
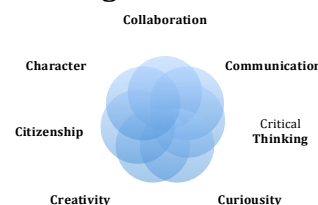


Content Area: Agriscience	Course: Ag Production Year A	Grade Level: 11/12
	<b>R14 The Seven Cs of Learning</b> 	
Unit Titles	Length of Unit	
• Dairy Industry Overview	1-2 weeks	
• Dairy Selection	1-2 weeks	
• Mammary System	2-3 weeks	
• Dairy Facility Design	3-4 weeks	
• Dairy Feeds and Nutrition	2-3 weeks	
• Dairy Health & Reproduction	3-4 weeks	
• Supervised Agricultural Experience (SAE) Proficiencies	1-2 weeks	
• Livestock Industry Overview	1-2 weeks	
• Livestock Facility Design	3-4 weeks	
• Livestock Feeds and Nutrition	2-3 weeks	
• Livestock Health and Reproduction	3-4 weeks	
• Livestock Marketing	2-3 weeks	



Strands	Course Level Expectations
<b>Dairy Management</b>	<ul style="list-style-type: none"> <li>• Demonstrate competence in the application of scientific principles and practices to the production and management of dairy cattle.</li> <li>• Understand the industry scope, selection, mammary system, facility design, feeds, nutrition, health and reproduction of dairy cattle.</li> </ul>
<b>Livestock Industry</b>	<ul style="list-style-type: none"> <li>• Understand that the Livestock Industry is one of the largest animal based agricultural sectors of the U.S. economy. Therefore, understanding the importance of sound management is crucial to continued viability.</li> <li>• The U.S. Livestock Industry is a global leader for food production, human nutrition, and economic stability. The components of the industry lead to economic success on a local, national and global scale.</li> </ul>
<b>Livestock Health</b>	<ul style="list-style-type: none"> <li>• Provide for the proper health care of animals.</li> <li>• Diagnosing any injury or illness means observing, examining, testing and solving based on knowledge and scientific research.</li> </ul>

<b>Unit Title</b>	<b>Dairy Industry Overview</b>	<b>Length of Unit</b>	1-2 weeks
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<b>Inquiry Questions</b> (Engaging & Debatable)	<ul style="list-style-type: none"> <li>• Why is learning about the Dairy Industry important?</li> <li>• How does the U.S. Dairy Industry impact the world?</li> </ul>
<b>Standards*</b>	<p><b>Animal Science Standards (AS)</b></p> <p><b>AS.01.</b> Analyze historic and current trends impacting the animal systems industry.</p> <p><b>AS.01.01.</b> Evaluate the development and implications of animal origin, domestication and distribution on production practices and the environment.</p>
<b>Unit Strands &amp; Concepts</b>	<p>Using the school sawmill the students will apply skills learned in safety, forest products production, equipment operation and teamwork.</p> <p>Breed differences, number of cows, number of farms, types of operations, milk marketing systems, global milk production, dairy products production and marketing</p>
<b>Key Vocabulary</b>	<p>Holstein, Jersey, Guernsey, Ayrshire, Brown Swiss, Milking Shorthorn, cooperatives, milk supply, components, somatic cell counts, protein and fat, dairy products, Federal Farm Bill legislation, milk markets</p>

\* The agriculture, food and natural resources (AFNR) industry standards

<b>Unit Title</b>	Dairy Industry Overview	<b>Length of Unit</b>	1-2 weeks
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<b>Critical Content:</b> My students will <b>Know</b> ...	<b>Key Skills:</b> My students will be able to <b>(Do)</b> ...
<ul style="list-style-type: none"> <li>• components of sound management in the dairy industry</li> <li>• how the U.S. Dairy Industry is a global leader for food production, human nutrition, and economic stability.</li> <li>• the components of the industry that lead to economic success on a local, national and global scale.</li> <li>• different types of breeds</li> <li>• different farm sizes</li> <li>• marketing systems for milk</li> <li>• ways milk is produced globally</li> </ul>	<ul style="list-style-type: none"> <li>• identify the major breeds of dairy cattle, including their characteristics, origin and impact on the dairy industry</li> <li>• describe the U.S. dairy industry on the local, state and national level and how it relates to producing food on a global scale</li> <li>• perform a dairy breed project</li> <li>• explain ways to market milk systems</li> <li>• explain how dairy products are produced</li> </ul>
<b>Assessments:</b>	<ul style="list-style-type: none"> <li>• Formative and Interim Assessments</li> <li>• Performance Assessment: Dairy Breed Project</li> </ul>
<b>Teacher Resources:</b>	❖ Various Primary Industry Resources

<b>Unit Title</b>	<b>Dairy Selection</b>	<b>Length of Unit</b>	1-2 weeks
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<b>Inquiry Questions (Engaging &amp; Debatable)</b>	<ul style="list-style-type: none"> <li>• Why don't all cows look the same?</li> <li>• How do these differences affect their life span and production?</li> </ul>
<b>Standards</b>	<p><b>Animal Systems (AS):</b>  <b>AS.02.</b> Performance Element: Classify, evaluate, select, and manage animals based on anatomical and physiological characteristics.  <b>AS.02.02.</b> Performance Indicator: Apply principles of comparative anatomy and physiology to uses within various animal systems.  <b>AS.02.03.</b> Performance Indicator: Select animals for specific purposes and maximum performance based on anatomy and physiology.</p>
<b>Unit Strands &amp; Concepts</b>	Linear Evaluation, Sire Selection, Pedigree Analysis, Field Trips for Live Selection
<b>Key Vocabulary</b>	Type Traits Evaluation, Classification, Bull Proofs, Genetic Selection, Line Breeding, Outcross Breeding, Sire Selection, Linear Evaluation, USDA Sire Summaries, Pedigree Evaluation

<b>Unit Title</b>	Dairy Selection	<b>Length of Unit</b>	1-2 weeks
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<b>Critical Content:</b> My students will <b>Know</b> ...	<b>Key Skills:</b> My students will be able to <b>(Do)</b> ...
<ul style="list-style-type: none"> <li>• differences are categorized into dairy strength, feet and legs, rump, frame, and udder. These characteristics are evaluated and rated based on the breed ideal.</li> <li>• structural correctness enables the cow to maximize production, produce more offspring, and produce more milk. Increased longevity increases profit.</li> </ul>	<ul style="list-style-type: none"> <li>• accurately evaluate and score a dairy cow based on industry and USDA standards</li> <li>• select the best bull to mate to a cow to correct her structural faults</li> <li>• analyze a USDA bull proof</li> <li>• accurately select and place a group of cows from best to worst</li> <li>• defend their dairy cattle selection using oral reasons techniques.</li> <li>• evaluate a dairy cow pedigree for strengths and weaknesses</li> </ul>

<b>Assessments:</b>	<ul style="list-style-type: none"> <li>• Formative and Interim Assessments</li> <li>• Performance Assessment: Dairy Cattle Evaluation Project</li> </ul>
<b>Teacher Resources:</b>	❖ Various Primary Industry Resources

<b>Unit Title</b>	Mammary System	<b>Length of Unit</b>	2-3 weeks
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<b>Inquiry Questions (Engaging &amp; Debatable)</b>	<ul style="list-style-type: none"> <li>• Why is the udder so important?</li> <li>• How can we ensure that every cow in the herd produces quality milk?</li> </ul>
<b>Standards</b>	<p><b>Animal Systems (AS):</b>  <b>AS- 02:</b> Explain how the components and systems of animal anatomy and physiology relate to the production and use of animals.  <b>AS-03</b> Evaluate and select animals to maximize performance based on anatomical and physiological characteristics that affect health, growth and reproduction.</p>
<b>Unit Strands &amp; Concepts</b>	Anatomy, Physiology, Milk Let Down, Milking Procedure, Milk Marketing
<b>Key Vocabulary</b>	Fore Udder, Rear Udder, Medial Suspensory Ligament, Teat Ends, Sphincter Muscle, Streak Canal, Alveoli, Milk Letdown, Oxytocin, Adrenaline, Cow Comfort, Fore stripping, Teat dip, Teat cup, Milking Cluster, Vacuum Hose, Milk Line, Bulk Tank, Inflations, Milk Filter, Milking Parlor, Robotic Milkers, Mastitis

<b>Unit Title</b>	Mammary System	<b>Length of Unit</b>	2-3 weeks
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<b>Critical Content:</b> My students will <b>Know</b> ...	<b>Key Skills:</b> My students will be able to <b>(Do)</b> ...
<ul style="list-style-type: none"> <li>• a functionally correct udder will produce large quantities of high quality milk for several lactations extending the life of the cow.</li> <li>• proper milking procedure coupled with sound milking management practices will ensure longevity, high quality product and increased profit.</li> </ul>	<ul style="list-style-type: none"> <li>• be able to properly prep and milk a cow with a machine</li> <li>• be able to set up, operate and clean up a milking system</li> <li>• identify all parts of a milking machine</li> <li>• perform a California Mastitis test</li> <li>• perform a Snap Test for Antibiotic Milk residue</li> <li>• correctly dry treat a cow</li> </ul>

<b>Assessments:</b>	<ul style="list-style-type: none"> <li>• Formative and Interim Assessments</li> <li>• Performance Assessment: Milking System Design Project</li> </ul>
<b>Teacher Resources:</b>	❖ Various Primary Industry Resources



<b>Unit Title</b>	Dairy Facility Design	<b>Length of Unit</b>	3-4 weeks
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<b>Inquiry Questions (Engaging &amp; Debatable)</b>	<ul style="list-style-type: none"> <li>• Why are dairy cows housed differently?</li> <li>• Where do cows get milked?</li> <li>• How does design effect production?</li> </ul>
<b>Standards</b>	<p><b>Animal Systems (AS):</b>  <b>AS.07:</b> Select animal facilities and equipment that provide for the safe and efficient production, housing and handling of animals.  <b>AS.07.01:</b> Design animal housing, equipment and handling facilities for the major systems of animal production.  <b>AS.07.02:</b> Comply with government regulations and safety standards for facilities used in animal production.</p>
<b>Unit Strands &amp; Concepts</b>	Housing Climate and Breed, Different Milking Systems, Designing a Dairy Farm Operation, Tie Stall, Loose Housing, Milking Parlors, Robotic Milking Systems, Milking System Designs
<b>Key Vocabulary</b>	Tie stall, pipeline, rotary parlor, herringbone parlor, rapid exit parlor,, free stall, bedded pack housing, ventilation, bedding sand, chopped straw, sawdust, crowd gate, holding area, bunk space, headlocks, hospital area

<b>Unit Title</b>	Dairy Facility Design	<b>Length of Unit</b>	3-4 weeks
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<b>Critical Content:</b> My students will <b>Know</b> ...	<b>Key Skills:</b> My students will be able to <b>(Do)</b> ...
<ul style="list-style-type: none"> <li>the type of housing used depends on climate, size of herd, breed, location, labor availability, feed availability, and economic efficiency.</li> <li>cows are milked in tie stalls, herringbone parlors, rapid exit parlors, parallel parlors, and rotary parlors. The type of milking system chosen depends on the type of housing.</li> <li>housing design needs to address cow comfort, efficiency of labor, and ease of handling in order to maximize production and profit.</li> </ul>	<ul style="list-style-type: none"> <li>be familiar with the various types of dairy farm housing designs</li> <li>understand the comfort needs for dairy cows, including calves, yearlings and milking cows and dry cows.</li> <li>determine the advantages and disadvantages of the different types of milking systems, including pipelines, herringbone parlors, side-opening parlors, rotary parlors and robotic milking systems.</li> <li>describe the differences between conventional dairy barns found in the Northeast and dry lot dairying in other regions of the country depending on climate.</li> <li>design a complete dairy farm operation for all ages of dairy cattle.</li> </ul>

<b>Assessments:</b>	<ul style="list-style-type: none"> <li>Formative and Interim Assessments</li> <li>Performance Assessment: Dairy Farm Design Project</li> </ul>
<b>Teacher Resources:</b>	❖ Various Primary Industry Resources

<b>Unit Title</b>	<b>Dairy Feeds and Nutrition</b>	<b>Length of Unit</b>	2-3 weeks
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<b>Inquiry Questions (Engaging &amp; Debatable)</b>	<ul style="list-style-type: none"> <li>• Why is nutrition so important?</li> <li>• How do different feeding programs affect production?</li> <li>• How are the nutritional needs of different ages of dairy cows determined?</li> </ul>
<b>Standards</b>	<p><b>Animal Systems (AS):</b>  <b>AS.04:</b> Apply principles of animal nutrition to ensure the proper growth, development, reproduction and economic production of animals. <b>AS.04.01.</b> Performance Indicator: Formulate feed rations to provide for the nutritional needs of animals. <b>AS.04.02.</b> Performance Indicator: Formulate and administer animal supplements, animal feed additives and growth promotes in animal production.</p>
<b>Unit Strands &amp; Concepts</b>	Essential Nutrients, Ruminant Digestive System, Parts and Function, Feed Grains, Roughages and Supplements, Types of Feed and Forages, digestion, Efficiency and profit
<b>Key Vocabulary</b>	Ruminant, rumen, reticulum, omasum, abomasum, regurgitation, cud, feed grains, by-product feeds, forages, haylage, corn silage, beet pulp, supplements, bunker silos, upright silos, ag bags, wrapped baleage, round bales, Total Mixed Rations (TMR), milk replacer, dry matter intake.

<b>Unit Title</b>	Dairy Feeds and Nutrition	<b>Length of Unit</b>	2-3 weeks
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<b>Critical Content:</b> My students will <b>Know</b> ...	<b>Key Skills:</b> My students will be able to <b>(Do)</b> ...
<ul style="list-style-type: none"> <li>• nutrition affects how the animal lives, grows and reproduces, and it also affects the quality of the food we eat.</li> <li>• feed types, harvest methods, and storage facilities directly impact cow health and production throughout their lives which in turn will maximize efficiency and profit.</li> </ul>	<ul style="list-style-type: none"> <li>• understand the parts of the ruminant digestive systems and their functions</li> <li>• identify the different feed grains, roughages and by-product feeds fed to dairy calves, heifers, lactating cows and dry cows.</li> <li>• be familiar with the various types of feed and forage storage and handling systems used on dairy farms</li> <li>• be able to formulate a nutritional ration for calves, heifers, lactating cows and dry cows.</li> </ul>

<b>Assessments:</b>	<ul style="list-style-type: none"> <li>• Formative and Interim Assessments</li> <li>• Performance Assessment: Dairy Feed Ration Project</li> </ul>
<b>Teacher Resources:</b>	❖ Various Primary Industry Resources

<b>Unit Title</b>	<b>Dairy Health and Reproduction</b>	<b>Length of Unit</b>	3-4 weeks
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<b>Inquiry Questions (Engaging &amp; Debatable)</b>	<ul style="list-style-type: none"> <li>• What are signs of a problem and how can we determine an effective solution?</li> <li>• How does understanding the inner working of the reproductive system help me understand dairy management?</li> </ul>
<b>Unit Strands &amp; Standards</b>	<p><b>Animal Systems (AS):</b>  <b>AS.03:</b> Provide for the proper health care of animals.  <b>AS.03.01:</b> Prescribe and implement a prevention and treatment program for animal diseases, parasites and other disorders. <b>AS.03.02:</b> Provide for the biosecurity of agricultural animals and production facilities. <b>AS.05:</b> Evaluate and select animals based on scientific principles of animal production. <b>AS.05.01:</b> Evaluate the male and female reproductive systems in selecting animals. <b>AS.05.02:</b> Evaluate animals for breeding readiness and soundness. <b>AS.05.03:</b> Apply scientific principles in the selection and breeding of animals.</p>
<b>Concepts</b>	Diseases, Diagnosis, Prevention, Treatment, Reproductive Parts and Functions, Artificial Insemination, Embryo Transfer
<b>Key Vocabulary</b>	Genetics, Heredity, Heritability, Line Breeding, Zoonotic Disease, Vaccination, Shipping Fever, Brucellosis, Mastitis, Ringworm, Mange, Foot Rot, Uterus, Cystic Ovary, Corpus Luteum, Estrus, Proestrus, Metestrus, Diestrus, Pregnancy Detection, Ultrasound, Embryo Transfer, In-Vitro Fertilization, Semen Quality, Artificial insemination, Liquid Nitrogen

<b>Unit Title</b>	Dairy Health and Reproduction	<b>Length of Unit</b>	3-4 weeks
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<b>Critical Content:</b> My students will <b>Know</b> ...	<b>Key Skills:</b> My students will be able to <b>(Do)</b> ...
<ul style="list-style-type: none"> <li>diagnosing any injury or illness means observing, examining, testing and solving based on knowledge and scientific research.</li> <li>understanding the inner workings of reproduction will allow for better understanding of herd reproductive management as it relates to increased production and profit.</li> </ul>	<ul style="list-style-type: none"> <li>be familiar with the most common dairy cattle diseases and health issues and how to prevent, diagnose and treat them.</li> <li>develop a health-monitoring program for a herd of dairy cattle, including calves, heifers, lactating cows and dry cow management.</li> <li>understand the reproductive system of dairy cattle, including the parts of the system, heat cycles and embryo transfer.</li> <li>develop a herd breeding and reproduction management plan for heifers, lactating cows and dry cows.</li> </ul>

<b>Assessments:</b>	<ul style="list-style-type: none"> <li>Formative and Interim Assessments</li> <li>Performance Assessment: Dairy Health and Disease Project and Dairy Reproduction Project</li> </ul>
<b>Teacher Resources:</b>	❖ Various Primary Industry Resources

<b>Unit Title</b>	SAE Proficiency	<b>Length of Unit</b>	1-2 weeks
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<b>Inquiry Questions (Engaging Debatable):</b>	<ul style="list-style-type: none"> <li>• How does record keeping relate to evaluation of goals?</li> <li>• How does a student quantify growth?</li> <li>• How does a student describe and document success?</li> </ul>
<b>Standards</b>	<p><b>Career Ready Practices (CRP):</b></p> <p><b>CRP.01.</b> Act as a responsible and contributing citizen and employee.</p> <p><b>CRP.01.01.</b> Model personal responsibility in the workplace and community</p> <p><b>CRP.01.02</b> Evaluate and consider the near-term and long-term impacts of personal and professional decisions on employers and community before taking action.</p> <p><b>CRP.01.03.</b> Identify and act upon opportunities for professional and civic service at work and in the community.</p> <p><b>CRP.02.</b> Apply appropriate academic and technical skills.</p> <p><b>CRP.02.01.</b> Use strategic thinking to connect and apply academic learning, knowledge and skills to solve problems in the workplace and community.</p> <p><b>CRP.02.02.</b> Use strategic thinking to connect and apply technical concepts to solve problems in the workplace and community.</p>
<b>Unit Strands &amp; Concepts</b>	Record keeping, Descriptive writing, Evaluation of goals and success,
<b>Key Vocabulary</b>	Proficiency, financial report, income, expenses, career success, placement, scope, expenditures, gross earnings, net earnings, liabilities, net worth

<b>Unit Title</b>	SAE Proficiency	<b>Length of Unit</b>	1-2 weeks
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<b>Critical Content: My students will Know...</b>	<b>Key Skills: My students will be able to (Do)...</b>
<ul style="list-style-type: none"> <li>• utilize AET</li> <li>• describe and explain the student's' SAE</li> <li>• calculate hours worked and money earned</li> <li>• list skills and identify growth</li> <li>• calculate gross and net income</li> <li>• evaluate goals</li> </ul>	<ul style="list-style-type: none"> <li>• create a comprehensive PowerPoint presentation</li> <li>• create a expense report and earning report</li> <li>• write descriptive paragraphs</li> <li>• assemble a collage</li> <li>• create a resume</li> <li>• describe and quantify success</li> </ul>

<b>Assessments:</b>	<ul style="list-style-type: none"> <li>• <b>Formative and Interim Assessments</b></li> <li>• <b>Summative:</b>Final Submission of Proficiency Application. Grades with the National FFA rubric</li> <li>• <b>Performance Assessment:</b> SAE PowerPoint Presentation</li> </ul>
<b>Teacher Resources:</b>	<ul style="list-style-type: none"> <li>❖ Various Primary and Industry Resources</li> <li>❖ National FFA</li> <li>❖ AET</li> </ul>



<b>Unit Title</b>	<b>Livestock Industry Overview</b>	<b>Length of Unit</b>	1-2 weeks
<b>Inquiry Questions</b> (Engaging & Debatable)	<ul style="list-style-type: none"> <li>• Why is learning about the Livestock Industry important?</li> <li>• How does the U.S. Livestock Industry impact the world?</li> </ul>		
<b>Standards</b>	<b>Animal Systems (AS):</b> <b>AS.01.</b> Analyze historic and current trends impacting the animal systems industry. <b>AS.01.01.</b> Evaluate the development and implications of animal origin, domestication and distribution on production practices and the environment.		
<b>Unit Strands &amp; Concepts</b>	Introduction to the Livestock Industry, Breed Identification and Local, National and Global Scope of the Beef, Sheep and Swine Industry.		
<b>Key Vocabulary</b>	Angus, Hereford, Limousin, Charolais, Simmental, Shorthorn, Yorkshire, Hampshire, Duroc, Chester White, Landrace, Suffolk, Merino, Southdown, Hampshire, feeder pig, feeder lamb, feeder calf, market hog, market lamb, market steer, cow-cow operation, vertical integration, feedlot, purebred, Commercial operation, farrow to finish operation, consignment sale, auction		

<b>Unit Title</b>	Livestock Industry Overview	<b>Length of Unit</b>	1-2 weeks
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<b>Critical Content:</b> My students will <b>Know</b> ...	<b>Key Skills:</b> My students will be able to <b>(Do)</b> ...
<ul style="list-style-type: none"> <li>the Livestock Industry is one of the largest animal based agricultural sectors of the U.S. economy. Therefore, understanding the importance of sound management is crucial to continued viability.</li> <li>the U.S. Livestock Industry is a global leader for food production, human nutrition, and economic stability. The components of the industry lead to economic success on a local, national and global scale.</li> </ul>	<ul style="list-style-type: none"> <li>identify the major breeds of beef, sheep and swine, including their characteristics, origin and impact on the livestock industry</li> <li>describe the U.S. livestock industry on the local, state and national level and how it relates to producing food on a global scale</li> </ul>

<b>Assessments:</b>	<ul style="list-style-type: none"> <li>Formative and Interim Assessments</li> <li>Performance Assessment: Beef, Sheep and Swine Breed Project</li> </ul>
<b>Teacher Resources:</b>	❖ Various Primary Industry Resources

<b>Unit Title</b>	<b>Livestock Facility Design</b>	<b>Length of Unit</b>	3-4 weeks
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<b>Inquiry Questions (Engaging &amp; Debatable)</b>	<ul style="list-style-type: none"> <li>• Why are livestock housed differently?</li> <li>• How does age affect the type of housing required?</li> <li>• How does design effect growth and production?</li> </ul>
<b>Unit Strands &amp; Standards</b>	<p><b>Animal Systems (AS):</b>  <b>AS.07:</b> Select animal facilities and equipment that provide for the safe and efficient production, housing and handling of animals. <b>AS.07.01:</b> Design animal housing, equipment and handling facilities for the major systems of animal production. <b>AS.07.02:</b> Comply with government regulations and safety standards for facilities used in animal production.</p>
<b>Concepts</b>	Total Confinement vs. Partial Confinement Systems, Proper Handling & Restraint Systems, Evaluation of Livestock Facilities by Species, Livestock Facility Design for Beef, Sheep and Swine.
<b>Key Vocabulary</b>	Total Confinement, Partial Confinement, Vertical Integration, Cow-Calf Operation, Farrow to Finish Operation, Market Lamb Operation, Pasture Management, Creep Feeder, Lambing Jug, Stocker Feeder Operation, Purebred Operation, Market Steers, Heifers, Hogs and Lambs.

<b>Unit Title</b>	Livestock Facility Design	<b>Length of Unit</b>	3-4 weeks
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<b>Critical Content:</b> My students will <b>Know</b> ...	<b>Key Skills:</b> My students will be able to <b>(Do)</b> ...
<ul style="list-style-type: none"> <li>the type of housing used depends on climate, size of operation, location, labor availability, feed availability, and economic efficiency.</li> <li>beef, sheep and swine are all raised in a variety of housing systems based upon their age and intended purpose, ranging from breeding stock to market animals, and from new born animal management to market animal management.</li> <li>housing design needs to address animal comfort, efficiency of labor, and ease of handling in order to maximize growth, production and profit.</li> </ul>	<ul style="list-style-type: none"> <li>design an animal facility, focusing on animal requirements, efficiency, safety and ease of handling.</li> <li>select equipment and implement animal handling procedures and improvements to enhance production efficiency.</li> <li>design a facility that meets standards for the legal, safe, ethical and efficient production of animals.</li> </ul>

<b>Assessments:</b>	<ul style="list-style-type: none"> <li>Formative and Interim Assessments</li> <li>Performance Assessment: Livestock Farm Design Project</li> </ul>
<b>Teacher Resources:</b>	❖ Various Primary Industry Resources

<b>Unit Title</b>	Livestock Feeds and Nutrition	<b>Length of Unit</b>	2-3 weeks
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<b>Inquiry Questions (Engaging &amp; Debatable)</b>	<ul style="list-style-type: none"> <li>• Why is nutrition so important?</li> <li>• How do different feeding programs affect production of beef, sheep and swine?</li> <li>• How are the nutritional needs of different ages of beef, sheep and swine determined?</li> </ul>
<b>Unit Strands &amp; Standards</b>	<b>Animal Systems (AS):</b> <b>AS.04:</b> Apply principles of animal nutrition to ensure the proper growth, development, reproduction and economic production of animals. <b>AS.04.01:</b> Formulate feed rations to provide for the nutritional needs of animals. <b>AS.04.02:</b> Formulate and administer animal supplements, animal feed additives and growth promotes in animal production.
<b>Unit Strands &amp; Concepts</b>	Food Nutrients, Essential Nutrients, Ruminant Digestive System, Monogastric Digestive Systems, Parts and Function, Feed Grains, Roughages and Supplements, Types of Feed and Forages
<b>Key Vocabulary</b>	Ruminant, monogastric, rumen, reticulum, omasum, abomasum, regurgitation, cud, feed grains, by-product feeds, forages, haylage, corn silage, beet pulp, supplements, bunker silos, upright silos, ag bags, wrapped baleage, round bales, feedlots, pasture management, forage crops.

<b>Unit Title</b>	Livestock Feeds and Nutrition	<b>Length of Unit</b>	2-3 weeks
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<b>Critical Content:</b> My students will <b>Know</b> ...	<b>Key Skills:</b> My students will be able to <b>(Do)</b> ...
<ul style="list-style-type: none"> <li>• nutrition affects how the animal lives, grows and reproduces, and it also affects the quality of the meat we eat.</li> <li>• feed types, harvest methods, and storage facilities directly impact livestock animal health and production throughout their lives which in turn will maximize efficiency and profit.</li> </ul>	<ul style="list-style-type: none"> <li>• understand the parts of the ruminant and monogastric digestive systems and their functions</li> <li>• identify the different feed grains, roughages and by-product feeds fed to beef, sheep and swine in purebred and commercial operations.</li> <li>• be familiar with the various types of feed and forage storage and handling systems used on livestock farms.</li> <li>• be able to formulate a nutritional ration for beef, sheep and swine for all ages.</li> </ul>

<b>Assessments:</b>	<ul style="list-style-type: none"> <li>• Formative and Interim Assessments</li> <li>• Performance Assessment: Beef, Sheep or Swine Feed Ration Project</li> </ul>
<b>Teacher Resources:</b>	❖ Various Primary Industry Resources

<b>Unit Title</b>	Livestock Health and Reproduction	<b>Length of Unit</b>	3-4 weeks
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<b>Inquiry Questions</b> (Engaging & Debatable)	<ul style="list-style-type: none"> <li>• What are signs of a problem and how can we determine an effective solution?</li> <li>• How does understanding the inner working of the reproductive system help me understand livestock management?</li> </ul>
<b>Unit Strands &amp; Standards</b>	<b>Animal Systems (AS):</b> AS.03: Provide for the proper health care of animals. AS.03.01. Performance Indicator: Prescribe and implement a prevention and treatment program for animal diseases, parasites and other disorders. AS.03.02: Provide for the biosecurity of agricultural animals and production facilities. AS.05: Evaluate and select animals based on scientific principles of animal production. AS.05.01. Performance Indicator: Evaluate the male and female reproductive systems in selecting animals. AS.05.02. Performance Indicator: Evaluate animals for breeding readiness and soundness. AS.05.03. Performance Indicator: Apply scientific principles in the selection and breeding of animals.
<b>Concepts</b>	Diseases, Diagnosis, Prevention, Treatment, Reproductive Parts and Functions, Artificial Insemination, Embryo Transfer
<b>Key Vocabulary</b>	Genetics, Heredity, Heritability, Line Breeding, Zoonotic Disease, Vaccination, Shipping Fever, Brucellosis, Mastitis, Ringworm, Mange, Foot Rot, Mange Mites, MMA Complex, Leptospirosis, Uterus, Estrus, Proestrus, Metestrus, Diestrus, Pregnancy Detection, Ultrasound, Embryo Transfer, In-Vitro Fertilization, Semen Quality, Artificial Insemination, Liquid Nitrogen

<b>Unit Title</b>	Livestock Health and Reproduction	<b>Length of Unit</b>	3-4 weeks
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<b>Critical Content:</b> My students will <b>Know</b> ...	<b>Key Skills:</b> My students will be able to <b>(Do)</b> ...
<ul style="list-style-type: none"> <li>that diagnosing any injury or illness means observing, examining, testing and solving based on knowledge and scientific research.</li> <li>the understandings the inner workings of reproduction will allow for better understanding of herd reproductive management as it relates to increased production and profit.</li> </ul>	<ul style="list-style-type: none"> <li>explain characteristics with the most common beef cattle, sheep and swine diseases and health issues and how to prevent, diagnose and treat them.</li> <li>develop a health monitoring program for a herd of beef, sheep and swine, including all ages from birth to market, as well as breeding herds.</li> <li>understand the reproductive system of beef, sheep and swine, including the parts of the system, heat cycles and embryo transfer.</li> <li>develop a beef, sheep and swine breeding and reproduction management plan for all ages of each species.</li> </ul>

<b>Assessments:</b>	<ul style="list-style-type: none"> <li>Formative and Interim Assessments</li> <li>Performance Assessment: Livestock Health and Disease Project and Livestock Reproduction Project</li> </ul>
<b>Teacher Resources:</b>	❖ Various Primary Industry Resources



<b>Unit Title</b>	<b>Livestock Marketing</b>	<b>Length of Unit</b>	2-3 weeks
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<b>Inquiry Questions</b> (Engaging & Debatable)	<ul style="list-style-type: none"> <li>• How are livestock animals marketed?</li> <li>• How do I know that beef, pork and lamb are safe for me to eat?</li> </ul>
<b>Standards</b>	<p><b>Animal Systems (AS):</b>  <b>CT-AS.06.</b> Prepare and implement animal handling procedures for the safety of animals, producers and consumers of animal products.  <b>CT-AS.06.01:</b> Demonstrate safe animal handling and management techniques.  <b>CT-AS.06.02:</b> Implement procedures to ensure that animal products are safe.  <b>CT-AS.11.01:</b> Utilize harvesting, selection and inspection techniques to obtain quality food products for processing</p>
<b>Unit Strands &amp; Concepts</b>	Live Animal Markets, Live Grading of Steers, Hogs and Lambs, Frame and Condition Scoring, Marketing of Beef, Pork and Lamb, Marketing Outlets
<b>Key Vocabulary</b>	Direct Sales, Consignment Auctions, Grading Practices, Frame Scores, Body Condition Scores, Finish, Fat Cover, Feedlot, Private Treaty Sales, Commission, RFID Tags, Tattoos, Loin Eye Scanner, Backfat Thickness Probe, Halter Breaking, Sale Barn

<b>Unit Title</b>	Livestock Marketing	<b>Length of Unit</b>	2-3 weeks
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<b>Critical Content: My students will Know...</b>	<b>Key Skills: My students will be able to (Do)...</b>
<ul style="list-style-type: none"> <li>• beef, sheep and swine are marketed through direct sales, auctions, private sales or through brokers who specialize in buying live meat animals for larger firms.</li> <li>• beef, sheep and swine sold for public consumption are required by law to be harvested in a USDA federally inspected plant in order to ensure a wholesome product.</li> </ul>	<ul style="list-style-type: none"> <li>• implement quality-assurance programs and procedures for animal production.</li> <li>• implement a program to assure the safety of animal products.</li> <li>• implement an animal and/or premises identification program.</li> <li>• compare and contrast accepted animal treatment and harvesting techniques.</li> <li>• assign quality and yield grades to food products according to industry standards.</li> <li>• explain how the components and systems of animal anatomy and physiology relate to the production and use of animals.</li> <li>• evaluate and select animals to maximize performance based on anatomical and physiological characteristics that affect health, growth and reproduction.</li> </ul>

<b>Assessments:</b>	<ul style="list-style-type: none"> <li>• Performance Assessment: Livestock Marketing Design Project</li> </ul>
<b>Teacher Resources:</b>	❖ Various Primary Industry Resources