

Next Year's Seeds

Objective

Students will read about seeds and play a game to demonstrate the economics of farming.

Background

If you mow lawns to earn money in the summer, you probably know you can't spend all you earn. Some of the money has to be set aside for buying gasoline to keep the lawn mower running. If you are a really good business person, you will also set some money aside for repairs or even for buying additional equipment to expand your business.

Farmers are the same way. Every time they earn money from the crops or livestock they produce, they have to put part of it back into the business. Some of the money goes to repair or replace equipment. Some of it goes to buy new equipment to improve next year's crop. Some of the money buys fertilizer or seed.

Early in our nation's history, farmers didn't sell their crops for money. Without advanced technology to help them, they were only able to raise what they needed to feed their families. If there was any left over they bartered with other farmers to get crops or livestock they didn't raise themselves. In addition, a portion of every crop had to be set aside as seed so they could grow a new crop in the coming year. No matter how low the food supply got during the winter, they knew they had to stay out of the wheat, corn, barley or other seeds they had set aside to plant.

Many immigrants carried seeds with them in pouches so they could get a good start in the New World. Seeds were not available like they are today, sold in colorful paper packages at the local grocery store. Even if they had been, there was little money available for buying them. Instead, early American farmers bartered with the Indians or other farmers to get what they needed. Sometimes they used catalogues to order seeds from England, but those were expensive.

Over the winter seeds had to be stored in a cool, dry place, possibly in a cellar or in a sealed container buried underground. Careful farmers saved twice as much seed as they would need for the next year's crop, just in case there was a crop failure.

English Language Arts

1. Read and discuss background and vocabulary
2. Provide copies of the Reading Page for students to read

Oklahoma Academic Standards

GRADE 1

Social Studies PALS— 1.A.2,B.4
Social Studies Content— 1.4; 2.1,2
Math—N.1.2; 2.1,3
English Language Arts— 1.R.1,2,3,4;
2.R.1,3; 3.R.4,5; 2.F.1

GRADE 2

Social Studies PALS— 1.A.2,B.4
Social Studies Content— 2.1
Math —N.1.5; N.2.2,3,5,6
English Language Arts— 1.R.1,2,3,4;
2.R.1,2,3; 3.R.5, 6,7; 2.F.1

GRADE 3

Social Studies PALS— 1.A.2,B.4
Social Studies Content— 2.1,2,3
Math—N.2.1,2,3,4,5,6,7
English Language Arts— 1.R.1,2,3,4;
2.R.1,2,3; 3.R.6,7; 2.F.1

GRADE 4

Social Studies PALS— 1.A.2,B.4
Social Studies Content— 2.4
Math—N.1.1,3,4,5
English Language Arts— 1.R.1,2,3,4;
2.R.1,2,3,4; 3.R.6,7; 2.F.1

GRADE 5

Social Studies PALS— 1.A.2,B.4
Social Studies Content— 2.6
Math—N.1.2,3
English Language Arts— 1.R.1,2,3,4;
2.R.1,2,3

Vocabulary

barter—to trade goods or services without the exchange of money as payment

business— the making, buying, and selling of goods and services

catalogue— a book, usually illustrated, containing details of items for sale, especially as used by mail-order companies

cellar— a room or set of rooms below the surface of the ground

crop— cultivated plants or agricultural produce, such as grain, vegetables, or fruit, considered as a group

crop failure— an absent or much smaller than expected harvest, caused by the crop being damaged, killed, or destroyed, or affected in some way that the plant fails to form edible fruit, seeds, or leaves as expected

equipment— materials or supplies necessary for service or action

fertilizer— a substance (as manure or a chemical) used to make soil produce larger or more plant life

immigrant— a person who leaves one country to settle permanently in another

livestock— domestic animals, such as cattle or horses, raised for home use or for profit, especially on a farm

independently.

— Students will map or web the information and use a dictionary to look up unfamiliar words.

— Students will identify the main idea of the passage and retell the important details.

Math

1. Students will divide into groups of five or six and play the game included with this lesson, as follows:
 - Make several copies of the situation cards included with this lesson, and cut them along the dotted lines. There are three sets of cards—one for practicing addition and subtraction, one for practicing multiplication and division and one for practicing percentages, fractions and decimals. (Hint: Laminate the cards after labeling each one on the back to indicate which set it belongs to. Keep the sets of laminated cards in plastic bags.)
 - Each group sits in a circle. Assign a recorder for each group and provide paper, pencils and calculators. Give each group a bowl of seeds. One person from each group should count the group members and place five times that many seeds in the cup.
 - Explain that the seeds in the cup represent the year's harvest and are needed to raise next year's crop.
 - The person sitting to the left of the recorder draws a situation card from the pile and follows the instructions printed on it. Group members will take turns following the instructions on the cards so all get a chance to do the necessary math. Numbers may be rounded off, if necessary. Students will record the equations they used to complete the task on the situation cards.
 - As in real life, students may run out of resources before they get very far into the game. At that point students must decide whether to borrow money so they can continue or quit the game.
 - After the group has drawn all 10 of the cards, group members will figure its profit by counting how many seeds are left in the cup. The group with the largest profit wins the game.
2. Students will create their own situation cards and repeat the game.
3. Play the game again. Create graphs to illustrate gains and losses.

Social Studies

1. After students have finished playing the game (See Math.), lead a discussion about some of the real life situations faced by those responsible for growing food for all of us. Invite a farmer to class to answer questions.
2. Seeds and other food crops are sustainable natural resources. Students will list other natural resources that are sustainable (forests, people, animals, sustainable alternatives to fossil fuels) and what kinds of conservation methods would preserve them for the future. students.

3. Students will discuss the expression “seed money” in terms of what they have learned about early farmers saving seeds for the coming year.
4. Discuss bartering. Students will discuss the value of having markets where seeds can be sold in exchange for dollars to buy other items.

Extra Reading

Anno, Mitsumasa, *Anno's Magic Seeds*, Puffin, 1999.

Demi, *One Grain of Rice: A Mathematical Folk Tale*, Scholastic, 1996.

Lawlor, Laurie, *Addie's Dakota Winter*, Whitman, 1991.

Macken, JoAnn Early, *Flip, Float, Fly: Seeds on the Move*, Holiday House, 2008.

Ottolenghi, Carol, *Jack and the Beanstalk: Jiam y los frijolels magicos*, Brighter Child, 2005.

Stevens, Janet, *Tops & Bottoms*, Hazar, 1997.

Materials

1-2 pounds sunflower seeds in shells

5-6 small bowls

1 large bowl

Ag in My Community

Visit a nearby seed and feed store to or interview some older gardeners in your community to find out about seed saving practices.

Next Year's Seeds (Multiplication/Division)

Your tractor broke down in the middle of harvest. Divide the number of seeds in your cup by 5, and take out that many seeds.

Mice have eaten half your supply of seeds. Divide the number of seeds in your cup by 2, and take out that many seeds.

Your tractor broke down and can't be repaired. You'll have to buy a new one. Divide the number of seeds in your cup by 3, and take out that many seeds.

Weather conditions are just right for your crop. You have enough left over to sell. Multiply the number of seeds in your cup by 4, and make sure you have that many in your cup.

Several days of rain in the middle of the season cause your crop to rot in the fields. Divide the number of seeds in your cup by 6, and take out that many seeds.

Your neighbor offers to lease you his field for the season. You will need more seeds. Divide the number of seeds in your cup by 10, and subtract that number from your cup.

Flooding destroys the peanut crop in Georgia and causes the price of peanuts to go up. Multiply the number of seeds in your cup by 5, and add that many seeds to your cup.

Your hired hand goes away to college, and you have to train someone new. Divide the number of seeds in your cup by 2, and take out that many seeds.

Your new equipment allows you to plant more seeds. Multiply the number of seeds in your cup by 3, and add that many seeds to your cup.

The price of gasoline goes up. Divide the number of seeds in your cup by 3, and take out that many seeds.

Next Year's Seeds (Fractions and Percentages)

Your tractor broke down in the middle of harvest.
Give up $\frac{1}{6}$ th of the seeds in your cup. (If necessary, round to the nearest whole seed.)

Mice have eaten half your supply of seeds. Give up half the seeds in your cup.

Your tractor broke down and can't be repaired. You'll have to buy a new one. Give up $\frac{3}{4}$ th of the seeds in your cup.

Weather conditions are just right for your crop. You have enough left over to sell. Multiply the number of seeds in your cup by 1.33, and add that number to your cup.

Several days of rain in the middle of the season cause your crop to rot in the fields. Give up $\frac{2}{3}$ of your seeds.

Your neighbor offers to lease you his field for the season. Multiply the number of seeds you have in your cup by 1.65, and subtract that number from your cup.

Flooding destroys the peanut crop in Georgia and causes the price of peanuts to go up. Multiply the number of seeds in your cup by two, and add that many seeds to your cup.

Your hired hand goes away to college, and you have to train someone new. Give up $\frac{1}{8}$ of the seeds in your cup.

Your new equipment allows you to plant 10 percent more. Increase the number of seeds in your cup by 10 percent.

The price of gasoline goes up. Multiply the number of seeds in your cup by 5 percent, and subtract that number from your cup.

Next Year's Seeds

Our country's first farmers didn't sell their crops for money. They didn't have tractors and other machinery to help them. Most farmers raised just enough to feed their families. If there was any left over, they bartered with other farmers to get crops or livestock they didn't raise themselves. A portion of every crop had to be saved as seed so they could grow a new crop the next year. No matter how low the food supply got during the winter, they knew they couldn't eat the wheat, corn, barley or other seeds they had saved to plant.



Many immigrants carried seeds with them in pouches so they could get a good start in the New World. Seeds were not available like they are today, sold in colorful paper packages at the grocery store. Even if they had been, there was little money for buying them. Instead, early American farmers traded with the Indians or other farmers to get the seeds they needed. Sometimes they used catalogues to order seeds from England. Those seeds were very expensive.

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