



From Farm to Fork

Middle School Food and Agricultural Literacy Curriculum

Precepts

- A. Action
- A2. Focus on Results

National Standards

- FPP.04.01.03.a. Identify and describe accepted animal treatment and harvesting techniques.
- FPP.04.03.02.a. Explain methods and materials for processing foods for sale as fresh-food products.
- NL-ENG.K-12.12 – Applying Language Skills

Student Learning Objectives

- As a result of this **unit**, the student will be able to...
- Examine processes involved in food science.
- As a result of this **lesson**, the student will be able to...
- Describe the steps in processing meat and poultry animals.

Content Outline

Objective 1. Describe the steps in processing meat and poultry animals.

I. Processing from farm to fork

- A. Animal selection
 - 1. Animals are selected for harvest when they have arrived at their target market weight
 - 2. Some animals are genetically selected to serve as meat animals; meaning that their genetics are ideal for making a flavorful meat product
- B. Harvest
 - 1. Harvesting is made up of a careful process to ensure that the animal is treated in a humane way and our food supply is safe to eat
 - a. Handling/ holding areas are designed to make moving animals as stress free as possible

Time

Instruction time for this lesson: 45 minutes.

Resources

National FFA Organization. (2009). LifeKnowledge Online. Retrieved September 1, 2009 from <http://agedlearning.org>
Hayes, K. *Introduction to Food Science*, Purdue University CopyMat, 2005. — United States Departments of Agriculture Agricultural Marketing Resource Center. (2002-2010).
USDA value-added ag definition. Retrieved April 7, 2010 from http://www.agmrc.org/business_development/getting_prepared/valueadded_agriculture/articles/usda_valueadded_ag_definition.cfm

Tools, Equipment, and Supplies

Overhead projector/transparencies
Writing surface
Writing utensil
MS.FS.2.3.TM.A – one per teacher
MS.FS.2.3.ASSESS.A – one per student

Key Terms

The following terms are presented in this lesson and appear in **bold italics**:

Inspection

Fabrication

Wholesale cuts

Retail cuts

Value-added products

- b. Animals are harvested; the carcasses are sent through a final wash and then chilled for at least 24 hours.
 - c. ***Inspection*** – examination or review of the animal. The USDA (United States Department of Agriculture) inspector will examine parts of the carcass to ensure that the animal is healthy and safe for human consumption.
- C. Processing
- 1. ***Fabrication*** – the breaking down of a carcass of meat into consumer cuts
 - a. Once the carcass is chilled, it is broken down into smaller cuts for resale during the ***fabrication*** process
 - b. ***Wholesale cuts*** – the sale of goods in quantity for resale (i.e., beef ***wholesale cuts*** include the round, chuck, short loin, etc.)



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- c. **Retail cuts** – the sale of goods in small quantities to consumers (i.e., pork **retail cuts** include tenderloin, chops, ribs, etc.)
- d. **Value-added products** – a change in the physical state or form of the product; the production of a product in a manner that enhances its value (i.e., sausage, chicken patties, etc.)

Interest Approach

The following interest approach is geared to get students thinking about where the meat products they consume originate. Each question is to be asked quickly, giving students little time to think about their response.

Good afternoon, students! As we take our seats, clear your desks, and put your thinking caps on. To start our class, we have a few questions we must answer! When the question is asked, everyone must respond aloud as quickly as possible!

Let's try it. The day of the week is?

Solicit student answers.

Great! It seems we have the hang of it! Let's continue. What animal do chicken strips come from?

Solicit student answers.

Turkey breast is from which animal?

Solicit student answers.

Beef patties are from?

Solicit student answer.

Pork chops are?

Solicit student answers.

Leg of lamb?

Solicit student answers.

Buffalo wings?

Solicit student answer – anticipate at least one student to yell out buffalo.

Who will be the first to tell me why is it important that we know where our meat comes from?

Solicit student answers. Could include: being sure animals are raised in a healthy environment, need to understand modern production practices to ensure food safety, know what to believe or not in the news, etc.

Why else?

Solicit student answers.

What are some reasons people might need to understand the process of how our meat arrives to our table?

Solicit student answers.

Awesome responses! As we move forward in learning about where the meat products we consume come from there are a few things that we need to know. We may be thinking "How does that work?" or "I can't imagine that what I eat was once a live animal!" However, we must learn about where our meat comes from because it makes up 23% of our diet! Even more than that, Americans consume 19 billion pounds of meat per year, which is like 237,500 semi trucks, loaded, bumper to bumper, from LA to NY!

Pause.

That's quite a bit of meat!

Raise your hand if you are hungry to know more about meat processing!

Let's get started! Today we will learn how meat sets out from the farm to the fork, discovering throughout this path how our safety is maintained and how the meat is further processed to add value to our products. During class today be prepared to work diligently and maturely; it is imperative to know where our meat comes from so that we can be educated consumers!



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Summary of Content and Teaching Strategies

Objective 1. Describe the steps in processing meat and poultry animals.

Raise your hand if you consume beef, pork, lamb, or chicken. Raise your hand if someone you know consumes beef, pork, lamb, or chicken. As we look around the room, it is easy to see that the consumption of meat is an important part of many diets in our classroom, community, and in our world.

Conduct the following activity to ease into the topic of harvesting animals. Since this could be a subject that may make some students squeamish, it is important to constantly stress that this is a humane, safe, and natural way of processing animals.

Imagine for a moment you are living in the caveman or Neolithic era, hundreds of thousands of years ago. Picture the scenery around you. Think about the type of people that live and hunt among you. Imagine your friends as your hunting mates. Picture the type of animals you would be hunting for your food. Think about their size, your ability to catch it, the type of spear you would use. Now imagine in the distance is a large animal that will feed your entire tribe of friends for at least 30 days. Think about how it will be prepared, cooked, and served. What parts will you eat? What parts will you discard?

Discuss what students imagined. Elicit student responses.

Let's discuss what we imagined. Who will be the first to describe the scenery and the people you lived with?

Elicit student responses.

Terrific! Now, let's think about the animals we were hunting. Who can describe for us what you have hunted and brought for the tribe? Who else?

Elicit student responses.

It's time to eat! How was the animal processed and prepared?

Elicit student responses.

Great imaginations! How do you think that animal processing has changed from the time of the caveman to how we consume our meat today?

Elicit responses to questions, engaging students in brief conversation based on their responses.

Today, the processing of meat is a scientific process that concentrates on the humane treatment of the animal from the farm to the fork. Objectives are to safely harvest the meat so that we remain healthy and to utilize all parts of the animal to the best of our ability. Let's gain a better understanding of meat processing.

Provide the following on the writing surface or on **MS.FS.2.3.TM.A.**

Let's take a few moments to capture this information on harvesting meat products. As you write this information in your notebooks, pay attention and include any information in your notes that will help you understand each step.

Utilize the *Choral Response e-Moment®*, in which students repeat after you as you introduce each new section of the process from farm to fork.

Instruct students to get notebook paper to take notes.

The first step is animal selection. What is the first step?

Elicit choral response; students should say "animal selection."

Please write this down in your notes. Be sure to leave space in the left margin because that space will be used later in class.

Allow time for students to write information.

Think about why animal selection is an integral part of the process.

Pause for a few seconds.

Turn, and share these thoughts with your neighbor. Solicit volunteers to share ideas with the class.

Continue to provide information on the writing surface or show on **MS.FS.2.3.TM.A.**



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The second step in producing meat products is harvest. What is the second step?

Elicit choral response. Continue to provide on writing surface or show on **MS.FS.2.3.TM.A**.

Our third step is processing. What is the third step?

Elicit choral response.

There are many different levels of processing which include breaking down the carcass into **wholesale cuts**, **retail cuts**, and **value-added products**.

Continue to provide on writing surface or show on **MS.FS.2.3.TM.A**.

As we think about processing meat, the goal is for the carcass to become something consumable. The product is defined and the path is determined.

Review/Summary

Use the Hieroglyphics e-Moment to help the students visualize the content they just learned. Have students create a picture in the left-hand margin of their notes to review each of the steps of the process from the farm to the fork. Students need about five minutes to create their pictures. When they have completed their pictures, have students compare with their neighbors.

It's obvious that there is a process that meat animals go through to become the meat we eat today. Listen closely. When you hear MOO take each of the steps and create a picture for it. Place these pictures in order according to the process from the farm to the fork. How can I clarify this? We will be sharing our pictures with the class. You have five minutes to complete this. MOO!

Wow! We've learned some important information today! Meat consumption makes up 23% of our diet, and now we know how it travels from the farm to the fork. The topic we covered may have been difficult to swallow, but we have a greater insight on how our meat becomes the delicious and wholesome products that we consume.

We have also discovered how setting a procedure to achieve our personal goals also results in achieving what we desire in life. Today, your pictures are your ticket out the door.

Let's relate this to our current situations. When it comes to school, what is a goal you've always wanted to accomplish? Is there a test you want to ace? Are you planning on running for a class office? Do you want to make the honor roll this quarter? Think to yourself for a moment about a goal you'd like to set for school in the near future.

Pause for 10 seconds.

Take three minutes to think about this goal, and then jot down your personal school goal on a sheet of paper. Be ready to share the goal when asked.

Give the students three minutes to quietly think of a goal and write it down on a piece of scrap paper.

Provide the colored writing utensils. Call on several students to share their goals.

All of you have written down something you would like to accomplish in school in the near future. Having the end product written down is the first step toward accomplishing a goal. If you didn't know what you were working toward, you would have no end in sight, and could possibly lose sight of your original goal before you could measure your success.

On the same sheet of paper, write today's date in the bottom left hand corner of the page, and the date one month from now in the bottom right hand corner of the page. Starting from the date that is one month from now, plot the steps in reverse order that you will need to take to reach that goal. You will have three minutes to write these steps down.

Give the students three minutes to work on the steps to achieving their end product.

By first determining the end product you're aiming for, you can more efficiently set realistic steps to reach it. This will help you focus on the outcome. By first defining your goal or mission, and looking at the big picture, you can clarify your purpose, see where you're headed, and work most efficiently. This is a valuable tool to use.

Just as setting goals and developing steps are important in our personal lives, they are important in the food science industry as well.

Stand at the door to collect pictures as students exit the classroom.



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Application

Extended classroom Activity:

Watch "Modern Marvels" The Butcher (2005): Originally aired on 1 February 2005 (Season 11, Episode 6). Have students take note in the movie the different methods used in meat processing as it has evolved throughout the years.

FFA Activity:

Have students place a class of **retail cuts**. Discuss with the students what to look for when evaluating **retail cuts** and how it related to the selection, harvesting, and correct processing of the carcass.

SAE Activity:

Have students complete a career report on someone like a meat inspector, plant manager, etc.

Evaluation

MS.FS.2.3.ASSESS.A

Answers to Evaluation

1. Answer should include information from notes on animal selection, harvesting, and processing.
2. Answers will vary, but should be based upon the definitions defined in the class notes.



I. Processing from farm to fork

A. Animal selection

1. Animals are selected for harvest when they have arrived at their target market weight
2. Some animals are genetically selected to serve as meat animals; meaning that their genetics are ideal for making a flavorful meat product

B. Harvest

1. Harvesting is made up of a careful process to ensure that the animal is treated in a humane way and our food supply is safe to eat
 - a. Handling/ holding areas are designed to make moving animals as stress free as possible
 - b. Animals are harvested; the carcasses are sent through a final wash and then chilled for at least 24 hours.
- c. Inspection** – examination or review of the animal. The USDA (United States Department of Agriculture) inspector will examine parts of the carcass to ensure that the animal is healthy and safe for human consumption.

C. Processing

1. **Fabrication** – the breaking down of a carcass of meat into consumer cuts
 - a. Once the carcass is chilled, it is broken down into smaller cuts for resale during the fabrication process
 - b. Wholesale cuts – the sale of goods in quantity for resale (i.e. beef wholesale cuts include the round, chuck, short loin, etc.)
 - c. Retail cuts – the sale of goods in small quantities to consumers (i.e. pork retail cuts include tenderloin, chops, ribs, etc.)
 - d. Value-added products – a change in the physical state or form of the product; the production of a product in a manner that enhances its value (i.e. sausage, chicken patties, etc.)



Name _____

Short Answer

1. List and describe the three steps involved in the process from farm to fork.

A. _____

B. _____

C. _____

Define any three of the following terms:

Inspection:

Fabrication:

Wholesale cuts:

Retail cuts:

Value-added products:

