

**EASTERN LEBANON COUNTY SCHOOL DISTRICT
STUDENT LEARNING MAP**

Course/Subject: Introduction to Agriculture
Topic: Record Keeping (SAE)

Days: 11-13 & 88-90
Grade Level: 9-12

National Standards:

- ABS.03. Performance Element: Utilize record keeping to accomplish AFNR business objectives while complying with laws and regulations.
- ABS.03. Performance Element: Apply generally accepted accounting principals and skills to manage cash budgets, credit budgets and credit for AFNR business.
- ABS.05. Performance Element: Assess accomplishment of goals and objectives by an AFNR business.





Key Learning: Students will understand why record keeping is an important life skill and how to maintain a PA FFA State Record book.



Unit Essential Question: Why is record keeping important?

Concept: Record keeping	Concept: SAE
Standards:	<p>Standards:</p> <p>Leadership and Career Development Supervised Agricultural Experience</p> <p>9.1 Develop short, mid- and long-range project plans. 9.2 Develop a Supervised Agricultural Experience (SAE) based upon individual interest and career goals. 9.3 Maintain complete and accurate records. 9.4 Analyze records to determine strengths and areas for improvement.</p> <p>CC for Writing in Science & Technical Subjects CC.3.6.9.10.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. CC.3.6.9-10.I. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p> <p>CC for English Language Arts CC.1.4.9-10.F. Demonstrate a grade appropriate command of the conventions of standard English grammer, usage, capitalization, punctuation, and spelling.</p> <p>CC for Mathematics C.C.2.2.HS.D.9 Use reasoning to solve equations and justify the</p>

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STUDENT LEARNING MAP

	solution method.	
		
<u>Lesson Essential Question:</u> Why is record keeping important?	<u>Lesson Essential Question:</u> What is an SAE?	
		
<u>Vocabulary:</u>	<u>Vocabulary:</u> Supervised Agricultural Experience Entrepreneurship Project Placement Project Improvement Project Practicum Skills Project Research Project Inventory Asset Liability	Quantity Unit Enterprise Common Pages Occupation Initiative Punctuality Net Worth Agreement

EASTERN LEBANON COUNTY SCHOOL DISTRICT
STUDENT LEARNING MAP

Course/Subject: Introduction to
Agriculture
Topic: Animal Care

Days: 4-10
Grade Level: 9-12

National Standards:

- CS.08. Performance Element: Technical Skills: Use tools, equipment, machinery and technology to work within areas related to AFNR (Agriculture, Food and Natural Resources).
- AS.03. Performance Element: Provide the proper health care of animals.
- AS.04. Performance Element: Apply principles of animal nutrition to ensure the proper growth, development, reproduction and economic production of animals.
- AS.06. Performance Element: Prepare and implement animal handling procedures for the safety of animals, producers and consumers of animal products.
- AS.07. Performance Element: Select animal facilities and equipment that provide for the safe and efficient production, housing and handling of animals.

Key Learning: Students will learn how to care for their classroom animal assignments.



Unit Essential Question: How do I keep this animal alive and healthy?

Concept: Animal Care

Standards:

Animal Science

- 2.1 Demonstrate Safe animal handling techniques for production, laboratory and recreational purposes.
- 2.2 Identify and demonstrate the proper use, maintenance and storage of livestock/poultry/laboratory animal equipment.
- 6.1 Identify species, breeds and associated products and uses.
- 7.4 Describe animal reproductive behavior.
- 9.2 Identify feed and feed components.
- 10.1 Describe normal animal behavior by species, along with causes and potential results of abnormal behavior (social, sexual, ingestive).
- 11.1 Explain the appropriate use of various animal management record keeping methods.
- 12.1 Describe housing systems.
- 12.2 Demonstrate the safe use of housing and sanitation equipment.
- 13.3 Describe preventative animal health and treatment techniques.

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CC for Writing in Science & Technical Subjects

CC.3.6.9-10.F. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation



Lesson Essential Question: How do I care for this animal?



Vocabulary:

Quick (noun)	Domesticated
Handling	Native
Sanitation	Bedding
Enrichment	Vaccine
Species	

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Course/Subject: Introduction to Agriculture
Topic: General Agriculture

Days: 14-19
Grade Level: 9-12

National Standards:

- ESS.05. Performance Element: Examine the relationships between energy sources and environmental service systems.
- FPP.01. Performance Element: Examine components of the food industry and historical development of food products and processing.
- NRS.01. Performance Element: Explain interrelationships between natural resources and humans necessary to conduct management activities in natural environments.

Key Learning: Students will learn the importance of United States Agriculture and learn what Agriculture is.



Unit Essential Question: What is Agriculture and why is it important?

Concept: Agriculture vs. Farming	Concept: USDA vs. PDA	Concept: Leading States in Production
Standards:	Standards: Food Science 2.1 Explain federal and state regulations and guidelines for food safety and inspection. 1.1 Discuss the historical significance of agriculture to U.S. and global economic strength. 1.3 Explain the current and future role agribusiness plays in the economy of the state and nation. 2.1 Identify and describe state and federal agencies that regulate business safety issues. Natural Resources Management Natural Resources Management	Standards: Food Science 1.2 Define trends in food production, world population and supply and demand for food products. 4.5 Explain food cost trends locally, regionally, nationally and internationally. Management, Economics and Marketing 1.1 Discuss the historical significance of agriculture to U.S. and global economic strength. 1.3 Explain the current and future role agribusiness plays in the economy of the state and nation.

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	11.3 Understand impacts of limited supplies of fossil fuels and cost of extraction on human activity.	
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Lesson Essential Question: What is Agriculture?	Lesson Essential Question: What are the responsibilities of the USDA and PDA?	Lesson Essential Question: Which states lead the US in Ag production?
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Vocabulary: Agriculture Farming	Vocabulary: USDA PDA Secretary of Agriculture APHIS Mission Statement Bioterrorism Renewable Fuel	Vocabulary: Ag Production

Concept: Pennsylvania & Lebanon County Agriculture	Concept: General US Ag Facts	Concept: Invasive Species
Standards: Food Science 1.2 Define trends in food production, world population and supply and demand for food products. 4.5 Explain food cost trends locally, regionally, nationally and internationally. Management, Economics and Marketing 1.1 Discuss the historical significance of agriculture	Standards: Food Science 1.2 Define trends in food production, world population and supply and demand for food products. 4.3 Recognize the importance of maintaining and expanding the food supply for the homeland and also for developing nations. 4.5 Explain food cost trends locally, regionally, nationally and internationally.	Standards: Natural Resources Management 4.1 Identify natural resources and how they are protected both voluntarily and by law. 10.3 Compare beneficial to non-beneficial insects

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<p>to U.S. and global economic strength. 1.2 Identify and describe agribusiness in the community and its importance/role in the local economy. CC for Reading in Science & Technical Subjects CC.3.5.9-10.G. Translate quantitative or technical information expressed in words in a text into visual form (e.g. ' a table or chart) and translate information expressed visually or mathmatically (e.g. ' in an equation) into words.</p>	<p>Management, Economics and Marketing Management, Economics and Marketing 1.1 Discuss the historical significance of agriculture to U.S. and global economic strength. 1.3 Explain the current and future role agribusiness plays in the economy of the state and nation. CC for Reading in Science & Technical Subjects CC.3.5.9-10.G. Translate quantitative or technical information expressed in words in a text into visual form (e.g. ' a table or chart) and translate information expressed visually or mathmatically (e.g. ' in an equation) into words.</p>	
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<p><u>Lesson Essential Question:</u> What is PA known for in Agriculture? What is Lebanon County known for in Agriculture?</p>	<p><u>Lesson Essential Question:</u> What is the profile of a typical farmer? What changes have we seen in agriculture since the 1800's?</p>	<p><u>Lesson Essential Question:</u> What is an invasive species?</p>
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<p><u>Vocabulary:</u> Crop Agritourism Pullet Pigs & Hog Laying Flock</p>	<p><u>Vocabulary:</u> Profit Disposable Income Acre Ethanol Biodiesel</p>	<p><u>Vocabulary</u> Invasive species Eradicate Exclude Control Pesticide Disease Pathogen Native</p>

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		Non-Native
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Additional Information/Resources:

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Course/Subject: Introduction to
Agriculture
Topic: Ag Careers

Days: 20-23
Grade Level: 9-12

National Standards:

CS.02.03.Performance Indicator: Professional Growth: Develop awareness and apply skills necessary for achieving career success.





Key Learning: Students will learn about all the jobs associated with Agriculture & explore their future career interests.



Unit Essential Question: What kinds of jobs are there in Agriculture?

Concept: Ag Job Categories	Concept: My Future Career
<p>Standards:</p> <p>Animal Science 3.1. Identify career opportunities in animal science</p> <p>Biotechnology 3.1 Examine career pathways in biotechnology.</p> <p>Food Science 3.1 Examine career pathways in food science.</p> <p>Forestry 3.1 Examine career pathways in forestry.</p> <p>Management, Economics and Marketing 3.1 Examine agribusiness career pathways.</p> <p>Natural Resources Management 3.1 Examine career pathways in natural resource management.</p> <p>Plant & Soil Science 3.1 Examine career pathways in plant science.</p> <p>Power & Systems Technology 3.1 Examine career opportunities in agricultural power systems and systems technologies.</p> <p>CC for Reading in Science & Technical Subjects CC.3.5.9-10.B. Determine the central ideas or conclusions of a text; trace the text's explanation</p>	<p>Standards:</p> <p>Leadership & Career Development 1.8 Research salary & benefits for a chosen career path and compare to target lifestyle. 1.9 Establish personal & professional short & long-term goals. 2.1 Research career information and resources for use in career decision-making. 2.3 Understand the necessity of continuing education and lifelong learning to enhance career ladder development. Students will cover other anchors based upon what career options they are interested in.</p> <p>CC for Writing in Science & Technical Subjects CC.3.6.9.10.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. CC.3.6.9-10.F. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple</p>

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<p>or depiction of a complex process, phenomenon, or concept' provide an accurate summary of text.</p>	<p>sources on the subject, demonstrating understanding of the subject under investigation. CC.3.6.9-10.I. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. CC for English Language Arts CC.1.4.9-10.F. Demonstrate a grade appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</p>
	
<p>Lesson Essential Question: What types of jobs deal with agriculture?</p>	<p>Lesson Essential Question: How do I prepare for my future career?</p>
	
<p>Vocabulary: Economy Agriscience Professionals Agriculture Mechanics Agriculture Supplies & Services Agricultural Processing, Products and Distribution Horticulture Renewable Natural Resources Career Working Condition</p>	<p>Vocabulary: Experience Skills Requirement Short-term goal Long-term goal</p>

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Course/Subject: Introduction to
Agriculture
Topic: Plant Science

Days: 25-45
Grade Level:
9-12

National Standards:

PS.01. Performance Indicator: Apply Knowledge of plant classification, plant anatomy and plant physiology to the production and management of plants.

PS.02. Performance Indicator: Prepare and implement a plant management plan that addresses the influence of environmental factors, nutrients and soil on plant growth.

PS.01. Performance Indicator: Propagate, culture and harvest plants.

Key Learning

Students will be able to explain how plants function, how they are used in today's culture and how to care for them.



Unit Essential Question

How do plants grow and why are they important?







Concept Importance of Plants	Concept Plant Identification	Concept How Plants Function
Standards: Plant & Soil Science 1.1 Describe the historical development of plant science. 1.4 Describe the role plant science plays in the economy of the state and nation. 1.5 1.6 Explain the psychological impact of plants on people and society.	Standards: Plant & Soil Science 9.1 Classify plants and use appropriate taxonomic terminology. 9.2 Identify plant material, including herbaceous and woody material.	Standards: Plant & Soil Science 4.1 Describe the process of photosynthesis, respiration, translocation and transpiration. 4.2 Identify cell structure, organization and function. 4.3 Identify plant structures and explain their functions.
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Lesson Essential Question Why are plants important?	Lesson Essential Question How do you tell plants apart?	Lesson Essential Question How do the parts of the plant function to keep plants growing?
↓	↓	↓
Vocabulary	Vocabulary	Vocabulary

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Plant Science Crop Aesthetics	Leaf Composition Simple Leaf Compound Leaf Leaf Arrangement Opposite Alternate Whorled Petiole Blade Midrib Veins Margins Leaf Stem Flower Roots	Epidermis Guard Cell Stoma Stomata Chloroplast Transpiration Capillary Action Respiration Photosynthesis Lenticel Xylem Phloem Sapwood Adhesion & Cohesion Heartwood Monocot Dicot Cotyledon Broadleaf Fibrous Root Tap Root
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Concept Plant Reproduction	Concept Plant Care	Concept Plant Careers
Standards: Plant & Soil Science 4.4 Identify flower structure and describe the events in pollination 4.5 Identify seeds and seed structures and explain their functions. 4.6 Explain the elements essential for germination. 5.1 Demonstrate sexual and asexual plant propagation methods. 12.2 Demonstrate safe use of plant science equipment.	Standards: Plant & Soil Science 4.7 Explain the environmental factors that affect the growth and development of a plant. 6.1 Identify plant nutrient requirements. 6.2 Select appropriate nutrient supplements to correct a specific plant nutrient deficiency. 6.3 Describe the composition of commercial fertilizers. 8.3 Explain the types of irrigation systems and techniques. 15.1 Properly identify and label plant material.	Standards: Plant & Soil Science 1.2 Determine how development of certain plant species has affected cultural development. 3.1 Examine career opportunities in plant science. 3.2 Identify advanced training in postsecondary education in plant science. Standards: Biotechnology 6.1 Describe the purposes of plant biotechnology.

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	<p>15.4 Demonstrate plant propagation techniques. 15.5 Maintain plants. (watering, pruning, fertilizing, repotting, insect, disease and weed control)</p> <p>CC for Reading in Science & Technical Subjects CC.3.5.9-10.G. Translate quantitative or technical information expressed in words in a text into visual form (e.g. a table or chart) and translate information expressed visually or mathematically (e.g. in an equation) into words.</p>	
		
<p><u>Lesson Essential Question</u> How do plants reproduce?</p>	<p><u>Lesson Essential Question</u> How do I keep this plant alive?</p>	<p><u>Lesson Essential Question</u> Why does our future depend on plant science? How can I make a living working with plants?</p>
		
<p><u>Vocabulary</u> Tuber Division Pollination Fertilization Fruit Seed Sexual Reproduction Asexual Reproduction Annual Perennial Biennial</p>	<p><u>Vocabulary</u> Nutrient Mineral Growing Media Deficiency Drip Irrigation Flooding Bench Manual Watering Frequency Fertilizer N:P:K Ratio</p>	<p><u>Vocabulary</u> Agronomy Horticulture Forestry Weed Science Applicator Groundskeeper Conversationalist Florist</p>

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Harvest Maturity Germination Propagate		
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Additional Information/Resources:

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Course/Subject: Introduction to
Agriculture
Topic: FFA

Days: 46-52
Grade Level: 9-12

National Standards:

CS.01. Performance Element: Premier Leadership: Acquire the skills necessary to positively influence others.

CS.02. Performance Element: Personal Growth: Develop a skill set to enhance the positive evolution of the whole person.

CS.03. Performance Element: Career Success: Demonstrate those qualities, attributes and skills necessary to succeed in, or further prepare for, a chosen career while effectively contributing to society.




Key Learning: Students will be able to explain basic FFA knowledge.



Unit Essential Question: What does everything associated with FFA mean?
How can FFA help me in life?

<u>Concept:</u> FFA History	<u>Concept:</u> FFA Today	<u>Concept:</u> ELCO FFA
<p>Standards: Leadership & Career Development 5.1 Identify the aims, purposes and structures of the FFA. 5.2 Explain FFA traditions & principals. 5.3 Describe the historical development of the FFA.</p>	<p>Standards: Leadership & Career Development 5.6 Understand the intracurricular connection between FFA & agriculture education. 5.2 Explain FFA traditions & principals.</p>	<p>Standards: Leadership & Career Development 5.7 Recognize the role FFA plays in personal and professional development. 5.2 Explain FFA traditions & principals.</p>
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<p>Lesson Essential Question: What is the FFA motto & mission statement? Why were the FFA colors chosen? Why does the FFA emblem represent FFA?</p>	<p>Lesson Essential Question: Why do we learn about FFA in Ag class? What is proper Official FFA dress? What do all the acronyms mean?</p>	<p>Lesson Essential Question: What is my part of opening ceremonies? How can I earn FFA Degrees? How can I earn money with FFA?</p>

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How did key historical events shape FFA as we know it today? What is the FFA creed?	Who runs FFA on the national, state, county and chapter level? How does each officer help the chapter function?	
		
Vocabulary: Cross-section Emblem Vocational	Vocabulary: Official FFA Dress SAE CDE POA	Vocabulary: Discovery Degree Greenhand Degree Chapter Degree County Degree Keystone Degree American Degree Parliamentary Law

<u>Additional Information/Resources:</u>

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Course/Subject: Introduction to Agriculture
Topic: Public Speaking

Days: 53-64 plus speech delivery later in semester
Grade Level: 9-12

National Standards:

CS.01. Performance Element: Premier Leadership: Acquire the skills necessary to positively influence others.

CS.02. Performance Element: Personal Growth: Develop a skill set to enhance the positive evolution of the whole person.

CS.03. Performance Element: Career Success: Demonstrate those qualities, attributes and skills necessary to succeed in, or further prepare for, a chosen career while effectively contributing to society.

In this unit, students are allowed to pick a controversial topic in agriculture to write a persuasive speech on. For this reason, they will learn about other standards but those standards will vary depending on what topic is chosen by the student.





Key Learning: Students will know the skills used by good public speakers and be able to deliver a speech.



Unit Essential Question: How can I become an interesting public speaker?

Concept: Public Speaking Skills	Concept: Writing a Speech
<p>Standards: Leadership & Career Development 7.1 Demonstrate effective communication skills, including oral, written, listening and questioning.</p>	<p>Standards: Leadership & Career Development 7.1 Demonstrate effective communication skills, including oral, written, listening and questioning. 7.2 Create and deliver a prepared and extemporaneous speech demonstrating proper public speaking skills and etiquette. 7.4 Demonstrate basic journalism & writing skills. 8.1 Conduct extensive research on a selected topic using a variety of sources. 8.4 Understand the importance of utilizing diverse and reliable information. CC for Writing in Science & Technical Subjects CC.3.6.9-10.A. Write arguments focused on discipline-specific content. CC.3.6.9.10.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. CC.3.6.9.10.D. Develop and strengthen writing as</p>

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	<p>needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</p> <p>CC.3.6.9-10.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.</p> <p>CC.3.6.9-10.F. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</p> <p>CC.3.6.9-10.G. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.</p> <p>CC for Reading in Science & Technical Subjects</p> <p>CC.3.5.9-10.B. Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.</p> <p>CC for English Language Arts</p> <p>CC.1.4.9-10.F. Demonstrate a grade appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</p>
	
Lesson Essential Question: How do I keep people interested in what I have to say?	Lesson Essential Question: How do I write a good speech?
	
Vocabulary:	Vocabulary: Introduction Body Main Point Conclusion

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	Works Cited Citation Annotation Source Plagiarism There Their They're Persuasive MLA
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Course/Subject: Introduction to
Agriculture
Topic: Animal Science

Days: 65-88
Grade Level: 9-12

National Standards:

AS.01. Performance Indicator: Examine the components, historical development, global implications and future trends of the animal systems industry.

AS.03. Performance Element: Provide for the proper health care of animals.

AS.04. Performance Element: Apply principals of animal nutrition to ensure the proper growth, development, reproduction and economic production of animals.




Key Learning: Students will be familiar with the basic terminology included in animal science and be able to explain how animals are an important part of American culture.



Unit Essential Question: How are animals used by people?

Concept: What is Animal Science?	Concept: Anatomy & Physiology	Concept: Animal Care
Standards: Animal Science 1.1 Identify cultural & societal uses of animals locally and globally. 1.2 Describe ways in which animals have and countinue to contribute to the standard of living. 14.1 Identify by-products of animals and thier uses. 14.3 Describe the uses of animal products for human and animal consumption.	Standards: Animal Science 6.4 Identify basic anatomy of animals. 9.8 Identify the organs and functions of the digestive system. 9.9 Explain and compare digestive sytsems and physiology od digestion between variuos species. 13.1 Identify the organs and functions of the pulmonary, circulatory and immune systems.	Standards: Animal Science 9.1 Identify the essential nutrients for animal growth, performance, maintence and reproduction. 9.2 Identify feeds and feed components.
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Lesson Essential Question: What is Animal Science? Why are animals important to human life? How do I sound intelligent	Lesson Essential Question: How do animals function? How do the digestive systems of animals differ? How are they alike?	Lesson Essential Question: What is the benefit of proper nutrition? How do you know what to feed your animal?

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when talking about livestock?		
		
<p>Vocabulary: Domestic Animal Biotechnology Genetics Docile Wild Tame Feral Livestock Agricultural Animal Pet Companionship 'All Livestock Terms'</p>	<p>Vocabulary: Anatomy Physiology Ruminant Monogastric Crop Gizzard Reticulum Rumen Omasum Abomasum Cartilage Ligament Voluntary Muscle Involuntary Muscle Circulatory Endocrine</p>	<p>Vocabulary: Nutrition Feed Ration Roughage Concentrate Supplement Additive</p>

Concept: Animal Reproduction	Concept: Pets	Concept: Future in Animal Science
<p>Standards: Animal Science 7.1 Explain the physiology of animal reproduction 7.2 Identify the organs and functions of the reproduction systems. 7.4 Describe animal reproductive behavior. Compare and contrast artificial insemination, embryo transfer, cloning, as well as future emerging technology. 7.7 Describe current reproductive management techniques (ie. Heat detection, estrous synchronization, etc.)</p>	<p>Standards: No standards link specifically to this topic however it is something that 99% of the students will be able to apply in real life.</p>	<p>Standards: Animal Science 5.1 Describe current biotechnology techniques in animal science.</p>

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10.2 Explain behavioral modification and its use in managing animals. 13.3 Describe preventative animal health and treatment techniques.		
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<u>Lesson Essential Question:</u> How do animals reproduce? What are the benefits of Artificial Insemination & embryo transfer? Why spay & castrate animals?	<u>Lesson Essential Question:</u> How do you choose the right pet?	<u>Lesson Essential Question:</u> What does the future of animal science hold? What careers are available the deal with animals?
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<u>Vocabulary:</u> Natural Breeding Artificial Insemination Embryo Transfer Estrous Cycle Heat/Estrus Gestation Neuter Spay Castration Burdizzo Elastrator Band	<u>Vocabulary:</u>	<u>Vocabulary</u> Nutrition Feed Ration Roughage Concentrate Supplement Additive

<u>Additional Information/Resources:</u>
