

Oklahoma Wheat on the World Market

Objective

Students will play a game to help them understand agricultural trade on the world market. Students will develop graphs to show their game activity.

Background

Wheat is a grass that is cultivated worldwide. Globally, it is the most important human food grain and is second only to maize in total production. Wheat is Oklahoma's most valuable agriculture export.

Wheat grain is a staple food used to make flour for leavened, flat and steamed breads as well as cookies, cakes, pasta, and noodles. Three crops—wheat, rice and corn—account for over 75 percent of our grain consumption. Wheat is also used for fermentation in making alcoholic beverages. Wheat is sometimes planted as a forage crop for livestock. The straw can be used as fodder for livestock. In less-developed countries, straw can also be used as a construction material for roofing thatch.

International trade is defined as the exchange of goods and services across international boundaries or territories. This trade represents a significant share of the Gross Domestic Product (GDP) for most countries. While international trade has been present throughout much of history, its economic, social, and political importance has been on the rise in recent centuries, due, in large part, to industrialization, advanced transportation, globalization, multinational corporations, and outsourcing.

Trade and marketing are vital to American agriculture. The US exports agricultural products to countries that can't grow crops and livestock as efficiently as American farmers or can't grow them at all, due to their lack of space, viable soil, or climate restrictions. The US also imports products from other countries that produce different, less expensive, or better quality goods.

Government trade policies influence the volume of trade between nations. In domestic trade, goods may move freely from one part of the nation to another. In international trade, governments often place artificial barriers against the free movement of goods from one country to another. Several organizations, policies, and/or agreements maintain and control fair trading between the US and other countries.

The United States is the third largest wheat exporter, behind the European Union and the Russian Federation. Our largest export of wheat in 2012-13 was to Japan, with just over 3.5 million metric tons shipped.

The diversity of exporting countries provides significant stability to world wheat trade and prices. In the Northern Hemisphere, most of the wheat production is in winter wheat. Parts of Canada, Kazakhstan, Russia, and the United States have large spring wheat production, which is planted much later in the crop year. Other countries, like Australia and Argentina

Oklahoma Academic Standards

GRADE 6

Social Studies PALS—
1.B.4,D.10

Social Studies Content—2.4B;
4.2,4,5; 5.2B

Math Practice—MP.3,5
Math Content—SP.3,4,5;
RP.3; 6.NS.5,6,7

GRADE 7

Social Studies PALS—
1.B.4,D.10

Social Studies Content—4.4,6;
5.1,2

Math Practice—MP.3,5
Math Content—NS.1; RP.1;
G.1; SP.2,3,4,6,7

GRADE 8

Math Practice—MP.3,5
Math Content—NS.1,2;
EE.2,3; SP.1

Resources Needed

wooden craft sticks

Vocabulary

biofuel—a fuel (as wood or ethanol) composed of or produced from biological raw materials

cultivated—planted and grown

export—goods or commodities transported from one country to another country

fermentation—chemical breaking down of a substance (as in the souring of milk or the formation of alcohol from sugar) produced by an enzyme and often accompanied by the formation of a gas

fodder—coarse food for cattle, horses, and sheep as cornstalks, hay, and straw

globalization—affecting or relating to the earth as a whole; world-wide

import—goods or commodities brought into one country from another country

industrialization—the change in social and economic organization resulting from the replacement of hand tools by machine and power tools and the development of large scale industrial production

leaven—to produce fermentation in by means of yeast or other ferment

outsourcing—supplying raw materials to other companies, states, or countries for the production of finished products.

in the Southern Hemisphere, plant winter wheat after the northern Hemisphere's spring wheat. With wheat being planted and harvested at different times, a shortfall in one area of the world can be quickly responded to by other wheat-producing areas.

Background Sources: Vocke, Gary, Edward W. Allen, and Mir Ali, "Wheat Backgrounder," USDA, 2005; "Grain Trade," *Encyclopedia Britannica*, eleventh edition; "Wheat," Wikipedia, the Free Encyclopedia, <http://en.wikipedia.org/wiki/Wheat>

Math

1. Read and discuss background and vocabulary.
2. Follow the directions included in this lesson to set up the "Wheat Market Trading Game" for students to play.
 - To divide students into groups, use popsicle sticks in eight different colors, with three per color.
 - For each group of three, mark one "buyer," one "seller," and one "transaction person."
 - Students draw the sticks as they come into the room.
 - Students arrange themselves into groups according to the colors they have drawn.
 - Provide each group with a copy of the instructions for playing.
3. Use the following questions to lead a post-game discussion:
 - What was the most frequent price for wheat in each round?
 - In which round was the price spread the greatest?
 - Who determines the market price for wheat, buyers or sellers?
 - How does supply and demand determine the market for wheat?
4. Students will complete a graph of their choosing to show buying and selling activity. A review of graphing is included in the "Additional Resources" link from the main page of the Oklahoma Ag in the Classroom website.
 - Follow the steps for a complete graph; title, labels, mean, mode, median, etc.
 - Display the graphs.
 - Discuss information gained.

This activity was adapted from Schults, Mindella, "The Wheat market Game," Teacher's Manual for Economics Readings for Students in Ninth Grade Social Science, Pittsburgh Public Schools, 1967.

Additional Reading

Burgess, John, *World Trade—Exploring Business and Economics*, Chelsea House, 2001.

Landau, Elaine, *Wheat (True Books—Food and Nutrition)*, Children's, 2000.

The World Almanac for Kids—2008, World Almanac, 2007.

Wheat Market Trading Game

Preparations

1. Prepare cards ahead of time, as follows.
 - Copy the cards from the pages that follow on heavy cardstock paper. Use a different color card for each group.
 - Cut cards apart.
 - Separate groups of cards.
 - You will need 14 transaction cards, 32 buy cards, and 32 sell cards in the following distribution:

# of Transactions		Buy Cards		Sell Cards	
Transactions	# of Transaction Cards	Buy Price	# of Buy Cards	Sell Price	# of Sell Cards
Round 1	4	\$3.52	2	\$3.52	4
Round 2	5	\$3.75	2	\$3.75	6
Round 3	3	\$3.98	2	\$3.98	6
Round 4	2	\$4.10	2	\$4.10	4
		\$4.38	4	\$4.38	4
		\$4.50	4	\$4.50	2
		\$5.10	4	\$5.10	2
		\$5.25	4	\$5.25	2
		\$5.38	4	\$5.38	2
		\$5.50	4		

- The teacher can handle the cards or assign one student to be the buyer, one the seller, and one the transaction person.
 - Shuffle each set of cards.
 - Place the cards in the front of the room with a place card by each stack—one marked “transaction,” one marked “buy,” and one marked “sell.”
2. Prepare a copy of the score sheet for each group of students.
 3. Make an overhead copy of the “Class Tally Sheet,” included with this lesson, or draw one on the board.

Getting Ready to Play

1. Divide the class into groups of three students each. (The activity works best in a class of 20 or more students.)
 - Each group will need a score sheet.
 - Each group consists of a Buyer, a Seller, and a Transaction Person (TP). Students will change positions at the beginning of each round.
2. You may decide to complete between three and five rounds of play.
 - Stop after each round of play to calculate each group’s gain or loss.
 - After each round, each group will announce how many transactions it completed and whether they had a gain or loss. The students should see a correlation between the number of transactions completed and a gain.

Start of Play—Round 1

1. Inform students as follows:
 - You will be acting as buyers and sellers of wheat on the world market.
 - For each round of transactions you will have a gain or a loss, depending on the card you draw.
2. The transaction person (TP) from each group draws a card and returns to the group.
 - On the group score sheet, the TP circles the number of transactions the group gets to complete during Round 1 and crosses out all other numbers, e.g., if the card says the group will complete two transactions during this round of play, TP circles the number two under transactions and crosses out the numbers three and four.
3. The buyer from each group draws a Buyer card and returns to the group.
 - Buyer records the price per bushel on the group's score sheet.
 - Buyer calculates and records the value of the purchased wheat.
4. The seller from each group draws a Seller card and returns to the group.
 - Seller records the price per bushel on the score sheet.
 - Seller calculates the value of the designated number of bushels of wheat.
5. —Seller records the value of the purchased wheat. The group determines whether it had a gain or loss for each transaction.
 - If the group sold its wheat for more than what they bought it for, they made a gain on that transaction, e.g.,
 $\text{Bought Wheat} - \text{Sold Wheat} = \text{Gain or Loss}$.
6. After each transaction, students use tally marks to record the price for which they sold their wheat on the "Class Tally Sheet."
7. Students return all buying and selling cards to the stacks.
8. Reshuffle.
9. Begin the next transaction round with those groups who can still participate.
 - Groups that participate in only one transaction must return their transaction cards.
10. Continue play until all groups have completed all transactions.
 - Complete the gain or loss total for round 1.


Rounds 2-5

1. Continue play as before for the next rounds, reshuffling cards and drawing new transaction cards at the beginning of each new round.
2. Complete the Grand Total gain or loss at the end of the game.

Game Cards

Copy on cardstock and cut. You will need 14 transaction cards, 32 buy cards, and 32 sell cards

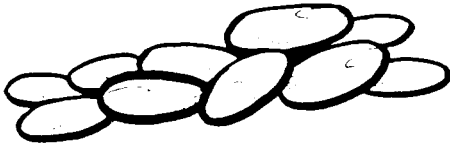
<p>TRANSACTION CARD You are authorized to complete ONE transaction during this round of play. Return your Transaction Card to the stack when finished.</p>	<p>TRANSACTION CARD You are authorized to complete TWO transactions during this round of play. Return your Transaction Card to the stack when finished.</p>	<p>TRANSACTION CARD You are authorized to complete THREE transactions during this round of play. Return your Transaction Card to the stack when finished.</p>
<p>TRANSACTION CARD You are authorized to complete FOUR transactions during this round of play. Return your Transaction Card to the stack when finished.</p>	<p>BUY CARD You are authorized to BUY 116 bushels of wheat. The price is \$3.52 per bushel.</p>	<p>BUY CARD You are authorized to BUY 126 bushels of wheat. The price is \$3.75 per bushel.</p>
<p>BUY CARD You are authorized to BUY 94 bushels of wheat. The price is \$3.98 per bushel.</p>	<p>BUY CARD You are authorized to BUY 139 bushels of wheat. The price is \$4.10 per bushel.</p>	<p>BUY CARD You are authorized to BUY 200 bushels of wheat. The price is \$4.38 per bushel.</p>
<p>BUY CARD You are authorized to BUY 134 bushels of wheat. The price is \$4.50 per bushel.</p>	<p>BUY CARD You are authorized to BUY 100 bushels of wheat. The price is \$5.10 per bushel.</p>	<p>BUY CARD You are authorized to BUY 150 bushels of wheat. The price is \$5.25 per bushel.</p>

<p style="text-align: center;">BUY CARD You are authorized to BUY 120 bushels of wheat. The price is \$5.38 per bushel.</p>	<p style="text-align: center;">BUY CARD You are authorized to BUY 115 bushels of wheat. The price is \$5.50 per bushel.</p>	<p style="text-align: center;">SELL CARD You are authorized to SELL 122 bushels of wheat. The price is \$3.52 per bushel.</p>
<p style="text-align: center;">SELL CARD You are authorized to SELL 118 bushels of wheat. The price is \$3.75 per bushel.</p>	<p style="text-align: center;">SELL CARD You are authorized to SELL 188 bushels of wheat. The price is \$3.98 per bushel.</p>	<p style="text-align: center;">SELL CARD You are authorized to SELL 124 bushels of wheat. The price is \$4.10 per bushel.</p>
<p style="text-align: center;">SELL CARD You are authorized to SELL 125 bushels of wheat. The price is \$4.38 per bushel.</p>	<p style="text-align: center;">SELL CARD You are authorized to SELL 150 bushels of wheat. The price is \$4.50 per bushel.</p>	<p style="text-align: center;">SELL CARD You are authorized to SELL 126 bushels of wheat. The price is \$5.10 per bushel.</p>
<p style="text-align: center;">SELL CARD You are authorized to SELL 190 bushels of wheat. The price is \$5.25 per bushel.</p>	<p style="text-align: center;">SELL CARD You are authorized to SELL 105 bushels of wheat. The price is \$5.38 per bushel.</p>	

Game Cards (Transaction Totals)

Copy on cardstock and cut. You will need 14 transaction cards, 32 buy cards, and 32 sell cards

<p>TRANSACTION CARD You are authorized to complete ONE transaction during this round of play. Return your Transaction Card to the stack when finished.</p>	<p>TRANSACTION CARD You are authorized to complete TWO transactions during this round of play. Return your Transaction Card to the stack when finished.</p>	<p>TRANSACTION CARD You are authorized to complete THREE transactions during this round of play. Return your Transaction Card to the stack when finished.</p>
<p>TRANSACTION CARD You are authorized to complete FOUR transactions during this round of play. Return your Transaction Card to the stack when finished.</p>	<p>BUY CARD You are authorized to BUY 116 bushels of wheat. The price is \$3.52 per bushel. Total: \$408.32</p>	<p>BUY CARD You are authorized to BUY 126 bushels of wheat. The price is \$3.75 per bushel. Total: \$472.50</p>
<p>BUY CARD You are authorized to BUY 94 bushels of wheat. The price is \$3.98 per bushel. Total: \$374.12</p>	<p>BUY CARD You are authorized to BUY 139 bushels of wheat. The price is \$4.10 per bushel. Total: \$569.90</p>	<p>BUY CARD You are authorized to BUY 200 bushels of wheat. The price is \$4.38 per bushel. Total: \$876.00</p>
<p>BUY CARD You are authorized to BUY 134 bushels of wheat. The price is \$4.50 per bushel. Total: \$603.00</p>	<p>BUY CARD You are authorized to BUY 100 bushels of wheat. The price is \$5.10 per bushel. Total: \$510.00</p>	<p>BUY CARD You are authorized to BUY 150 bushels of wheat. The price is \$5.25 per bushel. Total: \$787.50</p>

<p style="text-align: center;">BUY CARD</p> <p>You are authorized to BUY 120 bushels of wheat. The price is \$5.38 per bushel.</p> <p style="text-align: center;">Total: \$645.60</p>	<p style="text-align: center;">BUY CARD</p> <p>You are authorized to BUY 115 bushels of wheat. The price is \$5.50 per bushel.</p> <p style="text-align: center;">Total: \$632.50</p>	<p style="text-align: center;">SELL CARD</p> <p>You are authorized to SELL 122 bushels of wheat. The price is \$3.52 per bushel.</p> <p style="text-align: center;">Total: \$429.44</p>
<p style="text-align: center;">SELL CARD</p> <p>You are authorized to SELL 118 bushels of wheat. The price is \$3.75 per bushel.</p> <p style="text-align: center;">Total: \$442.50</p>	<p style="text-align: center;">SELL CARD</p> <p>You are authorized to SELL 188 bushels of wheat. The price is \$3.98 per bushel.</p> <p style="text-align: center;">Total: \$748.24</p>	<p style="text-align: center;">SELL CARD</p> <p>You are authorized to SELL 124 bushels of wheat. The price is \$4.10 per bushel.</p> <p style="text-align: center;">Total: \$508.40</p>
<p style="text-align: center;">SELL CARD</p> <p>You are authorized to SELL 125 bushels of wheat. The price is \$4.38 per bushel.</p> <p style="text-align: center;">Total: \$547.50</p>	<p style="text-align: center;">SELL CARD</p> <p>You are authorized to SELL 150 bushels of wheat. The price is \$4.50 per bushel.</p> <p style="text-align: center;">Total: \$675</p>	<p style="text-align: center;">SELL CARD</p> <p>You are authorized to SELL 126 bushels of wheat. The price is \$5.10 per bushel.</p> <p style="text-align: center;">Total: 642.60</p>
<p style="text-align: center;">SELL CARD</p> <p>You are authorized to SELL 190 bushels of wheat. The price is \$5.25 per bushel.</p> <p style="text-align: center;">Total: \$997.50</p>	<p style="text-align: center;">SELL CARD</p> <p>You are authorized to SELL 105 bushels of wheat. The price is \$5.38 per bushel.</p> <p style="text-align: center;">Total: \$564.90</p>	

Name _____

Class Tally Sheet

Price per bushel	Round 1	Round 2	Round 3	Round 4	Round 5	Total for Rounds Played
\$3.52						
\$3.75						
\$3.98						
\$4.10						
\$4.38						
\$4.50						
\$5.10						
\$5.25						
\$5.38						
\$5.50						

Group Score Sheet

Transaction Number	BUY Price of 1 bushel	SELL Price of 1 bushel	BUY Price of 10 bushel	SELL Price of 10 bushel	GAIN from transaction	LOSS from transaction
1						
2						
3						
Total for Round 1	N/A	N/A	N/A	N/A		
1						
2						
3						
4						
Total for Round 2	N/A	N/A	N/A	N/A		
1						
2						
3						
4						
Total for Round 3	N/A	N/A	N/A	N/A		
1						
2						
3						
4						
Total for Round 4	N/A	N/A	N/A	N/A		
1						
2						
3						
4						
Total for Round 5	N/A	N/A	N/A	N/A		
Grand Total for All Rounds	N/A	N/A	N/A	N/A	GAIN (for all rounds)	LOSS (for all rounds)