Large Animal Science Course Pacing Guide: Bovine Focus

This week-by-week guide helps you bring bovine care skills to life throughout the semester.

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Why this Guide?

Realityworks' bovine curricula feature over 20 hours of content. With many lessons and hands-on resources available, this pacing guide provides clear guidance on how to structure and deliver the curricula in your classroom. To simplify planning and support standards alignment, it outlines a sequence for a semester-long Large Animal Science course sequence with a bovine focus.

Instructional Tools Supported by This Guide

This pacing guide is designed to support instruction using five bovine training tools from Realityworks. Together, these hands-on resources bring reproduction, birthing, calf care, and animal husbandry skills to life in your classroom.

Supported Training Tools:

- Bovine Breeder™ artificial insemination simulator
- Bovine Birthing and Ultrasound Simulator
- Calf Simulator
- Bovine Injection Simulator
- Career Exploration Lessons & Materials

What's Inside?

- A week-by-week breakdown of which hands-on learning aids, curricula, and lessons to use
- Approximate hours of instruction
- Standards for each week

By the end of this guide, you should be well equipped to use our bovine curricula and resources in your classroom.

Tips and Resources to Help You with Planning:

- The hours listed for each quarter refer to the approximate class time it will take students to complete the listed lessons
- The weekly pacing allows time for projects, teacher instruction, student skills practice, and other hands-on activities
- This guide doesn't account for holidays, school functions, school testing, or other events that may affect your class schedule

1st Quarter	The Agriculture, Food, and Natural Resources (AFNR) Career Cluster Content Standards	Lesson Focus: Bovine Reproduction, Artificial Insemination, Calf Embryology, and Birthing	Hands-On Resource	Sample Activities Included
Week 1	Animal Systems Career Pathway Content Standards	• Cow and Bull Reproductive Systems	**Bovine Breeder™ Artificial Insemination Simulator**	• Correctly identify terms associated with cow and bull reproduction • Name, locate, and describe the functions of the parts of male and female reproductive systems • Identify the primary male and female reproductive structures and their functions
Week 2		• Basic Principles of Artificial Insemination		• Learn and understand the history of artificial insemination • Understand the advantages and disadvantages of artificial insemination • Display knowledge of the cost analysis process of artificial insemination • Experience in estrus detection and reproductive tract palpation, essential aspects of successful artificial insemination program
Week 3		• Artificial Insemination Technique		• Display knowledge of artificial insemination technique • Understand the parts and equipment needed to complete the process • Get hands-on practice with proper handling of insemination equipment, correct positioning and insertion techniques, and effective semen deposition • Demonstrate proper technique with the Bovine Breeder artificial inseminator simulator
Week 4		• Calf Embryology and Development		• Identify the stages of a calf's development • Use ultrasound to understand bovine pregnancy stages and scenarios
Week 5		• Ultrasound	**Bovine Birthing and Ultrasound Simulator**	• Use ultrasound to confirm a pregnancy and its viability within cattle • Using the birthing tract gives students hands-on practice birthing calves with a variety of calf positions and using pulling straps
Week 6		• Ultrasound		• Simulate all 14 ultrasound situations • Students can observe different bovine pregnancy and common issues, allowing for learning and understanding of ultrasound • Use the probe to find specific landmarks on the reproductive tract and teach understanding of what you are looking at during an ultrasound
Week 7		• Calving Stages and Care		• Identify the stages of calving • List and demonstrate the proper care needed for a cow and calf during calving and immediately following
Week 8		• Common Calving Problems		• Identify calf abnormalities that may cause problems during calving • List and demonstrate the proper technique of pulling a calf using straps or chains
Week 9		• Common Calving Problems		• List and demonstrate the proper technique of correcting a calf's presentation
Total Hours	**7-9 hours**			

2nd Quarter	The Agriculture, Food, and Natural Resources (AFNR) Career Cluster Content Standards	Lesson Focus: Calf Care, Bovine Injections, and Career Exploration	Hands-On Resource	Sample Activities Included
Week 1	**Animal Systems Career Pathway Content Standards**	• Animal Health Assessment	**Calf Simulator**	• Describe the characteristics of a healthy animal and the signs and methods used to assess an unhealthy animal • Provide examples of abnormalities in general animal health and relate them to the problems and illnesses they may indicate • List temperature, pulse, and respiration (TPR) rates for calves • Correctly operate a stethoscope
Week 2		• Esophageal Feeding	**Bovine Injection Simulator**	• Identify parts of an esophageal feeder and alternative names for the feeder • List and demonstrate the proper technique of administering fluids using an esophageal feeder
Week 3		• Navel Care and Castration		• Name two potential causes of swollen navels • Describe how to properly prevent swollen navels on calves • Identify the proper method of castration based on age • Demonstrate how to castrate a calf at various age levels
Week 4		• Tail Vein Injections and Blood Draws		• Name three reasons a producer and/or veterinarian might use the tail vein • Describe how to properly conduct a blood draw • Identify the location for conducting tail vein injections or draws • Demonstrate how to do a blood draw or injection using a tail vein
Week 5		• Ear Tagging and Bovine Growth Implants		• Describe where a tag should be placed • Understand the purpose of ear tagging • Demonstrate the ability to do ear tagging with the correct techniques and bovine growth implants
Week 6		• IV Administration and Jugular Injections		• Learn directional areas to miss on the neck: nuchal ligament, vertebrae, and shoulder • Practice IV administration • Practice jugular injections and withdrawals
Week 7		• Intramuscular and Subcutaneous Injections		• Maps out key body landmarks and accurately locate injection sites • Intramuscular and subcutaneous injections and withdrawals
Week 8		• Agriculture Career Exploration	**Career Exploration Lessons**	• Exposure to a wide variety of agricultural career pathways • Take a closer look at careers in animal systems with a self-assessment • Take on the role of HR specialist by dissecting related job descriptions in animal systems
Week 9		• Vet Technician Career Exploration		• Explore a variety of veterinary career options including veterinary technician, veterinary pathologist, veterinary nutritionist, zoological and exotic animal technician, and veterinary surgical technician
Total Hours	**13-17 hours**			

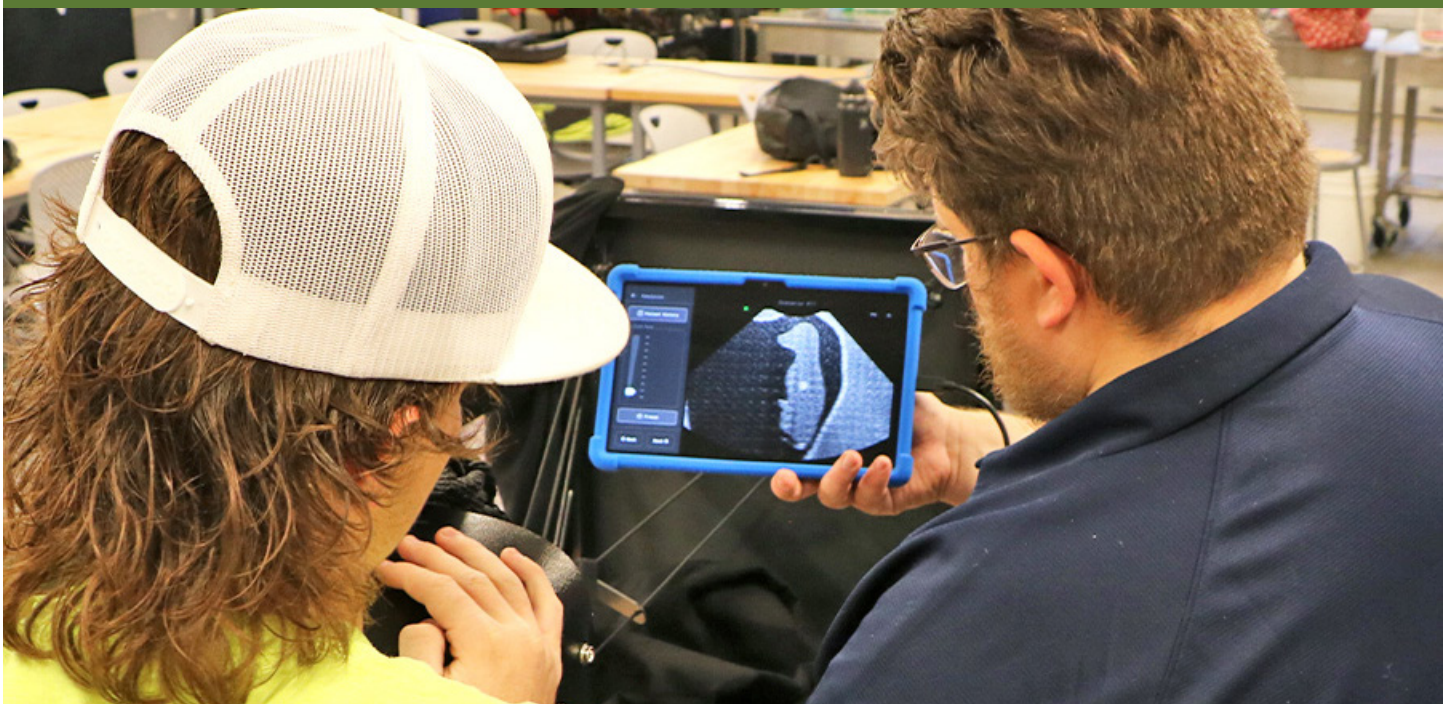
Wrapping Up Your Semester

By the time students complete the full Large Animal Science course with a bovine focus, they've developed a strong foundation in bovine reproduction, artificial insemination, calf care, and birthing. With hands-on practice woven throughout the year, your learners have taken meaningful steps toward future success in large animal science and bovine care settings.

Next Steps & Extension Opportunities

Consider expanding learning by:

- **Job shadow or field observation:** Partner with farms, artificial insemination companies, or large-animal vets so students can observe procedures like estrus detection, injections, pregnancy checks, and ultrasound use.
- **Agriculture communications task:** Students create an infographic or mini-presentation explaining the artificial insemination process or calf development to a non-agriculture audience.
- **Teach the community event or poster session:** Students present what they learned about calf embryology or birthing to younger ag students, school board members, or community agriculture groups.
- **Bovine health protocol binder:** Students build a full protocol binder including vaccination schedules, safe injection guidelines, calving prep, and newborn care steps.



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