

Equine Science

8015 18 weeks

8080 36 weeks

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Course Description

Suggested Grade Level: 9 or 10 or 11 or 12

In this course, students learn how to care for and manage horses. The major instructional areas include equine health, nutrition, management, reproduction, training, evaluation, and showmanship. Additional instruction in tools, equipment, equine facilities management, business management of equine enterprises, and the economics of boarding, training, and merchandising horses is included. Participation in FFA activities, leadership development events (LDEs), and career development events (CDEs) is encouraged.

As noted in [Superintendent's Memo #058-17 \(2-28-2017\)](#), this Career and Technical Education (CTE) course must maintain a maximum pupil-to-teacher ratio of 20 students to one teacher, due to safety regulations. The 2016-2018 biennial budget waiver of the teacher-to-pupil ratio staffing requirement does not apply.

Recommended prerequisite: Introduction to Animal Systems 8008

Task Essentials Table

8015	8080	Tasks/Competencies
+	+	Identify the role of supervised agricultural experiences (SAEs) in agricultural education.
+	+	Participate in an SAE.
+	+	Identify the benefits and responsibilities of FFA membership.
+	+	Describe leadership characteristics and opportunities as they relate to agriculture and FFA.
○	○	Apply for an FFA degree and/or an agricultural proficiency award.

<input checked="" type="radio"/>	<input checked="" type="radio"/>	Define terms associated with equine science.
<input type="radio"/>	<input checked="" type="radio"/>	Describe the evolutionary history and development of horses.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Describe the major types, breeds, and classes of horses.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	List job opportunities in the equine industry.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Describe the uses of equids.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify parts of the horse.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify markings and colors of the horse.
<input type="radio"/>	<input checked="" type="radio"/>	Identify the natural gaits and movements of horses.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify common items of tack and equipment.
<input type="radio"/>	<input checked="" type="radio"/>	Identify the parts of a halter and their purposes.
<input type="radio"/>	<input checked="" type="radio"/>	Identify the types of bridles and the purpose of each.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the types of bits and the purpose of each.
<input type="radio"/>	<input checked="" type="radio"/>	Identify the parts of Western and English saddles.
<input type="radio"/>	<input checked="" type="radio"/>	Identify artificial riding aids and the purpose of each.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify safety factors when handling a horse.
<input type="radio"/>	<input checked="" type="radio"/>	Describe how to halter a horse.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Describe the process for tying a horse.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Describe how to groom a horse.
<input type="radio"/>	<input checked="" type="radio"/>	Differentiate among strategies for handling horses of different ages.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Differentiate among categories of horse behavior.
<input type="radio"/>	<input checked="" type="radio"/>	Identify approaches to ground training a horse.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the parts and functions of the digestive system.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the parts and functions of the circulatory system.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the parts and functions of the respiratory system.
<input type="radio"/>	<input checked="" type="radio"/>	Identify the parts and functions of the nervous system.
<input type="radio"/>	<input checked="" type="radio"/>	Identify the parts and functions of the renal and urinary systems.

<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the parts and functions of the skeletal system.
<input type="radio"/>	<input checked="" type="radio"/>	Identify the parts and functions of the muscular system.
<input type="radio"/>	<input checked="" type="radio"/>	Explain the endocrine, exocrine, immune, and integumentary systems.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Define terms associated with equine reproduction.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explore the fundamentals of equine reproductive technology.
<input type="radio"/>	<input checked="" type="radio"/>	Explain the physiology of the reproductive systems of a stallion and mare.
<input type="radio"/>	<input checked="" type="radio"/>	Explain the estrous cycle and its effect on breeding.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explain proper care during pregnancy and parturition.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explain the fundamentals of genetics, heritability, and performance traits.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the basic nutritional requirements of a horse.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	List the essential components for maintaining an equine healthcare program.
<input type="radio"/>	<input checked="" type="radio"/>	Identify the characteristics of a healthy, sick, and injured horse.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Define terms associated with horse health and disease prevention.
<input type="radio"/>	<input checked="" type="radio"/>	Describe equine diseases.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Define terms associated with parasites and parasite control.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify internal and external parasites that commonly affect horses.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explain methods used to control internal and external parasites.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Describe the basics of hoof care.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify internal and external parts of the hoof.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explain the relationships among the parts of the hoof.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	List the components of a hoof-care program.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify factors that cause unsoundness.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Describe methods for detecting lameness.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify basic farrier tools and their functions.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify conformation defects of the front and hind legs.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Define terms associated with practical horse nutrition.

<input checked="" type="radio"/>	<input checked="" type="radio"/>	Assess the condition of a horse using body scoring.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explain the classes of nutrients and their purposes.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Describe factors that affect nutrient delivery.
<input type="radio"/>	<input checked="" type="radio"/>	Describe equine nutritional disorders.
<input type="radio"/>	<input checked="" type="radio"/>	Explain how to formulate a balanced ration for an individual horse.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Define terms associated with selecting and marketing a horse.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	List general considerations in selecting a horse.
<input type="radio"/>	<input checked="" type="radio"/>	Calculate a horse's height and weight.
<input type="radio"/>	<input checked="" type="radio"/>	Determine the age of a horse by the appearance and description of its teeth.
<input type="radio"/>	<input checked="" type="radio"/>	Explain the process for marketing a horse.
<input type="radio"/>	<input checked="" type="radio"/>	Explain the purpose of judging horses.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify equine conformation characteristics.
<input type="radio"/>	<input checked="" type="radio"/>	Describe factors to consider in judging halter and performance classes.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Describe characteristics of a horse's anatomy.
<input type="radio"/>	<input checked="" type="radio"/>	Explain the system of examination and characteristics for judging.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify common unsoundness and blemishes of horses.
<input type="radio"/>	<input checked="" type="radio"/>	Prepare oral reasons.
<input type="radio"/>	<input checked="" type="radio"/>	Present oral reasons.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Define terms associated with facilities and stable management.
<input type="radio"/>	<input checked="" type="radio"/>	Explain herd management.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the methods of pasture management.
<input type="radio"/>	<input checked="" type="radio"/>	Identify items to consider when planning equine facilities.
<input type="radio"/>	<input checked="" type="radio"/>	List the factors to consider in providing proper stable management.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	List the types of horse bedding.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	List the types of horse fencing and shelter.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Describe methods for storing tack.

+	+	Define terms associated with transporting a horse.
+	+	Describe methods and procedures for transporting horses.

Legend: Essential Non-essential Omitted

Note: Competencies 39-43 have been added to ensure compliance with federal legislation: National FFA Organization's Federal Charter Amendments Act (Public Law 116-7, <https://www.congress.gov/116/plaws/publ7/PLAW-116publ7.pdf>). All inquiries may be sent to cte@doe.virginia.gov. Students are provided opportunities for leadership, personal growth, and career success. Instruction is delivered through three major components: classroom and laboratory instruction, supervised agricultural experience (SAE) program, and student leadership (FFA).

Curriculum Framework

Task Number 39

Identify the role of supervised agricultural experiences (SAEs) in agricultural education.

Definition

Identification should include

- defining an SAE program as *an opportunity for students to consider multiple careers and occupations in the agriculture, food, and natural resources (AFNR) industries, learn expected workplace behavior, develop specific skills within an industry, and apply academic and occupational skills in the workplace or a simulated workplace environment*
- researching the Foundational SAE
 - career exploration and planning
 - personal financial planning and management
 - workplace safety
 - employability skills for college and career readiness
 - agricultural literacy
- researching the Immersion SAE
 - entrepreneurship/ownership
 - placement/internships
 - research (experimental, analytical, invention)
 - school business enterprises
 - service learning
- developing a plan to participate in an SAE, based on personal and career goals
- researching available awards and degrees, based on SAE participation.

Teacher resource: [SAE Resources](#), National Council for Agricultural Education

Process/Skill Questions

- What are examples of SAEs related to this course and in the AFNR industries?
- Where can a copy of the Virginia SAE Record Book be found?
- What is an Immersion SAE?
- How does a placement/internship SAE differ from an ownership/entrepreneurship SAE?
- How does an SAE provide relevant work experience and contribute to the development of critical thinking skills?
- How is the SAE an extended individualized instructional component of a student's Career Plan of Study?
- How can an SAE be used to provide evidence of student growth and participation in authentic, work-related tasks?
- What are the four types of SAEs?
- What are the advantages of participating in work-based learning experiences and projects?
- How does one choose an appropriate SAE in which to participate?

Task Number 40

Participate in an SAE.

Definition

Participation should include

- developing, completing, or continuing a plan to participate in an SAE as a work-based learning experience, based on personal and career goals
- documenting experience, connections, positions held, and competencies attained, using the *Virginia SAE Record Book*
- researching available awards and degrees, based on SAE participation.

Teacher resources:

[FFA SAE](#)

[The Agricultural Experience Tracker](#)

Process/Skill Questions

- What are the advantages of participating in work-based learning experiences and projects?
- How do SAEs help prepare students for the workforce?
- What are some examples of SAEs in AFNR?

Exploring Leadership Opportunities through FFA

Task Number 41

Identify the benefits and responsibilities of FFA membership.

Definition

Identification should include

- benefits
 - listing opportunities to participate in community improvement projects and career development events (CDEs) and leadership development events (LDEs)
 - exploring leadership development opportunities
- responsibilities
 - researching the responsibilities of FFA officers, committees, and members
 - locating resources that guide participation in FFA activities
 - explaining the FFA Creed, Motto, Salute, and mission statement
 - explaining the meaning of the FFA emblem, colors, and symbols
 - explaining significant events and the history of the organization.

Process/Skill Questions

- How does one become an FFA member?
- What is the FFA's mission and how does it accomplish its mission?
- What are the benefits and responsibilities of FFA membership?
- What five FFA activities are available through the local chapter?
- What are some significant events in FFA history? How have these events shaped membership over time?
- What is the FFA program of activities (POA), and how is it used?

Task Number 42

Describe leadership characteristics and opportunities as they relate to agriculture and FFA.

Definition

Description should include

- examples of successful leaders
- types of leadership
 - autocratic
 - participative
 - laissez-faire
 - servant

- followership
- positive leadership qualities and traits of successful leaders
- opportunities for participating in leadership activities in FFA
- demonstrating methods for conducting an effective meeting.

Process/Skill Questions

- Who are some successful leaders in the agriculture industry?
- What qualities make a successful leader?
- What are leadership traits?
- What is the difference between positive and negative leadership?

Task Number 43

Apply for an FFA degree and/or an agricultural proficiency award.

Definition

Application should include

- identifying types of FFA degrees
 - Greenhand
 - Chapter
 - State
 - American
- identifying proficiency award areas
 - entrepreneurship
 - placement
 - combined
 - agriscience research
- exploring CDEs and LDEs related to this course
- identifying all SAE criteria to be eligible for the award
- identifying the type of award
- applying for an FFA award.

Teacher resource: [FFA Agricultural Proficiency Awards](#)

Process/Skill Questions

- Where are the awards and their application criteria located?
- What are the benefits of winning an FFA award?
- What are the benefits and requirements of an FFA degree?
- What FFA awards are available?
- How does the FFA degree program reward FFA members in all phases of leadership, skills, and occupational development?
- What is the highest degree that can be conferred upon an FFA member at the national level?
- What are the requirements for a Greenhand FFA degree?

Understanding Basic Equine History and Terminology

Task Number 44

Define terms associated with equine science.

Definition

Definition should include terms such as

- *equine*
- *horse*
- *pony*
- *miniature horse*
- *breed*
- *cob*
- *cold blood*
- *warm-blood*
- *hot blood*
- *stallion*
- *mare*
- *foal*
- *filly*
- *colt*
- *gelding*
- *donkey*
- *mule*
- *jack*
- *jenny or jennet*
- *hinny*
- *light horse*
- *stock*
- *stud*
- *suckling*
- *yearling*
- *draft*
- *long-eared.*

Process/Skill Questions

- What are the similarities and differences between horses and ponies?
- What are the variations of hybrid equines?

- How are donkeys and mules used on farms today?

Task Number 45

Describe the evolutionary history and development of horses.

Definition

Description should include

- explaining how the horse evolved
- identifying the four evolutionary trends exhibited by horse fossils (e.g., Eohippus, Mesohippus, Merychippus, Pliohippus).

Process/Skill Questions

- What influenced the evolution of the horse?
- What are the differences among the four evolutionary trends of the horse?
- What are the four trends that fossils reveal from Eohippus to the *Equus caballus*?
- What is the importance of Przewalski's horse?

Task Number 46

Describe the major types, breeds, and classes of horses.

Definition

Description should include breed associations, origins, colors, characteristics, and uses.

Process/Skill Questions

- What are the differences among the terms *breed*, *type*, and *class*?
- What are the 10 most common breeds of light horses and their origins?
- What are the five most common breeds of draft horses and their origins?
- What are the five most common breeds of ponies and their origins?
- Why are breed associations important? What is their purpose?

Task Number 47

List job opportunities in the equine industry.

Definition

List should include various opportunities, such as

- breeding

- racing
- showing
- driving
- boarding
- training
- extension
- sales
- facilities management
- veterinary medicine
- farrier services
- equine therapy
- barn management
- agritourism.

Process/Skill Questions

- What types of jobs in the equine industry are available nationwide?
- How does Virginia compare with other states in the availability of jobs in the equine industry?
- What jobs in the equine industry exist locally and throughout Virginia?
- What career paths may be pursued within the equine industry?
- How do the wages for equine occupations in Virginia compare with the national average?
- What is the importance of English, mathematics, and science courses in preparing for an equine-related career?

Task Number 48

Describe the uses of equids.

Definition

Description should include

- defining terms associated in the use of equids
 - *English*
 - *Western*
 - *disciplines*
 - *hunter*
 - *jumper*
 - *saddle seat*
 - *harness*
 - *equitation*
 - *pleasure*
 - *dressage*
 - *rodeo*
 - *cutting*
 - *polo*
 - *combined training*
 - *cross country*

- *trail riding*
- *fox hunting*
- *driving*
- *gymkhanas*
- *endurance*
- *therapeutic riding*
- *agritourism (e.g., dude ranches, camps)*
- *draft*
- *cavalry*
- *mounted police*
- *hack*
- *racing*
- *roadster*
- describing the domestication of the horse
- identifying historical trends in the utilization of horses
- describing the current state of the equine industry.

Process/Skill Questions

- How has the use of horses changed over the past 200 years?
- What are some examples of competitions that consist of horses and riders?
- How does the use of the horse differ between farmers and ranchers?

Task Number 49

Identify parts of the horse.

Definition

Identification should include

- poll
- crest
- cheek
- withers
- back
- loin
- point of hip
- buttock
- haunches
- thigh
- flank
- girth
- gaskin
- hock
- fetlock
- coronet
- pastern

- ergot
- fetlock joint
- cannon
- elbow
- barrel
- shoulder
- arm
- chest
- knee
- hoof
- forearm
- neck
- throatlatch
- lips
- muzzle
- nostril
- face.

Process/Skill Questions

- How does being familiar with the external parts of the horse help in selecting a horse?
- Why is it important to know the external parts of a horse?

Task Number 50

Identify markings and colors of the horse.

Definition

Identification should include various

- common head markings (e.g., bald, blaze, star, snip, stripe)
- common leg markings (e.g., stocking, sock, boot, fetlock, pastern, coronet, partial pastern)
- primitive markings (e.g., zebra stripes)
- types of horse colors (e.g., solids, pinto, Appaloosa colors).

Process/Skill Questions

- How does a horse with a blaze face differ from a horse with a bald face?
- Why is it important to be able to describe a horse's markings?
- How do markings affect breed characteristics?

Task Number 51

Identify the natural gaits and movements of horses.

Definition

Identification should include defining terms such as *walk*, *trot*, *canter*, and *gallop*.

Process/Skill Questions

- What hoof pattern is associated with each gait?
- Which gait is the fastest?

Identifying Tack

Task Number 52

Identify common items of tack and equipment.

Definition

Identification should include

- saddles
- stirrups
- bridles
- halters
- reins
- bits
- harnesses
- martingales
- breastplates.

Process/Skill Questions

- How is each type of equine tack used?
- What are the common materials used to make different types of tack?
- Why is it important to inspect tack frequently?

Task Number 53

Identify the parts of a halter and their purposes.

Definition

Identification should include noseband (nose piece/noseband and chin piece), cheek piece, crownpiece, throatlatch, and connecting strap. A halter may include a snap, buckle, and tie ring.

Process/Skill Questions

- What is the main use of a halter?
- What other animals can be fitted for halters?
- What is the difference between a halter and a bridle?

Task Number 54

Identify the types of bridles and the purpose of each.

Definition

Identification should include

- English bridles (e.g., hunter, dressage, jumper, saddle seat)
- Western bridles (e.g., Western pleasure, reining/cutting, barrel racing, roping)
- bitless (e.g., hackamore).

Process/Skill Questions

- What are the similarities and differences among different bridles?
- Why is it important to know the parts of a bridle when reassembling?
- What should be considered when fitting a bridle?

Task Number 55

Identify the types of bits and the purpose of each.

Definition

Identification should include

- English bits (e.g., snaffle, elevated, Pelham)
- Western bits (e.g., snaffle, Tom Thumb, curb)
- training bits.

Process/Skill Questions

- How does the port affect the bit?
- How are bits legally regulated when showing?
- What are factors to consider when choosing a bit for a specific discipline or use?

Task Number 56

Identify the parts of Western and English saddles.

Definition

Identification should include parts such as

- English saddle
 - pommel
 - skirt
 - stirrup bar
 - seat
 - cantle
 - panel
 - flap
 - stirrup leather
 - stirrup iron
 - girth
- Western saddle
 - horn
 - pommel
 - fork
 - seat
 - cantle
 - front and back jockey
 - skirt
 - dee ring
 - fender
 - cinch strap
 - cinch
 - flank girth
 - stirrup
 - stirrup leather keeper.

Process/Skill Questions

- What are common factors to consider when choosing and fitting a saddle?
- What are the similarities and differences between English and Western saddles?

Task Number 57

Identify artificial riding aids and the purpose of each.

Definition

Identification should include

- English and Western spurs
- crop
- hackamore
- whip
- bit.

Process/Skill Questions

- Why are artificial aids used?
- How do artificial aids differ from natural aids?
- What are common factors in determining the proper use of artificial aids?

Understanding Handling and Grooming Practices

Task Number 58

Identify safety factors when handling a horse.

Definition

Identification should include

- listing appropriate attire when working around horses
- listing the steps to take when approaching a horse, including a young horse
- listing the steps involved in leading a horse
- labeling parts of the horse that are sensitive
- describing a horse's senses, including unique characteristics of a horse's vision and hearing, and how these affect safe handling practices
- describing aggressive and stubborn behaviors
- navigating mare and foal situations
- describing a horse's body language (e.g., ears, eyes, tail, pawing).

Process/Skill Questions

- How does a horse's senses affect safe handling practices?
- How is a horse's vision different from a human's?

Task Number 59

Describe how to halter a horse.

Definition

Description should include

- explaining safe approach
- explaining different halters and their uses
- listing the steps taken when halter breaking
- explaining the steps for haltering a horse

- explaining how to use a mare to help handle a foal
- explaining how to use a butt/rump rope to teach a foal to lead.

Process/Skill Questions

- Why would a halter be left on a horse in a pasture?
- What types of halters would be suitable for use during turnout?
- How is a halter put on a horse?

Task Number 60

Describe the process for tying a horse.

Definition

Description should include

- safety equipment (hardware, type and length of rope, optional equipment)
- methods of tying a knot (e.g., ground, cross-tie)
- procedures for tying a quick-release knot
- reasons for using safety equipment (e.g., panic snaps that release under pressure, cotton vs. nylon ropes).

Process/Skill Questions

- When would the different knots be used?
- How does properly tying a horse promote the safety of the horse and human?

Task Number 61

Describe how to groom a horse.

Definition

Description should include

- identifying safety concerns
- listing the purposes for grooming a horse
- identifying equipment
 - rubber curry comb
 - dandy brush
 - body brush
 - hoof pick
 - mane and tail comb
 - shedding blade
 - sweat scraper
 - towel
 - clippers

- explaining techniques and procedures.

Process/Skill Questions

- How is a horse groomed (step-by-step)?
- What purposes does grooming serve, other than cleaning the horse?

Task Number 62

Differentiate among strategies for handling horses of different ages.

Definition

Differentiation should include identifying the importance of

- safety measures
- differences in ages and stages (i.e., maturity levels) in older vs. younger horses
- imprinting a foal
- understanding strategies for tying (e.g., why not to tie a foal)
- separating a mare and a foal when weaning
- handling a green horse differently from a trained horse.

Process/Skill Questions

- Why is it often a good idea to use a mare as an aid when teaching a foal to lead?
- What are some characteristics of a trained horse?

Task Number 63

Differentiate among categories of horse behavior.

Definition

Differentiation should include behaviors that are

- reactive (e.g., fight or flight)
- indicative of a strong herd mentality
- ingestive and eliminative
- sexual, caregiving/seeking
- agonistic, mimicking, investigative, grooming
- resting
- abnormal (e.g., wood chewing, cribbing, stall kicking, weaving/circling).

Process/Skill Questions

- What are some examples of each type of behavior?
- How can understanding equine behaviors aid in the handling of a horse?

Task Number 64

Identify approaches to ground training a horse.

Definition

Identification should include

- the terms *groundwork*, *lunge*, *round pen*, and *voice aids*
- the benefits of groundwork
- the use of voice aids, reinforcement, praise, and repetition in training
- time spent with various ages and stages
- facilities and equipment needed (e.g., arena, round pen, closed fenced-in area, lunge line, lunge whip, other tack)
- round pen techniques
- the need to teach a horse to lunge
- the need to introduce tack and equipment to a horse
- the need to teach a horse to load willingly.

Process/Skill Questions

- What are some benefits of groundwork?
- How can groundwork benefit a trained horse?

Understanding Body Systems and Internal Anatomy

Task Number 65

Identify the parts and functions of the digestive system.

Definition

Identification should include

- distinguishing among the sizes and capacities of parts of the digestive system
- defining *prehension*, *mastication*, and *deglutition*
- listing steps in the digestive process.

Process/Skill Questions

- How does the digestive system of a horse differ from that of a cow?
- What happens to feed in the mouth of a horse? How does this differ from the way a ruminant feeds?
- Why can a horse eat without getting full?

Task Number 66

Identify the parts and functions of the circulatory system.

Definition

Identification should include

- chambers of the heart
- arteries, veins, and capillaries
- components of the blood (i.e., plasma, erythrocytes, leukocytes, thrombocytes).

Identification should also include functions such as the transportation of oxygen, carbon dioxide, nutrients, electrolytes, vitamins, antibodies, wastes, hormones, immune cells, and the regulation of temperature.

Process/Skill Questions

- How does blood travel through a horse's heart?
- What is the aorta?
- What are the differences between the ways red and white blood cells function?
- What is the difference between oxygenated and deoxygenated blood?

Task Number 67

Identify the parts and functions of the respiratory system.

Definition

Identification should include

- components of the upper respiratory tract (e.g., nostrils, nasal cavities, sinuses, pharynx, larynx, epiglottis, trachea) and their functions
- components of the lower respiratory tract (e.g., lungs, bronchi, alveoli, pleura, diaphragm) and their functions
- differentiation between inspiration and expiration.

Process/Skill Questions

- What purpose do the sinuses serve?
- What can happen if food passes through the epiglottis into the windpipe and lungs?
- How does the diaphragm bring air into the lungs and then expel air from the lungs?
- What role does oxygen play in breathing?
- What role does carbon dioxide play in breathing?

Task Number 68

Identify the parts and functions of the nervous system.

Definition

Identification should include the function and purpose of nerves, the central nervous system, and the peripheral nervous system.

Process/Skill Questions

- What is the difference between the central and the peripheral nervous system?
- What are the major organs that make up the nervous system?

Task Number 69

Identify the parts and functions of the renal and urinary systems.

Definition

Identification should include the function and purpose of each part, and related disorders.

Process/Skill Questions

- What are common renal and urinary system disorders related to horses?
- What are preventative measures that can be taken to reduce or eliminate renal/urinary disorders in horses?

Task Number 70

Identify the parts and functions of the skeletal system.

Definition

Identification should include the bones and related disorders.

Process/Skill Questions

- What are the parts of the skeletal system of the horse?
- How is the skeletal system related to the muscular system?

Task Number 71

Identify the parts and functions of the muscular system.

Definition

Identification should include the types of muscles and related disorders.

Process/Skill Questions

- What are the parts of the muscular system of the horse?
- Why is it important to understand a horse's biological systems when caring for, selecting, and judging horses?

Task Number 72

Explain the endocrine, exocrine, immune, and integumentary systems.

Definition

Explanation should include the function and purpose of each system and related diseases and disorders.

Process/Skill Questions

- What is the purpose of the endocrine system?
- What are examples of exocrine glands? What is the purpose of each?
- How can a horse's immune system be strengthened?
- How does the integumentary system of a horse differ from the human integumentary system?

Understanding Equine Genetics and Reproduction

Task Number 73

Define terms associated with equine reproduction.

Definition

Definitions should include terms such as

- *brood mare*
- *sire*
- *dam*
- *stallion*
- *colt*
- *foal*
- *filly*
- *gelding*
- *pedigree*
- *genotype*

- *phenotype*
- *progeny*
- *weanling*
- *deoxyribonucleic acid (DNA)*
- *dystocia*
- *fertilization*
- *gene*
- *maiden*
- *estrus*
- *anestrus*
- *ovulation*
- *gestation*
- *placenta*
- *parturition*
- *enema*
- *artificial insemination*
- *barren*
- *colostrum*
- *lactation.*

Process/Skill Questions

- What is dystocia?
- When does anestrus occur in the mare?
- Why is it important for a newborn foal to receive colostrum?

Task Number 74

Explore the fundamentals of equine reproductive technology.

Definition

Exploration should include

- hormones that control the reproductive process
- advantages of artificial insemination
- the purpose of embryo transfer
- the purpose of cloning.

Process/Skill Questions

- What are examples of reproductive technology available today?
- When might it be necessary to use a particular kind of reproductive technology?
- What ethical issues arise in the use of reproductive technology?

Task Number 75

Explain the physiology of the reproductive systems of a stallion and mare.

Definition

Explanation should include

- identifying parts and functions of the male and female reproductive systems
- explaining the stages of the estrous cycle, including the influence of season on it
- describing the sexual maturity of the reproductive tract.

Process/Skill Questions

- When is puberty generally reached in a mare?
- What is the primary sex organ of a mare?
- What is another term for the oviducts?
- When is puberty generally reached in a stallion?
- What structure is responsible for spermatozoa maturation and storage?

Task Number 76

Explain the estrous cycle and its effect on breeding.

Definition

Explanation should include

- terms associated with the estrous cycle
 - *oxytocin*
 - *relaxin*
 - *prostaglandin*
 - *progesterone*
 - *estrogen*
 - *prolactin*
 - *luteinizing hormone*
 - *follicle-stimulating hormone*
 - *human chorionic gonadotropin (hCG)*
- mare seasonality
- detection of estrus
- mating management
- pregnancy determination
- estrous cycle manipulation.

Process/Skill Questions

- When is best time in a mare's estrous cycle to breed with fresh semen?
- What are the functions of the hormones produced by mares?

Task Number 77

Explain proper care during pregnancy and parturition.

Definition

Explanation should include

- nutritional requirements
- vaccinations
- deworming schedule
- exercise
- hoof care
- dental care.

Process/Skill Questions

- What does fescue toxicosis cause in a pregnant mare?
- What vaccinations should a pregnant mare receive? When should these be given?

Task Number 78

Explain the fundamentals of genetics, heritability, and performance traits.

Definition

Explanation should include

- explanation of the differences between DNA and ribonucleic acid (RNA), as well as between gene, allele, and chromosome
- description of how genetics determines coat color
- differences between phenotypic and genotypic traits
- the relationship between dominant and recessive traits
- the differences between heterozygous and homozygous
- genetic abnormalities
- use of the sum rule to calculate the probabilities of offspring with dominant and recessive phenotypes
- use of the product rule to predict frequencies of fertilization events.

Process/Skill Questions

- What is a phenotypic trait?
- What is a genotypic trait?
- What is the difference between dominant and recessive traits?
- What genetic abnormalities are common in various equine breeds?
- What are the definitions of *gene*, *allele* and *chromosome*?
- What is DNA? What function does it have?

- What is RNA? What function does it have?

Maintaining Health and Preventing Disease

Task Number 79

Identify the basic nutritional requirements of a horse.

Definition

Identification should include

- essential nutrients
 - carbohydrates
 - protein
 - fat
 - vitamins
 - minerals
 - water
- foraging requirements (i.e., types and amounts)
- supplemental feeds (e.g., concentrates, supplements, succulents).

Process/Skill Questions

- How does one determine the nutritional needs of a horse?
- How does one select the appropriate supplemental feeds for a horse?

Task Number 80

List the essential components for maintaining an equine healthcare program.

Definition

List should include

- developing an annual plan for vaccinations, deworming, and dental and hoof care
- maintaining health records
- creating a basic plan for horse nutrition
- identifying differences among vaccination needs for different ages (e.g., foals, broodmares, geriatric horses)
- planning for the care of an older horse
- describing sanitation procedures and protocols.

Process/Skill Questions

- When is it best to administer vaccinations? Why?
- How often should a horse receive hoof care?
- Why do a horse's teeth need to be checked and floated?
- When might a horse's health records be needed?
- How do the nutritional and management needs of an older horse differ from those of a younger horse?

Task Number 81

Identify the characteristics of a healthy, sick, and injured horse.

Definition

Identification should include

- describing factors to consider in the daily observation of a horse (e.g., attitude, eating and drinking habits)
- describing characteristics that indicate discomfort in a horse (e.g. lameness, biting or kicking at belly, frequently turning head to the flank, profuse sweating, continuous rolling)
- describing the characteristics of normal and abnormal nasal discharge
- identifying normal vital signs, including heart rate/pulse, respiration rate, temperature, mucous membrane color, and capillary refill time
- describing a healthy appearance (e.g., body condition score, healthy hooves, coat condition).

Process/Skill Questions

- What does it mean if a horse does not eat its feed?
- What does it mean if a horse is acting dull/depressed?
- Which is cause for concern: clear, thin mucus, or thick, yellow mucus?

Task Number 82

Define terms associated with horse health and disease prevention.

Definition

Definitions should include

- *infectious disease*
- *noninfectious disease*
- *bacterial infection*
- *viral infection*
- *fungus infection*
- *vaccinations.*

Process/Skill Questions

- What is the difference between an infectious and noninfectious disease?
- What measures should be taken to limit the spread of diseases among horses?
- What are the differences in the treatments of bacterial, viral, and fungal infections?
- What types of vaccinations are available (e.g., modified live, killed)?

Task Number 83

Describe equine diseases.

Definition

Description should include

- identifying the causes, symptoms, treatments, and preventative measures used for common infectious and noninfectious diseases to include
 - rabies
 - strangles
 - equine infectious anemia
 - equine influenza
 - rhinopneumonitis
 - Potomac horse fever
 - Lyme disease
 - encephalitis
 - West Nile virus
 - Cushing's disease
 - colic
 - heaves
 - tetanus
 - laminitis
 - thrush
- listing diseases that may be prevented by immunization
- explaining how infectious diseases are transmitted
- identifying the causes and treatments of skin conditions (e.g., rain rot, scratches, ringworm)
- procedure for introducing a new horse to a herd (i.e., quarantine and other safety measures to ensure biosecurity).

Process/Skill Questions

- Which diseases can be prevented using proper vaccination schedules?
- Which vaccinations are not very effective in the prevention of disease?
- How can one determine whether a disease is caused by bacteria, viruses, or fungi?
- Which diseases can be fatal?
- Which diseases are transmitted by insects?
- What is the Coggins Test? Why is it administered?
- What factors predispose a horse to developing Cushing's disease?
- What factors predispose a horse to developing laminitis?
- What are the different types of colic than can affect a horse?

Controlling Parasites

Task Number 84

Define terms associated with parasites and parasite control.

Definition

Definition should include terms such as

- *internal parasites*
- *external parasites*
- *hosts*
- *larvae*
- *zoonoses*
- *anthelmintics.*

Process/Skill Questions

- What are the differences and similarities between internal and external parasites?
- What is the relationship between a parasite and its host?
- What are common diseases associated with internal and external parasitic infestations?

Task Number 85

Identify internal and external parasites that commonly affect horses.

Definition

Identification should include

- classifying parasites as internal or external
- listing general symptoms of internal and external parasitic infection
- explaining the steps in the life cycles of internal parasites.

Process/Skill Questions

- What are the characteristics of a healthy horse?
- What are the characteristics of a horse with a parasitic infestation?
- What are common internal parasites?
- What are common external parasites?
- How do parasitic life cycles differ?
- Why is it critical to understand the life cycle of a parasite?

Task Number 86

Explain methods used to control internal and external parasites.

Definition

Explanation should include

- guidelines for the uses of dewormers
- anthelmintics effective against internal parasites
- insecticides effective against external parasites
- precautions necessary when using insecticides for external parasites
- factors that affect the susceptibility of horses to parasites
- pasture management.

Process/Skill Questions

- What is the recommended deworming protocol?
- What are common types of dewormers and insecticides?
- What precautions should be taken when administering dewormers and insecticides?
- What external factors (e.g., age, season, location, breeding, pasture management) can affect a parasite program?

Understanding the Fundamentals of Foot Care

Task Number 87

Describe the basics of hoof care.

Definition

Description should include

- trimming
- shoeing
- common hoof problems.

Process/Skill Questions

- What is a farrier's role in hoof care?
- What are the advantages and disadvantages of a shod vs. a barefoot horse?
- What is meant by *lameness*?
- What is laminitis, and how does it relate to hoof care?

Task Number 88

Identify internal and external parts of the hoof.

Definition

Identification should include

- *hoof wall*
- *coronet*
- *sole*
- *frog*
- *coffin bone*
- *plantar cushion*
- *navicular bone*
- *white line.*

Process/Skill Questions

- Why is it important for a horse owner to understand the structure of the hoof and the functions of its parts?
- What are the most important parts of a horse's hoof?
- What is the purpose of the frog?
- What role does the frog play in the circulatory system?

Task Number 89

Explain the relationships among the parts of the hoof.

Definition

Explanation should include the

- role of each major part of the hoof and how the parts work together
- three main functions of the hoof wall
- role of the white line in hoof care
- way the weight of the horse is carried on the foot.

Process/Skill Questions

- What role does the white line play in hoof care?
- Why would a flat-footed horse tend to receive more bruises and injuries to the sole?
- Why is the condition of the frog a good indicator of the health of the foot?

Task Number 90

List the components of a hoof-care program.

Definition

List should include

- cleaning and inspecting routinely
- maintaining sufficient moisture
- trimming periodically
- correcting minor imperfections
- treating foot diseases and injuries.

Process/Skill Questions

- Why is it important that hoof care begin at an early age?
- What are the ways that horse owners maintain adequate moisture and avoid brittle hooves?
- How can corrective trimming and shoeing correct minor imperfections?
- Why is routine hoof care important?
- Which animals benefit the most from being shod?

Task Number 91

Identify factors that cause unsoundness.

Definition

Identification should include

- conformation
- excessive use
- poor hoof care
- environmental issues
- injury
- diseases.

Process/Skill Questions

- What is the difference between a blemish and unsoundness?
- How can proper hoof care, including routine cleaning and trimming, prevent unsoundness?
- What are some of the most common types of unsoundness of the feet and legs?

Task Number 92

Describe methods for detecting lameness.

Definition

Description should include matching the suspected areas of lameness to the correct indications.

Process/Skill Questions

- What does a head nod at the trot indicate?
- What are the signs of rear leg lameness?
- How can trotting the horse in circles help to determine where a horse is lame?
- How can a horse owner determine areas of lameness?

Task Number 93

Identify basic farrier tools and their functions.

Definition

Identification should include

- hoof knife
- rasp
- nipper
- shoe puller
- nail clincher
- farrier's hammer
- clinch cutter
- hoof pick
- anvil
- clinching block
- farrier apron.

Process/Skill Questions

- Which tools are used for trimming and shaping the hoof?
- What tools would a farrier use to shape a horseshoe to properly fit the horse?
- What tools would a farrier need to remove an old horseshoe?
- What is the purpose of a farrier's apron?

Task Number 94

Identify conformation defects of the front and hind legs.

Definition

Identification should include

- base narrow
- base wide
- bowlegged

- calf-kneed
- bench knees
- knee-sprung
- knock-kneed
- sickle hocks
- straight hocks
- toed-in
- toed-out.

Process/Skill Questions

- How can conformation defects be used to predict a horse's future health and limitations?
- How can each of these conformation faults affect the athletic ability of the horse?
- How can corrective trimming and shoeing improve conformation faults?

Understanding Horse Nutrition

Task Number 95

Define terms associated with practical horse nutrition.

Definition

Definition should include

- *fats*
- *proteins*
- *minerals*
- *vitamins*
- *crude protein (CP)*
- *digestible energy (DE)*
- *total digestible nutrients (TDN)*
- *amino acids*
- *roughage*
- *concentrates*
- *as-fed basis*
- *dry-matter basis*
- *forage*
- *legume*
- *palatable*
- *silage*
- *pasturing*
- *supplement*
- *grain.*

Process/Skill Questions

- What is one compound that is very important to a horse but has no nutritional value?
- Why is the horse considered a monogastric species and not a ruminant?
- Why are most rations balanced on a dry-matter basis rather than on an as-fed basis?

Task Number 96

Assess the condition of a horse using body scoring.

Definition

Assessment should include

- identifying the six areas where a horse accumulates fat (i.e., shoulder, ribs, neck, withers, loin, tailhead)
- explaining body scoring (i.e., the numerical system used to assess a horse's body condition).

Process/Skill Questions

- What factors contribute to the fluctuation of a horse's body condition score?
- Does the breed of horse have an effect on the body condition score?
- How would a horse owner use the body condition score as a management tool?

Task Number 97

Explain the classes of nutrients and their purposes.

Definition

Explanation should include

- sources of key nutrients
- identifying functions of nutrients supplied by feed
- classifying symptoms of nutritional deficiencies (e.g., protein, mineral, vitamin, carbohydrate).

Process/Skill Questions

- Why do an active horse's nutritional requirements differ from that of an idle horse?
- What feedstuffs provide large amounts of carbohydrates?
- Why is calcium an important mineral during the developmental stages of a horse?

Task Number 98

Describe factors that affect nutrient delivery.

Definition

Description should include the effects of the following on digestion:

- Processing grains
- Age of a horse
- Dental health
- Mineral imbalance
- Parasites
- Rate of passage

Process/Skill Questions

- What feedstuffs are the most palatable?
- Why are some types of feed more easily digestible than others?

Task Number 99

Describe equine nutritional disorders.

Definition

Description should include disorders that are directly or indirectly related to nutrition, such as

- obesity
- white muscle disease
- colic
- ulcers
- laminitis
- Potomac horse fever.

Process/Skill Questions

- What are the symptoms of laminitis?
- What first aid therapies can be used to treat horses with colic, without requiring the services of a veterinarian?

Task Number 100

Explain how to formulate a balanced ration for an individual horse.

Definition

Explanation should include

- a horse's daily nutritional requirements
 - carbohydrates

- protein
- fats
- vitamins
- minerals
- water
- chlorine
- beta carotene
- amino acids (e.g., lysine, methionine, tryptophan, and threonine)
- critical considerations when balancing an equine ration
 - class of the horse
 - health of the horse
 - digestive system
 - parasite control
 - teeth
 - percentage of dietary protein needs (forage and grain)
 - energy needs (carbohydrates)
 - types of grain feed
 - roughage
 - pasture hay
 - lucerne hay
 - oaten hay
 - wheaten hay
 - quantity of feed, based on
 - body weight
 - body condition
 - work requirements
 - temperament
 - calcium and phosphorus
 - mature horse
 - young horse
 - weight of the horse
 - mineral and vitamin supplements.

Teacher resource: Wood, Craig H.; Jackson, Stephen; and Baker, John P., "[Formulating Rations for Horses](#)" (1988). Agriculture and Natural Resources Publications.

Process/Skill Questions

- How does the health of a horse affect its nutritional needs?
- What adjustments to a horse's ration might be necessary, depending on the condition of the teeth?

Selecting and Marketing the Horse

Task Number 101

Define terms associated with selecting and marketing a horse.

Definition

Definitions should include

- *dam*
- *dam's produce*
- *foundation breed*
- *genes*
- *sire*
- *line breeding*
- *pedigree*
- *performance record*
- *breed*
- *paternal*
- *maternal.*

Process/Skill Questions

- How do the breed, pedigree, and performance records assist in the horse selection process?
- How can a horse owner use breed, pedigree, and performance records when selling a horse?

Task Number 102

List general considerations in selecting a horse.

Definition

List should include

- horse's function
 - show
 - pleasure
 - work
- horse's training
- horse's pedigree
- horse's performance records
- horse's breed, sex, size, and color
- veterinary records and exam
- conformation
- horse's price
- rider's experience with horses
- rider's size
- rider's age
- facilities required.

Process/Skill Questions

- Why does a horse's function make a difference when selecting a horse?
- How can registration papers and performance records assist in selecting a horse?
- Why is it important to have a veterinarian check a horse before purchasing it?
- Why is the sex of the horse important in selecting one to purchase?

Task Number 103

Calculate a horse's height and weight.

Definition

Calculation should include

- using hands (i.e., one hand equals four inches or 10.2 centimeters) to measure height
- recognizing that the point of measurement is the distance from the highest point of the withers to the ground
- describing how weight is influenced by the breed, type, and age of a horse
- measuring weight in pounds using the formula $weight = [(heart\ girth \times heart\ girth \times body\ length)/300] + 50$.

Process/Skill Questions

- What is the method used to measure a horse's height in hands?
- How does the height and weight of a horse affect the selection process?

Task Number 104

Determine the age of a horse by the appearance and description of its teeth.

Definition

Determination should include

- identifying temporary and permanent teeth
- examining the structure of teeth and different stages of wear
- evaluating teeth for the disappearance of cups, angle of incidence, and the surface shape of the teeth.

Process/Skill Questions

- Why is it important to know the age of a horse?
- What are the four changes in the teeth that are indicators of age?
- What are a horse's temporary and permanent teeth and their approximate time of eruption?

Task Number 105

Explain the process for marketing a horse.

Definition

Explanation should include

- assessing supply and demand
- targeting potential customers
- using market strategies
- employing sales methods.

Process/Skill Questions

- How does supply and demand affect the way a horse is marketed?
- What advertising methods are used in the equine industry?

Judging the Horse

Task Number 106

Explain the purpose of judging horses.

Definition

Explanation should include the relationship between form and function and an examination of different disciplines and uses for horses.

Process/Skill Questions

- What is the purpose of judging?
- How can one's ability to judge a horse be helpful when selecting a horse to purchase?

Task Number 107

Identify equine conformation characteristics.

Definition

Identification should include

- explaining how the skeletal system influences conformation
- straightness of the legs

- breed-specific conformation differences
- conformation faults.

Process/Skill Questions

- How does the structure of the skeleton influence conformation?
- What are some conformation faults?
- What are some breed-specific conformation differences?

Task Number 108

Describe factors to consider in judging halter and performance classes.

Definition

Description should include

- conformation
- balance and quality
- structural correctness
- breed and sex characteristics
- muscling
- type of class.

Process/Skill Questions

- How does a horse's balance affect movement?
- What are the different types of performance classes?
- What is judged in a Western pleasure class?

Task Number 109

Describe characteristics of a horse's anatomy.

Definition

Description should include desirable and undesirable characteristics of the head, mouth, neck, withers, back, shoulders, legs, feet, and breed character.

Process/Skill Questions

- How do undesirable leg characteristics affect a horse on the move?
- What are examples of undesirable leg characteristics?
- What are examples of undesirable mouth characteristics?
- How do breed characteristics affect the horse's anatomy?

Task Number 110

Explain the system of examination and characteristics for judging.

Definition

Explanation should include

- identifying the class being judged
- using observation methods to judge a horse
- identifying desirable traits
- ranking the traits to determine how to place a class.

Process/Skill Questions

- Why is it important to know what type of class is being judged?
- What traits are looked for when judging Western pleasure, hunter under saddle, and halter?

Task Number 111

Identify common unsoundness and blemishes of horses.

Definition

Identification should include types and causes of unsoundness and blemishes.

Process/Skill Questions

- Why is it important to identify unsoundness and blemishes when selecting a horse?
- How do blemishes affect a horse's placing?

Task Number 112

Prepare oral reasons.

Definition

Preparation should include

- listing important factors to consider when taking notes (e.g., being accurate)
- listing important items to consider when organizing reasons for presentation (e.g., preparing a notebook, knowing terms)
- writing favorable comparisons and criticisms for judging a performance class (e.g., grants, criticisms)
- formatting reasons
- placing in a logical manner.

Process/Skill Questions

- How does taking good notes help place a class?
- How does preparing a notebook help with organization of reasons?
- How is a set of reasons formatted?

Task Number 113

Present oral reasons.

Definition

Presentation should include discussing techniques for delivering reasons, such as

- format
- accuracy in placing
- voice
- eye contact
- position from judge
- delivery.

Process/Skill Questions

- Why is volume important when giving reasons?
- What are some important things to do during one's presentation when giving reasons?
- How would one present a set of reasons?

Managing the Stable

Task Number 114

Define terms associated with facilities and stable management.

Definition

Definition should include

- *records*
- *stress*
- *vices*
- *deworming rotation*
- *pasture management*
- *vaccination schedule*

- *tying-up*
- *colic*
- *permanent identification*
- *tattooing*
- *freeze branding*
- *hot branding*
- *microchip*
- *mucking*
- *castration/gelding*
- *weaning*
- *ventilation*
- *endophyte*
- *fescue*.

Process/Skill Questions

- Why is it important to understand common terms associated with stable management?
- How can stable management be defined?

Task Number 115

Explain herd management.

Definition

Explanation should include

- biosecurity measures
- number of horses per acre
- herd separation by age, gender, and purpose
- behavioral and weight management considerations.

Process/Skill Questions

- What are reasons for separating horses by age, gender, or purpose?
- What measures can one take to address abnormal behavior in horses?

Task Number 116

Identify the methods of pasture management.

Definition

Identification should include

- pasture rotation and soil testing to determine the proper amounts of lime and nutrients
- stocking rate of at least one acre of quality pasture per horse

- removal or breakup of manure
- removal of poisonous plants.

Process/Skill Questions

- How can pasture destruction be reduced around feeding, watering, and resting areas?
- Why is it financially important to soil test pastures before liming or fertilizing?
- How do endophytes affect a horse?

Task Number 117

Identify items to consider when planning equine facilities.

Definition

Identification should include

- safety requirements for an equine facility
- consideration of the types, breeds, and ages of the horses
- recommended stall sizes
- characteristics of stall construction
- location of a barn
- light, ventilation, storage space, feeding, and watering requirements
- requirements for feed and bedding
- waste management.

Process/Skill Questions

- Why does a senior horse need special consideration?
- Why is it important to carefully consider the location of a barn?

Task Number 118

List the factors to consider in providing proper stable management.

Definition

List should include

- keeping accurate records for each horse (e.g., deworming, farrier visits, vaccinations, injuries/surgeries)
- using veterinarian-approved deworming and vaccination schedules
- reducing stress by maintaining a regular feeding schedule
- maintaining safe and sanitary facilities.

Process/Skill Questions

- Why is it important to keep accurate records for each horse?

- What would be an appropriate care schedule for five horses being kept on a ten-acre pasture behind a house?

Task Number 119

List the types of horse bedding.

Definition

List should include

- sawdust
- shavings
- straw
- pellets
- ground and processed corncobs
- hay
- peat moss
- shredded/pelletized newspaper.

Process/Skill Questions

- What tree species should not be used for bedding?
- How do the different types of bedding compare in terms of availability, price, and absorbency?

Task Number 120

List the types of horse fencing and shelter.

Definition

List should include

- types of fences (e.g., board, vinyl, high tensile, electric, wire mesh, woven wire)
- advantages of a good fence
- types of shelter.

Process/Skill Questions

- How do the different types of fencing compare in price per linear foot?
- Why should barbed wire not be used for horse fencing?
- What are some advantages and disadvantages of the different types of fencing?

Task Number 121

Describe methods for storing tack.

Definition

Description should include location, covered vs. uncovered storage, and climate conditions.

Process/Skill Questions

- How does the method of storage affect the longevity of tack?
- How do common climatic factors (e.g., temperature, moisture, season) affect tack?

Task Number 122

Define terms associated with transporting a horse.

Definition

Definition should include terms such as

- *trailer*
- *Coggins test*
- *trailer tie*
- *quick-release knot*
- *halter*
- *headcollar*
- *head bumper*
- *tail guard*
- *shipping boots*
- *travel bandages*
- *haynet/haybag*
- *vaccination record.*

Process/Skill Questions

- What is the difference between a headcollar and a halter?
- What feeding and watering schedule should be used when traveling with horses over long distances?

Task Number 123

Describe methods and procedures for transporting horses.

Definition

Description should include

- method of transport
- destination considerations
- pre-transport preparation
- loading procedures/loading density

- feeding, watering, ventilation, temperature, partitions
- in-transit inspections and rest periods
- unloading procedures
- responsibilities and legalities
- emergency euthanasia.

Process/Skill Questions

- What are some methods for minimizing stress?
- Why is it critical to offer food and water to horses after they are unloaded?
- Why is access to food and water important when transporting horses?
- When are rest periods a disadvantage?

SOL Correlation by Task

39	Identify the role of supervised agricultural experiences (SAEs) in agricultural education.	English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5
40	Participate in an SAE.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8
41	Identify the benefits and responsibilities of FFA membership.	English: 9.5, 9.6, 9.7, 9.8, 10.5, 10.6, 10.7, 10.8, 11.5, 11.6, 11.7, 11.8, 12.5, 12.6, 12.7, 12.8
42	Describe leadership characteristics and opportunities as they relate to agriculture and FFA.	English: 9.5, 10.5, 11.5, 12.5 History and Social Science: VUS.8, VUS.9, VUS.10, VUS.11, WHI.8, WHI.10, WHI.11
43	Apply for an FFA degree and/or an agricultural proficiency award.	English: 9.5, 10.5, 11.5, 12.5
44	Define terms associated with equine science.	English: 9.3, 10.3, 11.3, 12.3
45	Describe the evolutionary history and development of horses.	English: 9.5, 10.5, 11.5, 12.5 History and Social Science: WHI.2, WHI.4
46	Describe the major types, breeds, and classes of horses.	English: 9.5, 10.5, 11.5, 12.5 Science: BIO.6
47	List job opportunities in the equine industry.	English: 9.6, 9.7, 10.6, 10.7, 11.6, 11.7, 12.6, 12.7 History and Social Science: GOVT.14
48	Describe the uses of equids.	English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5
49	Identify parts of the horse.	English: 9.5, 10.5, 11.5, 12.5
50	Identify markings and colors of the horse.	English: 9.5, 10.5, 11.5, 12.5
51	Identify the natural gaits and movements of horses.	English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5
52	Identify common items of tack and equipment.	English: 9.5, 10.5, 11.5, 12.5
53	Identify the parts of a halter and their purposes.	English: 9.5, 10.5, 11.5, 12.5
54	Identify the types of bridles and the purpose of each.	English: 9.5, 10.5, 11.5, 12.5
55	Identify the types of bits and the purpose of each.	English: 9.5, 10.5, 11.5, 12.5
56	Identify the parts of Western and English saddles.	English: 9.5, 10.5, 11.5, 12.5

57	Identify artificial riding aids and the purpose of each.	English: 9.5, 10.5, 11.5, 12.5
58	Identify safety factors when handling a horse.	English: 9.5, 9.6, 9.7, 10.5, 10.6, 10.7, 11.5, 11.6, 11.7, 12.5, 12.6, 12.7
59	Describe how to halter a horse.	English: 9.5, 9.6, 9.7, 10.5, 10.6, 10.7, 11.5, 11.6, 11.7, 12.5, 12.6, 12.7
60	Describe the process for tying a horse.	English: 9.5, 10.5, 11.5, 12.5
61	Describe how to groom a horse.	English: 9.5, 9.6, 9.7, 10.5, 10.6, 10.7, 11.5, 11.6, 11.7, 12.5, 12.6, 12.7
62	Differentiate among strategies for handling horses of different ages.	English: 9.5, 10.5, 11.5, 12.5
63	Differentiate among categories of horse behavior.	English: 9.5, 10.5, 11.5, 12.5
64	Identify approaches to ground training a horse.	English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5
65	Identify the parts and functions of the digestive system.	English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5 Science: BIO.4
66	Identify the parts and functions of the circulatory system.	English: 9.5, 10.5, 11.5, 12.5 Science: BIO.4
67	Identify the parts and functions of the respiratory system.	English: 9.5, 10.5, 11.5, 12.5 Science: BIO.4
68	Identify the parts and functions of the nervous system.	English: 9.5, 10.5, 11.5, 12.5 Science: BIO.4
69	Identify the parts and functions of the renal and urinary systems.	English: 9.5, 10.5, 11.5, 12.5 Science: BIO.4
70	Identify the parts and functions of the skeletal system.	English: 9.5, 10.5, 11.5, 12.5 Science: BIO.4
71	Identify the parts and functions of the muscular system.	English: 9.5, 10.5, 11.5, 12.5 Science: BIO.4
72	Explain the endocrine, exocrine, immune, and integumentary systems.	English: 9.5, 10.5, 11.5, 12.5 Science: BIO.4
73	Define terms associated with equine reproduction.	English: 9.3, 10.3, 11.3, 12.3
74	Explore the fundamentals of equine reproductive technology.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8
75	Explain the physiology of the reproductive systems of a stallion and mare.	English: 9.5, 10.5, 11.5, 12.5
76	Explain the estrous cycle and its effect on breeding.	English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5
77	Explain proper care during pregnancy and parturition.	English: 9.5, 10.5, 11.5, 12.5
78	Explain the fundamentals of genetics, heritability, and performance traits.	English: 9.5, 10.5, 11.5, 12.5 Mathematics: AFDA.6, PS.11*, PS.12*

79	Identify the basic nutritional requirements of a horse.	English: 9.5, 10.5, 11.5, 12.5
80	List the essential components for maintaining an equine healthcare program.	English: 9.1, 9.5, 9.6, 9.7, 10.1, 10.5, 10.6, 10.7, 11.1, 11.5, 11.6, 11.7, 12.1, 12.5, 12.6, 12.7
81	Identify the characteristics of a healthy, sick, and injured horse.	English: 9.5, 10.5, 11.5, 12.5
82	Define terms associated with horse health and disease prevention.	English: 9.3, 10.3, 11.3, 12.3
83	Describe equine diseases.	English: 9.5, 9.6, 9.7, 10.5, 10.6, 10.7, 11.5, 11.6, 11.7, 12.5, 12.6, 12.7 Science: BIO.4
84	Define terms associated with parasites and parasite control.	English: 9.3, 10.3, 11.3, 12.3
85	Identify internal and external parasites that commonly affect horses.	English: 9.5, 9.6, 9.7, 10.5, 10.6, 10.7, 11.5, 11.6, 11.7, 12.5, 12.6, 12.7
86	Explain methods used to control internal and external parasites.	English: 9.5, 10.5, 11.5, 12.5
87	Describe the basics of hoof care.	English: 9.3, 10.3, 11.3, 12.3
88	Identify internal and external parts of the hoof.	English: 9.5, 10.5, 11.5, 12.5
89	Explain the relationships among the parts of the hoof.	English: 9.5, 10.5, 11.5, 12.5
90	List the components of a hoof-care program.	English: 9.6, 9.7, 10.6, 10.7, 11.6, 11.7, 12.6, 12.7
91	Identify factors that cause unsoundness.	English: 9.5, 10.5, 11.5, 12.5
92	Describe methods for detecting lameness.	English: 9.5, 10.5, 11.5, 12.5
93	Identify basic farrier tools and their functions.	English: 9.5, 10.5, 11.5, 12.5
94	Identify conformation defects of the front and hind legs.	English: 9.5, 10.5, 11.5, 12.5
95	Define terms associated with practical horse nutrition.	English: 9.3, 10.3, 11.3, 12.3
96	Assess the condition of a horse using body scoring.	English: 9.5, 10.5, 11.5, 12.5
97	Explain the classes of nutrients and their purposes.	English: 9.5, 10.5, 11.5, 12.5
98	Describe factors that affect nutrient delivery.	English: 9.5, 10.5, 11.5, 12.5
99	Describe equine nutritional disorders.	English: 9.5, 10.5, 11.5, 12.5
100	Explain how to formulate a balanced ration for an individual horse.	English: 9.5, 10.5, 11.5, 12.5 Mathematics: A.1, A.4
101	Define terms associated with selecting and marketing a horse.	English: 9.3, 10.3, 11.3, 12.3
102	List general considerations in selecting a horse.	English: 9.6, 9.7, 10.6, 10.7, 11.6, 11.7, 12.6, 12.7
103	Calculate a horse's height and weight.	English: 9.5, 10.5, 11.5, 12.5 Mathematics: A.1, A.4
104	Determine the age of a horse by the appearance and description of its teeth.	English: 9.5, 10.5, 11.5, 12.5
105	Explain the process for marketing a horse.	English: 9.5, 10.5, 11.5, 12.5 History and Social Science: GOVT.14

106	Explain the purpose of judging horses.	English: 9.5, 10.5, 11.5, 12.5
107	Identify equine conformation characteristics.	English: 9.5, 10.5, 11.5, 12.5
108	Describe factors to consider in judging halter and performance classes.	English: 9.5, 10.5, 11.5, 12.5
109	Describe characteristics of a horse's anatomy.	English: 9.5, 10.5, 11.5, 12.5
110	Explain the system of examination and characteristics for judging.	English: 9.5, 10.5, 11.5, 12.5
111	Identify common unsoundness and blemishes of horses.	English: 9.5, 10.5, 11.5, 12.5
112	Prepare oral reasons.	English: 9.1, 9.5, 9.6, 9.7, 10.1, 10.5, 10.6, 10.7, 11.1, 11.5, 11.6, 11.7, 12.1, 12.5, 12.6, 12.7 History and Social Science: GOVT.1
113	Present oral reasons.	English: 9.1, 10.1, 11.1, 12.1
114	Define terms associated with facilities and stable management.	English: 9.3, 10.3, 11.3, 12.3
115	Explain herd management.	English: 9.5, 10.5, 11.5, 12.5
116	Identify the methods of pasture management.	English: 9.5, 10.5, 11.5, 12.5
117	Identify items to consider when planning equine facilities.	English: 9.5, 10.5, 11.5, 12.5 History and Social Science: GOVT.1
118	List the factors to consider in providing proper stable management.	English: 9.6, 9.7, 10.6, 10.7, 11.6, 11.7, 12.6, 12.7
119	List the types of horse bedding.	English: 9.6, 9.7, 10.6, 10.7, 11.6, 11.7, 12.6, 12.7
120	List the types of horse fencing and shelter.	English: 9.6, 9.7, 10.6, 10.7, 11.6, 11.7, 12.6, 12.7
121	Describe methods for storing tack.	English: 9.5, 10.5, 11.5, 12.5
122	Define terms associated with transporting a horse.	English: 9.3, 10.3, 11.3, 12.3
123	Describe methods and procedures for transporting horses.	English: 9.5, 10.5, 11.5, 12.5

FFA Information

The National FFA is an organization dedicated to preparing members for leadership and careers in the science, business, and technology of agriculture. Local, state, and national activities and award programs provide opportunities to apply knowledge and skills acquired through agriculture education.

For additional information about the student organization, see the [National FFA website](#) and the [Virginia FFA Association website](#).

Entrepreneurship Infusion Units

Entrepreneurship Infusion Units may be used to help students achieve additional, focused competencies and enhance the validated tasks/competencies related to identifying and starting a new business venture. Because the unit is a complement to certain designated courses and is not mandatory, all tasks/competencies are marked “optional.”

Appendix: Credentials, Course Sequences, and Career Cluster Information

Industry Credentials: Only apply to 36-week courses

- Animal Systems Assessment
- College and Work Readiness Assessment (CWRA+)
- Customer Service Specialist (CSS) Examination
- Equine Management and Evaluation Examination
- Equine Science - Year Certification Examination
- National Career Readiness Certificate Assessment
- Small Animal Science and Technology Assessment
- Workplace Readiness Skills for the Commonwealth Examination

Concentration sequences: *A combination of this course and those below, equivalent to two 36-week courses, is a concentration sequence. Students wishing to complete a specialization may take additional courses based on their career pathways. A program completer is a student who has met the requirements for a CTE concentration sequence and all other requirements for high school graduation or an approved alternative education program.*

- Agricultural Business Fundamentals I (8022/36 weeks)
- Agricultural Business Management III (8026/36 weeks)
- Agricultural Business Operations II (8024/36 weeks)
- Biological Applications in Agriculture (8086/36 weeks)
- Biotechnology Applications in Agriculture (8087/36 weeks)
- Biotechnology Foundations in Agricultural and Environmental Science (8085/36 weeks)
- Equine Science, Advanced (8094/36 weeks)
- Introduction to Animal Systems (8008/36 weeks)
- Livestock Production Management (8012/36 weeks)
- Small Animal Care I (8083/36 weeks)
- Small Animal Care II (8084/36 weeks)
- Veterinary Science I (8088/36 weeks, 140 hours)
- Veterinary Science II (8089/36 weeks, 140 hours)

Career Cluster: Agriculture, Food and Natural Resources	
Pathway	Occupations
Agribusiness Systems	Agricultural Commodity Broker Agricultural Products Sales Representative Farm Products Purchasing Agent and Buyer Farm, Ranch Manager Farmer/Rancher Feed, Farm Supply Store Sales Manager Sales Manager
Animal Systems	Agricultural Products Sales Representative Animal Breeder, Husbandry Animal Geneticist Animal Nutritionist Animal Scientist Veterinarian Veterinary Technician

Career Cluster: Agriculture, Food and Natural Resources	
Pathway	Occupations
Environmental Service Systems	Agricultural Products Sales Representative Environmental Compliance Inspector Environmental Sampling and Analysis Technician Hazardous Materials Handler Secondary School Teacher
Food Products and Processing Systems	Biochemist Food Scientist
Natural Resources Systems	Microbiologist Outdoor Recreation Guide Park Manager Park Technician Range Technician Wildlife Manager
Power, Structural, and Technical Systems	Agricultural Engineer Agricultural Equipment Operator Agricultural Equipment Parts Manager Agricultural Equipment Parts Salesperson Machinist Parts Manager

Career Cluster: Education and Training	
Pathway	Occupations
Teaching and Training	Secondary School Teacher Teacher Assistant Training Consultant/Training Specialist

Career Cluster: Science, Technology, Engineering and Mathematics	
Pathway	Occupations
Engineering and Technology	Biomedical Engineer
Science and Mathematics	Animal Nutritionist Animal Scientist Biologist Chemist Secondary School Teacher Technical Writer Toxicologist Veterinarian Veterinary Assistant