

You are the Farmer

Grade Level: 4-5

Approximate Length of Activity: 45-50 Minutes

Objectives:

Teacher

1. Help students realize the importance of math in “real world” applications.
2. Familiarize students with agriculture and occupations in agriculture.

Students

1. Understand that farming is a business requiring many different math computations.
2. Perform basic and multi-step math operations in calculating the expenses of farming.
3. Understand agriculture and the occupations related to it.

Michigan Content Standards: (Math) N.FL.04.10; N.FL.04.11; N.MR.04.14; N.FL.05.04; N.FL.05.05; N.FL.05.06

Introduction

Operating a farm is a multi-faceted business. Farmers must purchase supplies and services and sell products. They need a good understanding of agri-business and economics to make a profit. Farmers work with individuals and companies to supply the needs of their farm and sell their products. Farmers must know how to keep an organized budget, compare prices, and make wise financial decisions.

Farmers use math in their day-to-day operations. For example, farmers use math to determine the amount of seed they need to plant their crop and how much it will cost. They use math to purchase equipment and make payments. Math is important in determining taxes and insurance and helping farmers keep track of how much their livestock weighs, how much milk their cows produce and their crop yield per acre, etc.

Students can learn there is much more involved in farming than simply raising a few animals or planting some crops. By reading and completing the following story problems, teachers can reinforce basic math operations, while showing students some examples of how math is used in the “real world.”

Materials Needed

- “Ag Careers Are Everywhere” worksheet
- “You Are the Farmer” worksheet

Activity Outline

1. Initiate a discussion with your students about occupations that require math. Have them name the occupations. Then turn the discussion to agricultural occupations that require math. Let them know that agriculture is the growing of food and fiber (wool, cotton, etc...). Ask them to name some agriculturally related occupations and which occupations require math skills.
2. Make a list on the chalkboard of the agriculturally related occupations. If the class needs help, suggest the agricultural occupations found on the handout, "AG Careers Are Everywhere!"
3. Once the students have a better understanding of what agriculture is and know some agricultural occupations that require math, have them complete the worksheet "You Are the Farmer." The worksheet will give the students a better idea of the expenses a farmer incurs just to plant a crop in the field. When the students are done with the worksheet, go over the answers so they understand them. Discuss how a farmer needs to know math in order to run his or her business.

Discussion Questions

1. What is agriculture?
2. What are some occupations related to agriculture?
3. How does a farmer use math in order to run his or her business?

Related Activities

1. Ask a local farmer to come in to talk about his/her job and the importance of math in his/her work. Your county Farm Bureau can help you locate a speaker.
2. Have students use their knowledge to make new story problems. Then have them trade with a partner and solve the problems.
3. Research some of the agricultural occupations listed on the handout that the class is not familiar with.
4. Michigan Farm Bureau has an educational magazine geared for kids entitled, "Career Ag Mag." Contact Michigan Farm Bureau, Promotion and Education, 1-800-292-2680 ext. 3202, to obtain copies for your classroom.
5. The lesson "Foods Amazing Journey" located in the social studies section of this curriculum guide.
6. The lesson "Count on an Ag Career" located in the math section of this curriculum guide.
7. The lesson "Scientific Careers in Agriculture" located in the science section of this curriculum guide.
8. The lesson "Picture This Agriculture Career" located in the language arts section of this curriculum guide.

Ag Careers are Everywhere!

Agriculture is the art and science of growing food and clothing. You do not have to come from a farm to have an occupation in agriculture. Any occupation that involves growing, harvesting, raising, transporting, processing, making, selling, trading, or researching of food and/or fiber (for clothing) are agricultural occupations. When you stop and think about it, agriculture is all around us!

Look at the list of agricultural occupations listed below. Most agricultural occupations require math, but the ones listed here are the most prevalent.

Agricultural Production Specialists

Aquaculturalist
Greenhouse manager
Rancher
Fruit and vegetable grower
Farm manager
Specialty animal producer
Grain and/or livestock farmer
Turf produce

Marketing, Merchandising, & Sales Representatives

Grain merchandiser
Market analyst
Insurance agent
Commodity broker
Sales representative
Export sales manager
Landscape contractor
Advertising manager
Restaurant manager

Managers & Financial Specialists

Accountant
Retail manager
Policy analyst
Consultant
Banker
Wholesale manager
Food service manager
Economist
Insurance agency manager
Computer systems analyst
Association manager

Communication & Education Specialists

Information specialist
Computer software designer
Agricultural/horticultural teacher
Radio/television broadcaster

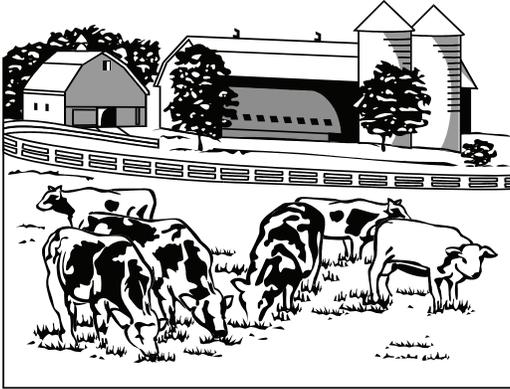
Social Services Professionals

Dietician
Food inspector
Regulatory agent
Outdoor recreation specialist



You are the Farmer

You are a no-till farmer in Michigan and usually plant soybeans, as well as corn. This year you make the decision to plant corn on all the ground you farm. Use the following information to complete the activity. You will have to round some answers to the nearest whole dollar, full container or full bag.



- Seed corn costs \$31 per acre.
- Fertilizer costs \$44 per acre.
- Fuel, lube, and electricity cost \$21 per acre.
- Herbicide costs \$82.20 for a 2.5-gallon container that treats 8 acres.
- Insecticide costs \$94 for a 50-pound bag. Fifty pounds treats 6.66 acres.
- Your farm is Michigan's average size of 268 acres.

1. You decide to plant your corn. How much will it cost to plant seed corn on all of your acres?

2. You need to purchase a new tractor and planter. The bank will loan you the money to buy the equipment, but you are required to make payments of \$18,500 every year for seven years. In addition, you have payments on previous purchases of \$5,500 per year. What is your total annual equipment cost for one year?

3. You need to put fertilizer on your corn crop. How much will this cost? _____
4. To keep weeds in your corn under control, you need to apply herbicide. How many containers will you need? _____ How much will this cost?

5. Most of your no-till corn is planted on last year's soybean ground and does not need any insecticide. Eighty acres of corn will be planted on last year's corn ground, and corn rootworms are a threat to the crop. You decide to apply an insecticide product. How many 50-pound bags will you need? _____ Calculate the cost.

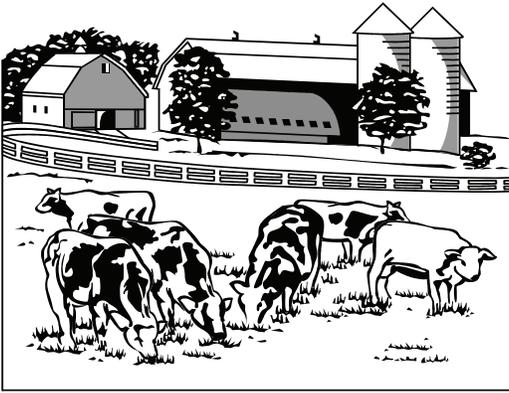
6. It is time to pay your property taxes and insurance. The cost is \$28 per acre. What is the total cost on all 368 acres?

7. You rent your farmland for \$97 per acre. What is the total rent for your farm?

8. Your corn crop is great! You harvest 144 bushels per acre. What is the total number of bushels of corn harvested?

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- Your farm is Michigan's average size of 268 acres.

1. You decide to plant your corn. How much will it cost to plant seed corn on all of your acres? **\$11,408**
2. You need to purchase a new tractor and planter. The bank will loan you the money to buy the equipment, but you are required to make payments of \$18,500 every year for seven years. In addition, you have payments on previous purchases of \$5,500 per year. What is your total annual equipment cost for one year? **\$24,000**
3. You need to put fertilizer on your corn crop. How much will this cost? **\$16,192**
4. To keep weeds in your corn under control, you need to apply herbicide. How many containers will you need? **46 containers** How much will this cost? **\$3,781**
5. Most of your no-till corn is planted on last year's soybean ground and does not need any insecticide. Buy 80 acres of corn will be planted on last year's corn ground, and corn rootworms are a threat to the crop. You decide to apply an insecticide product. How many 50-pound bags will you need? **12 bags**, Calculate the cost. **\$1,128**
6. It is time to pay your property taxes and insurance. The cost is \$28 per acre. What is the total cost on all 368 acres? **\$10,304**
7. You rent your farmland for \$97 per acre. What is the total rent for your farm? **\$35,696**
8. Your corn crop is great! You harvest 144 bushels per acre. What is the total number of bushels of corn harvested? **52,992 bushels**

Figures are from 1998