

Course	Agricultural Science I
Unit	Equine Science
Lesson	Hoof Care
Estimated Time	50 minutes

Student Outcome

The student will be able to identify the various structures of the hoof, along with care of the hoof and associated health problems.

Learning Objectives

1. Identify the structures of the hoof.
2. Examine the hoof for various conditions.
3. Discuss the proper time to trim the hoof.
4. Discuss various methods of shoeing.
5. List types of hoof abnormalities.

Grade Level Expectations

Resources, Supplies & Equipment, and Supplemental Information

References

1. PowerPoint Slides
 - ☐ PPT 1 - External Parts of the Foot (Side View)
 - ☐ PPT 2 - External Parts of the Foot (Bottom View)
 - ☐ PPT 3 - Internal Parts of the Foot
2. Assignment Sheets
 - ☐ AS 1 - External Parts of the Foot
 - ☐ AS 2 - Internal Parts of the Foot
3. *Equine Science* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1995.
4. *Equine Science Curriculum Enhancement*. University of Missouri-Columbia: Instructional Materials Laboratory, 2003.

Supplies & Equipment

- ☐ Hoof model
- ☐ Photographs/slides of diseased hoofs

Supplemental Information

1. Internet Sites
 - ☐ American Farrier's Association. Accessed June 15, 2007, from <http://www.americanfarriers.org>.
 - ☐ About Hoof Care, Horse Shoeing and Farriers. Horses and Horse Information. Accessed June 18, 2007, from <http://www.horses-and-horse-information.com/horseshoes.shtml>.
 - ☐ No Hoof—No Horse. Accessed June 18, 2007, from <http://www.nohoof->

nohorse.com/pictures.html.

❑ Natural Hoof Care. Accessed June 18, 2007, from <http://www.naturalhoofcare.net>.

2. Print






❑ Ensminger, M. E., and C. J. Hammer. *Equine Science*. 8th ed. Upper Saddle River, NJ: Pearson Education, Inc., 2004.

Interest Approach



Use a hoof model with a cutaway section that shows the inner structures of the hoof. Also, display photographs of injured and diseased hoofs. Ask students if they have had any experiences with lame horses.

Communicate the Learning Objectives

1. Identify the structures of the hoof.
2. Examine the hoof for various conditions.
3. Discuss the proper time to trim the hoof.
4. Discuss various methods of shoeing.
5. List types of hoof abnormalities.

Instructor Directions	Content Outline
<p>Objective 1</p> <p><i>The hoof is a complex structure. It consists of four major bones that provide support and locomotion. These bones are the cannon, pastern, coffin, and navicular. Use PPT 1 through 3 to aid the discussion. Then have students complete AS 1 and 2.</i></p> <ul style="list-style-type: none"> PPT 1 - External Parts of the Foot (Side View) PPT 2 - External Parts of the Foot (Bottom View) PPT 3 - Internal Parts of the Foot AS 1 - External Parts of the Foot AS 2 - Internal Parts of the Foot	<p>Identify the structures of the hoof.</p> <ol style="list-style-type: none">1. Cannon2. Pastern3. Coffin4. Navicular5. Corneal band6. Hoof wall7. Frog8. Cleft9. Heel
<p>Objective 2</p> <p><i>Regular inspection of the hoof is important to the horse's health. There is an old saying: "A horse is only as good as its feet." Stress to students the importance of good care for the horse's feet.</i></p>	<p>Examine the hoof for various conditions.</p> <ol style="list-style-type: none">1. Thrush2. Chipping3. Drying out4. Cracks5. Prevention6. Maintenance

Instructor Directions	Content Outline
	7. Cleaning
<p>Objective 3</p> <p><i>The outer wall of the hoof grows about 3/8" per month. If the horse is kept in a barn or doesn't have adequate room to run and naturally keep hoofs worn down, they will need monthly trimming by the owner.</i></p>	<p>Discuss the proper time to trim the hoof.</p> <ol style="list-style-type: none"> 1. Nipping 2. Filing 3. Quicking 4. Rules of thumb
<p>Objective 4</p> <p><i>In the wild, horses do not need trimming or shoeing. Shoeing is the result of the domestication of the horse and its resulting uses. Proper shoeing is vital to the horse's health and should be done by a qualified farrier. Improper shoeing can lead to serious problems.</i></p>	<p>Discuss various methods of shoeing.</p> <p>NOTE: Whichever method is used, shoeing should only be done by a skilled farrier.</p> <p>Methods</p> <ol style="list-style-type: none"> 1. Hot shoeing involves heating a horseshoe and shaping and sizing it to the hoof's shape. 2. Cold shoeing shapes and sizes the shoe without heating it. <p>When shoeing is necessary</p> <ol style="list-style-type: none"> 1. When trail riding to protect the hoof from excessive wear 2. For corrective measures, such as stance or gait defects, hoof wall cracks, stone bruises, and tendonitis <p>Natural Hoof Care</p> <ol style="list-style-type: none"> 1. The care and use of barefooted horses 2. A natural alternative to shoeing
<p>Objective 5</p> <p><i>The hoof is the most important part of a horse's body. Abnormalities must be treated quickly, or there is the risk of permanent damage or even death.</i></p>	<p>List types of hoof abnormalities.</p> <ol style="list-style-type: none"> 1. Lameness - any disorder that causes the horse to have sensitive or sore hooves. Treatment depends on the exact condition. 2. Stone bruise - a bruising of the sole that can lead to an abscess. This condition is caused by impact with a hard object, such as a stone. 3. Founder (laminitis) - a condition that can be caused by several things, such as overfeeding of grain or lush legume or fescue, watering while the animal is hot, or

Instructor Directions	Content Outline
	<p>inflammation of the uterus after the mare has foaled. In founder, the laminae become inflamed.</p> <ol style="list-style-type: none"> 4. Naviculitis - inflammation of the navicular bone. In some cases, the bone can rotate downward. This disease's cause is difficult to determine and difficult to treat. Treatment involves special shoeing or in some cases nerve deadening by a veterinarian. 5. Hoof cracks - vertical cracks in the outer surface of the hoof wall. This can be caused by excess drying and can be prevented by using hoof dressing. 6. Thrush - caused by anaerobic bacteria that grows around the frog and produces a foul odor. Unsanitary stalls are usually the cause of this disease, and it can be treated easily with bleach or an over-the-counter drug. Prevention (by keeping stalls clean and dry) is the best solution.
<p>Application:</p> <p> AS 1 - External Parts of the Foot</p> <p> AS 2 - Internal parts of the Foot</p>	<p>Answers to AS 1</p> <ol style="list-style-type: none"> 1. a 2. d 3. f 4. b 5. e 6. g 7. d 8. a 9. f 10. e 11. c 12. g <p>Answers to AS 2</p> <ol style="list-style-type: none"> 1. e 2. d 3. c 4. g 5. a 6. f 7. h 8. b <p>Other activities</p>

Instructor Directions	Content Outline
	<ol style="list-style-type: none"> 1. Have students pick out and clean a hoof. 2. Arrange for a farrier to demonstrate shoeing. 3. If accessible, arrange for students to visit a veterinarian clinic or hospital and evaluate horses for hoof abnormalities. 4. Bring in samples of different horseshoes and relate how they help correct various problems. 5. Check with a local veterinarian for a hoof from a deceased horse. This hoof can be used to show the relationship of hoof parts to each other and effects of naviculitis or laminitis. 6. Research Natural Hoof Care as an alternative method to correct hoof problems.
Closure/Summary	<p>The hoof is an important structure that makes or breaks a horse. Regular inspections should be done; cleaning, trimming, and shoeing should be done when needed.</p>
Evaluation: Quiz	<p>Answers:</p> <ol style="list-style-type: none"> 1. b 2. c 3. d 4. b 5. a 6. a 7. Any two of the following: <ol style="list-style-type: none"> a. Lameness - any disorder that causes the horse to have sensitive or sore hooves. Treatment depends on the exact condition. b. Stone bruise - a bruising of the sole that can lead to an abscess. This condition is caused by impact with a hard object, such as a stone. c. Founder (laminitis) - a condition that can be caused by several things, such as overfeeding of grain or lush legume, watering while the animal is hot, or inflammation of the uterus after the mare has foaled. In founder, the laminae become inflamed. d. Naviculitis - inflammation of the navicular bone. In some cases, the bone can rotate downward. This disease's cause is difficult to determine and difficult to treat. Treatment involves special shoeing or in some cases nerve deadening by a veterinarian.

Instructor Directions	Content Outline
	<ul style="list-style-type: none"> e. Hoof cracks - vertical cracks in the outer surface of the hoof wall. This can be caused by excess drying and can be prevented by using hoof dressing. 8. Cold shoeing is done with preformed shoes, while hot shoeing involves making the shoe from scratch in a forge. 9. Thrush is a fungus cause by wet conditions. It has a distinguishable odor and can be prevented by keeping stalls clean and dry. Treatments include a mild chlorine bleach solution. 10. d 11. a 12. f 13. e 14. g 15. c