

"Food's Amazing Journey"

5th Grade Lesson

Michigan Farm Bureau Promotion and Education



Farmer



Processor



Trucker



Grocer



P&E Stock #261

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Michigan Farm Bureau Ag in the Classroom - Connections to Michigan Content Standards

5th GRADE LESSON – “Foods Amazing Journey” ***Michigan Farm Bureau Promotion and Education Committee***

This lesson meets the following social studies content standards for the upper elementary level:

I Historical Perspective

Content Standard 2: All students will understand narratives about major eras of American and world history by identifying the people involved, describing the setting, and sequencing the events. (Comprehending the Past)

- 2-2: Use narratives and graphic data to compare the past of their local community, the state of Michigan and other parts of the United States with present day life in those places.

II Geographic Perspective

Content Standard 1: All students will describe, compare, and explain the locations and characteristics of places, cultures, and settlements. (People, Places and Cultures)

- 1-2: Locate and describe diverse kinds of communities and explain the reasons for their characteristics and locations.

Content Standard 2: All students will describe, compare, and explain the locations and characteristics of ecosystems, resources, human adaptation, environmental impact, and the interrelationships among them. (Human/Environment Interaction)

- 2-2: Describe the location, use, and importance of different kinds of resources and explain how they are created and the consequences of their use.
- 2-4: Explain how various people and cultures have adapted to and modified the environment.

Content Standard 3: All students will describe, compare, and explain the locations and characteristics of economic activities, trade, political activities, migration, information flow, and the interrelationships among them. (Location, Movement and Connections)

- 3-1: Describe major kinds of economic activity and explain the factors influencing their location.
- 3-3: Explain how transportation and communication link people and communities.
- 3-4: Describe some of the major movements of goods, people, jobs and information within Michigan and the United States and explain the reasons for the movements.

IV. Economic Perspective

Content Standard 1: All students will describe and demonstrate how the economic forces of scarcity and choice affect the management of personal financial resources, shape consumer decisions regarding the purchase, use, and disposal of goods and services and affect the economic well-being of individuals and society. (Individual and Household Choices)

- 1-1: Explain why people must face scarcity when making economic decisions.
- 1-2: Identify the opportunity costs in personal decision making situations.

Content Standard 2: All students will explain and demonstrate how businesses confront scarcity and choice when organizing, producing, and using resources, and when supplying the marketplace. (Business Choices)

- 2-1: Distinguish between natural resources, human capital, and capital equipment in the production of a good or service.
- 2-3: Examine the historical and contemporary role a major industry has played in the state of Michigan and the United States.

Content Standard 4: All students will explain how a free market economic system works, as well as other economic systems, to coordinate and facilitate the exchange, production, distribution, and consumption of goods and services. (Economic Systems)

- 4-1: Explain how prices are determined in a market economy and how they serve as a means of allocating resources.
- 4-2: Describe how they act as a producer and a consumer.

Content Standard 5: All students will describe how trade generates economic development and interdependence and analyze the resulting challenges and benefits for individuals, producers, and government. (Trade)

- 5-3: Describe how businesses are involved in trade as producers, distributors, importers, and exporters.

This lesson meets the following science content standards for the elementary level.

Science

I. Construct New Scientific and Personal Knowledge

Content Standard 1: All students will ask questions that help them learn about the world; design and conduct investigations using appropriate methodology and technology; learn from books and other sources of information; communicate their findings using appropriate technology; and reconstruct previously learned knowledge. (Constructing New Scientific Knowledge)

- 1-1: Generate reasonable questions about the world based on observation. (Key concepts: See Using Scientific knowledge. Real-world contexts: See Using Scientific Knowledge.)

- 1-4: Use simple measurement devices to make metric measurement. (Key concepts: Measurement units--milliliters, liters, teaspoon, tablespoon, ounce, cup, millimeter, centimeter, meter, and gram. Measurement tools: Measuring cups and spoons, measuring tape, balance or scale. Real-world contexts: Making simple mixtures, such as food, play dough, paper mache; measuring height of a person, mass of a ball.)
- 1-6: Construct charts and graphs and prepare summaries of observations. (Key concepts: Increase, decrease, steady. Tools: graph paper, rulers, and crayons. Real-world contexts: Examples of simple charts and graphs like those found in a newspaper.

II. Reflect on the Nature, Adequacy and Connections Across Scientific Knowledge

Content Standard 1: All students will analyze claims for their scientific merit and explain how scientists decide what constitutes scientific knowledge; how science is related to other ways of knowing; how science and technology affect our society; and how people of diverse cultures have contributed to and influenced developments in science. (Reflecting on Scientific Knowledge)

- 1-1: Develop an awareness of the need for evidence in making decisions scientifically. (Key concepts: data, evidence, sample, guess, opinion. Real-world contexts: Deciding whether an explanation is supported by evidence in simple experiments.)
- 1-3: Describe ways in which technology is used in everyday life. (Key concepts: Provide faster and farther transportation and communication, organize information and solves problems, save time. Real-world contexts: cars, other machines, radios, telephones, computer games, calculators, appliances.)

IV. Use Scientific Knowledge from the Physical Sciences in Real-World Contexts

Content Standard 2: All students will investigate, describe and analyze ways in which matter changes; describe how living things and human technology change matter and transform energy; explain how visible changes in matter are related to atoms and molecules; and how changes in matter are related to changes in energy. (Changes in Matter)

- 2-2: Prepare mixtures and separate them into their component parts. (Key concepts: mixture, solution, and Separation techniques--filtration, using sieves, dissolving soluble substances, magnets, floating vs. sinking, and distillation. Tools: Filter paper, funnels, magnets, sieves, beakers, solar stills. Real-world contexts: Mixtures of various kinds--salt and pepper, iron filings and sand, sand and sugar, rocks and wood chips, sand and gravel.)

"Foods Amazing Journey" 5TH GRADE LESSON

Presented by

Members of Michigan Farm Bureau

Written by: Laurie Isley

Materials/Actions

Time Allotted

	1-2 minutes	I. Introduction This lesson is designed to help 5 th graders understand the economics of farming by following the food system from farmer to grocer.
Show poster of definition & post on wall	5 minutes	<ol style="list-style-type: none">1. Introduce yourselves and show where you are from (use map or hand).2. Today we're going to talk about foods amazing journey. Food goes through a lot of changes and to a lot of places before it appears on shelves at grocery stores. Today we will learn how food goes from the field or farm to stores, and the role that economics play in that process.3. What is economics? Economics is defined as the study of the production, distribution and consumption of products & services. Production means making/growing something. Distribution means moving products from place to place and consumption is use of the products. (ex; such as the cereal you ate for breakfast)
Often times, children list only "food" products. This is a great opportunity to inform them of all the non-food and by-products farms generate. Items might include by-products from soybeans and livestock.		First, start with questions... <ul style="list-style-type: none"><input type="checkbox"/> Do any of you know a farmer?<input type="checkbox"/> Have you ever visited a farm?<input type="checkbox"/> What products come from farms - (list on the board)<input type="checkbox"/> What about non-food products? Ex: cotton for clothes, biodegradable packing material from corn , leather from animals

Part I - We're Farming Now!

Distribute baggy with 11-17 kernels per student. 3 minutes

Distribute lab sheet.

Have students write the number of kernels of corn in their bag on line one of part 1 on the lab sheet.

10 minutes

Show equipment pictures and briefly discuss their use.

1. When farmers sell their products they usually get paid a set amount for it, ex. 100 wt., ton, etc. This is something they don't have much control over. The farmer can't put a price tag on his/her bushel of corn.

After they get paid, they still have to pay their expenses on that crop or product.

Today, each of you is a farmer and this bag of corn represents your harvest.

Ordinarily you would be paid in money not in kernels but for this activity we will use the kernels as cash. You will notice that not all of you have the same number of kernels--this is because farmers don't always harvest the same amount of product.

What might affect the yield or amount of product a farmer had to harvest? (weather, insects...)

Now it's time to pay your "input" costs. (What it cost you to grow your crop.) Let's start with the obvious ones. _____ & _____ will be our bill collectors. They'll come around and collect your corn cash.

□ **Count the kernels of corn in your bag and then write that number on the first line on part one of the lab sheet.**

2. Each kernel of corn in your bag represents money. Farmers have "input" costs when they farm. They have to sell for the price offered by the company they sell to.

3. This year, fertilizer and crop protectant prices rose and you had to pay **2** kernels of corn for fertilizer and herbicides. (Instruct them to take 2 kernels of corn out of bag). Why do farmers use these products?

1) Fertilizer - nutrition

2) Herbicides - bugs, disease, weeds, etc.

1. Seed for planting this year cost you **3** kernels of corn. (instruct them to take three kernels of corn out of the bag).

2. Show pictures of equipment - tractor, combine and corn planter.

a. Of course, we don't plant our crops by hand we need machinery. Show!

b. Elaborate on tools and their use.

c. New costs - purchase, interest, fuel etc.

d. Used costs - repairs, fuel, interest, etc.

e. Your machinery cost was another **2** kernels.

Materials needed will include pen/pencil and the bag distributed for the exercise.

Kids generate ideas, then you fill in answers.

3 minutes

Food's Amazing Journey lab sheet, Part 1. Show yellow sheet with example of part 1

3 minutes

Collect leftover corn

4. We also need someplace to raise our crop. We have to have land or greenhouses/barns. If we buy our land we pay interest, land payment and taxes. If we rent, we pay money to a landlord to use their land. This will cost you **2** more kernels
5. Can you think of other expenses a farmer might have? Such as insurance, taxes, repairs, improvements, labor etc. (Instruct them to take **1** more kernel out of the bag).

Total kernels taken = 10

Everything you have left is your profit for that bushel.

Count what you have left and write that number on the third line of part 1 on your lab sheet.

"How many kernels did you make this year? (Students have varying amounts of kernels in each bag. Some students did well this year while others may not have many kernels left). Elaborate – drought, disease - when farmers don't make money. Other years, when input prices are low, weather is good and prices high - farmers can do quite well.

Part II – Summing It Up!

After all the expenses have been added up, instruct the student to complete the lab sheet for the corn harvesting activity. Next to "number of kernels harvested" fill in the number of kernels initially in the bag before input costs. Next to "number of kernels paid in expenses" fill in the number of kernels they took out of the bag to cover expenses. Next to "number of kernels left (profit/loss)" fill in the total number of kernels left subtracted from the number of kernels they started with. Then, next to "multiplied by \$0.10 each, equals profit per bushel" fill in the total after multiplying the number from blank three by \$0.10.

Part III - My Job Is...

Pass out yellow cards indicating farmer, grocer, trucker, and processor. Make sure there are four farmers and the rest distributed equally among students. Then, explain what role each "person" plays in food's amazing journey. A summary appears on the back of each card.

10 minutes

It takes a lot of people to complete food's journey; from the farm to the grocer, farmers, truckers, processors and grocers all participate in food's journey.

Today we are going to create a product and take it through this "journey". Our product is G.O.R.P. Does anyone know what that is? (Guesses) It stands for Good old raisins and peanuts. We're going to add a few extras too. We will produce, process and transport our product from the farmer to the grocer. Briefly review jobs based on cards and locations chosen in room.

M&M's, peanuts, cereal, raisins.

Next, distribute the "product" (M&M, peanuts, raisins, cereal mixture) to the farmers. After the farmer has harvested their crop it is ready for the trucker to pick it up. The truckers must then load the product and deliver it to the processor. (Transfer "product" from farmer to trucker). The processor's job is to "process" (explain processed food) the raw product into something "ready-to-eat". He then delivers the product to the grocer. The grocer is responsible for creatively presenting the product and repackaging the product in a smaller quantity, such as example meat. They must present in a way that entices the consumer and distribute the G.O.R.P. in nut cups for each of the students in the class.

Pans
Nut cups
Large spoons
Towelettes for washing hands before food is handled.

At every stop, explain the role of each person and their contribution to the product's journey.

Have each group of students stay in their seats until it is their groups turn. Students should then gather at a designated area after directions. Explain how to make G.O.R.P. & move through activity.

While different groups are completing their project - talk to the whole group about additional steps that would take place.

Part IV – Food from farm to you

Refer to part 2 of the lab sheet. 5 minutes

Now direct their attention to part 2 of the handout. Ask them to list three more parts or individuals who might be involved. Packaging, advertising, accountant, etc. Discuss answers.

5 minutes

□ **Who or what else might have been involved in this process?**

Part V – Piecing the Puzzle Together

Cereal boxes cut into puzzle pieces (1 puzzle per pair of students)

(Have the students work in pairs) Next, pass out envelopes containing a cereal box. Give the class an introduction of what the puzzle is before allowing them to start. Explain the cost breakdown of a product, i.e. the farmer doesn't receive the cost of a box of cereal. How much does a box of cereal cost? For this example, we are going to assume we found a great sale and the cost was \$1.00 per box. (This section of the lesson may be confusing for kids. Be sure to explain clearly and pay particular attention to detail.)

Write answers on part 3 of the lab sheet.

After explaining the puzzle, instruct them to piece it together. After the majority of the class has completed the task, explain how to match the costs listed on the boxes to the categories in part 3 on your lab sheet. For example, you may think that advertising is \$.30 of each \$1.00 spent on food -so you would write \$.30 on the advertising line. After you use a piece of the puzzle turn that piece over. When you finish, we will share the actual amounts. (Allow enough time for students to analyze the material, but stop them before they become frustrated. Explain the correct answers for each of them.)

Explain each piece of the puzzle and how it relates to processing of the product.

Write the correct answers in part 3 of the lab sheet under the actual amounts.

Summary

Remember our definition of economics? Today we have covered the production of a product by paying inputs in corn kernels, the distribution by making G.O.R.P. and the consumption through the cereal box activity. So even though economics may seem "boring", when we recognize that it involves our daily food, we realize how important it really is.

Today, we have learned what costs farmers have to pay, how food gets from the farm to the store, the people involved along the way, and some of the expenses that become a part of your cost for the final product.

FOODS AMAZING JOURNEY

LAB SHEET

Part 1

1. For the corn harvesting activity, fill in the numbers below to show your profit or loss.

Number of kernels harvested _____

Number of kernels paid in expenses _____

Number of kernels left (profit or loss) _____

Multiplied by 10¢ each, equals profit per bushel \$ _____

Part 2

2. The “Food From Farm to You” activity had four parts: the farmer, trucker, processor, and grocer. List three more parts or individuals who might have been involved.

A.

B.

C.

Part 3

3. Using your cereal box puzzle, match the costs listed with the categories below. Make your best guess first, and then write in the actual amount.

	<u>Your guess</u>	<u>Actual amount</u>
A. Farm value	_____	_____
B. Fuel, electricity, rent (Processing costs)	_____	_____
C. Advertising	_____	_____
D. Labor (Processing costs)	_____	_____
E. Transportation	_____	_____
F. Interest and taxes	_____	_____
G. Packaging (Processing costs)	_____	_____
H. Repairs and depreciation	_____	_____
<u>Total</u>	<u>\$1.00</u>	<u>\$1.00</u>

FOODS AMAZING JOURNEY

LAB SHEET (answers)

Part 1

1. For the corn harvesting activity, fill in the numbers below to show your profit or loss.

Number of kernels harvested _____

Number of kernels paid in expenses _____

Number of kernels left (profit or loss) _____

Multiplied by 10¢ each, equals profit per bushel \$ _____

Part 2

2. The “Food From Farm to You” activity had four parts: the farmer, trucker, processor, and grocer. List three more parts or individuals who might have been involved.

A.

B.

C.

Part 3

3. Using your cereal box puzzle, match the costs listed with the categories below. Make your best guess first, and then write in the actual amount.

	<u>Your guess</u>	<u>Actual amount</u>
A. Farm value	_____	_____ \$.23
B. Fuel, electricity, rent (Processing costs)	_____	_____ \$.07
C. Advertising	_____	_____ \$.04
D. Labor (Processing costs)	_____	_____ \$.38
E. Transportation	_____	_____ \$.04
F. Interest and taxes	_____	_____ \$.10
G. Packaging (Processing costs)	_____	_____ \$.09
H. Repairs and depreciation	_____	_____ \$.05
<u>Total</u>	<u>\$1.00</u>	<u>\$1.00</u>

“FOODS AMAZING JOURNEY”

5TH GRADE KIT PACKING LIST

Based on 35 students per class

Each kit designed for conducting 2 presentations

NEED:

- Lesson Outline
- Economics Definition Poster
- 70 baggies filled with 11-17 kernels of corn
- 3 laminated posters of equipment (tractor, combine and corn planter)
- 70 Lab Sheets for Part I, II & III
- Varying Colored Designation Cards (farmer, grocer, trucker and processor). 9 of each.
- M&M's, Peanuts, Cereal and Raisins
- 2 large aluminum pans for processors
- 9 small cardboard carriers for farmers and truckers
- 70 Nut Cups
- 4 Large Spoons
- 1 container of towelettes for washing hands
- 18 Cereal boxes cut into puzzle pieces (1 per pair)



Farmer



Farmer



Farmer



Farmer



Farmer



Farmer



Farmer



Farmer



Processor



Processor



Processor



Processor



Processor



Processor



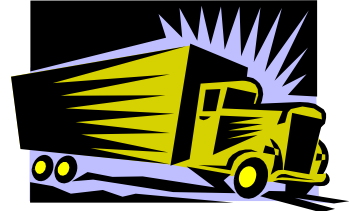
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Processor



Trucker



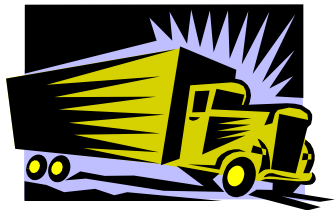
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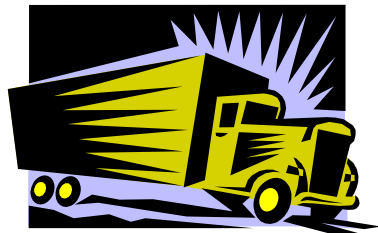
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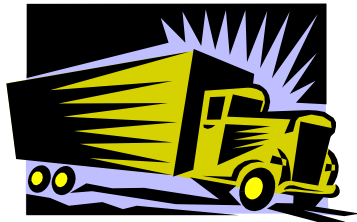
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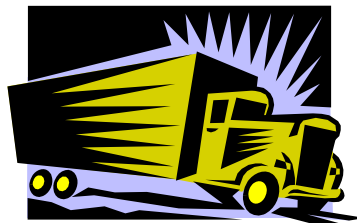
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