



Equine Science Grades 11-12

Unit #1

Course/Subject:
Equine Science/ Agriculture

Grade:
11-12

History of Equine

Suggested Timeline:
2 weeks

Grade Level Summary

In this course, students will study the functional anatomy and physiology, evaluation, management, care, and training of horses. Through class lectures, guest speakers, hands-on lab exercises, and field experiences, students will gain an understanding of the science and business behind the equine industry. This will lead to career and college readiness for those equestrians interested in further equine studies, equine careers, and/or lifelong horsemanship. All students are FFA members through this course.

Grade Level Units

Unit 1: History of Equine
Unit 2: Identification and Breeds
Unit 3: A Healthy Horse
Unit 4: Equine Behavior
Unit 5: Management
Unit 6: Nutrition
Unit 7: Reproduction

Unit Title

History of Equine

Unit Summary

Students will learn about the history and evolution of equine species. Students will gain knowledge in how equines were domesticated and used by the human race. The unit will bring the students to modern day equine industry in Pennsylvania and the United States.

Unit Essential Questions:

1. How did animals evolve into the horse as we know it today?
2. How did the use of the horse influence history?
3. What are the dynamics of current day equine industry?

Key Understandings:

1. Evolution of the horse
2. Domestication of horses
3. Horse Use
4. Modern Equine Industry

Focus Standards Addressed in the Unit:

Standard Number

Standard Description

AS.01.01.

Evaluate the development and implications of animal origin, domestication and distribution on production practices and the environment.

AS.01.02.

Assess and select animal production methods for use in animal systems based upon their effectiveness and impacts.

AS.01.03.

Analyze and apply laws and sustainable practices to animal agriculture from a global perspective.

Important Standards Addressed in the Unit:

Misconceptions:

Proper Conceptions:

Knowledge & Concepts

- Careers in the horse industry
- How horses were domesticated
- Important roles of horses throughout history

Skills & Competencies

- Compare and contrast cultural and societal uses and contributions of horses locally and globally.
- Identify products and uses of horses in Pennsylvania.
- Describe the role horses plays in local, state, national, and global economies

Dispositions & Practices

- Curiosity

Academic Vocabulary:

- *Equus caballus*
- *Equus asinus*
- *Equus burchelli*
- *Equus grevyi*
- *Equus zebra*
- *Equus hemionus*
- *Equus przewalski*
- Eohippus

- Mesohippus
- Merychippus
- Pliohippus
- Draft
- Ox
- Ass
- Snaffle bit
- Curb Bit

- Chariotry
- Mule
-

Assessments:

- Quizzes
- Test
- Projects
- Class participation and practices

Differentiation:

- Book work
 - Lecture
 - Demonstrations
 - Video clips
 - Hands on learning
 - IEP accommodations
-

Interdisciplinary Connections:

- History

Additional Resources:

- *Modern Livestock and Poultry 6th Edition*
- Power Points

Created By:

Meagan Smyers



Equine Science Grades 11-12

Unit #2

Course/Subject:
Equine Science/ Agriculture

Grade:
11-12

Identification and Breeds

Suggested Timeline:
2 weeks

Grade Level Summary

In this course, students will study the functional anatomy and physiology, evaluation, management, care, and training of horses. Through class lectures, guest speakers, hands-on lab exercises, and field experiences, students will gain an understanding of the science and business behind the equine industry. This will lead to career and college readiness for those equestrians interested in further equine studies, equine careers, and/or lifelong horsemanship. All students are FFA members through this course.

Grade Level Units

Unit 1: History of Equine
Unit 2: Identification and Breeds
Unit 3: A Healthy Horse
Unit 4: Equine Behavior
Unit 5: Management
Unit 6: Nutrition
Unit 7: Reproduction

Unit Title

Identification and Breeds

Unit Summary

During this unit, students will learn the common breeds of horses and their suited uses. Students will identify horses based on colors and markings. Students will gain a knowledge on the parts of the horse as well.

Unit Essential Questions:

1. What are the uses of different breeds of horses?
2. How can different colors and marking help to distinguish horses from one another?

Key Understandings:

1. Parts Identification
2. Colors
3. Markings
4. Breeds

Focus Standards Addressed in the Unit:

Standard Number

Standard Description

AS.06.

Classify, evaluate and select animals based on anatomical and physiological characteristics.

Important Standards Addressed in the Unit:

Misconceptions:	Proper Conceptions:
1. There are three colors of horses; brown, black, and white.	1. There are numerous ways to identify horses based on different colors, patterns, and markings.

Knowledge & Concepts	Skills & Competencies	Dispositions & Practices
Students will know the use of different horse breeds.	- Students will be able to identify horse breeds after seeing photographs - Students will be able to distinguish color pattern from photographs - Students will be able to identify color markings by name from photographs	Curiosity

Academic Vocabulary:

- Bay - Sorrel - Dun - Red Dun - Palomino - Buckskin - Cremello - Half Stocking - Full Stocking - Inside heel - Mule - Molly - Light Weight	- Blue Roan - Red Roan - Perlino - Rabicano - Tobiano - Overo - Tobero - Coronet - Half pastern - Outside heel - Hinny - Medium Weight - Heavy weight	- Grullo - Chestnut - Blanket - Leopard - Star - Stripe - Snip - Blaze - Bald - Jack - Jenny - Zedonks - Zorse
---	---	--

Assessments:

- Quizzes - Test - Projects - Class participation and practices
--

Differentiation:

- Book work - Lecture - Demonstrations - Video clips - Hands on learning - IEP accommodations
--

Interdisciplinary Connections:

- Science

Additional Resources:

- *Modern Livestock and Poultry 6th Edition*
- Power Points

Created By:

Meagan Smyers



Equine Science Grades 11-12

Unit #3

Course/Subject:
Equine Science/ Agriculture

Grade:
11-12

A Healthy Horse

Suggested Timeline:
5 weeks

Grade Level Summary

In this course, students will study the functional anatomy and physiology, evaluation, management, care, and training of horses. Through class lectures, guest speakers, hands-on lab exercises, and field experiences, students will gain an understanding of the science and business behind the equine industry. This will lead to career and college readiness for those equestrians interested in further equine studies, equine careers, and/or lifelong horsemanship. All students are FFA members through this course.

Grade Level Units

Unit 1: History of Equine
Unit 2: Identification and Breeds
Unit 3: A Healthy Horse
Unit 4: Equine Behavior
Unit 5: Management
Unit 6: Nutrition
Unit 7: Reproduction

Unit Title

A Healthy Horse

Unit Summary

During this unit, students will learn how to select a healthy horse. Students will gain an understanding of disease and parasites that affect the equine species. Students will learn how to evaluate different horses and distinguish between horses that are of poor quality and those that are at exceptional quality and health.

Unit Essential Questions:

1. How do you prevent disease in a horse herd?
2. What characteristics should you evaluate when selecting a horse?

Key Understandings:

1. Equine Diseases
2. Selection, Evaluation, and Judging
3. Equine Health

Focus Standards Addressed in the Unit:

Standard Number

Standard Description

AS.07.

Apply principles of effective animal health care.

AS.08.

Analyze environmental factors associated with animal production.

AS.05.

Evaluate environmental factors affecting animal performance and implement procedures for enhancing performance and animal health.

Important Standards Addressed in the Unit:

Misconceptions:

1. Horses grow new teeth (baby vs. adult teeth)

Proper Conceptions:

1. Horses are born with all the teeth they will ever have and they wear them down over time.
-

Knowledge & Concepts

- Knowledge of common disease
- Knowledge of common parasites
- Normal vital signs of a horse
- Body condition scores

Skills & Competencies

- Identify the basic anatomy of horses.
- Describe the functions of the horse body systems and system components.
- Describe preventative horse health and treatment techniques.
- Investigate environmental, food, medicinal, public safety, and biosecurity issues related to horse health.
- Examine the impact of pests and diseases as variables in horse production.
- Judging conformation of a horse

Dispositions & Practices

- Resilience
-

Academic Vocabulary:

- Respiration Rate
- Capillary Refill
- Mucous Membranes
- Skin Pliability
- Feces

- Body Condition Score
- Hand
- Wolf Teeth
- Conformation
- Structural Correctness

- Pigeon Toe
 - Splay Foot
 - Ascarids
 - Strongles
 - Stomach Bots
-

Assessments:

- Quizzes
 - Test
 - Projects
 - Class participation and practices
-

Differentiation:

- Book work
-

-
- Lecture
 - Demonstrations
 - Video clips
 - Hands on learning
 - IEP accommodations
-

Interdisciplinary Connections:

- Science
-

Additional Resources:

- *Modern Livestock and Poultry 6th Edition*
 - Power Points
-

Created By:

Meagan Smyers



Equine Science Grades 11-12

Unit #4

Course/Subject:
Equine Science/ Agriculture

Grade:
11-12

Equine Behavior

Suggested Timeline:
2 weeks

Grade Level Summary	In this course, students will study the functional anatomy and physiology, evaluation, management, care, and training of horses. Through class lectures, guest speakers, hands-on lab exercises, and field experiences, students will gain an understanding of the science and business behind the equine industry. This will lead to career and college readiness for those equestrians interested in further equine studies, equine careers, and/or lifelong horsemanship. All students are FFA members through this course.
Grade Level Units	Unit 1: History of Equine Unit 2: Identification and Breeds Unit 3: A Healthy Horse Unit 4: Equine Behavior Unit 5: Management Unit 6: Nutrition Unit 7: Reproduction

Unit Title	Equine Behavior
Unit Summary	During this unit students will gain knowledge on how horses use their senses. After gaining an understanding on how horses use their vision, hearing, touch, and memory students will be able to interpret normal and abnormal equine behavior. Understanding equine behavior allows for a better training experience for both the horse and trainer.

Unit Essential Questions: 1. How do horses use their physical parameters? 2. How can you be a good horseman?	Key Understandings: 1. Vision 2. Touch 3. Memory 4. Hearing 5. Equine Behavior
---	--

Focus Standards Addressed in the Unit:	
Standard Number	Standard Description
AS.02.	Utilize best-practice protocols based upon animal behaviors for animal husbandry and welfare.
AS.06.03.	Select and train animals for specific purposes and maximum performance based on anatomy and physiology.

Important Standards Addressed in the Unit:

Misconceptions:

1. Horses are color blind.

Proper Conceptions:

1. Horses can see different colors but not same as humans.
Horses can see blues and greens better than reds and yellows.
-

Knowledge & Concepts

- Physical Parameters of a horse
- Behavior Types
- Training methods

Skills & Competencies

- Describe normal horse behavior along with causes and potential results of abnormal behavior (social, sexual, reproductive, and ingestive).
- Investigate emerging technologies within practical applications of equine science.
- Explore ethical, legal, and social biotechnology issues.

Dispositions & Practices

- Responsibility
-

Academic Vocabulary:

- Binocular vision
- Fight or Flight
- Monocular Vision
- Gregarious Nature

- Horsemanship
- Agonistic Behavior
- Epimeletic Behavior
- Et-Epimeletic Behavior

- Ingestive Behavior
 - Eliminative Behavior
 - Cribbing
 - Weaving
-

Assessments:

- Quizzes
 - Test
 - Projects
 - Class participation and practices
-

Differentiation:

- Book work
 - Lecture
 - Demonstrations
 - Video clips
 - Hands on learning
 - IEP accommodations
-

Interdisciplinary Connections:

- Science

Additional Resources:

- *Modern Livestock and Poultry 6th Edition*
- Power Points

Created By:

Meagan Smyers



Equine Science Grades 11-12

Unit #5

Course/Subject:
Equine Science/ Agriculture

Grade:
11-12

Management

Suggested Timeline:
1 Week

Grade Level Summary

In this course, students will study the functional anatomy and physiology, evaluation, management, care, and training of horses. Through class lectures, guest speakers, hands-on lab exercises, and field experiences, students will gain an understanding of the science and business behind the equine industry. This will lead to career and college readiness for those equestrians interested in further equine studies, equine careers, and/or lifelong horsemanship. All students are FFA members through this course.

Grade Level Units

Unit 1: History of Equine
Unit 2: Identification and Breeds
Unit 3: A Healthy Horse
Unit 4: Equine Behavior
Unit 5: Management
Unit 6: Nutrition
Unit 7: Reproduction

Unit Title

Management

Unit Summary

Managing the facilities for equine industry brings a lot of factors into the role of a manger. Human interactions, environmental elements, and equine behavior all must be considered. Students will gain knowledge of housing, feeding, and caring for equines by putting the horses' welfare at a priority.

Unit Essential Questions:

1. What elements are encompassed when providing for the welfare of horses?

Key Understandings:

1. Housing
2. Ventilations
3. Fencing
4. Pastures
5. Manure

Focus Standards Addressed in the Unit:

Standard Number

Standard Description

AS.08.02.

Evaluate the effects of environmental conditions on animals and create plans to ensure favorable environments for animals.

AS.08.01.

Design and implement methods to reduce the effects of animal production on the environment.

AS.07.	Apply principles of effective animal health care.
AS.02.	Utilize best-practice protocols based upon animal behaviors for animal husbandry and welfare.

Important Standards Addressed in the Unit:

--	--

Misconceptions:

1. You do not need a manure management plan if you only have one or two horses.

Proper Conceptions:

1. There needs to be a manure management plan on hand even if you only own one horse.
-

Knowledge & Concepts	Skills & Competencies	Dispositions & Practices
• Manure management plans for equine facilities	• Demonstrate safe equine handling techniques for production, and/or recreation. • Evaluate the equipment and facilities used in modern equine production. • Investigate emerging technologies within practical applications of equine science. • Identify functions, role and purpose of management in a business. • Recognize the importance of water quality, air quality, and waste management within horse farm.	• Responsibility

Academic Vocabulary:

• Social Environment • Chemical Environment • Biological Environment • High Tensile Wire • PVC	• Metal Frame • Pole • Conventional • Pipe Fence • Cable	• Round Pen • Arena • Post and Board • Woven Wire • Electric • Barbed Wire
--	--	---

Assessments:

- Quizzes
 - Test
-

-
- Projects
 - Class participation and practices
-

Differentiation:

- Book work
 - Lecture
 - Demonstrations
 - Video clips
 - Hands on learning
 - IEP accommodations
-

Interdisciplinary Connections:

- Science
-

Additional Resources:

- *Modern Livestock and Poultry 6th Edition*
 - Power Points
-

Created By:

Meagan Smyers



Equine Science Grades 11-12

Unit #6

Course/Subject:
Equine Science/ Agriculture

Grade:
11-12

Nutrition

Suggested Timeline:
1 week

Grade Level Summary

In this course, students will study the functional anatomy and physiology, evaluation, management, care, and training of horses. Through class lectures, guest speakers, hands-on lab exercises, and field experiences, students will gain an understanding of the science and business behind the equine industry. This will lead to career and college readiness for those equestrians interested in further equine studies, equine careers, and/or lifelong horsemanship. All students are FFA members through this course.

Grade Level Units

Unit 1: History of Equine
Unit 2: Identification and Breeds
Unit 3: A Healthy Horse
Unit 4: Equine Behavior
Unit 5: Management
Unit 6: Nutrition
Unit 7: Reproduction

Unit Title

Nutrition

Unit Summary

Students will learn the different types of feed stuff suitable for an equine diet. Students will gain knowledge of nutritional requirements for horses based on the horse's lifestyle and level of activity. Students will formulate feed rations and learn about common dietary concerns in the equine species.

Unit Essential Questions:

1. What is horse feed?
2. What are the nutritional requirements of a horse?

Key Understandings:

1. Equine Nutrition
2. Water Requirements
3. Forage Feeding
4. Grain Feeding
5. Digestive Concerns

Focus Standards Addressed in the Unit:

Standard Number

Standard Description

AS.03.01.

Analyze the nutritional needs of animals.

AS.03.02

Analyze feed rations and assess if they meet the nutritional needs of animals.

AS.03.03	Utilize industry tools to make animal nutrition decisions.
-----------------	--

Important Standards Addressed in the Unit:

--	--

Misconceptions:	Proper Conceptions:
1. Horses need to be fed grain.	1. Forage, pasture and hay is the basis of a horse's nutritional and dietary requirements.

Knowledge & Concepts	Skills & Competencies	Dispositions & Practices
- Forages, Roughages, and Grains - Water requirements - Dietary concerns in Equines	- Identify the basic anatomy of horses. - Describe the functions of the equine digestive system and system components. - Explain the significance of the 6 classes of nutrients for equine growth, performance, maintenance and reproduction.	- Ethical Judgment - Responsibility

Academic Vocabulary:

- Forage - Roughage - Ad-libitum - Motility	- Colic - Dehydration - AFCO - AFIA	- Guaranteed Analysis - Feedstuffs - Complete Feeds - Processed Concentrates
--	--	---

Assessments:

- Quizzes - Test - Projects - Class participation and practices
--

Differentiation:

- Book work - Lecture - Demonstrations - Video clips - Hands on learning - IEP accommodations
--

Interdisciplinary Connections:

- Science
- Math

Additional Resources:

- *Modern Livestock and Poultry 6th Edition*
- Power Points

Created By:

Meagan Smyers



Equine Science Grades 11-12

Unit #7

Course/Subject:
Equine Science/ Agriculture

Grade:
11-12

Reproduction

Suggested Timeline:
1 Week

Grade Level Summary

In this course, students will study the functional anatomy and physiology, evaluation, management, care, and training of horses. Through class lectures, guest speakers, hands-on lab exercises, and field experiences, students will gain an understanding of the science and business behind the equine industry. This will lead to career and college readiness for those equestrians interested in further equine studies, equine careers, and/or lifelong horsemanship. All students are FFA members through this course.

Grade Level Units

Unit 1: History of Equine
Unit 2: Identification and Breeds
Unit 3: A Healthy Horse
Unit 4: Equine Behavior
Unit 5: Management
Unit 6: Nutrition
Unit 7: Reproduction

Unit Title

Reproduction

Unit Summary

During this unit, students will learn about the male and female reproductive anatomy. Students will learn about reproductive behavior and how to care for a foal through gestation and its first weeks of life.

Unit Essential Questions:

1. What causes poor reproductive efficiency?

Key Understandings:

1. Female Reproductive Anatomy
2. Male Reproductive Anatomy
3. Reproductive Behavior
4. Foaling

Focus Standards Addressed in the Unit:

Standard Number

Standard Description

AS.02.

Utilize best-practice protocols based upon animal behaviors for animal husbandry and welfare.

AS.03.

Design and provide proper animal nutrition to achieve desired outcomes for performance, development, reproduction and/or economic production.

Important Standards Addressed in the Unit:

Misconceptions:

1. Horses can be bred at any time of the year.

Proper Conceptions:

1. Horses are naturally seasonal breeders and this misconception has caused fertility problems.
-

Knowledge & Concepts	Skills & Competencies	Dispositions & Practices
• Reproductive Problems in equines	• Identify the basic reproductive anatomy of horses. • Describe the functions of the horse reproductive systems and system components. • Describe normal equine behavior by breed, along with causes and potential results of abnormal sexual and reproductive behavior. • Predict genetic types using the Punnet square method. • Evaluate the equipment and facilities used in modern equine production. • Investigate emerging technologies within practical applications of equine science.	• Responsibility

Academic Vocabulary:

- Vulva
- Cervix
- Uterus
- Oviducts
- Ovaries

- Labia
- Vestibule
- Winking
- Testes
- Spermatoc cord

- Ejaculate
 - Epididymal
 - Cryptorchidism
 - Spermatogenesis
-

Assessments:

- Quizzes
 - Test
 - Projects
 - Class participation and practices
-

Differentiation:

-
- Book work
 - Lecture
 - Demonstrations
 - Video clips
 - Hands on learning
 - IEP accommodations
-

Interdisciplinary Connections:

- Science
 - Math
-

Additional Resources:

- *Modern Livestock and Poultry 6th Edition*
 - Power Points
-

Created By:

Meagan Smyers
