Assign students to take a survey of 10 food items from home or a grocery store and write down each product's name and country of origin.
2. Compile class list of data for entire class to see.
3. Gather some statistics on how many products are from the United States and how many are foreign.
4. Note if certain types of foods (fruits, for example) are more likely to be foreign than others.

Discussion:

- Compare the class data and notes to the list of agricultural exports and imports on page 15 of *Food and Farm Facts*.
- Why does it make sense that we would import fruits and vegetables? Hint: Think about climate and growing seasons that accommodate growing fruits and vegetables.
- If your class did find fresh fruits and vegetables grown in the States, consider the time of year it is and what is in season.
- Looking at the chart, what types of food would we expect to purchase that would most likely be grown in the United States?

Learn More!

Learn about some of your favorite foods with Ag Mags on topics like apples, pizza, and beef. Ag Mags are available in the store at www.dmsfulfillment.com/FarmBureau.

15 minutes

SOCIAL SCIENCE

Food and Farm Facts Section: **TRADE AND ECONOMICS**

We HAVE... We NEED...

Students barter to trade items and check off their list!

Standards: Gain from Trade, Specialization and Trade

Materials:

- *Food and Farm Facts* (pages 14–15)
- 5 index cards
- 10 paper clips
- 5 scissors
- 3 folders
- 4 textbooks
- 6 erasers
- 4 dry erase markers

Activity Sequence:

1. Prior to the activity, write the following on the index cards:

   (Card 1) **We have:** 2 paper clips, 1 folder, 1 eraser
   We need: 1 pair scissors, 4 markers

   (Card 2) **We have:** 3 scissors, 1 textbook, 1 marker
   We need: 4 paper clips, 1 folder

   (Card 3) **We have:** 8 paper clips, 1 textbook, 1 marker
   We need: 2 folders, 1 eraser

   We have: 2 scissors, 4 erasers, 1 marker
   We need: 6 paper clips, 1 textbook

   (Card 5) **We have:** 2 folders, 1 eraser, 1 marker
   We need: 4 scissors, 1 textbook, 3 erasers

2. Lay out all materials in one area of class.
3. Break students into five teams. Give each team an index card with items listed.
4. Ask each team to get the materials listed under "We have…" on their card.
5. Explain the rules: The goal is to be the first team to get everything on your "We need" list. Only the items picked up from the supply area may be used.
6. Begin trade activity.

Discussion:

- What agricultural products (food, fiber for clothing, energy, natural resources) do we produce in America? What do we bring in from other countries?
- Why is trade important?

Learn More!

Check out the lesson plan *Researching International Production* on www.MyAmericanFarm.org.

My American Farm

SOCIAL SCIENCE

15 minutes

Food and Farm Facts Section: **TRADE AND ECONOMICS**

Where Does YOUR DOLLAR GO?

Students discover how much of each dollar spent on food goes to the farmer.

Standards: Role of Money, Markets — Price and Quantity Determination, Number and Operations — Fractions

Materials:

- *Food and Farm Facts* (page 18)
- Bags of 100 pennies (five sets)
- Sticky notes

Activity Sequence:

1. Break students into five groups.
2. Give each group a bag containing 100 pennies.
3. Have students spread pennies out on a desktop and separate 16 pennies.
4. Share with students that, for every dollar spent on food, only 16 cents actually goes back to the farmer! Represent this as a fraction (16/100).
5. Have students brainstorm where the rest of the dollar goes by writing ideas on sticky notes and placing them next to the remaining pennies.
6. Share and discuss.

Discussion:

- What do the words "marketing," "processing" and "distributing" mean?
- Why are these important steps in the process of getting food from the farmer to you?
- Do you think the farmer should get more money? Why or why not?

Learn More!

Energy is an essential for farmers, and it is a factor in the cost of production. Discover free energy lesson plans and resources at www.agfoundation.org/resources/energy-resources.

Standards Referenced

Next Generation Science Standards

Earth's Systems: Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind or vegetation (4-ESS2-1).

From Molecules to Organisms — Structures and Processes: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior and reproduction (4-LS1). Support an argument that plants get the materials they need for growth chiefly from air and water (5-LS1).

Heredity: Inheritance and Variation of Traits: Use evidence to support the explanation that traits can be influenced by the environment (3-LS3-2); develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism (MS-LS3-1).

Common Core State Standards for English Language Arts

Writing Standards K-5, Text Types and Purposes: Write informative/explanatory texts to examine a topic and convey ideas and information clearly (2); use concrete words and phrases and sensory details to convey experiences and events precisely (3.d).

Writing Standards 6-12, Text Types and Purposes: Use words, phrases and clauses to clarify the relationships among claim(s) and reasons (1.c).

Writing Standards K-5, Production and Distribution: Produce clear and coherent writing in which the development and organization are appropriate to task, purpose and audience (4).

Reading Standards 6-12, Craft and Structure: Determine the meaning of words and phrases as they are used in text (4).

Speaking and Listening 4-6, Presentation of Knowledge and Ideas: Report on a topic or text; speak clearly at an understandable pace (4.4., 5.4); present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation (6.4).

Standards Referenced

Common Core State Standards for Mathematics

Number and Operations — Fractions (4.NF): Extend understanding of fraction equivalence and ordering (2); understand decimal notation for fractions and compare decimal fractions (6).

Number and Operations — Fractions (5.NF): Use equivalent fractions as a strategy to add and subtract fractions (2).

National Social Studies and History Standards — *National Council for Social Studies*

Gain From Trade (NSS-EC.K-4/5-8.5): Voluntary exchange occurs only when all participating parties expect to gain.

Specialization and Trade (NSS-EC.K-4/5-8.6): When individuals, regions and nations specialize in what they can produce at the lowest cost and then trade with others, both production and consumption increase.

Markets — Price and Quantity Determination (NSS—EC.K-4/5-8.7): Markets exist when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce goods and services.

Role of Money (NSS-EC.K-4.11): Money makes it easier to trade, borrow, save, invest and compare the value of goods and services.

The World in Spatial Terms (NSS-G.K-12.1): Understand how to use maps and other geographic representations, tools and technologies to acquire, process and report information from a spatial perspective.

National Health Education Standards — *American Cancer Society*

Health Promotion and Disease Prevention (NPH-H.K-4.1): Describe relationships between personal health behaviors and individual well-being.

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