



Pine Grove Area

SCHOOL DISTRICT

Science

Animal Production Science

September 18, 2008

I. PHILOSOPHY

The Animal Production Science course of the Pine Grove Area School District has been structured to introduce, systematically and thematically, the basic principles of the animal industry. Students will acquire a basic level of understanding in many areas of animal classification, animal agriculture as a science, animal industries, consumer concerns, and animal welfare. These principles will be addressed using many applications and opportunities for hands-on learning. The course will allow for the accommodation of many learning styles, motivational levels, and academic abilities.

II. CORE CONCEPTS

1. **Talk the Talk:** Ability to demonstrate an understanding of scientific terminology related to animal science.
2. **Animal Classification:** Ability to explain the importance of scientifically classifying animals.
3. **Animal Agriculture as a Science:** Ability to describe the structures and functions of systems within agricultural animals.
4. **Animal Industries:** Ability to identify each major animal industry and discuss its importance to the economy.
5. **Consumer Concerns and Animal Welfare:** Ability to identify various consumer concerns and discuss how it affects the animal industry.

III. COURSE OF STUDY

A. Course Name: Animal Production Science

B. Grade Level: 11-12

C. Length of Course: one semester

1. Frequency: Daily

2. Duration: 42 minutes

D. Academic Level: Career Technology, Post-Secondary, College Prep

E. Credits: 0.5 Credits

F. Prerequisites: None

G. Course Description:

This course is designed to make students more aware of the latest concepts in animal science. Topics to be covered include animal classification, animal species, animal behavior, consumer concerns, animal welfare, growth and development, nutrition, parasites and disease.

IV. CONTENT: Animal Production Science

CORE CONCEPT 1: Talk the Talk

MAJOR OBJECTIVE: Ability to demonstrate an understanding of scientific terminology related to animal science.

CURRICULUM STANDARD:			
PA State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.2.12 A:</p> <p>Evaluate the nature of scientific and technological knowledge.</p> <p>Know and use the ongoing scientific processes to continually improve and better understand how things work.</p>	<p>Teacher will guide students to:</p> <p>Identify scientific terminology for nine different agriculture animal species.</p> <p>Utilize the ongoing scientific processes to continually improve and better understand how things work.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none"> • Partner/group projects • Individuals during small group work • Individuals during whole group discussion • Oral question and answer • Independent activities • Class participation • Tests and quizzes 	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Notebook</p> <p>Supplemental materials</p>

CONTENT: Animal Production Science

CORE CONCEPT 2: Animal Classification

MAJOR OBJECTIVE: Ability to explain the importance of scientifically classifying animals.

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.3.12 A:</p> <p>Explain the relationship between structure and function at all levels of organization.</p> <p>Explain and analyze the relationship between structure and function at the molecular, cellular and organ-system level.</p> <p>Describe and explain structural and functional relationships in each of the five (or six) kingdoms.</p>	<p>Teacher will guide students to:</p> <p>Identify characteristics of animals that place them in different classifications.</p> <p>Explain the different categories used in the scientific classification of animals.</p> <p>Describe how breeds of livestock were developed.</p> <p>Describe the classification of agricultural animals according to use.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Notebook</p> <p>Supplemental materials</p>

CONTENT: Animal Production Science

CORE CONCEPT 3: Animal Agriculture as a Science

MAJOR OBJECTIVE: Ability to describe the structures and functions of systems within agricultural animals.

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.3.12 A:</p> <p>Explain the relationship between structure and function at all levels of organization.</p> <p>Identify and explain interactions among organisms (e.g., mutually beneficial, harmful relationships).</p> <p>Explain and analyze the relationship between structure and function at the molecular, cellular and organ-system level.</p> <p>Describe and explain structural and functional relationships in each of the five (or six) kingdoms.</p>	<p>Teacher will guide students to:</p> <p>Discuss how animal behavior is used in agriculture</p> <p>Describe different types of behaviors in animals.</p> <p>Identify and explain interactions and relationships among agricultural animals in each of the five (or six) kingdoms.</p> <p>Discuss the biological differences among various agricultural animals.</p> <p>Explain how animal structure and function relate to behavior.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Notebook</p> <p>Supplemental materials</p>

CONTENT: Animal Production Science

CORE CONCEPT 3: Animal Agriculture as a Science

MAJOR OBJECTIVE: Ability to describe the structures and functions of systems within agricultural animals.

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.3.12 B:</p> <p>Analyze the chemical and structural basis of living organisms.</p> <p>Identify and describe factors affecting metabolic function (e.g., temperature, acidity, hormones).</p> <p>Evaluate metabolic activities using experimental knowledge of enzymes.</p> <p>Evaluate relationships between structure and functions of different anatomical parts given their structure.</p> <p>Describe potential impact of genome research on the biochemistry and physiology of life.</p>	<p>Teacher will guide students to:</p> <p>Describe how an animal grows.</p> <p>Explain why animal growth is so important to producers of agriculture animals.</p> <p>Distinguish between prenatal and postnatal growth.</p> <p>Describe the aging process in animals.</p> <p>Discuss the effects of hormones in the growth process.</p> <p>Identify the reasons why artificial insemination is valuable to livestock producers.</p> <p>Analyze the impact of genetic research on the makeup of animal life.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Notebook</p> <p>Supplemental materials</p>

CONTENT: Animal Production Science

CORE CONCEPT 4: Animal Industries

MAJOR OBJECTIVE: Ability to identify each major animal industry and discuss its importance to the economy.

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 4.4.12 A:</p> <p>Analyze the management practices in the agriculture business.</p> <p>Identify the diversity in crop production and analyze the advantages and disadvantages of such diversity.</p> <p>Research and analyze environmental practices related to agricultural systems.</p> <p>Analyze the effects of agricultural practices on the economy.</p> <p>Assess the role of agriculture cooperatives.</p>	<p>Teacher will guide students to:</p> <p>Identify the various animal industries and managerial practices associated with them</p> <p>Discuss the importance of each animal industry.</p> <p>Describe the impact each animal industry has on the economy.</p> <p>Compare and contrast the positives and negatives of various types of animal production.</p> <p>Research laws associated with the animal industry.</p> <p>Discuss the impact of agriculture cooperatives in the animal industry.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Notebook</p> <p>Supplemental materials</p>

CONTENT: Animal Production Science

CORE CONCEPT 4: Animal Industries

MAJOR OBJECTIVE: Ability to identify each major animal industry and discuss its importance to the economy.

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 4.4.12 C:</p> <p>Analyze and research the social, political and economic factors that affect agricultural systems.</p> <p>Analyze the costs and benefits associated with agriculture practices and how they affect economic and human needs.</p> <p>Analyze the costs and benefits of agriculture research practices in society.</p> <p>Research the use of by-products that are the result of agriculture production (e.g., manure handling, bird feathers).</p>	<p>Teacher will guide students to:</p> <p>Identify major production areas for each animal industry.</p> <p>Explain the social, and economical importance of each animal industry to society.</p> <p>Compare the cost of each animal commodity to its production cost.</p> <p>Explain how food safety issues have impacted the animal industry.</p> <p>Discuss the role animal by-products have in the animal industry.</p> <p>Discuss how research influences the agricultural industry's impact on society.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Notebook</p> <p>Supplemental materials</p>

CONTENT: Animal Production Science

CORE CONCEPT 5: Consumer Concerns and Animal Welfare

MAJOR OBJECTIVE: Ability to identify various consumer concerns and discuss how it affects the animal industry.

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 4.3.12 A:</p> <p>Analyze the complexity of environmental health issues.</p> <p>Identify environmental health issues and explain how they have been addressed on a worldwide level.</p> <p>Describe the impact of occupational exposures as they relate to environmental health issues.</p>	<p>Teacher will guide students to:</p> <p>Explain why an agriculturalist must be more sensitive to the concerns of consumers.</p> <p>Explain the rationale for consumer concern over food safety.</p> <p>Explain the rationale for concern over genetic engineering.</p> <p>Give examples of how genetic engineering benefits the producer.</p> <p>Describe how producers of agricultural animals are good caretakers of the environment.</p> <p>Describe consumer concerns of growth hormones and the effect of exposure.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Notebook</p> <p>Supplemental materials</p>

CONTENT: Animal Production Science

CORE CONCEPT 5: Consumer Concerns and Animal Welfare

MAJOR OBJECTIVE: Ability to identify various consumer concerns and discuss how it affects the animal industry.

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 4.9.12 A:</p> <p>Analyze environmental laws and regulations as they relate to environmental issues.</p> <p>Analyze and explain how issues lead to environmental law or regulation (e.g., underground storage tanks, regulation of water discharges, hazardous, solid and liquid industrial waste, endangered species).</p> <p>Compare and contrast environmental laws and regulations that may have a positive or negative impact on the environment and the economy.</p> <p>Research and describe the effects of an environmental law or regulation and how it has impacted the environment.</p>	<p>Teacher will guide students to:</p> <p>Identify reasons why some people object to the raising of farm animals.</p> <p>Discuss potential problems of animals being raised in confinement.</p> <p>Identify laws that govern the use of agriculture animals.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Notebook</p> <p>Supplemental materials</p>

V. EXPECTED LEVELS OF ACHIEVEMENT

A. Students are expected to reach the proficient level (D or above) of achievement, including all of the skills noted in the specific content area of this curriculum.

B. Grading system for Animal Production Science is as follows:

Grading Scale	
A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

C. Each student's grade will be determined at the conclusion of each marking. Progress notes will be issued half-way throughout each marking period for students who are performing below 70%.