Meat Science & Food Safety

**Media Type:** Microsoft® PowerPoint® Presentation  
**Duration:** 196 slides

**Goal:** For students to gain in depth knowledge of meat science and food safety.

**Description:** This presentation explores today’s meat industry and the role of food safety in both the industry and the home. The history of the meat industry is discussed as well as various legislation, animal handling practices, purchasing procedures, storage techniques, cookery methods and processed meats.

**Objectives:**
1. To explore legislation and history in relation to the meats industry.
2. To study animal care and handling techniques.
3. To identify the nutritional content and benefits of meat.
4. To consider consumer options when purchasing meat.
5. To describe meat storage and handling practices.
6. To understand meat cooking methods.
7. To study meat additives and processed meats.
8. To analyze food safety practices and causes of foodborne illnesses.

**Horizontal Alignment**

<table>
<thead>
<tr>
<th>Core-Subject Area</th>
<th>Foundation Concept</th>
<th>Basic Understanding</th>
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<tbody>
<tr>
<td>Science</td>
<td><strong>Scientific Thinking and Investigating</strong></td>
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|                   |                     | • Field and laboratory investigations  
|                   |                     | • Critical thinking and scientific problem solving  
|                   |                     | • Real-world investigations and applications  
|                   |                     | • Analytical skills  
|                   |                     | • Hypothesis development  
|                   |                     | • Researching and proving theories  
|                   |                     | • Collecting data  
|                   |                     | • Conducting experiments  
|                   |                     | • Technology-based research  
|                   |                     | • Evaluating conclusions  
|                   |                     | • Compare/contrast findings  
|                   |                     | • Classification/organization skills  
|                   | **Scientific Laws and Principles** |  
|                   |                     | • Cycles, structures and processes  
|                   |                     | • Principles of biology, chemistry, anatomy, physiology or psychology  
|                   |                     | • Human development  
|                   |                     | • Patterns of behavior  
|                   |                     | • Physical or kinesthetic activity  
|                   |                     | • Periodic table  
|                   |                     | • Food safety and sanitation  
|                   |                     | • Temperature control  
|                   |                     | • Equation development and solution  
|                   |                     | • Physical and chemical reactions |
Lesson Plan

Student and Teacher Notes are available to print in outline format. You can access these documents under the “Printable Resources” section. If student licenses have been purchased, an interactive version of the Student Notes is available in the “Interactive Activities” section. If printing the full PowerPoint® is desired, you may download the file and print the handouts as needed.

Class 1: Begin the class by handing out the Meat Science & Food Safety Vocabulary Handout. Remind students to use these each day as reference materials for the lesson. Show the Meat Science & Food Safety: Legislation & History Segment and complete the corresponding segment Assessment. Have students complete the Timeline Activity.

Class 2: Show Meat Science & Food Safety: Animal Care & Handling Segment and complete the corresponding segment Assessment. Have students complete the Animal Handling & Care Practices Flier Project.

Class 3: Show Meat Science & Food Safety: Meat Nutrition Segment and have students complete the corresponding segment Assessment. Have students complete the Meat is What’s For Dinner Activity.

Class 4: Show Meat Science & Food Safety: Purchasing Meat Segment and complete the corresponding segment Assessment. Assign the Scavenger Hunt Activity for homework.

Class 5: Show Meat Science & Food Safety: Meat Storage & Handling Segment and complete the corresponding segment Assessment. Have students complete the Food Storage Chart Project.

Class 6: Show Meat Science & Food Safety: Meat Cookery Segment and complete the corresponding segment Assessment. Have students complete the Recipe Roundup Project.

Class 7: Show Meat Science & Food Safety: Processed Meats Segment and complete the corresponding segment Assessment. Instruct students to begin the Food Additive Search Activity. It should be finished for homework.

Class 8: Show Meat Science & Food Safety: Food Safety Segment and complete the corresponding segment Assessment. Have students complete the Hot Topics in Food Safety Project.

Class 9: Review the material from the past classes. Administer the Meat Science & Food Safety Final Assessment. Allow students time to complete the Hot Topics in Food Safety Project.

Class 10: Students will present the Hot Topics in Food Safety Project.

Lesson Links

Food Safety Inspection Service
• http://www.fsis.usa.gov

United States Department of Agriculture
• http://www.usda.gov

FoodSafety.org
• http://www.foodsafety.org

Career & Technical Student Organizations

National FFA
• Meat Evaluation
• Food Science and Technology
Family, Career & Community Leaders of America
• Culinary Arts
Meat Science & Food Safety

Career Connections

Using the Career Connections Activity, allow students to explore the various careers associated with this lesson. See the Activity for more details. If student licenses have been purchased: Students will select the interviews to watch based on your directions. If only a teacher license is purchased: Show students all the career interviews and instruct them to only complete the interview form for the required number of interviews.

- iCEV50048, Kendra Nightingale, Ph.D., Associate Professor, International Center for Food Industry Excellence, Texas Tech University
- iCEV50079, Collette Schultz-Kaster, Vice President of Food Safety & Technician Services, American Meat Science Association
- iCEV50482, Barbara Masters, Administrator,

Lab Activities

Timeline

Directions:
Distribute the Timeline Activity. Instruct students to develop a timeline of the major legislation and historical events discussed within the presentation as well as five more events or laws which have occurred or been passed.

Meat is What’s For Dinner

Directions:
Distribute the Meat is What’s for Dinner Activity. Instruct students to create a list based on their opinion of the top five nutritional reasons meat should be “what’s for dinner.” After the students have completed their lists, lead a class discussion and develop a “Top Ten” list of the nutritional reasons to eat meat.

Scavenger Hunt

Directions:
Distribute the Scavenger Hunt Activity. Instruct students to use the Internet, local grocery store, their home kitchen or any location where meat may be for sale to locate the items listed on the Activity sheet.

Food Additive Search

Directions:
Distribute the Food Additive Search Activity. Instruct students to choose a processed meat product and determine its main ingredients and additives. Students will create a poster detailing the processed meat and each of the ingredients.

Projects

Animal Handling & Care Practices Flier

Directions:
Distribute the Animal Handling & Care Practices Flier Project. Instruct students to choose a type of meat animal (cattle, swine, sheep, poultry, etc.) and create an informative one-page flier detailing a common practice used in the meat industry to ensure proper animal treatment and management.

Food Storage Chart

Directions:
Distribute the Food Storage Chart Project. Instruct students to create a chart, based on the information in the presentation, which can be displayed in their home kitchen detailing the proper storage times for various foods as well as the proper temperatures for refrigeration and freezer storage.

Recipe Roundup

Directions:
Distribute the Food Storage Chart Project. Instruct students to create a recipe book of recipes which use each of the cooking methods listed on the Project sheet for a meat product (beef, pork, lamb, veal, processed meats, etc.).

Hot Topics in Food Safety

Directions:
Divide students into groups and distribute the Hot Topics in Food Safety Project. Instruct students to create a presentation detailing a current hot topic related to food safety.