

***CTE Standards Unpacking  
Ag Processing Technology***

**Course:** Ag Processing Technology

**Course Description:** Ag Processing Technology highlights the raw commodity and its journey to consumer-ready, value-added products. Utilizing appropriate equipment, technology, mathematics, science and English, may enhance classroom and laboratory content and human relations skills will be reinforced in the course. Work-based learning strategies appropriate for this course are school-based enterprises, field trips and internships. Opportunities for application of clinical and leadership skills are provided by participation in FFA through activities, conferences and skills competitions such as the Food Science Career Development Event (CDE), Meat Evaluation CDE and Milk Quality and Products CDE. Each student will be expected to maintain a Supervised Agricultural Experience (SAE).

**Career Cluster:** Agriculture, Food, and Natural Resources

**Prerequisites:** Recommended: Introduction to AFNR

**Program of Study Application:** Ag Processing Technology (Food and Fiber) is a second pathway course in the Agriculture, Food and Natural Resources cluster, Food Product and Processing Systems pathway. Ag Processing Technology (Food and Fiber) would follow Food Science and would prepare a student to participate in Ag Biotechnology or a capstone experience.

<b>INDICATOR #AgP 1: Examine the makeup of the food processing industry.</b>		
<b>SUB-INDICATOR 1.1 (Webb Level: 3 Strategic Thinking):</b> Investigate the evolution of the food processing industry.		
<b>SUB-INDICATOR 1.2 (Webb Level: 2 Skill/Concept):</b> Discuss how food safety is addressed in the food processing industry.		
<b>SUB-INDICATOR 1.3 (Webb Level: 1 Recall):</b> Explain how regulatory agencies in the food industry work to protect consumers.		
<p><b>Knowledge (Factual):</b></p> <ul style="list-style-type: none"> <li>-Know historical and current trends in the food processing industry</li> <li>-Environmental and safety concerns of the food supply</li> <li>-HACCP and GMP (Good Management Practices) guidelines</li> <li>-Industry standards in the food products and</li> </ul>	<p><b>Understand (Conceptual):</b></p> <ul style="list-style-type: none"> <li>-Influence of GMO's and irradiated food</li> <li>-Paraphrase United States Department of Agriculture recall classifications</li> </ul>	<p><b>Do (Application):</b></p> <ul style="list-style-type: none"> <li>-Differentiate how research and industry developments lead to improvements in the food processing industry</li> <li>-Explain an appropriate industry response to consumer concerns to assure a safe and wholesome food supply</li> <li>-Identify important food</li> </ul>

processing industry		regulations from the Food and Drug Administration
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**Benchmarks:**

*Students will be assessed on their ability to:*

- Identify unsafe food handling practices.
- Write a response to a consumer complaint addressing a food quality issue.
- Write a report as to how consumer trends have influenced food processing.
- Create a timeline tracing the creation of a new food additive through approval by the FDA.

**Academic Connections**

<p><b>ELA Literacy and/or Math Standard (if applicable, Science and/or Social Studies Standard):</b></p> <p>English: 9-12 W.6 – Use technology, including the internet, to produce an individual writing product.</p>	<p><b>Sample Performance Task Aligned to the Academic Standard(s):</b></p> <p>Write a research paper explaining the influence of the USDA, FDA, and other regulatory agencies on the food processing industry.</p>
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**INDICATOR #AgP 2: Demonstrate operational procedures used in the food industry.**

**SUB-INDICATOR 2.1 (Webb Level: 2 Skill/Concept):** Translate regulatory procedures as they apply to food processing.

**SUB-INDICATOR 2.2 (Webb Level: 2 Skill/Concept):** Demonstrate worker safety procedures for food processing equipment.

<p><b>Knowledge (Factual):</b> -Know the purpose of Good Manufacturing Practices (GMP)  -Know the procedures needed to eliminate possible contamination hazards</p>	<p><b>Understand (Conceptual):</b> -Understand the importance of Sanitation Standard Operating Procedures (SSOP)  -Understand the proper safety standards that must be observed in facility design and equipment uses  -Understand the reasons for</p>	<p><b>Do (Application):</b> -Describe contamination hazards (physical, chemical, biological) associated with food processing -Report on the SSOP and GMP of a food products and processing company  -Paraphrase the seven principles of Hazard</p>
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	using a planned maintenance program for facilities and equipment	Analysis and Critical Control Point (HACCP)
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**Benchmarks:**

*Students will be assessed on their ability to:*

- Outline guidelines for personnel safety in a food processing environment.
- Discuss how the seven principles of HACCP can be implemented.
- Use a detailed facility diagram to determine the implementation of safety procedures.

**Academic Connections**

<p><b>ELA Literacy and/or Math Standard (if applicable, Science and/or Social Studies Standard):</b></p> <p>English: 9-12 SL.4 - Presenting information, findings, and evidence conveying a clear perspective.</p>	<p><b>Sample Performance Task Aligned to the Academic Standard(s):</b></p> <p>Present a mock safety lesson for the safe use of food processing equipment and/or utensils.</p>
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**INDICATOR #AgP 3: Process foods for storage, distribution and consumption.**

**SUB-INDICATOR 3.1 (Webb Level: 1 Recall):** Classify processed food products.

**SUB-INDICATOR 3.2 (Webb Level: 2 Skill/Concept):** Utilize industry harvesting, selection and inspection techniques.

**SUB-INDICATOR 3.3 (Webb Level: 1 Recall):** Describe the steps involved with producing various food products.

**SUB-INDICATOR 3.4 (Webb Level: 4 Extended Thinking):** Process food safely.

<p><b>Knowledge (Factual):</b></p> <ul style="list-style-type: none"> <li>-Know what meat, egg, poultry, fruit, vegetable, and grain crops are grown in South Dakota</li> <li>-Identify foods derived from meat, egg, poultry, fish and dairy products</li> <li>-Identify products derived from fruits, nuts and vegetables</li> <li>-Identify products</li> </ul>	<p><b>Understand (Conceptual):</b></p> <ul style="list-style-type: none"> <li>-Understand the steps needed for producing &amp; processing foods sold as fresh-food products</li> <li>-What value added products are produced in South Dakota</li> <li>-Understand the steps in the humane animal slaughter process</li> </ul>	<p><b>Do (Application):</b></p> <ul style="list-style-type: none"> <li>-Explain desirable qualities of processed meat, egg, poultry, fish and dairy products</li> <li>-Describe products derived from grains, legumes and oilseeds</li> <li>-Identify methods of food preservation and give</li> </ul>
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<p>derived from grains, legumes and oilseeds</p> <p>-Know common weights and measures used in the food processing industry</p>	<p>-Understand the techniques involved in safe harvesting and transportation of food products for human consumption</p>	<p>examples of foods preserved by each method</p> <p>-Discuss techniques for preparing ready-to-eat food products</p> <p>-Recognize materials and methods of food packaging and presentation</p> <p>-Identify storage conditions to preserve product quality</p> <p>-Preserve fruits and vegetables</p>
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**Benchmarks:**

*Students will be assessed on their ability to:*

- Process meat, poultry, dairy, grains, eggs, and honey.
- Identify different types of cheese by sight and tasting.
- Safely and properly prepare meat, poultry, and eggs.

***Academic Connections***

<p><b>ELA Literacy and/or Math Standard (if applicable, Science and/or Social Studies Standard):</b></p> <p>English:</p> <p>1) 9-12 SL.4 - Presenting information, findings, and evidence conveying a clear perspective.</p> <p>2) 9-12 W.2 – Write to inform/explain, to examine and convey complex ideas.</p>	<p><b>Sample Performance Task Aligned to the Academic Standard(s):</b></p> <p>-Research a grain crop grown in SD and give an oral presentation.</p> <p>-Write a report and summarize the equipment, technology and safety procedures from the field trip to John Morrell's in Sioux Falls.</p>
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**INDICATOR #AgP 4: Develop employability skills related to the Food Product and Processing Systems.**

<p><b><i>SUB-INDICATOR 4.1 (Webb Level: 2 Skill/Concept):</i></b> Develop soft skills to enhance employability.</p>		
<p><b>Knowledge (Factual):</b></p> <ul style="list-style-type: none"> <li>-Knowledge of employability skills</li> <li>-Personality assessments</li> <li>-Careers in Ag Processing</li> </ul>	<p><b>Understand (Conceptual):</b></p> <ul style="list-style-type: none"> <li>-Proper verbal and non-verbal communication skills</li> <li>-Conflict resolution</li> <li>-Develop interviewing skills</li> <li>-Understand importance of punctuality and attendance</li> </ul>	<p><b>Do (Application):</b></p> <ul style="list-style-type: none"> <li>-Create a resume</li> <li>-Complete a job application</li> <li>-Work as a team to solve problems</li> <li>-Write cover letters</li> <li>-Job shadow industry professionals</li> </ul>
<p><b>Benchmarks:</b>  <i>Students will be assessed on their ability to:</i></p> <ul style="list-style-type: none"> <li>• Participate in a mock job interview.</li> <li>• Evaluate student's cover letter and resume.</li> </ul>		
<p><b><i>Academic Connections</i></b></p>		
<p><b>ELA Literacy and/or Math Standard (if applicable, Science and/or Social Studies Standard):</b></p> <p>English:</p> <p>1) 9-12 SL.1 - Participate in a range of collaborative discussions with diverse partners, building on other's ideas and expressing one's own.</p> <p>2) 9-12 W.2 – Write to inform/explain, to examine and convey complex ideas.</p>	<p><b>Sample Performance Task Aligned to the Academic Standard(s):</b></p> <ul style="list-style-type: none"> <li>-Discuss proper methods of safe food preservation.</li> <li>-Research and create a paper describing methods of preparing ready-to-eat food products.</li> </ul>	

**Additional Resources:**



Please list any resources (e.g., websites, teaching guides, etc.) that would help teachers as they plan to teach these new standards.

*How It's Made* episodes

*Modern Marvels* episodes (Cheese, Milk, Candy, Ice Cream, The Butcher, Harvesting, Harvesting 2, Snackfood Tech, Fast Food Tech, Food Truck, Mega Meals)

*Dirty Jobs* episodes

Food Science CDE

Ag Processing Proficiency

Agriscience Fair - Food Products and Processing Category

Participate in the Meat Evaluation CDE

Participate in the Milk Quality and Products CDE

Participate in the Food Science CDE

Participate in the Agriscience Fair Food Products & Processing Systems Category