

Advanced Livestock Production and Management

Instructional Framework

An instructional framework provides educators with a list of benchmark statements aligned to Common Core and national content area standards for a given course or program. The Missouri Advanced Livestock and Production Management Instructional Framework lists a sequence of content, organized into distinct units of instruction. Sample activities and potential Common Core related enhancements are provided.

	Common Core Standards	National Standards (AFNR)	Activities	Enhancements
A. Issues in Animal Agriculture				
1. Identify current and future issues relating to animal agriculture	SL.11-12.1 SL.11-12.2 WHST.11-12.7 WHST.11-12.8 WHST.11-12.9 S-1C.4 SL.11-12.3		1. Debate on current agricultural issues facing animal agriculture. 2. Research utilizing appropriate and reliable sources, present an oral synopsis, and discussion on current agricultural issues. 3. Survey community members on issues facing animal agriculture. 4. Presentation and discussion on video and media clips that highlight animal agricultural issues.	(WHST.11-12.8) Make sure to talk about validity of research and sources, reliable source information, strengths and limitations of sources, and avoiding plagiarism.
B. Enterprises				
1. Describe the importance of the livestock industry in Missouri	S-ID.1		1. Research and Scavenger Hunt for Current Events and create graph of comparing numbers of head of livestock in Missouri.	

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2. Select a beef enterprise based on available resources	SL.11-12.2 A-SSE.4 N-Q.1		<ol style="list-style-type: none"> 1. Create an enterprise budget for a selected species of livestock based upon current data and requirements. Budget needs to be based upon reports and interviews. 2. Create a poster highlighting the enterprise budget for selected operation. Students will be evaluated for their research, presentation, and writing. 	(SL11-12.2) Need to make sure to evaluate multiple sources of information presented in diverse formats and media and evaluate for credibility and accuracy of the data.
3. Select a dairy enterprise based on available resources				
4. Select a swine operation based on available resources				
5. Select a sheep enterprise based on available resources				
6. Select a horse enterprise based on available resources				
7. Select a poultry enterprise based on available resources				
C. Selection				
1. Use correct terminology for each species	RST.11-12.4		<ol style="list-style-type: none"> 1. Create a series of flash cards that identify parts of the livestock structure. 	
2. Identify factors in livestock and poultry production	SL.11-12.2 SL.11-12.4 SL.11-12.6 WHST.11-12.2.a WHST.11-12.2.b WHST.11-12.2.e N-Q.1		<ol style="list-style-type: none"> 1. Selecting animals utilizing EPDs and performance data. 2. Interview multiple producers who raise various types of livestock on how to select animals for breeding and production and then formulate and present findings. 	
3. Select beef animals for production and breeding	SL.11-12.2 SL.11-12.6 WHST.11-12.1		<ol style="list-style-type: none"> 1. Evaluate livestock EPDs, performance records, and visually to determine selection for production 	(WHST.11-12.1, WHST.11-12.2, WHST.11-12.7) Need to evaluate written reasons for grammar and transitions,
4. Select dairy animals for production and breeding				

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5. Select swine for production and breeding	WHST.11-12.2 WHST.11-12.7 N-Q.1		2. and breeding. Create written reasons and communication their selection process.	as well as, verbal presentation.
6. Select sheep for production and breeding				
7. Select horses for performance and breeding				
8. Select poultry for production and breeding				
D. Breeding				
1. Select and develop a breeding system for a livestock enterprise	RI.11-12.7 RST.11-12.7 RST.11-12.8 RST.11-12.9 WHST.11-12.4 WHST.11-12.7 WHST.11-12.9		1. Have students research different livestock operations in the area to find out what breeding systems are used in the area.	(WHST.11-12.5) Have students turn in a rough draft copy of their paper for evaluation of grammar and spelling and return to them after grading for revision.
2. Select a mating system for a livestock enterprise			1. Practice AI with the rendered reproductive tract of a cow. 2. Show the video “Artificial Insemination of Beef and Dairy Cattle,” available from Missouri Department of Elementary and Secondary Education – Agricultural Education. 3. Show the video “Striving for Perfection,” which discusses AI, available from Missouri Department of Elementary and Secondary Education – Agricultural Education.	

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3. Discuss the steps to be taken to ensure reproductive efficiency in beef and dairy cattle	SL.11-12.4 SL.11-12.6 WHST.11-12.2.a WHST.11-12.2.b WHST.11-12.2.e		<ol style="list-style-type: none"> 1. Obtain a rendered cow's reproductive tract from a slaughter/packing facility and have students practice feeling the different organs and parts used in pregnancy detection through rectal palpation. 2. Bring a chin ball marker and heat mount detector to class so students can see the differences in the devices and how they attach to the animals. 3. Have students talk with beef or dairy producers. Have them discuss tools which tools they use for heat detection in their animals. Why do they use these tools? Have they had bad experiences with other tools? 	(SL.11-12.4 & SL.11-12.6)- Have students present their findings to the class based upon the interview conducted with a producer.
4. Discuss the steps to be taken to ensure reproductive efficiency in swine				
5. Discuss the steps to be taken to ensure reproductive efficiency in sheep				
6. Discuss the steps to be taken to ensure reproductive efficiency in horses				
7. Discuss the steps to be taken to ensure reproductive efficiency in poultry				
E. Parturition				
1. Develop and practice production management strategies for parturition of beef and dairy cattle	RI.11-12.7 RST.11-12.7 RST.11-12.8 RST.11-12.9 WHST.11-12.4 WHST.11-12.7 WHST.11-12.9		<ol style="list-style-type: none"> 1. Have students research the signs of parturition and create a timeline. 2. Have students prepare a brochure identifying when a birth is normal or abnormal and have them discuss when to call a vet or when to help and how. 	
2. Create and implement production strategies for parturition in swine				
3. Create and implement production strategies for parturition in sheep				
4. Create and implement production strategies for parturition of horses				

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5. Create and implement production strategies for incubation and hatching management in poultry				
F. Animal Health				
1. Identify common problems associated with beef and dairy herd health	RST.11-12.1 WHST.11-12.1.a-e WHST.11-12.9 A-CED.1		<ol style="list-style-type: none"> Utilize a given chart identifying common herd and flock health problems and diseases to solve a case study scenario. Calculate the number of CCs required based upon an animal's weight and body condition. 	(SL.11-12.5, SL.11-12.6, WHST.11-12.2.a-b, WHST.11-12.2.e)-Select and research a current animal health product and create a media sales presentation and present as a representative of the animal health company.
2. Develop a health plan for beef and dairy cattle				
3. Identify common problems associated with swine herd health				
4. Develop a health plan for swine				
5. Identify problems associated with sheep flock health				
6. Develop a flock health plan for sheep				
7. Identify problems associated with horse herd health				
8. Develop a health plan for horses				
9. Identify common problems associated with poultry flock health				
10. Develop a health plan for poultry				
G. Facilities				
1. Identify facility needs for beef cattle			<ol style="list-style-type: none"> Research the prices, warranties, and structures of various types of livestock or poultry facility and handling equipment 	(SL.11-12.4, SL.11-12.6, & G-MG.3)-Create a poster illustrating the chosen facility type (drawn to scale) and present to the class.
2. Identify facility needs for dairy cattle				
3. Identify facility needs for swine				

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4. Identify facility needs for sheep			and interpret their effectiveness.	
5. Identify facility needs for horses				
6. Identify facility needs for poultry				
H. Animal Feeding				
1. Develop a feeding program	RI.11-12.7 RST.11-12.7 RST.11-12.8 RST.11-12.9 A-CED.3		1. Have students work in groups to research the nutritional requirements of the livestock and poultry species raised in the local area. 2. Develop balanced rations including various feedstuffs utilizing the Pearson square.	(SL.11-12.5, SL.11-12.6, WHST.11-12.2.a-b, & WHST.11-12.2.e) Create a commercial emphasizing proper nutrition for animals. During the commercial, it must include an interview from a local producer.
2. Identify feeding options for livestock and poultry				
I. Herd/Flock Management				
1. Develop and implement management factors for beef cattle from birth to market	RI.11-12.7 RST.11-12.7 RST.11-12.8 RST.11-12.9 SL.11-12.4 SL.11-12.6 WHST.11-12.1.a-b WHST.11-12.1.e		1. Divide the class into groups and assign each group a management practice discussed in the unit. 2. Have each group explain how its assigned management practice is correctly performed by giving an oral report and demonstration of the procedures. 3. As part of their	(WHST.11-12.6)-Students utilize social media or internet sources such as GoogleDocs to work cooperatively together. (WHST.11-12.5)-Require groups to turn in a rough draft copy to be graded for grammar, spelling and structure. Work cooperatively with an English teacher to help with
2. Develop and implement management factors for beef replacement stock				
3. Develop and implement management practices for beef cows and bulls				
4. Develop and describe management practices for dairy cattle from birth through production				

	Common Core Standards	National Standards (AFNR)	Activities	Enhancements
5. Develop and implement management practices for market swine from birth to market			<p>demonstration, students should include appropriate visual elements, such as examples or pictures of the tools and materials needed for the procedure or illustrations of how the procedure is correctly performed.</p> <p>4. Students should be prepared to answer questions regarding their presentations.</p>	revisions.
6. Make appropriate decisions for the management of swine breeding stock				
7. Develop and describe management practices for market sheep from birth to market				
8. Develop and describe management practices for sheep breeding stock				
9. Develop and describe appropriate management practices for horse production				
10. Develop and describe appropriate management practices for poultry production				
J. Marketing				

	Common Core Standards	National Standards (AFNR)	Activities	Enhancements
1. Select the appropriate marketing option for specific livestock enterprises.	SL.11-12.2		Students obtain and evaluate information on prices from various sources (DTN/USDA/Federal Reports).	(A-CED.2)-Determine the breakeven price based upon various commodities and graph for a specific livestock enterprise, compare and contrast the various sources of information. (RST.11-12.1, WHST.11-12.1.a-e WHST.11-12.9)-Develop a case study to compare and contrast livestock marketing and production costs from current day to the farm crisis of the 1980s.
K. Leadership and Personal Development for Advanced Students				
1. Develop a resume and complete a job application.	L.11-12.1 L.11-12.2 W.11-12.10		1. Develop a Resume 2. Complete Sample Job Application	
2. Develop a plan for finding a job	W.11-12.4		1. Take a Career 2. Interest Survey 3. Write a cover letter	
3. Describe how to apply and interview for a job	SL.11-12.6		1. Conduct Sample Job Interviews	
4. Describe the characteristics needed to develop desirable personal and social skills	SL.11-12.1		1. Verbal and Nonverbal Communication 2. Role Playing	
5. Describe the importance and process of developing better human relationships	SL.11-12.1		1. Role Playing 2. Group Discussion	Community Service Project

	Common Core Standards	National Standards (AFNR)	Activities	Enhancements
Unit: Explore a career area by investigating entry-level job opportunities at a local agricultural business and writing a résumé and letter of application for a position.				
L. Utilizing the Missouri Agricultural Record Book for Secondary Students				
1. Complete forms needed to open the Missouri Agricultural Record Book for Secondary Students				
2. Complete a budget for the SAE program	N-Q.1		Form 100/101 (SAE Enterprises/Agreement)	
3. Complete inventory and financial statement forms for the Missouri Agricultural Record Book for Secondary Students	N-Q.1		Complete Form 103 (Budget)	
4. Complete receipt and expenditure forms in the Missouri Agricultural Record Book for Secondary Students	N-Q.1		Complete Forms 6, 7, 8, 9, 10, 11, 12 (Financials)	
5. Complete additional forms in the Missouri Agricultural Record Book for Secondary Students	N-Q.1		Forms 1, 2, 3, 4, 5 (Income, Expenses, Cash Flow)	

Examples Aligned to Common Core Standards

The following instructional examples follow the expectations of the Advanced Livestock Production and Management Instructional Framework and align to the Common Core standards.

Common Core English Language Arts and Literacy

Research a topic of interest that has a relation to agriculture and present a ten minute demonstration to classmates and answer up to five minutes of questions.

SL.9-10.1

SL.9-10.4

WHST.9-10.2

WHST.9-10.4

WHST.9-10.5

WHST.9-10.7

Participate in a demonstration meeting following Parliamentary Procedures and present a logical, realistic, and convincing discussion based on a topic determined by the instructor.

SL.9-10.1

SL.9-10.4

As a team, deliver a product sales presentation, conducted as a one-on-one interactive sale to a prospective consumer. This presentation should include a brochure developed by the team, a sample, or a demonstrated use of the actual product for the sales presentation.

W.9-10.4

Complete a job description form, resume, and job interview practicum for an entry-level retail sales position related to agricultural sales.

W.9-10.4

Codes for the Agriculture, Food, and Natural Resources standards are:

- ABS = Agribusiness Systems
- AS = Animal Systems
- CS = Life Knowledge and Cluster Skills
- FPP = Food Products and Processing Skills
- PST = Power, Structural, and Technical System

Codes for Common Core English Language Arts and Literacy are:

- RL = Reading for Literature
- RI = Reading for Informational Text
- RST = Reading for Literacy in Science and Technical Subjects
- RH = Reading for Literacy in History/Social Studies
- W = Writing
- WHST = Writing for Literacy in History/Social Studies, Science, and Technical Subjects
- SL = Speaking and Listening
- L = Language