

Sheep Kit Curriculum



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Table of Contents

Table of Contents	3
Author	4
Curriculum Structure	5
Lesson Structure	5
Lesson One – Sheep Breeds	6
FOCUS: Intro to Sheep Breeds	7
LEARN: Common Sheep Breeds and Traits.....	10
REVIEW: Recap of Sheep Breeds	24
Lesson Two – Sheep Feeding and Management	27
FOCUS: Intro to Sheep Feeding and Management.....	28
LEARN: Sheep Dietary Needs and Management	31
REVIEW: Recap of Sheep Feeding and Management.....	44
Lesson Three – Sheep Diseases and Parasites	47
FOCUS: Intro to Diseases and Parasites of Sheep	48
LEARN: Sheep Diseases and Parasites.....	51
REVIEW: Recap of Sheep Diseases and Parasites	82
Lesson Four – Sheep Reproduction	85
FOCUS: Intro to Sheep Gestation Length.....	86
LEARN: Sheep Reproduction.....	89
REVIEW: Sheep Reproduction Recap.....	107
Lesson Five – Sheep Body Systems	110
FOCUS: Intro to Sheep Body Systems	111
LEARN: Sheep Body Systems.....	114
REVIEW: Recap of Sheep Body Systems	123
Lesson Six – Sheep Judging	126
FOCUS: Intro To Sheep Judging	127
LEARN: Sheep Judging.....	130
REVIEW: Recap of Sheep Judging	146
Lesson Seven – Sheep Production Careers	149
FOCUS: Intro to Careers in Sheep Production	150
LEARN: Careers in Sheep Production.....	153
REVIEW: Recap of Careers in Sheep Production	172
Sources	177

Author



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Curriculum Structure

The *Sheep Kit Curriculum* is composed of the following lessons. Approximate lesson times are included.

Lesson	Title	Approximate Time
One	Sheep Breeds	60 minutes
Two	Sheep Feeding and Management	60 minutes
Three	Sheep Diseases and Parasites	60 minutes
Four	Sheep Reproduction	60 minutes
Five	Sheep Body Systems	60 minutes
Six	Sheep Judging	60 minutes
Seven	Marketing, Careers, and Training	60 minutes
	Total	7 hours

Lesson Structure

Each lesson begins with a Lesson Overview, Lesson Objectives, and a Lesson at a Glance table that lists lesson activities, materials required, suggested preparation steps, and approximate class time.

Lesson Sections

The actual lesson follows the overview, which contains some of the sections described below.

FOCUS

Every lesson begins with a FOCUS activity intended to capture participants' attention. This may be in the form of a small or large class discussion, a game, a demonstration, or a review of previous lesson information. During this activity, participants are introduced to the topic of the lesson.

LEARN

The LEARN activity in each lesson varies in its presentation mode. It may be a slide presentation, group activity, or demonstration.

REVIEW

The majority of lessons end with a REVIEW activity intended to briefly review the lesson's key messages or main points.

Lesson One – Sheep Breeds

Lesson Overview

Participants will be introduced to sheep breeds and terms used in sheep production.

Lesson Objectives

After completing this lesson, participants will be able to:

- Describe common terms used in sheep production
- List common characteristics of each sheep breed
- List the four uses of sheep

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Intro to Sheep Breeds</i> worksheet • <i>Intro to Sheep Breeds</i> – Answer Key	1. Print/photocopy <i>Intro to Sheep Breeds</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Sheep Breeds</i> slide presentation • <i>Common Sheep Breeds and Traits</i> worksheet • <i>Common Sheep Breeds and Traits</i> – Answer Key	1. Print/photocopy <i>Common Sheep Breeds and Traits</i> worksheet (one per participant) 2. Prepare the <i>Sheep Breeds</i> slide presentation for viewing	40 minutes
REVIEW	• Sheep Kit Breed ID Flashcards • <i>Sheep Breeds Quiz</i> • <i>Sheep Breeds Quiz</i> – Answer Key	1. Distribute the Sheep Kit Breed ID Flashcards (one per group) 2. Print/photocopy <i>Sheep Breeds Quiz</i> (one per participant)	10 minutes

Lesson One – Sheep Breeds

FOCUS: Intro to Sheep Breeds

10 minutes

Purpose:

Participants will be introduced to the sheep breeds by working in pairs to fill out a worksheet. Once completed, the participants will exchange papers as a review of the information as the instructor goes over the answers

Materials:

- *Intro to Sheep Breeds* worksheet
- *Intro to Sheep Breeds – Answer Key*

Facilitation Steps:

1. Have participants pair up and distribute the worksheet.
2. Provide directions on how to fill the worksheet out and give participants five minutes to complete it.
3. Have the participants return to their seats and exchange papers.
4. Instruct the participants to grade the worksheet as you go over the correct answers.
5. Collect the worksheet.

Name: _____ Class: _____

Intro to Sheep Breeds

Directions: Using the answers at the bottom of the page, match them to the terms numbered by placing the correct letter in the blank.

1. Lamb _____
2. Ram _____
3. Suckling _____
4. Ewe _____
5. Mutton _____
6. Fleece _____
7. Tup lamb _____
8. Flock _____
9. Wether _____
10. Polled _____
11. Hogget _____
12. Gimmer lamb _____
13. Wool _____

- A. An animal naturally born without horns
- B. A baby sheep
- C. Sheep meat
- D. A group of sheep
- E. A male sheep with his sexual organs intact
- F. A female lamb
- G. A female lamb with offspring
- H. A male lamb
- I. A female sheep that is not spayed
- J. The wool from a single sheep in the shorn grease state
- K. A yearling sheep
- L. A castrated male sheep
- M. The fine, soft, curly or wavy hair forming the coat of a sheep

Intro to Sheep Breeds – Answer Key

Directions: Using the answers at the bottom of the page, match them to the terms numbered by placing the correct letter in the blank.

1. Lamb _____ B _____
2. Ram _____ E _____
3. Suckling _____ G _____
4. Ewe _____ I _____
5. Mutton _____ C _____
6. Fleece _____ J _____
7. Tup lamb _____ H _____
8. Flock _____ D _____
9. Wether _____ L _____
10. Polled _____ A _____
11. Hogget _____ K _____
12. Gimmer lamb _____ F _____
13. Wool _____ M _____

- A. An animal naturally born without horns.
- B. A baby sheep
- C. Sheep meat
- D. A group of sheep
- E. A male sheep with his sexual organs intact
- F. A female lamb
- G. A female lamb with offspring
- H. A male lamb
- I. A female sheep that is not spayed
- J. The wool from a single sheep in the shorn grease state
- K. A yearling sheep
- L. A castrated male sheep
- M. The fine, soft, curly or wavy hair forming the coat of a sheep

Lesson One – Sheep Breeds

LEARN: Common Sheep Breeds and Traits

40 minutes

Purpose:

Participants will be introduced to common sheep breeds by watching a slide presentation and filling out a worksheet.

Materials:

- *Sheep Breeds* slide presentation
- *Common Sheep Breeds and Traits* worksheet
- *Common Sheep Breeds and Traits – Answer Key*

Facilitation Steps:

1. Set up the slide presentation and distribute the worksheet.
2. Provide instruction on how to fill out the worksheet and go through the slide presentation together.
3. Once the slideshow is completed, collect the worksheet.

Slide 1: Title Slide

Slide 2: Mary Had a Little Lamb, but Have You Ever Wondered What Breed?

Slide 3: If Mary Lives in the United States, Then Her Lamb Could Be A...

- Merino
- Rambouillet
- Suffolk
- Hampshire
- Katahdin
- Dorper
- Dorset
- Karakul
- Lincoln
- Icelandic
- Navajo Churro
- Leicester Longwool
- California Red

Slide 4: Why Are These Breeds Important in the United States?

- All breeds listed produce milk, meat, pelts, and/or wool
- Certain breeds are valued over others for specific uses

Slides 5-7: Common Terms in Sheep Breeds

- A ram is an adult male sheep that is intact or has their sexual organs
- A ewe is an adult female sheep
- Newborn sheep are called lambs regardless of their sex
- Polled is a term used to describe an animal born without horns
- Mutton is sheep meat
- A wether is a castrated male
- A castrated female is referred to as “spayed”
- A hogget is a yearling sheep
- A suckling is a female with offspring
- A group of sheep is called a flock, herd, or mob
- A young male lamb or ram is called a ram lamb or tup lamb
- A young female lamb or ewe is called a ewe lamb or gimmer lamb

Slide 8: Merino

Slide 9: Merino Traits

- Produce fine wool
- Thrives in arid and semi-arid regions
- Strong flock instinct
- Adaptable
- Productive
- Excellent foragers
- Lives for a long time

Slide 10: Merino Breeds

- American Rambouillet
- German Merinofleischschaff
- South African Meat Merino
- Delaine Merino
- Argentine Merino
- Booroola Merino

Slide 11: Rambouillet

Slide 12: Rambouillet Traits

- Most popular commercial breed
- Large breed
- Long-lived
- Strong flocking instinct
- Excellent dual-purpose breed for meat and wool
- Sometimes called “French Merino”

Slide 12: Suffolk

Slide 13: Suffolk Traits

- Meat or mutton sheep
- Medium wool
- Large, fast-growing breed

Slide 15: Hampshire

Slide 16: Hampshire Traits

- Fine, medium wool
- Produces excellent mutton
- Active foragers
- Large breed
- Good personality

Slide 17: Katahdin

Slides 18-19: Katahdin Traits

- Easy care, low maintenance
- Good meat quality
- Tolerates extreme weather
- Naturally resistant to both internal and external parasites
- Medium size
- Great for pasture lambing
- Does well in any type of grazing, such as grass and foraging
- Naturally sheds its winter coat, meaning there is no need to shear
- Does well in warmer climates due to their shedding nature

Slide 20: Dorper

Slides 21-22: Dorper Traits

- Good mutton producers
- Coat is a mix of hair and wool that easily sheds, meaning no shearing

- Sheepskin of this breed is highly valued because it is thick
 - This protects the animal from harsh weather, making the breed very adaptable
- The sheepskin is marketed as “Cape Glovers”
- 20% of the value of the carcass comes from the sheepskin
- Long breeding season that is not dependent on the season

Slide 23: Dorset

Slide 24: Dorset Traits

- Can have horns or be born without horns (polled)
- Produce medium wool
- Mutton producers
- Prolific lambing
- Good breeders and milk producers
- Will breed “out of season”

Slide 25: Karakul

Slides 26-29: Karakul Traits

- Breed “out of season”
- Lambs are born black with ringlets of hair
- Have good teeth, allowing them to live a long time
- Resistant to internal parasites
- Can survive extreme weather
- Excellent foragers
- Wool that was first used in the art of felting
- Raised for meat, milk, pelts, and wool
- Wool lacks a high grease content and is easily spun
- Does not herd well
- Have a great flock instinct and, in doing so, can be placed in an open range or fenced off area
- As lambs age, their fur changes color and the ringlets open up
 - The fur will turn gray with a brownish or bluish hue
 - The gray color deepens with age
- Other colors include silver blue, gray, reddish brown, tan, and solid white with flecks of different colors
- Known as a fat-tailed sheep or fat broad-tailed sheep

Sheep Kit Curriculum

- A fat-tailed sheep is one that has fat in its tail
 - This fat gives the meat a distinctive flavor

Slide 30: Lincoln

Slide 31: Lincoln Traits

- Largest sheep breed
- Produce the heaviest and coarsest fleece of all the long-wool sheep breeds
- Average in reproduction
- Do not take on fat like other breeds
- Hearty eaters and do well with high-quality roughage or pasture

Slide 32: Icelandic

Slides 33-35: Icelandic Traits

- Used for meat, wool, and pelts
- Pelts are valued due to the small number of hair follicles
- Can be horned or polled
- Short-tailed breed
- Produces coarse, low-grade wool
- Not a docile breed
- Fleece has an inner and outer layer
- Fine coat is called Thel
- Coarse coat is called Tog
- Today, the fleece from this breed is not used industrially in the United States due to its uniqueness
- Coarse or long hair is used in worsted spinning
- Colors include solid white, gray, pitch black, and brownish black
- Not uncommon for them to be bi-colored

Slide 36: Navajo Churro

Slide 37: Navajo Churro Traits

- Mutton is very flavorful and low in fat
- Some rams have 2 sets of horns

- Highly resistant to disease
- No pampering required for this species to thrive
- Twins and triplets are not uncommon

Slide 38: Leicester Longwool

Slide 39: Leicester Longwool Traits

- Used in the Colonial Williamsburg Project
- This breed's size is medium to large
- Wool is valued for handspinning
- An old breed that was used to create new breeds

Slide 40: California Red

Slides 41-42: California Red Traits

- Polled or born without horns
- Males have manes
- Have an extended breeding season
- Lambs are born with a red coat
- The red color lightens as the sheep gets older and can be a beige or oatmeal color with dark hairs scattered throughout
- Because the hairs are spread out in the wool, the fleece itself is not commercially valuable
- Popular with handspinners

Name: _____ Class: _____

Common Sheep Breeds and Traits

Directions: As you watch the slide presentation, fill in the blanks below.

1. If Mary lives in the United States, then her lamb could be A...

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

2. _____ are these _____ in the _____
_____?

- All _____ listed _____, _____, _____, and/or _____
- _____ are _____
_____ specific _____

3. _____ in _____

- A _____ is an _____ that is _____ or has their _____
- A _____ is an _____
- _____ are called _____ of their _____
- _____ is a term used to _____ an _____
- _____ is _____
- A _____ is a _____

- A _____ is _____ to as "_____"
- A _____ is a _____ sheep
- A _____ is a _____ with _____
- A _____ is _____ a _____, _____, or _____
- A _____ or ram is _____ a _____ or _____
- A _____ or ewe is _____ a _____ or _____

4. _____

- _____
- _____ in _____ and _____ - _____
- _____
- _____
- _____
- Excellent _____
- _____ for a _____

5. Merino _____

- _____
- _____
- _____ Merino
- _____
- _____
- _____

6. _____

- _____
- _____
- _____ - _____
- _____
- _____ - _____ breed for _____
- _____ called "_____"

7. _____

- _____ or _____ sheep
- _____
- _____, _____ - _____ breed

8. _____

- _____, _____
- Produces _____
- _____
- _____
- _____

9. _____

- _____, low maintenance
- _____
- _____
- _____ to both

- _____
- _____ for _____
- _____ in _____,
such as _____ and _____
- _____ its _____,
meaning there is _____
- _____ in _____ due to
their _____

10. _____

- _____
- _____ is a _____ and _____ that
_____, meaning _____
- _____ of this _____ is _____
_____ because it is _____
 - This _____ the _____ from harsh
_____, making the _____
- The _____ is _____ as “ _____
_____ ”
- 20% of the _____ of the _____ comes from the

- _____ season that is not _____ on the _____

11. _____

- Can have _____ or _____
(_____)
- Produce _____
- _____
- _____
- _____ and _____
- Will _____ “ _____ ”

12. _____

- _____ “ _____ ”
- _____ are _____ with _____ of _____
- Have _____, _____ to _____ a _____
- _____ to _____
- Can _____
- _____
- _____ that was _____ in the _____
- _____ for _____, _____, _____, and _____
- _____ a _____ content and is _____
- Does _____
- Have a _____ and, in doing so, can be _____ on an open _____ or _____
- As _____, their _____ and the _____
 - The _____ will _____ a _____ or bluish _____
 - The _____ deepens with _____
- _____ include _____, gray, _____, tan, and _____ with _____

- _____ as a “_____ - _____” or “_____ - _____”
- A _____ - _____ is one that has _____

 ○ This _____ the _____ a _____

13. _____

- _____
- _____ the _____ and _____
 _____ of all the _____ - _____ breeds
- _____ in _____
- _____ on _____

- Hearty _____ and _____ with _____ - _____
 _____ or _____

14. _____

- Used for _____, _____, and _____
- _____ are _____ due to the _____
 _____ of _____
- Can be _____
- _____ - _____
- Produces _____, _____ - _____
- _____ a _____
- _____ has an _____

- _____ is called _____
- _____ is called _____
- Today, the _____ this _____ is _____
 _____ in the _____
 _____ due to its _____
- _____ or _____ is _____ in _____

- _____ include solid white, _____, pitch black, and _____

- Not _____ for them to be _____ - _____

15. _____

- _____ is _____ and _____ in _____
- Some rams have _____
- _____ to _____
- _____ required for this species _____
- _____ and _____ are _____

16. _____

- _____ in the _____
- This breed's _____ is _____ to _____
- _____ is _____ for _____
- An _____ that was _____ to _____

17. _____ Traits

- _____ or born without horns
- _____ have _____
- Have an _____
- _____ are _____ with a _____
- The _____ color _____ as the sheep _____
_____ and _____ a _____
_____ with _____
_____ throughout
- _____ the _____ are _____ in the
wool, the _____ is _____

- _____ with _____

Common Sheep Breeds and Traits – Answer Key

Directions: As you watch the slide presentation, fill in the blanks below.

1. If Mary lives in the United States, then her lamb could be A...

- Merino
- Rambouillet
- Suffolk
- Hampshire
- Katahdin
- Dorper
- Dorset
- Karakul
- Lincoln
- Icelandic
- Navajo Churro
- Leicester Longwool
- California Red

2. Why are these breeds important in the United States?

- All breeds listed produce milk, meat, pelts, and/or wool
- Certain breeds are valued over others for specific uses

3. Common Terms in Sheep Breeds

- A ram is an adult male sheep that is intact or has their sexual organs
- A ewe is an adult female sheep
- Newborn sheep are called lambs regardless of their sex
- Polled is a term used to describe an animal born without horns
- Mutton is sheep meat
- A wether is a castrated male
- A castrated female is referred to as “spayed”
- A hogget is a yearling sheep
- A suckling is a female with offspring
- A group of sheep is called a flock, herd, or mob
- A young male lamb or ram is called a ram lamb or tup lamb
- A young female lamb or ewe is called a ewe lamb or gimmer lamb

4. Merino Traits

- Produce fine wool
- Thrives in arid and semi-arid regions
- Strong flock instinct
- Adaptable
- Productive
- Excellent foragers
- Lives for a long time

5. Merino Breeds

- American Rambouillet
- German Merinofleischaf
- South African Meat Merino
- Delaine Merino
- Argentine Merino
- Booroola Merino

6. Rambouillet Traits

- Most popular commercial breed
- Large breed
- Long-lived
- Strong flocking instinct
- Excellent dual-purpose breed for meat and wool
- Sometimes called "French Merino"

7. Suffolk Traits

- Meat or mutton sheep
- Medium wool
- Large, fast-growing breed

8. Hampshire Traits

- Fine, medium wool
- Produces excellent mutton
- Active foragers
- Large breed
- Good personality

9. Katahdin Traits

- Easy care, low maintenance
- Good meat quality

- Tolerates extreme weather
- Naturally resistant to both internal and external parasites
- Medium size
- Great for pasture lambing
- Does well in any type of grazing, such as grass and foraging
- Naturally sheds its winter coat, meaning there is no need to shear
- Does well in warmer climates due to their shedding nature

10. Dorper Traits

- Good mutton producers
- Coat is a mix of hair and wool that easily sheds, meaning no shearing
- Sheepskin of this breed is highly valued because it is thick
 - This protects the animal from harsh weather, making the breed very adaptable
- The sheepskin is marketed as "Cape Glovers"
- 20% of the value of the carcass comes from the sheepskin
- Long breeding season that is not dependent on the season

11. Dorset Traits

- Can have horns or be born without horns (polled)
- Produce medium wool
- Mutton producers
- Prolific lambing
- Good breeders and milk producers
- Will breed "out of season"

12. Karakul Traits

- Breed "out of season"
- Lambs are born black with ringlets of hair
- Have good teeth, allowing them to live a long time
- Resistant to internal parasites
- Can survive extreme weather
- Excellent foragers
- Wool that was first used in the art of felting
- Raised for meat, milk, pelts, and wool
- Wool lacks a high grease content and is easily spun
- Does not herd well
- Have a great flock instinct and, in doing so, can be placed on an open range or fenced off area
- As lambs age, their fur changes color and the ringlets open up
 - The fur will turn gray with a brownish or bluish hue
 - The gray color deepens with age

- Others colors include silver blue, gray, reddish brown, tan, and solid white with flecks of different colors
- Known as a “fat-tailed sheep” or “fat broad-tailed sheep”
- A fat-tailed sheep is one that has fat in its tail
 - This fat gives the meat a distinctive flavor

13. Lincoln Traits

- Largest sheep breed
- Produce the heaviest and coarsest fleece of all the long-wool sheep breeds
- Average in reproduction
- Do not take on fat like other breeds
- Hearty eaters and do well with high-quality roughage or pasture

14. Icelandic Traits

- Used for meat, wool, and pelts
- Pelts are valued due to the small number of hair follicles
- Can be horned or polled
- Short-tailed breed
- Produces coarse, low-grade wool
- Not a docile breed
- Fleece has an inner and outer layer
- Fine coat is called Thel
- Coarse coat is called Tog
- Today, the fleece from this breed is not used industrially in the United States due to its uniqueness
- Coarse or long hair is used in worsted spinning
- Colors include solid white, gray, pitch black, and brownish black
- Not uncommon for them to be bi-colored

15. Navajo Churro Traits

- Mutton is very flavorful and low in fat
- Some rams have 2 sets of horns
- Highly resistant to disease
- No pampering required for this species to thrive
- Twins and triplets are not uncommon

16. Leicester Longwool Traits

- Used in the Colonial Williamsburg Project
- This breed’s size is medium to large
- Wool is valued for handspinning

- An old breed that was used to create new breeds

17. California Red Traits

- Polled or born without horns
- Males have manes
- Have an extended breeding season
- Lambs are born with a red coat
- The red color lightens as the sheep gets older and can be a beige or oatmeal color with dark hairs scattered throughout
- Because the hairs are spread out in the wool, the fleece itself is not commercially valuable
- Popular with handspinners

Lesson One – Sheep Breeds

REVIEW: Recap of Sheep Breeds

10 minutes

Purpose:

Participants will be divided into groups for the recap, which will consist of reviewing sheep breeds using flashcards. Participants' knowledge will then be tested with a quiz.

Materials:

- Sheep Kit Breed ID Flashcards
- *Sheep Breeds Quiz*
- *Sheep Breeds Quiz – Answer Key*

Facilitation Steps:

1. Have participants pair up and distribute the flashcards.
2. Provide instruction on how to use them and give participants five minutes to review sheep breeds with the cards.
3. Collect the cards and have participants return to their seats.
4. Distribute the quiz and provide directions on how to fill it out.
5. Once five minutes have passed, collect the quiz.

Name: _____ Class: _____

Sheep Breeds Quiz

Directions: For each statement, circle the correct answer to indicate whether the statement is true or false.

1. All sheep breeds are only raised for wool. True or False
2. The lambs of the California Red breed are born with black coats. True or False
3. A ram is a male sheep that still has all his sexual organs. True or False
4. The most popular commercial breed is the Suffolk. True or False
5. There are sheep breeds that do not require shearing due to the fact that their wool sheds. True or False
6. Female lambs are called ewe lambs or gimmer lambs. True or False
7. Dorset sheep produce a high-quality pelt marketed as "Cape Glovers." True or False
8. The Lincoln sheep breed is the smallest breed. True or False
9. Navajo Churro sheep always produces single births. True or False
10. The Icelandic breed has two different types of coat, which are called thel and tog. True or False
11. Hampshire breed is used in the Colonial Williamsburg Project. True or False
12. A yearling sheep is called a hogget. True or False
13. Karakul wool is used in the art of felting. True or False
14. All sheep breeds are born without horns. True or False

Sheep Breeds Quiz – Answer Key

Directions: For each statement, circle the correct answer to indicate whether the statement is true or false.

1. All sheep breeds are only raised for wool. True or **False**
2. The lambs of the California Red breed are born with black coats. True or **False**
3. A ram is a male sheep that still has all his sexual organs. **True** or False
4. The most popular commercial breed is the Suffolk. True or **False**
5. There are sheep breeds that do not require shearing due to the fact that their wool sheds. **True** or
False
6. Female lambs are called ewe lambs or gimmer lambs. **True** or False
7. Dorset sheep produce a high-quality pelt marketed as “Cape Glovers.” **True** or False
8. The Lincoln sheep breed is the smallest breed. True or **False**
9. Navajo Churro sheep always produces single births. True or **False**
10. The Icelandic breed has two different types of coat, which are called thel and tog. **True** or False
11. Hampshire breed is used in the Colonial Williamsburg Project. True or **False**
12. A yearling sheep is called a hogget. **True** or False
13. Karakul wool is used in the art of felting. **True** or False
14. All sheep breeds are born without horns. True or **False**

Lesson Two – Sheep Feeding and Management

Lesson Overview

Participants will be introduced to the foods that sheep can eat, foods they cannot eat, and other requirements that need to be met in sheep production.

Lesson Objectives

After completing this lesson, participants will be able to:

- List foods that sheep can eat
- List foods that sheep cannot eat
- List factors that affect the type of feed used
- Explain why woody plants are not favored by sheep
- List different seasonal foods
- List foods that are considered byproducts
- Name the stages of female feeding requirements
- List basic items required for sheep management
- Describe the role of a sheep dog
- Explain the purpose of painting a sheep's coat

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>What Do Sheep Eat?</i> worksheet • <i>What Do Sheep Eat?</i> – Answer Key	1. Print/photocopy <i>What Do Sheep Eat?</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Sheep Feeding and Management</i> slide presentation • <i>Sheep Feeding and Management</i> worksheet • <i>Sheep Feeding and Management</i> – Answer Key	1. Print/photocopy <i>Sheep Feeding and Management</i> worksheet (one per participant) 2. Prepare the <i>Sheep Feeding and Management</i> slide presentation for viewing	40 minutes
REVIEW	• <i>Sheep Feeding and Management</i> poster • <i>Sheep Feeding and Management Quiz</i> • <i>Sheep Feeding and Management Quiz</i> – Answer Key	1. Prepare the <i>Sheep Feeding and Management</i> poster for viewing 2. Print/photocopy <i>Feeding and Management Quiz</i> (one per participant)	10 minutes

Lesson Two – Sheep Feeding and Management

FOCUS: Intro to Sheep Feeding and Management

10 minutes

Purpose:

Participants will be given a worksheet as an introduction to what the dietary needs of sheep are and what they should and should not eat.

Materials:

- *What Do Sheep Eat?* worksheet
- *What Do Sheep Eat?* – Answer Key

Facilitation Steps:

1. Have participants pair up and distribute the worksheet.
2. Provide instructions on how to fill out the worksheet and give participants five minutes to complete it.
3. Have participants return to their seats and exchange papers.
4. Have participants grade the worksheet while you share the answers.

Name: _____

Class: _____

What Do Sheep Eat?

Directions: Circle the foods listed that you feel sheep eat.

1. Chocolate
2. Chicken
3. Hay
4. Beetles
5. Pumpkins
6. Silage
7. Pasture
8. Cheese
9. Potato chips
10. Oats
11. Vegetable scraps
12. Dandelions
13. Dog food
14. Clover
15. Peanut hulls
16. Grass
17. Distiller grains
18. Bread
19. Woody plant material
20. Sunflower seeds

What Do Sheep Eat? – Answer Key

Directions: Circle the foods listed that you feel sheep eat.

1. Chocolate
2. Chicken
3. Hay
4. Beetles
5. Pumpkins
6. Silage
7. Pasture
8. Cheese
9. Potato chips
10. Oats
11. Vegetable scraps
12. Dandelions
13. Dog food
14. Clover
15. Peanut hulls
16. Grass
17. Distiller grains
18. Bread
19. Woody plant material
20. Sunflower seeds

Lesson Two – Sheep Feeding and Management

LEARN: Sheep Dietary Needs and Management

40 minutes

Purpose:

Participants will watch a slide presentation to learn what sheep should and should not eat, seasonal feed, factors that determine feed, and other management requirements needed for healthy sheep.

Materials:

- *Sheep Feeding and Management* slide presentation
- *Sheep Feeding and Management* worksheet
- *Sheep Feeding and Management – Answer Key*

Facilitation Steps:

1. Set up the slide presentation and distribute the worksheet.
2. Provide directions on how to fill the worksheet out and collect it when you finish the presentation

Slide 1: Title slide

Slide 2: What Does Mary's Sheep Eat?

Slide 3: Feed Includes...

- Grains
- Hay
- Minerals
- Vitamins
- Pasture or range

Slide 4: Type of Feed Is Dependent on a Few Factors

- Sex
- If the ewe is pregnant or nursing
- Lamb

Slide 5: Sheep Can Eat a Variety of Foods

Slide 6: But...

- If given the choice, sheep will actively pick plants that are softer and easier to chew over woody plants

- While they will eat the woody plants in a pinch, the softer plant material, such as new growth, is easier to chew and digest

Slide 7: Why Don't Sheep Eat One Food?

- Sheep can eat a wide range of foods because they are ruminant animals
- A ruminant is an animal that has a multi-chambered stomach
- This stomach allows the sheep to get the most nutrition out of low-quality food

Slide 8: Sheep and Plant Growing Season

Slide 9: Spring and Summer Foods

- Grasses such as
 - Ryegrass
 - Timothy
 - Bromegrass
 - Reed canary
 - Kikuya
- Alfalfa
- Clover such as
 - White
 - Red
 - Ladino
 - Kura
- Dandelions
- Oats
- Hay
- Sunflower Seeds

Slide 10: Fall and Winter Foods

- Hay
- Silage
- Grains
- Sheep feed with proper amounts of copper
- Squash
- Pumpkins
- Vegetable waste

Slide 11: Byproduct Feed

- Hulls of soybeans and peanuts
- Whole cottonseed

- Distiller grains
 - Solids that are left after ethanol is made in alcohol production
- Cheap feed
- Due to other uses for corn, distiller grains are a great substitute, but they are high in phosphorus and sulfur
 - Because of this, distiller grains are given in a limited amount

Slide 12: The Role of Sex in Feeding

- A flock of sheep typically contains a few rams for breeding but mostly ewes
- Ram or wether diets are not as critical as the ewes
- The male sheep only needs to be healthy enough to mate and/or produce meat

Slide 13: Female Feeding Requirements

- A ewe's feeding requirements are broken down into stages
 1. Non-productive stage
 2. Flushing or breeding season
 3. Late gestation or the last 4-6 weeks prior to lambing
 4. Lactation

Slide 14: Non-Productive Stage

- This is also called the maintenance stage
- This period is broken down into 2 stages
 1. 30 days prior to flushing or breeding
 2. First 2/3 of the gestation cycle
- This is normally the time when ewes are put out to pasture to consume crop residue
- A ewe can be supplemented with other low-quality feed
- The goal of this stage is for the ewe to maintain weight, which requires about 2.6 lbs. of foodstuffs

Slides 15-17: Breeding Season Nutrition

- The goal of this nutrition phase is to get the ewe as healthy as possible before introducing the ram
- While there are many reasons for starting off with a healthy female prior to breeding, one of the main reasons is that multiple births are very common, which puts a strain on the ewe's health

- This is done by increasing the energy content of the feed ration, which is done by adding high-quality grain or putting the ewes out on high-quality pasture
- A common practice is to feed 1/2-1 lb. of high-quality grain to ewes 1 month prior to introducing a ram
- This high-quality grain is continued 2 weeks after a ram has been introduced to the flock
- Adding phosphorus and selenium minerals to the diet at this stage is a must
- Copper, at this stage, should not be added to their diet

Slides 18-19: Late Gestation Nutrition

- This nutritional stage is at 40-45 days before giving birth
- Time period when the largest amount of fetal growth occurs along with mammary system development

Slide 20: Factors That Influence Late Gestation Nutrition

- Weather
- Housing or lack of
- Fleece length
- Body condition
- The most important factor is the number of lambs the ewe is expecting

Slide 21: Feed for Ewe 40-45 Days Prior To Giving Birth

- 4-4.5 lbs. of medium-quality hay or pasture
- 1/2-1 lb. of grain concentrate such as corn
- Calcium and phosphorus minerals

Slides 22-23: Lactation Nutrition

- This is dependent on several factors, which include the number of lambs, if lambs are nursing, and if the ewe is also being milked
- Feed ewes 4.5-5.5 lbs. of good-quality hay and 1 lb. of corn per nursed lamb
- Due to the lactating ewe's nutrition requirements, many lambs are born in the spring
- This gives farmers the opportunity to take advantage of spring grass or pasture
- The quality of spring grass or pasture is dependent on the weather

Sheep Kit Curriculum

- Because of this, farmers may still need to feed them good-quality hay to supplement their diet
- They will also need calcium and phosphorus

Slide 24: Lamb Nutrition

- Lambs live on milk for 1-2 weeks after birth
- After this milk diet, lambs graze and eat what their mothers eat, supplementing their milk diet
- At 12-14 weeks, most lambs weaned and no longer need to drink milk

Slide 25: Sheep Management

Slide 26: Sheep Management Requirements

- Sheep do not require much equipment beyond what is needed for any animal
- They need:
 - Shelter
 - A water container
 - A feed trough
 - Fencing for field rotation
 - Ear tags for identification
 - Shearing equipment

Slides 27-28: Other Management Requirements for Free Range Sheep

- A sheep dog is important for managing free range sheep because they help with herding and protecting sheep from predators
- Another approach to predator protection is a bell worn on a collar
- Recognizing one farmer's sheep from another can be a big problem
- This is especially difficult from a distance
- Ear tags can help, but they do not aid in identifying rams versus ewes
- This is especially important with rams during breeding season
- The solution is to paint the fleece of the sheep
- When shearing the sheep, this painted fleece needs to be removed from the sheared fleece before selling

Name: _____ Class: _____

Sheep Feeding and Management

Directions: As you watch the slide presentation, fill in the blanks in each section.

1. Feed Includes...

- _____
- _____
- _____
- _____
- _____

2. _____ of _____ is _____ on a Few _____

- _____
- If the _____ is _____ or _____
- _____

3. Sheep Can _____ a _____ of _____ But...

- If given the _____, _____ will _____
_____ that are _____ and
_____ to _____
- While they will eat the woody plants in a pinch, the softer plant material, such as _____
_____, is _____

4. _____ Don't Sheep _____?

- _____ can _____ a _____ of _____
because they are _____
- A _____ is an animal that has a _____ - _____
- This _____ the _____ to get the
_____ - _____

5. _____ and _____

- _____ such as
○ _____

- _____
 - _____
 - _____
 - _____
- _____
- _____ such as
 - _____
 - _____
 - _____
 - _____
- _____
- _____
- _____
- _____

6. _____ and _____

- _____
- _____
- _____
- Sheep _____ with _____ of _____
- _____
- _____
- _____
- _____

7. _____

- _____ of _____ and _____
- _____
- _____
 - _____ that are _____
 - _____ is _____ in _____
 - _____
- _____
- Due to other _____ for _____, _____ are a _____, but they are _____ and _____
 - Because of this, _____ are _____ in a _____ amount

8. The _____ of _____
- A _____ typically _____ a _____ but _____
 - _____ or _____ are _____ as the _____
 - The _____ only needs to be _____ to _____ / _____

9. _____
- A _____ are _____ into _____
1. _____ - _____
 2. _____
 3. _____ or last 4-6 weeks prior to lambing
 4. _____

10. _____ - _____
- This is _____ called the _____
 - This _____ is _____ into _____
1. _____ to _____
 2. _____ / _____ of the _____
- This is normally the _____ when _____ are _____ to _____ to _____
 - A ewe can be _____ other _____ - _____
 - The _____ of this stage is for the _____ to _____, which _____ about _____ of _____

11. _____
- The _____ of this _____ is to _____ the _____ as _____ as possible _____ the _____
 - While there are _____ for _____ with a _____ to _____

- _____, one of the _____ is that
 _____ are _____,
 which puts a _____ the _____
- This is _____ by _____ the _____
 _____ of the _____, which is _____
 by _____ - _____ or
 _____ the _____ on _____ -

 - A _____ is to _____ - _____
 _____ of _____ - _____ to _____
 _____ to _____ a

 - This _____ - _____ is continued _____
 _____ a _____ has been
 _____ the _____
 - _____ and _____
 _____ to the _____ at this _____ is a

 - _____, at this stage, _____ be _____ to
 their _____

12. _____
- This _____ is at _____ - _____
 _____ before _____
 - _____ when the _____
 _____ of _____ occurs _____
 with _____

13. _____ that _____
- _____
- _____
 - _____ or lack of
 - _____
 - _____
 - The _____ is the
 _____ the _____ is

14. _____ for _____ - _____ To

- _____ - _____ . of _____ - _____ or _____
- _____ - _____ . _____ , such as _____
- _____ and _____

15. _____

- This is _____ on _____
_____, which _____ the _____
_____, if _____ are _____, and if the _____ is
also _____
- _____ ewes _____ - _____ . of _____ - _____
_____ and _____ . of _____
- Due to the _____
_____, _____
_____ are _____ the _____
- This gives _____ the _____ to
_____ of _____
or pasture
- The _____ of _____ or pasture is
_____ the _____
- Because of this, farmers _____ need to _____
_____ - _____ hay to _____ their

- They will also _____ and

16. _____

- _____ for _____ - _____

- _____ this _____, _____
and eat _____
_____ their _____
- At _____ - _____, most _____ are _____ and
_____ need to _____

17. _____

- Sheep _____ much _____
_____ what is _____

- They need:
 - _____
 - A _____
 - A _____
 - _____ for field rotation
 - _____ for _____
 - _____

18. _____ for Free

Range Sheep

- A _____ is _____ to managing
_____ because they _____ with
_____ and _____ sheep _____

- _____ to predator protection is a

- _____ one farmer's _____ from another
_____ a big _____
- This is _____ from a

- _____, but they _____
in identifying _____ versus _____
- This is _____ with rams

- The _____ is to _____ the _____ of the
sheep
- When _____ the sheep, this _____
_____ needs to be _____ from the sheared fleece

Sheep Feeding and Management – Answer Key

Directions: As you watch the slide presentation, fill in the blanks in each section.

1. Feed Includes...

- Grains
- Hay
- Minerals
- Vitamins
- Pasture or range

2. Type of Feed Is Dependent on a Few Factors

- Sex
- If the ewe is pregnant or nursing
- Lamb

3. Sheep Can Eat a Variety of Foods But...

- If given the choice, sheep will actively pick plants that are softer and easier to chew over woody plants
- While they will eat the woody plants in a pinch, the softer plant material, such as new growth, is easier to chew and digest

4. Why Don't Sheep Eat One Food?

- Sheep can eat a wide range of foods because they are ruminant animals
- A ruminant is an animal that has a multi-chambered stomach
- This stomach allows the sheep to get the most nutrition out of low-quality food

5. Spring and Summer Foods

- Grasses such as
 - Ryegrass
 - Timothy
 - Bromegrass
 - Reed canary
 - Kikuyu
- Alfalfa
- Clover such as

- White
- Red
- Ladino
- Kura
- Dandelions
- Oats
- Hay
- Sunflower seeds

6. Fall and Winter Foods

- Hay
- Silage
- Grains
- Sheep feed with proper amounts of copper
- Squash
- Pumpkins
- Vegetable waste

7. Byproduct Feed

- Hulls of soybeans and peanuts
- Whole cottonseed
- Distiller grains
 - Solids that are left after ethanol is made in alcohol production
- Cheap feed
- Due to other uses for corn, distiller grains are a great substitute, but they are high in phosphorus and sulfur
 - Because of this, distiller grains are given in a limited amount

8. The Role of Sex in Feeding

- A flock of sheep typically contains a few rams for breeding but mostly ewes
- Ram or wether diets are not as critical as the ewes
- The male sheep only needs to be healthy enough to mate and/or produce meat

9. Female Feeding Requirements

- A ewe's feeding requirements are broken down into stages
- 1. Non-productive stage
- 2. Flushing or breeding season
- 3. Late gestation or last 4-6 weeks prior to lambing
- 4. Lactation

10. Non-Productive Stage

- This is also called the maintenance stage
- This period is broken down into 2 stages
 1. 30 days prior to flushing or breeding
 2. First 2/3 of the gestation cycle
- This is normally the time when ewes are put out to pasture to consume crop residue
- A ewe can be supplemented with other low-quality feed
- The goal of this stage is for the ewe to maintain weight, which requires about 2.6 lbs. of foodstuffs

11. Breeding Season Nutrition

- The goal of this nutrition phase is to get the ewe as healthy as possible before introducing the ram
- While there are many reasons for starting off with a healthy female prior to breeding, one of the main reasons is that multiple births are very common, which puts a strain on the ewe's health
- This is done by increasing the energy content of the feed ration, which is done by adding high-quality grain or putting the ewes out on high-quality pasture
- A common practice is to feed 1/2-1 lb. of high-quality grain to ewes 1 month prior to introducing a ram
- This high-quality grain is continued 2 weeks after a ram has been introduced to the flock
- Adding phosphorus and selenium minerals to the diet at this stage is a must
- Copper, at this stage, should not be added to their diet

12. Late Gestation Nutrition

- This nutritional stage is at 40-45 days before giving birth
- Time period when the largest amount of fetal growth occurs along with mammary system development

13. Factors that Influence Late Gestation Nutrition

- Weather
- Housing or lack of
- Fleece length
- Body condition
- The most important factor is the number of lambs the ewe is expecting

14. Feed for Ewe 40-45 Days Prior To Giving Birth

- 4-4.5 lbs. of medium-quality hay or pasture
- 1/2-1 lb. of grain concentrate, such as corn
- Calcium and phosphorus minerals

15. Lactation Nutrition

- This is dependent on several factors, which include the number of lambs, if lambs are nursing, and if the ewe is also being milked
- Feed ewes 4.5-5.5 lbs. of good-quality hay and 1 lb. of corn per nursed lamb
- Due to the lactating ewe's nutrition requirements, many lambs are born in the spring
- This gives farmers the opportunity to take advantage of spring grass or pasture
- The quality of spring grass or pasture is dependent on the weather
- Because of this, farmers may still need to feed them good-quality hay to supplement their diet
- They will also need calcium and phosphorus

16. Lamb Nutrition

- Lambs live on milk for 1-2 weeks after birth
- After this milk diet, lambs graze and eat what their mothers eat, supplementing their mothers eat
- At 12-14 weeks, most lambs are weaned and no longer need to drink milk

17. Sheep Management Requirements

- Sheep do not require much equipment beyond what is needed for any animal
- They need:
 - Shelter
 - A water container
 - A feed trough
 - Fencing for field rotation
 - Ear tags for identification
 - Shearing equipment

18. Other Management Requirements for Free Range Sheep

- A sheep dog is important to managing free range sheep because they help with herding and protecting sheep from predators
- Another approach to predator protection is a bell worn on a collar
- Recognizing one farmer's sheep from another can be a big problem
- This is especially difficult from a distance
- Ear tags can help, but they do not aid in identifying rams versus ewes
- This is especially important with rams during breeding season
- The solution is to paint the fleece of the sheep
- When shearing the sheep, this painted fleece needs to be removed from the sheared fleece before selling

Lesson Two – Sheep Feeding and Management

REVIEW: Recap of Sheep Feeding and Management

10 minutes

Purpose:

Participants will review what sheep eat and what equipment is needed for sheep management

Materials:

- Sheep Feeding and Management poster
- *Sheep Feeding and Management Quiz*
- *Sheep Feeding and Management Quiz – Answer Key*

Facilitation Steps:

1. Display the poster and direct participants to it.
2. Instruct participants on how to use it to review what sheep eat and give them five minutes to do so.
3. Distribute the quiz and provide directions on how to fill it out.
4. Collect the quiz from participants after five minutes.

Name: _____ Class: _____

Sheep Feeding and Management Quiz

Directions: For each statement, indicate whether it is true or false.

1. Lambs will not share the same food with their mothers until they are a year old because they get all their nutrition from sheep milk. True or False
2. A sheep dog will protect the flock from predators. True or False
3. The sex of the sheep is not important when it comes to feeding them. True or False
4. Sheep have their fleece painted so that the farmer knows how many sheep they have in a flock. True or False
5. One of the foods that sheep eat is pecans. True or False
6. When it comes to grazing, sheep look for woody plants to graze on because they are easier to eat. True or False
7. A ewe's diet is dependent on the stage of production she is in at the present time. True or False
8. A bell placed on the collar of a sheep is used to signal that feed is being served. True or False
9. Grain is not an important foodstuff for sheep. True or False
10. Having the right amount of copper in a sheep's diet is important. True or False
11. During breeding season, it is very important to add phosphorus and selenium to the sheeps' diet. True or False
12. The number of lambs that a ewe is carrying is a factor that can influence late gestation nutrition. True or False
13. The amount and quality of feed changes 40 to 45 days prior to a ewe giving birth. True or False
14. Sheep cannot eat vegetable scraps. True or False
15. Peanut hulls can be fed to sheep. True or False
16. Fencing is required to keep sheep out of pasture, which will poison them. True or False
17. A sheep's diet can be supplemented with hay. True or False
18. Sheep can eat pumpkins. True or False
19. Distiller grains are fed as often as possible because they are high in zinc. True or False
20. Rams have the highest nutrition requirements. True or False

Sheep Feeding and Management Quiz – Answer Key

Directions: For each statement, indicate whether it is true or false.

1. Lambs will not share the same food with their mothers until they are a year old because they get all their nutrition from sheep milk. True or **False**
2. A sheep dog will protect the flock from predators. **True** or False
3. The sex of the sheep is not important when it comes to feeding them. True or **False**
4. Sheep have their fleece painted so that the farmer knows how many sheep he/her has in a flock. True or **False**
5. One of the foods that sheep eat is pecans. True or **False**
6. When it comes to grazing, sheep look for woody plants to graze on because they are easier to eat. True or **False**
7. A ewe's diet is dependent on the stage of production she is in at the present time. **True** or False
8. A bell placed on the collar of a sheep is used to signal that feed is being served. True or **False**
9. Grain is not an important foodstuff for sheep. True or **False**
10. Having the right amount of copper in a sheep's diet is important. **True** or False
11. During breeding season, it is very important to add phosphorus and selenium to the sheeps' diet. **True** or False
12. The number of lambs that a ewe is carrying is a factor that can influence late gestation nutrition. **True** or False
13. The amount and quality of feed changes 40 to 45 days prior to a ewe giving birth. **True** or False
14. Sheep cannot eat vegetable scraps. True or **False**
15. Peanut hulls can be fed to sheep. **True** or False
16. Fencing is required to keep sheep out of pasture, which will poison them. True or **False**
17. A sheep's diet can be supplemented with hay. **True** or False
18. Sheep can eat pumpkins. **True** or False
19. Distiller grains are fed as often as possible because they are high in zinc. True or **False**
20. Rams have the highest nutrition requirements. True or **False**

Lesson Three – Sheep Diseases and Parasites

Lesson Overview

Participants will learn about the common diseases and parasites that sheep can get, along with symptoms and treatment.

Lesson Objectives

After completing this lesson, participants will be able to:

- List common indications that a sheep is sick
- List five diseases that are commonly found in sheep
- Define the two types of parasites
- Provide an example of each type of parasite
- List common practices that a farmer can do to reduce diseases and parasites in their herd

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Is My Sheep Sick?</i> worksheet • <i>Is My Sheep Sick?</i> – Answer Key	1. Print/photocopy <i>Is My Sheep Sick?</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Sheep Diseases and Parasites</i> slide presentation • <i>Sheep Diseases and Parasites</i> worksheet • <i>Sheep Diseases and Parasites</i> – Answer Key	1. Print/photocopy the <i>Sheep Diseases and Parasites</i> worksheet (one per participant) 2. Prepare <i>Sheep Diseases and Parasites</i> slide presentation for viewing	40 minutes
REVIEW	• Sheep Kit Diseases and Parasites Trivia Cards • <i>Sheep Diseases and Parasites Quiz</i> • <i>Sheep Diseases and Parasites Quiz</i> – Answer Key	1. Prepare the Sheep Kit Diseases and Parasites Trivia Cards (one set per group) 2. Print/photocopy <i>Sheep Diseases and Parasites Quiz</i> (one per participant)	10 minutes

Lesson Three – Sheep Diseases and Parasites

FOCUS: Intro to Diseases and Parasites of Sheep

10 minutes

Purpose:

Participants will be introduced to what sheep eat by filling out a worksheet and reviewing it.

Materials:

- *Is My Sheep Sick?* worksheet
- *Is My Sheep Sick?* – Answer Key

Facilitation Steps:

1. Have participants pair up and distribute the worksheet.
2. Provide instruction on how to fill the worksheet out and give participants five minutes to do so.
3. Have participants break from their pairs and return to their seat.
4. Have participants exchange papers and instruct them to grade the worksheets as you go over the answers.
5. Collect the worksheet.

Name: _____ Class: _____

Is My Sheep Sick?

Directions: Circle the symptoms that you think sheep show if they are sick.

1. Eating dirt
2. Chewing on wood
3. Runny nose
4. Panting or having a hard time breathing
5. Clean eyes
6. Constantly leaning against something such as a tree or fence post
7. Bright red gums
8. Bloodshot eyes
9. Wanting to be alone
10. Not drinking
11. Stooped or hunched over
12. Stamping feet
13. Discharge coming from the mouth
14. Clean and shiny coat
15. Inactive
16. Unusually calling out or vocalizing
17. Bumping into other sheep
18. Running in circles
19. Chewing all the time
20. No appetite

Is My Sheep Sick? – Answer Key

Directions: Circle the symptoms that you think sheep show if they are sick.

1. Eating dirt
2. Chewing on wood
3. Runny nose
4. Panting or having a hard time breathing
5. Clean eyes
6. Constantly leaning against something such as a tree or fence post
7. Bright red gums
8. Bloodshot eyes
9. Wanting to be alone
10. Not drinking
11. Stooped or hunched over
12. Stamping feet
13. Discharge coming from the mouth
14. Clean and shiny coat
15. Inactive
16. Unusually calling out or vocalizing
17. Bumping into other sheep
18. Running in circles
19. Chewing all the time
20. No appetite

Lesson Three – Sheep Diseases and Parasites

LEARN: Sheep Diseases and Parasites

40 minutes

Purpose:

Participants will be introduced to sheep diseases and parasites by watching a slide presentation and filling out a worksheet

Materials:

- *Sheep Diseases and Parasites* slide presentation
- *Sheep Diseases and Parasites* worksheet
- *Sheep Diseases and Parasites* – Answer Key

Facilitation Steps:

1. Set up the slide presentation and distribute the worksheet.
2. Provide directions on how to fill the worksheet out and start the slide presentation.
3. Once the slide presentation is complete, collect the worksheet.

Slide 1: Title slide

Slide 2: How Do I know My Sheep Is Sick?

Slide 3: Symptoms of Illness

- Not wanting to eat or drink
- Not wanting to be with other sheep
- Runny nose
- Leaning on anything, such as trees or fence posts
- Calling out or vocalizing constantly
- Lack of activity

Slide 4: Sheep Diseases

Slides 5-6: Pregnancy Toxemia

- Metabolic disorder of fat ewes carrying multiple fetuses
- Most susceptible 1-3 weeks before lambing or giving birth
- Symptoms include
 - Lack of appetite
 - Sluggishness
 - Poor coordination
 - Grinding teeth
 - Blindness

- Coma
 - Death
- Diagnosis comes from herd history and clinical signs
- Treat with propylene glycol and sodium bicarbonate either intravenously or orally
- Good feed management is very important, especially during the last weeks before giving birth
- Reduce stress
- Supplement rations with ionophores, which will help with processing volatile fatty acids and increasing energy

Slides 7-9: Polioencephalomalacia

- In livestock production, this disease is commonly called polio
- It is not transmittable to humans nor is it like human polio
- Caused by a deficiency of thiamine or vitamin B1
- Normally found in areas where animals are under stress or there is competition for food, such as feedlots
- Symptoms include
 - Aggression
 - Laziness
 - Muscle tremors
 - Temporary blindness that lasts about 2-3 weeks
 - Convulsions that occur every 2-5 minutes
 - Teeth grinding
 - Severe back arching
- Diagnosis of this disease comes from observation, herd management, and laboratory tests
- Prevent by
 - Providing high-quality pasture and hay
 - Providing feed with thiamine levels of 3-4 mg per kg of feed
 - Monitoring sulfur content in both water and dry matter

Slides 10-12: Mycoplasmosis

- Also called contagious agalactiae (CA)
- Caused by *Mycoplasma agalactiae*, *Mycoplasma mycoides* subspecies *capri*, *Mycoplasma capricolom*, subspecies *capricolom*, and *Mycoplasma putrefaciens*
- Animals and herds exposed by a carrier animal
- Affects sheep of all ages
- Symptoms include mastitis, arthritis, and keratoconjunctivitis
- Can cause the loss of a fetus
- No real treatment, but some will pasteurize milk to give to lambs
- To prevent this disease, only buy sheep from known suppliers
- Test milk for mycoplasma and remove animals that test positive
- Keep lambs separate from adults
- Keep a closed herd, which is one that does not leave the farm or mingle with other sheep that are not in the herd
- Keep the milking parlor and equipment sanitized

Slides 13-15: Keratoconjunctivitis

- Commonly known as “pink eye”
- Caused by *Mycoplasma conjunctivae* and *chlamydia* species
- Outbreaks can be brought on by stress, harsh weather, and new animals introduced in the herd
- Symptoms include
 - Cloudiness in normally clear areas of the eye
 - Squinting
 - Yellow or green pus draining from eyes
 - Dried crust around eyes
 - Watery, red, or swollen eyes
- Treatment includes
 - Rinsing eyes with sterile saline
 - Separating animals that are sick
 - Providing fresh water
 - Controlling flies
- Always wear gloves when working with sick animals
- Prevent this condition by checking sheep for pink eye before purchasing, controlling flies,

and quarantining new animals prior to mixing with herd

Slides 16-17: Johne’s Disease

- Caused by *Mycobacterium avium* subspecies *paratuberculosis*
- Causes inflammation of the intestines
- Diagnosis is difficult
- Animals can carry it for years before signs appear
- Symptoms include
 - Loss of weight even with an appetite
 - Bottle jaw
 - Decreased milk production
 - Death
 - There is no cure
 - Prevent this disease by removing sick animals from the herd and, if needed, putting down animals that show symptoms

Slides 18-19: Haemonchosis

- Caused by *Haemonchus contortus*
- Commonly known as barber pole worm
- Causes
 - Anemia
 - Diarrhea
 - Dehydration
 - Lowers growth rates
 - Substantially reduced reproductive performance
 - Higher rates of illness
- Diagnosis through microscopic fecal examination
- How to prevent and control this condition:
 - Rotate grazing areas
 - Only buy animals from reliable sources
 - Provide clean water and minerals
 - Keep hay and feed off the ground
 - Try a mix species grazing schedule, which means combining cattle and sheep

Slides 20-23: Foot Rot and Foot Scald

- Caused by *Dichelobacter nodosus* and *Fusobacterium necrophorum*, which is found in the sheep feces and contaminated soil
- This causes inflammation between the toes

Sheep Kit Curriculum

- If not treated, it can become a permanent problem
- Outbreaks occur during times of persistent rain combined with high temperatures as animals must walk across wet pasture
- Prevent this disease by giving a footbath to all animals new to the herd
 - This should also be done anytime the animals leave the farm
- Keep hooves trimmed
- Sheep that are suspected of having this disease should be removed from the flock
- Quarantine all new animals for 6 weeks before adding to the flock
- Maintain clean barns and pens
- Treat this disease by isolating affected animals and trimming their hooves
- Treat their feet to a footbath containing 16% copper sulfate or zinc sulfate
- The animal must stand in the footbath for several minutes for the solution to go through the hoof

Slides 24-26: Enterotoxemia (Overeating Disease)

- Caused by the absorption of a large amount of toxins produced by *Clostridium perfringens* types C and D in the intestines
- These bacteria are naturally found in the soil and gastrointestinal tract of healthy sheep
- Symptoms appear in young lambs
- Symptoms include
 - Loss of appetite
 - Fever
 - Laziness
 - Diarrhea with or without blood
 - Sudden death
- Diagnose by observing signs or performing a necropsy
- Prevent this condition by vaccinating all animals against *Clostridium perfringens* types C and D
- Treat by giving
 - An oral antacid
 - Anti-bloating medication
 - Penicillin
 - Thiamin (B1) intramuscularly
- You can also replace fluids intravenously

Slides 27-30: Coccidiosis

- Parasitic disease that is host specific, meaning each species of animal has its own species of coccidian
- Caused by a protozoa that naturally lives in the soil
- The disease begins when the animal eats oocytes when grazing or drinking water contaminated with feces
- Once the oocytes are eaten, they penetrate the cells lining the intestines
- Causes inflammation and destruction of intestinal cells
- Stressing the animal can bring about outbreaks
- Symptoms include
 - Weakness
 - Constipation
 - Lack of appetite with a fever
 - Weight loss
 - Watery diarrhea
 - Dehydration
- Diagnose by reviewing flock history, noticing clinical signs, and performing microscopic examination of fecal matter
- Treatment includes giving the animal a coccidiostat and intravenous (IV) fluid therapy
- Prevent and control this disease by reducing stress; improving the hygiene practices of the facilities, including pasture, pens, and feeding and watering stations; and avoiding moist areas that lack sunlight

Slides 31-33: Caseous Lymphadenitis (CL)

- Caused by the bacteria *Corynebacterium pseudotuberculosis*
- Spread through the pus of an infected animal or ingestion of contaminated feed and/or water
- Symptoms of CL can occur internally and externally as abscesses
- These abscesses contain a pasty, thick, yellow-green pus that smells bad
- No cure
- Must be diagnosed by a veterinarian who will do a blood test and physical exam
- Prevention and control is the only option
- Always use a clean needle when giving shots
- Clean all equipment before using on another animal

- Have males new to the herd tested for CL
- Maintain a closed flock, which does not leave the farm

Slides 34-36: Caprine Arthritis Encephalitis (CAE)

- Caused by small ruminant lentivirus (SRLV)
- Transmitted by consuming colostrum and milk from infected ewes
- Secondary transmission comes from blood from open wounds and contaminated instruments
- Symptoms include polyarthritis (inflammation of joints) and interstitial pneumonia
- Paralysis of lambs between 2 and 6 months of age
- Diagnosis requires lab tests
- No cure
- Prevent this disease by purchasing breeding stock from known sources, removing CAE-positive animals from the flock, and maintaining a closed flock

Slides 37-38: Bacterial Pneumonia

- Symptoms include
 - Runny nose
 - Moist, painful cough
 - Loss of appetite or anorexia
 - Inactivity
 - Fever between 104° and 106° F
- Caused by *Pasteurella multocida* or *Mannheimia haemolytica*
- A veterinarian diagnosis is required
- Prevent through vaccination
- Treat with an antibiotic
- Keep sick animals isolated

Slides 39-40: Zoonotic Diseases

- A disease that can be passed on to a human is referred to as a zoonotic disease

Slide 41: Q Fever

- Caused by *Coxiella burnetii*
- Transmitted by exposure to placenta, uterine fluids, or aborted material from ewes with Q fever
- No outward signs appear except repeated loss of fetuses
- An antibody test is required

- If the test is positive, then the animal needs to be put down

Slides 42-43: Salmonella

- Caused by *Salmonellosis spp.*
- Bloody diarrhea is a symptom, but sheep might not show any symptoms at all
- Can be spread to humans through undercooked meat and contact with feces
- A veterinarian will do a blood or fecal matter test to look for salmonella bacteria
- There is no cure
- Antibiotics have been given, but the bacteria is often resistant
- A vaccine does exist but only reduces symptoms
- Prevention steps are important
- Prevent this condition by frequently cleaning barns and pens as well as not cross using equipment, such as using a shovel to move manure before using it to scoop feed

Slides 44-45: Listeriosis

- Bacterial disease
- Humans can get this disease by consuming raw meat and unpasteurized milk
- Causes encephalitis, blood poisoning, and loss of fetuses in sheep
- Can be transferred through the milk produced by carrier sheep and sick sheep
- Caused by *Listeria monocytogenes*
- Occurs in cooler climates
- Spreads when sheep inhale the bacteria, swallow it, or get it in their eyes
- No cure
- Disinfecting is the only preventative measure because the bacteria is very hardy and can live up to 5 years in soil, hay, and animal tissue

Slides 46-47: Campylobacteriosis

- Transmitted to sheep through exposure to feces of infected animals, along with vaginal discharge and aborted fetuses
- Humans are exposed by consuming contaminated meat, undercooked meat, and/or drinking unpasteurized milk
- Comes from *Campylobacter spp.*

Sheep Kit Curriculum

- Prevent this disease by keeping food and water off the ground so it is not contaminated with feces
- You should also perform good barn and farm hygiene and sanitation
- After obtaining a veterinarian diagnosis, treat with an antibiotic

Slide 48: Ringworm

- Fungal disease
- Spreads to humans through contact with spores from an infected animal
- Spores can be found in hair and on animal grooming equipment, such as brushes and clippers
- Itching is the most common symptom
- Treat with a topical antifungal

Slide 49: Chlamydiosis

- Bacterial disease that causes most of the abortions in sheep production
- Can be transferred to humans through exposure to birthing tissue
- Prevent this condition through good sanitation and only buying sheep from known sources
- Treat with tetracycline

Slide 50: Rabies

- Transferred to humans by a bite that breaks the skin
- Symptoms in sheep include
 - Aggression
 - Drooling
 - Inability to swallow food
 - Excessive bleating or calling
- No cure

Slides 51-52: Contagious Ecthyma

- Caused by parapoxvirus
- Transferred to humans through direct contact with a sore on the animal
- Appears on the sheep as a wet scab on their lips, eyelids, nose, and/or ears
- Diagnose by observation and immunologic tests
- This disease normally cures itself, but an antibiotic can also be given
- Prevent and control this condition by minimizing stress from transportation and

quarantining animals for 6 weeks before introducing them into the flock

- To prevent humans from getting this disease, do not drink milk from ewes with sores on the teats and udder
- Wear gloves when handling sheep that are ill

Slide 53: Internal Parasites

Slide 54: Liver Flukes

- Caused by *Fasciola hepatica*
- Symptoms include depression or stupor
- Fecal test required
- Treat by deworming
- To prevent, keep sheep away from stagnant water, which attracts snails that carry this parasite

Slides 55-56: Lung Worms

- Caused by *Dictyocaulus spp.* or *Muellerius capillaris*
- Irritates the bronchioles inside the lung, causing a local reaction of white blood cells (phlegm) and mucus
- This causes the sheep to cough
- Fecal test required by a veterinarian
- Treat by deworming
- Prevent by removing stagnant water, which attracts snails that carry the parasite

Slide 57: External Parasites

Slides 58-60: Flies

- There are several types of flies that attack sheep
 - Horn flies
 - Stable flies
 - Horse flies
 - Deer flies
 - Black flies
 - Mosquitoes
 - Nuisance flies
 - Blow flies
- All these insects bite, causing the herd to run and clump together
- This reduces grazing and can cause weight loss
- There is a 3-step approach to prevention
 1. Keep the barn and pens clean as well as remove wet bedding, feed, and

- anything else that may be damp in the barn
2. A parasitoid should be used
 - This is a small wasp that lays its eggs in fly pupae
 3. Apply an insecticide used to kill flies
 - The barn and pens should be sprayed
 - If also using a parasitoid, make sure you spray carefully since this chemical will kill the wasps

Slides 61-62: Mites

- Common sheep mites include
 - Sheep itch mite (*Psorobia ovis*)
 - Scabies mite (*Scarcoptes scabiei*)
 - Psoroptic ear mite (*Psoroptes cuniculi*)
 - Sheep scab mite (*Psoroptes ovis*)
 - Chorioptic scab mite (*Chorioptes bovis*)
- Symptoms include
 - Scratching
 - Lesions
 - Anemia
 - Hair loss around the muzzle
 - Weight loss
- Prevent by isolating new animals for at least 2 weeks to make sure they do not have mites before introducing them into the herd
- Treat with an insecticide from late fall to late spring

Slide 63: Ticks

- There are 90 different species of tick that can attack sheep
- Prevention is the best approach
- Keep the grass around the barn short and frequently check sheep that have been grazing in tall grass and wooded areas
- If needed, treat with an insecticide in spring and summer

Slides 64-65: Fleas

- The 2 types of fleas common to sheep include the cat flea (*Ctenocephalides felis*) and sticktight flea (*Echidnophaga gallinacea*)

- Scratching and anemia are common symptoms
- Easily transferred to dogs and other sheep
- Symptoms will appear during the spring and summer
- All sheep and dogs must be treated with an insecticide formulated as a flea treatment

Slides 66-67: Lice

- Lice belong to the order *Pthiraptera*
- Divided into 2 groups:
 - Anoplura (sucking lice)
 - Mallophaga (chewing or biting lice)
- Signs include
 - Scratching
 - Scabs
 - Dull coat
 - Anemia
- Treat by giving sheep a high-energy diet
- If the problem is major, then an insecticide will need to be applied
- Timing is everything when it comes to chemical application
- The insecticide should be applied in the fall and then 2 weeks later to kill the newly hatched eggs
- If the infestation is extremely bad, shaving may be required to prevent widespread infestation of the herd

Name: _____ Class: _____

Sheep Diseases and Parasites

Directions: Watch the presentation and fill in the blanks with the proper information.

1. _____ of _____
 - _____ to _____ or _____
 - _____ wanting to _____
 - _____
 - _____ on _____, such as trees or fence posts
 - _____ or vocalizing _____
 - _____
2. _____
 - _____ of _____
 - _____ - _____ or giving birth
 - _____ include
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____ comes from _____ and _____
 - _____ with _____ and _____ either _____
 - _____ is _____, especially during the _____
 - _____
 - _____ with _____, which will _____ with _____

_____ fatty _____ and _____

3. _____

- In livestock production, this disease is _____

- It is _____ nor is it like

- _____ a _____
 _____ or _____
- Normally _____ in _____ where animals are _____
 _____ or there is _____ for _____, such as

- _____ include
 - Aggression
 - Laziness
 - Muscle tremors
 - _____ that
 _____ about _____ - _____
 - _____ that occur _____ - _____

 - _____
 - _____
- _____ of this disease comes from _____,
 _____, and

- _____ by
 - _____-quality pasture and _____
 - _____ with _____ levels of _____ -
 _____ kg of _____
 - _____
 _____ and _____

4. _____

- _____
 _____ (_____)
- _____ by _____
 _____,
 _____,
 _____,
 _____, and

- _____ and _____ by a _____
- _____ sheep of _____
- _____ include _____, _____, and _____
- _____ the _____ a _____
- _____, but _____ will _____ to _____
- To _____ this disease, _____ from _____
- _____ for _____ and _____ that _____
- _____
- _____ a _____, which is _____ that _____ the _____ or _____ with _____ that are _____ the _____
- _____ the _____ and _____

5. _____

- _____ as “_____”
- _____ by _____ and _____
- _____ can be _____ by _____, _____, and _____ in the flock
- _____ include
 - _____ of the _____
 - _____
 - _____ from _____
 - _____ around _____
 - _____, _____, or _____ eyes
- _____ includes
 - _____ with _____

- _____ that are _____
 - Providing _____
 - _____
- _____ gloves when _____ with _____
- Prevent this condition by _____ for pink eye _____, _____ flies, and quarantining _____ animals _____ mixing with flock

6. _____

- _____ by _____

- _____ of the

- _____ is _____
- _____ can _____ before

- _____ include
 - _____ even _____ an

 - _____
 - _____
 - _____
- There is _____
- _____ this disease by _____
_____ from the herd and, if needed, _____
_____ that show symptoms

7. _____

- _____ by _____
- _____ as _____

- _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____

- _____ through _____

- _____
_____:
- _____ areas
- _____ from _____

- Provide _____ and _____
- _____ and _____ the _____
- Try a _____
_____, which means _____
_____ and _____

8. _____ and _____

- _____ by _____

_____, which is _____ the _____
feces and in _____ soil
- This causes _____ the _____
- If not _____, it can _____ a _____ problem
- _____ occur _____ of _____
rain combined _____ as
animals must _____ across _____
- Prevent _____ by giving a
_____ all _____ to the

○ _____ should also be done _____ the _____ leave the
farm
- Keep _____
- Sheep that are suspected of _____ disease _____
_____ from the _____
- _____ all new _____ 6 weeks before
_____ to the _____
- _____ clean barns and _____
- _____
_____ and _____ hooves
- _____ containing
_____ sulfate _____

- _____ must _____
_____ for several minutes for the solution _____
_____ the hoof

9. _____ (_____)

- _____ by the _____ of a _____
_____ of _____ by
_____ and _____ intestines
- _____ found _____ the
_____ and gastrointestinal _____
- _____ appear _____
- _____ include
 - _____ of _____
 - _____
 - _____
 - _____
 - _____
- _____ by _____ or
performing a _____
- _____ condition by _____
animals _____
_____ types _____
- _____ by giving
 - _____
 - _____ - _____
 - _____
 - _____ (_____)
- You _____

10. _____

- _____ that is _____
_____, meaning _____ species of animal has its _____
_____ of _____
- _____ a _____ that
_____ in the _____

- This _____ when the _____
_____ when _____ or
_____ with

- _____ the _____, they
_____ the _____ the

- _____ and
_____ of _____

- _____ the _____ can _____ about

- _____ include
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
- _____ by reviewing _____,
_____ signs, and performing
_____ of

- _____ includes _____ the _____
a _____ and _____ (IV)

- _____ and _____ this disease by
_____; _____ the
_____ of the facilities, including
_____, _____, and _____ and
_____; and _____
_____ that lack _____

11. _____ (_____)

- _____ by the _____

- _____ the _____ of an _____ or _____ of _____ and/or _____
- _____ of _____ can _____ and _____ as _____
- These _____ a _____, _____ - _____ that _____
- _____
- Must be _____ by a _____ who will do a _____ and _____
- _____ and _____ is the _____
- _____ a _____ when _____
- _____ before _____ on _____
- Have _____ to the _____ for _____
- _____ a _____, which _____ the _____

12. _____
(_____)

- _____ by _____ (_____)
- _____ by _____ and _____ from _____
- _____ comes _____ from _____ and _____ instruments
- _____ include _____ (_____ of _____) and _____
- _____ of _____ of age _____
- _____ requires _____
- _____

- _____ this disease by _____ breeding

_____,
_____ - _____ animals from the _____,
and _____ a _____

13. _____

- _____ include
 - _____
 - _____,
 - _____ or _____
 - _____
 - _____ and _____ F
- _____ by _____
_____ or _____

- A _____ is

- _____ through _____
- _____ with an _____
- Keep _____

14. _____

- A _____ that can be _____ to a _____ is referred to as a zoonotic disease

15. _____

- _____ by _____
- _____ by _____ to
_____, _____, or
_____ from _____ with _____

- _____ appear _____

- An _____ is required
- If the _____ is _____, then the _____
_____ to be _____

16. _____

- _____ by _____

- _____ diarrhea is a _____, but _____
not show any _____ at all
- Can be _____ through
_____ and _____ with

- A _____ will do a _____ or _____
_____ to _____
- There is _____
- _____ have been given, but the _____
_____ often _____
- A _____ but only

- _____ steps are _____
- _____ condition by _____
_____ and _____ as well as _____
_____, such as using a
_____ to _____ before _____
_____ to _____

17. _____

- _____
- _____ can _____ this _____ by
_____ and

- _____, _____
_____, and _____ in sheep
- Can be _____ the
_____ by _____
_____ and _____
- _____ by _____

- _____ in _____
- _____ when _____ inhale the _____,
_____ it, or _____ it _____ their _____
- _____
- _____ is the _____
_____ because the
_____ is _____ and can _____
_____ to _____, _____, and

18. _____

- _____ to _____
_____ to _____ of _____
_____, along with _____
_____ and _____
- _____ are _____ by consuming
_____ meat,
_____, and/or _____
- _____ from _____
- _____ by keeping _____ and
_____ the _____ so it is _____
_____ with _____
- You should also perform _____ and _____
_____ and _____
- _____ diagnosis, treat

19. _____

- _____
- _____ to _____ with
_____ an _____
- _____ can be _____ and on animal
_____, such as
_____ and _____
- _____ is the most _____
- _____ with a _____

20. _____

- _____ that causes _____
_____ in sheep production
- Can be _____ through
_____ to _____
- _____ condition through _____
_____ and _____ from

- _____ with _____

21. _____

- _____ to _____ by a _____ that _____ the _____
- _____ in sheep include
 - _____
 - _____
 - _____
 - _____ or _____
- _____

22. _____

- _____ by _____
- _____ to _____ through _____ with a _____ on the animal
- _____ on the _____ as a _____ on their _____, _____, _____, and/or _____
- _____ by _____ and _____
- This disease _____, but an _____ can also _____
- _____ and _____ condition _____ from _____ and _____ before introducing _____ into the _____
- To _____ from _____ this _____, do not _____ and _____
- _____ when handling _____ that are _____

23. _____

- _____ by _____
- _____ include _____ or _____
- _____
- _____ by _____
- To _____, keep _____ from _____, which _____ that _____ this _____

24. _____

- _____ by _____
- _____ the _____
- _____ the _____, _____ a local reaction of white blood cells (_____) and _____
- This _____ the _____ to _____
- _____ by veterinarian
- _____ by _____
- _____ by _____, which _____ that _____ the _____

25. _____

- There are _____ of _____ that _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
- All of these _____, _____ the _____ to _____ and _____
- This _____ and can _____
- There is a _____ - _____ to _____
- 1. _____ and _____ as well as _____, _____, and _____ else that may be _____ the _____
- 2. A _____ should _____
 - This is a _____ that _____ its _____ in _____
- 3. Apply an _____ used to _____
 - The _____ and _____ should be _____
 - _____ also _____ a _____, make sure you _____ since this _____ the _____

26. _____

- Common _____ include
 - _____ (*Psorobia ovis*)
 - _____ (*Sarcoptes scabiei*)
 - _____ (*Psoroptes cuniculi*)
 - _____ (*Psoroptes ovis*)
 - _____ (*Chorioptes bovis*)
- _____ include
 - _____
 - _____
 - _____
 - _____ around the _____
 - _____
- _____ by _____
 _____ for _____ to make sure
 they _____ before
 _____ into the _____
- _____ with an _____ from _____
 _____ to _____

27. _____

- There are _____ of _____
 that can _____
- _____ is the _____
- _____ the _____ around the barn _____ and _____
 _____ that have been _____
 _____ and _____
- If needed, _____ with an _____ in
 _____ and _____

28. _____

- The 2 _____ of fleas common to sheep include the _____
 (*Ctenocephalides felis*) and _____
 (*Echidnophaga gallinacea*)
- _____ and _____ are _____

- _____ to _____ and
 _____ sheep
- _____ will _____ the
 _____ and _____

- _____ and _____ must be _____
_____ an _____
as a _____

29. _____

- Lice _____ to the _____
- _____ into _____:
 - Anoplura (_____)
 - Mallophaga (_____)
- _____ include
 - _____
 - _____
 - _____
 - _____
- _____ by giving sheep a _____ - _____
- If the _____ is _____, then an
_____ will need to be _____
- _____ is _____ when it comes to

- The _____ should be applied in the _____
and then _____ to _____ the

- If the _____ is _____
_____, _____ may be _____ to
_____ infestation to the

Sheep Diseases and Parasites – Answer Key

Directions: Watch the presentation and fill in the blanks with the proper information.

1. Symptoms of Illness

- Not wanting to eat or drink
- Not wanting to be with other sheep
- Runny nose
- Leaning on anything, such as trees or fence posts
- Calling out or vocalizing constantly
- Lack of activity

2. Pregnancy Toxemia

- Metabolic disorder of fat ewes carrying multiple fetuses
- Most susceptible 1-3 weeks before lambing or giving birth
- Symptoms include
 - Lack of appetite
 - Sluggishness
 - Poor coordination
 - Grinding teeth
 - Blindness
 - Coma
 - Death
- Diagnosis comes from herd history and clinical signs
- Treat with propylene glycol and sodium bicarbonate either intravenously or orally
- Good feed management is very important, especially during the last weeks before giving birth
- Reduce stress
- Supplement rations with ionophores, which will help with processing volatile fatty acids and increasing energy

3. Polioencephalomalacia

- In livestock production, this disease is commonly called polio
- It is not transmittable to humans nor is it like human polio
- Caused by a deficiency of thiamine or vitamin B1
- Normally found in areas where animals are under stress or there is competition for food, such as feedlots
- Symptoms include

- Aggression
- Laziness
- Muscle tremors
- Temporary blindness that lasts about 2-3 weeks
- Convulsions that occur every 2-5 minutes
- Teeth grinding
- Severe back arching
- Diagnosis of this disease comes from observation, flock management, and laboratory tests
- Prevent by
 - Providing high-quality pasture and hay
 - Providing feed with thiamine levels of 3-4 mg per kg of feed
 - Monitoring sulfur content in both water and dry matter

4. Mycoplasmosis

- Also called contagious agalactiae (CA)
- Caused by *Mycoplasma agalactiae*, *Mycoplasma mycoides* subspecies *capri*, *Mycoplasma capricolom* subspecies *capricolom*, and *Mycoplasma putrefaciens*
- Animals and herds exposed by a carrier animal
- Affects sheep of all ages
- Symptoms include mastitis, arthritis, and keratoconjunctivitis
- Can cause the loss of a fetus
- No real treatment, but some will pasteurize milk to give to lambs
- To prevent this disease, only buy sheep from known suppliers
- Test milk for mycoplasma and remove animals that test positive
- Keep lambs separate from adults
- Keep a closed flock, which is one that does not leave the farm or mingle with other sheep that are not in the flock
- Keep the milking parlor and equipment sanitized

5. Keratoconjunctivitis

- Commonly known as “pink eye”
- Caused by *Mycoplasma conjunctivae* and *chlamydia* species
- Outbreaks can be brought on by stress, harsh weather, and new animals introduced in the flock
- Symptoms include
 - Cloudiness in normally clear areas of the eye
 - Squinting
 - Yellow or green pus draining from eyes
 - Dried crust around eyes
 - Watery, red, or swollen eyes

- Treatment includes
 - Rinsing eyes with sterile saline
 - Separating animals that are sick
 - Providing fresh water
 - Controlling flies
- Always wear gloves when working with sick animals
- Prevent this condition by checking sheep for pink eye before purchasing, controlling flies, and quarantining new animals prior to mixing with the flock

6. Johne's Disease

- Caused by *Mycobacterium avium* subspecies *paratuberculosis*
- Causes inflammation of the intestines
- Diagnosis is difficult
- Animals can carry it for years before signs appear
- Symptoms include
 - Loss of weight even with an appetite
 - Bottle jaw
 - Decreased milk production
 - Death
- There is no cure
- Prevent this disease by removing sick animals from the herd and, if needed, putting down animals that show symptoms

7. Haemonchosis

- Caused by *Haemonchus contortus*
- Commonly known as barber pole worm
- Causes
 - Anemia
 - Diarrhea
 - Dehydration
 - Lowers growth rates
 - Substantially reduced reproductive performance
 - Higher rates of illness
- Diagnosis through microscopic fecal examination
- How to prevent and control this condition:
 - Rotate grazing areas
 - Only buy animals from reliable sources
 - Provide clean water and minerals
 - Keep hay and feed off the ground
 - Try a mix species grazing schedule, which means combining cattle and sheep

8. Foot Rot and Foot Scald

- Caused by *Dichelobacter nodosus* and *Fusobacterium necrophorum*, which is found in the sheep feces and in contaminated soil
- This causes inflammation between the toes
- If not treated, it can become a permanent problem
- Outbreaks occur during times of persistent rain combined with high temperatures as animals must walk across wet pasture
- Prevent this disease by giving a footbath all animals new to the flock
 - This should also be done anytime the animals leave the farm
- Keep hooves trimmed
- Sheep that are suspected of having this disease should be removed from the flock
- Quarantine all new animals for 6 weeks before adding to the flock
- Maintain clean barns and pens
- Treat this disease by isolating affected animals and trimming their hooves
- Treat their feet to a footbath containing 16% copper sulfate or zinc sulfate
- The animal must stand in the footbath for several minutes for the solution to go through the hoof

9. Enterotoxemia (Overeating Disease)

- Caused by the absorption of a large amount of toxins produced by *Clostridium perfringens* types C and D in the intestines
- These bacteria are naturally found in the soil and gastrointestinal tract of healthy sheep
- Symptoms appear in young lambs
- Symptoms include
 - Loss of appetite
 - Fever
 - Laziness
 - Diarrhea with or without blood
 - Sudden death
- Diagnose by observing signs or performing a necropsy
- Prevent this condition by vaccinating all animals against *Clostridium perfringens* types C and D
- Treat by giving
 - An oral antacid
 - Anti-bloating medication
 - Penicillin
 - Thiamin (B1) intramuscularly
- You can also replace fluids intravenously

10. Coccidiosis

- Parasitic disease that is host specific, meaning each species of animal has its own species of coccidian
- Caused by a protozoa that naturally lives in the soil
- This disease begins when the animal eats oocysts when grazing or drinking water contaminated with feces
- Once the oocysts are eaten, they penetrate the cells lining the intestines
- Causes inflammation and destruction of intestinal cells
- Stressing the animal can bring about outbreaks
- Symptoms include
 - Weakness
 - Constipation
 - Lack of appetite with a fever
 - Weight loss
 - Watery diarrhea
 - Dehydration
- Diagnose by reviewing flock history, noticing clinical signs, and performing microscopic examination of fecal matter
- Treatment includes giving the animal a coccidiostat and intravenous (IV) fluid therapy
- Prevent and control this disease by reducing stress; improving the hygiene practices of the facilities, including pasture, pens, and feeding and watering stations; and avoiding moist areas that lack sunlight

11. Caseous Lymphadenitis (CL)

- Caused by the bacteria *Corynebacterium pseudotuberculosis*
- Spread through the pus of an infected animal or ingestion of contaminated feed and/or water
- Symptoms of CL can occur internally and externally as abscesses
- These abscesses contain a pasty, thick, yellow-green pus that smells bad
- No cure
- Must be diagnosed by a veterinarian who will do a blood test and physical exam
- Prevention and control is the only option
- Always use a clean needle when giving shots
- Clean all equipment before using on another animal
- Have males new to the flock tested for CL
- Maintain a closed flock, which does not leave the farm

12. Caprine Arthritis Encephalitis (CAE)

- Caused by small ruminant lentivirus (SRLV)
- Transmitted by consuming colostrum and milk from infected ewes
- Secondary transmission comes from blood from open wounds and contaminated instruments
- Symptoms include polyarthritis (inflammation of joints) and interstitial pneumonia

- Paralysis of lambs between 2 and 6 months
- Diagnosis requires lab tests
- No cure
- Prevent this disease by purchasing breeding stock from known sources, removing CAE-positive animals from the flock, and maintaining a closed flock

13. Bacterial Pneumonia

- Symptoms include
 - Runny nose
 - Moist, painful cough
 - Loss of appetite or anorexia
 - Inactivity
 - Fever between 104° and 106° F
- Caused by *Pasteurella multocida* or *Mannheimia haemolytica*
- A veterinarian diagnosis is required
- Prevent through vaccination
- Treat with an antibiotic
- Keep sick animals isolated

14. Zoonotic Diseases

- A disease that can be passed on to a human is referred to as a zoonotic disease

15. Q Fever

- Caused by *Coxiella burnetii*
- Transmitted by exposure to placenta, uterine fluids, or aborted material from ewes with Q fever
- No outward signs appear except repeated loss of fetuses
- An antibody test is required
- If the test is positive, then the animal needs to be put down

16. Salmonella

- Caused by *Salmonellosis spp.*
- Bloody diarrhea is a symptom, but sheep might not show any symptoms at all
- Can be spread to humans through undercooked meat and contact with feces
- A veterinarian will do a blood or fecal matter test to look for salmonella bacteria
- There is no cure
- Antibiotics have been given, but the bacteria is often resistant
- A vaccine does exist but only reduces symptoms
- Prevention steps are important
- Prevent this condition by frequently cleaning barns and pens as well as not cross using equipment, such as using a shovel to move manure before using it to scoop feed

17. Listeriosis

- Bacterial disease
- Humans can get this disease by consuming raw meat and unpasteurized milk
- Causes encephalitis, blood poisoning, and loss of fetuses in sheep
- Can be transferred through the milk produced by carrier sheep and sick sheep
- Caused by *Listeria monocytogenes*
- Occurs in cooler climates
- Spreads when sheep inhale the bacteria, swallow it, or get it in their eyes
- No cure
- Disinfecting is the only preventive measure because the bacteria is very hardy and can live up to 5 years in soil, hay, and animal tissue

18. Campylobacteriosis

- Transmitted to sheep through exposure to feces of infected animals, along with vaginal discharge and aborted fetuses
- Humans are exposed by consuming contaminated meat, undercooked meat, and/or drinking unpasteurized milk
- Comes from *Campylobacter spp.*
- Prevent this disease by keeping food and water off the ground so it is not contaminated with feces
- You should also perform good barn and farm hygiene and sanitation
- After obtaining a veterinarian diagnosis, treat with an antibiotic

19. Ringworm

- Fungal disease
- Spreads to humans through contact with spores from an infected animal
- Spores can be found in hair and on animal grooming equipment, such as brushes and clippers
- Itching is the most common symptom
- Treat with a topical antifungal

20. Chlamydiosis

- Bacterial disease that causes most of the abortions in sheep production
- Can be transferred to humans through exposure to birthing tissue
- Prevent this condition through good sanitation and only buying sheep from known sources
- Treat with tetracycline

21. Rabies

- Transferred to humans by a bite that breaks the skin
- Symptoms in sheep include
 - Aggression
 - Drooling
 - Inability to swallow food

- Excessive bleating or calling
- No cure

22. Contagious Ecthyma

- Caused by parapoxvirus
- Transferred to humans through direct contact with a sore on the animal
- Appears on the sheep as a wet scab on their lips, eyelids, nose, and/or ears
- Diagnose by observation and immunologic tests
- This disease normally cures itself, but an antibiotic can also be given
- Prevent and control this condition by minimizing stress from transportation and quarantining animals for 6 weeks before introducing them into the flock
- To prevent humans from getting this disease, do not drink milk from does with sores on their teats and udder
- Wear gloves when handling sheep that are ill

23. Liver Flukes

- Caused by *Fasciola hepatica*
- Symptoms include depression or stupor
- Fecal test required
- Treat by deworming
- To prevent, keep sheep away from stagnant water, which attracts snails that carry this parasite

24. Lung Worms

- Caused by *Dictyocaulus spp.* or *Muellerius capillaris*
- Irritates the bronchioles inside the lung, causing a local reaction of white blood cells (phlegm) and mucus
- This causes the sheep to cough
- Fecal test required by veterinarian
- Treat by deworming
- Prevent by removing stagnant water, which attracts snails that carry the parasite

25. Flies

- There are several types of flies that attack sheep
 - Horn flies
 - Stable flies
 - Horse flies
 - Deer flies
 - Black flies
 - Mosquitoes
 - Nuisance flies
 - Blow flies

- All of these insects bite, causing the herd to run and clump together
 - This reduces grazing and can cause weight loss
 - There is a 3-step approach to prevention
1. Keep the barn and pens clean as well as remove wet bedding, feed, and anything else that may be damp in the barn
 2. A parasitoid should be used
 - This is a small wasp that lays its eggs in fly pupae
 3. Apply an insecticide used to kill flies
 - The barn and pens should be sprayed
 - If also using a parasitoid, make sure you spray carefully since this chemical will kill the wasps

26. Mites

- Common sheep mites include
 - Sheep itch mite (*Psorobia ovis*)
 - Scabies mite (*Sarcoptes scabiei*)
 - Psoroptic ear mite (*Psoroptes cuniculi*)
 - Sheep scab mite (*Psoroptes ovis*)
 - Chorioptic scab mite (*Chorioptes bovis*)
- Symptoms include
 - Scratching
 - Lesions
 - Anemia
 - Hair loss around the muzzle
 - Weight loss
- Prevent by isolating new animals for at least 2 weeks to make sure they do not have mites before introducing them into the flock
- Treat with an insecticide from late fall to late spring

27. Ticks

- There are 90 different species of tick that can attack sheep
- Prevention is the best approach
- Keep the grass around the barn short and frequently check sheep that have been grazing in tall grass and wooded areas
- If needed, treat with an insecticide in spring and summer

28. Fleas

- The 2 types of fleas common to sheep include the cat flea (*Ctenocephalides felis*) and sticktight flea (*Echidnophaga gallinacea*)
- Scratching and anemia are common symptoms
- Easily transferred to dogs and other sheep

- Symptoms will appear during the spring and summer
- All sheep and dogs must be treated with an insecticide formulated as a flea treatment

29. Lice

- Lice belong to the Order *Phthiraptera*
- Divided into 2 groups:
 - Anoplura (sucking lice)
 - Mallophaga (chewing or biting lice)
- Signs include
 - Scratching
 - Scabs
 - Dull coat
 - Anemia
- Treat by giving sheep a high-energy diet
- If the problem is major, then an insecticide will need to be applied
- Timing is everything when it comes to chemical application
- The insecticide should be applied in the fall and then 2 weeks later to kill the newly hatched eggs
- If the infestation is extremely bad, shaving may be required to prevent widespread infestation to the flock

Lesson Three – Diseases and Parasites of Sheep

REVIEW: Recap of Sheep Diseases and Parasites

10 minutes

Purpose:

Participants will review the common diseases and parasites of sheep using trivia cards. Participants will test their knowledge by taking a quiz.

Materials:

- Sheep Kit Diseases and Parasites Trivia Cards
- *Sheep Diseases and Parasites Quiz*
- *Sheep Diseases and Parasites Quiz – Answer Key*

Facilitation Steps:

1. Have participants pair up and distribute the trivia cards.
2. Instruct participants on how to review the material and give them five minutes to do so.
3. Collect the trivia cards and have students return to their seats.
4. Distribute the quiz and provide instruction on how to fill it out.
5. After five minutes, collect the quiz.

Name: _____ Class: _____

Sheep Diseases and Parasites Quiz

Directions: For each statement, indicate whether it is true or false by circling the correct answer

1. If sheep have lice, the first step is to shave the animal. True or False
2. All sheep diseases and parasites are cured through giving the animal an antibiotic. True or False
3. Keeping barns and sheep pens clean is an approach used to prevent and control sheep diseases and pests. True or False
4. Sheep diseases and parasites cannot be passed on to humans. True or False
5. Lung worm is transferred to sheep by snails. True or False
6. Diseases and parasites cannot be transferred to sheep if they eat feed off the barn floor. True or False
7. A closed flock of sheep is one that is always kept in a barn. True or False
8. Buying sheep from known breeders is important. True or False
9. Signs that a sheep is sick includes isolation, calling out all the time, leaning on trees, and not wanting to eat and/or drink. True or False
10. Polioencephalomalacia is caused by sheep exposed to a human with polio. True or False
11. Johne's disease attacks the intestines of sheep. True or False
12. Foot rot and foot scald causes the inflammation of the toes of sheep. True or False
13. Caprine Arthritis Encephalitis causes polyarthritis. True or False
14. Bacterial Pneumonia attacks a sheep liver. True or False
15. Flies do not carry any type of disease that can be transferred to sheep. True or False
16. A goat with liver flukes will bite at its stomach. True or False
17. Contagious Ecthyma can be transferred to humans from sheep. True or False
18. Listeriosis is a fungal disease. True or False
19. Pregnancy toxemia occurs in ewes 1-3 weeks prior to kidding. True or False
20. Coccidiosis is a parasite that is host specific. True or False
21. Enterotoxemia only shows up in young lambs. True or False
22. Sheep with salmonella can either show no symptoms or bloody diarrhea. True or False
23. Keratoconjunctivitis is commonly known as pink eye. True or False

Sheep Diseases and Parasites Quiz – Answer Key

Directions: For each statement, indicate wheather it is true or false by circling the correct answer.

1. If sheep have lice, the first step is to shave the animal. True or **False**
2. All sheep diseases and parasites are cured through giving the animal an antibiotic. True or **False**
3. Keeping barns and sheep pens clean is an approach used to prevent and control sheep diseases and pests. **True** or False
4. Sheep diseases and parasites cannot be passed on to humans. True or **False**
5. Lung worm is transferred to sheep by snails. **True** or False
6. Diseases and parasites cannot be transferred to sheep if they eat feed off the barn floor. True or **False**
7. A closed flock of sheep is one that is always kept in a barn. True or **False**
8. Buying sheep from known breeders is important. **True** or False
9. Signs that a sheep is sick includes isolation, calling out all the time, leaning on trees, and not wanting to eat and/or drink. **True** or False
10. Polioencephalomalacia is caused by sheep exposed to a human with polio. True or **False**
11. Johne's disease attacks the intestines of sheep. **True** or False
12. Foot rot and foot scald causes the inflammation of the toes of sheep. **True** or False
13. Caprine Arthritis Encephalitis causes polyarthritis. **True** or False
14. Bacterial Pneumonia attacks a sheep liver. True or **False**
15. Flies do not carry any type of disease that can be transferred to sheep. True or **False**
16. A goat with liver flukes will bite at its stomach. True or **False**
17. Contagious Ecthyma can be transferred to humans from sheep. **True** or False
18. Listeriosis is a fungal disease. True or **False**
19. Pregnancy toxemia occurs in ewes 1-3 weeks prior to kidding. **True** or False
20. Coccidiosis is a parasite that is host specific. **True** or False
21. Enterotoxemia only shows up in young lambs. **True** or False
22. Sheep with salmonella can either show no symptoms or bloody diarrhea. **True** or False
23. Keratoconjunctivitis is commonly known as pink eye. **True** or False

Lesson Four – Sheep Reproduction

Lesson Overview

Participants will learn about the basic reproductive system of rams and ewes.

Lesson Objectives

After completing this lesson, participants will be able to:

- List the gestation period for sheep
- Define basic terms used to describe the age and sex of a sheep
- List the age at which sheep go through puberty
- List three conditions that can affect when puberty occurs
- Define “seasonally polyestrous”
- List the length of the estrous cycle
- Explain the ewe’s estrous cycle
- Describe the “ram effect”
- Explain what starts the estrous cycle
- Explain what causes the “tail wagging behavior”
- Explain the ram’s reproductive cycle
- Explain the three conditions by which nutrition can affect puberty
- Explain how the season a lamb is born in can influence when puberty occurs

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>How Long Do I Carry My Baby?</i> worksheet • <i>How Long Do I Carry My Baby?</i> – Answer Key	1. Print/photocopy <i>How Long Do I Carry My Baby?</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Sheep Reproduction</i> slide presentation • <i>Sheep Reproduction</i> worksheet • <i>Sheep Reproduction</i> – Answer Key	1. Print/photocopy <i>Sheep Reproduction</i> worksheet (one per participant) 2. Prepare <i>Sheep Reproduction</i> slide presentation for viewing	40 minutes
REVIEW	• Sheep Gestation Wheel • <i>Sheep Reproduction Quiz</i> • <i>Sheep Reproduction Quiz</i> – Answer Key	1. Prepare the Sheep Gestation Wheel. 2. Print/photocopy <i>Sheep Reproduction Quiz</i> (one per participant)	10 minutes

Lesson Four – Sheep Reproduction

FOCUS: Intro to Sheep Gestation Length

10 minutes

Purpose:

Participants will be introduced to the reproductive cycle by learning about gestation lengths of sheep.

Materials:

- *How Long Do I Carry My Baby?* worksheet
- *How Long Do I Carry My Baby?* – Answer Key

Facilitation Steps:

1. Have participants pair up and distribute the worksheet.
2. Provide instruction on how to fill out the worksheet and give participants five minutes to complete it.
3. Have participants return to their seats and trade papers.
4. Go over the answers as participants grade the worksheet before collecting the papers.

Name: _____ Class: _____

How Long Do I Carry My Baby?

Directions: For every animal on the left, match the gestation period on the right. Use each letter only once.

- | | |
|--------------------------|------------|
| 1. Red Fox _____ | A. 330 |
| 2. Horse _____ | B. 145-155 |
| 3. Llama _____ | C. 52 |
| 4. Domestic Goat _____ | D. 112-115 |
| 5. Guinea Pig _____ | E. 330-342 |
| 6. Domestic Pig _____ | F. 56-74 |
| 7. Domestic Sheep _____ | G. 28-35 |
| 8. Domestic Rabbit _____ | H. 144-152 |

How Long Do I Carry My Baby? – Answer Key

Directions: For every animal on the left, match the gestation period on the right. Use each letter only once.

- | | |
|-----------------------------|------------|
| 1. Red Fox <u>C</u> | A. 330 |
| 2. Horse <u>E</u> | B. 145-155 |
| 3. Llama <u>A</u> | C. 52 |
| 4. Domestic Goat <u>B</u> | D. 112-115 |
| 5. Guinea Pig <u>F</u> | E. 330-342 |
| 6. Domestic Pig <u>D</u> | F. 56-74 |
| 7. Domestic Sheep <u>H</u> | G. 28-35 |
| 8. Domestic Rabbit <u>G</u> | H. 144-152 |

Lesson Four – Sheep Reproduction

LEARN: Sheep Reproduction

40 minutes

Purpose:

Participants will learn about the reproductive system of both ewes and rams by watching a slide presentation while filling out a worksheet.

Materials:

- *Sheep Reproduction* slide presentation
- *Sheep Reproduction* worksheet
- *Sheep Reproduction* – Answer Key

Facilitation Steps:

1. Set up the slide presentation and distribute the worksheet.
2. Explain how to fill the worksheet out and begin the presentation.
3. When the presentation is finished, collect the worksheet.

Slide 1: Title slide

Slides 2-4: Sheep Terms

- Yoe: Another term for female sheep
- Yearling: A sheep between the ages of 1 and 2 years
- Teaser: A ram that has been altered to prevent reproducing but is still used for mating
- Ram: Male sheep
- Ewe: Female sheep
- Sire: Father of sheep
- Ram effect: Stimulating ewes who are not ovulating with a ram or teaser ram
- Raddle: Color Pigment placed on a ram's brisket so he can mark the ewe he mates with
- The term lamb has many meanings
 - A young sheep
 - To give birth to a lamb
 - The meat from a sheep that is less than a year old

Slide 5: Puberty

- A ewe lamb's puberty starts with the first estrous cycle and cyclic ovarian activity, meaning she has her first period
- Ram lamb's puberty begins with spermatogenesis or the process by which sperm mature

Slide 6: Age of Puberty

- The age is dependent on the breed of the sheep but normally occurs between 5 and 12 months
- Other factors that play into when puberty occurs are the nutrition and date of birth

Slides 7-8: Length of Day and Estrous Cycle

- The estrous cycle of a ewe is tied to the length of the day
- This is referred to as seasonally polyestrous and simply means that the species does not cycle year-round
- A ewe's estrous cycle occurs as the days get shorter
- Estrous cycle is around 17 days
- Ewes do not cycle year-round because they cycle when food is easily available in the wild
- A domesticated sheep's gestation period is between 144 and 152 days
- In many places, this equates to the same times that fresh grass starts growing

Slides 9-10: Changing Gestation Period

- While day length triggers estrus, the gestation period can be changed by high temperatures, quality of nutrition, and breeding pairs
- Medium-wool breeds and meat-type breeds typically have a shorter gestation period
- Ewes bred to white-faced, wool-breed rams have a slightly longer gestation period

- Ewes bred to black-faced, meat-type rams have a slightly shorter gestation period

Slide 11: The Reproductive Dance Starts With an Introduction

- Since a ewe's cycle is naturally triggered by the shortness of the day, this can limit breeding opportunities
- A ewe's estrous cycle can be stimulated by the presence of a ram

Slides 12-14: Ram Effect

- The ram effect can be done with a fertile male or one that is surgically sterile
- Just his presence will encourage the start of estrus
- The best approach is to introduce a ram to the herd 10-14 days before an estrous cycle is desired
- Once estrus starts, the ram should be brought back into the herd because the ewes are ready to mate
- Ewes that are ready to mate will chase the ram around the herd and sniff him
- Ewes that want to mate urinate often
- The ram will sniff the urine, extend his leg, and curl his lip
- The ram curling his lip is called the "flehmen response"
- If the ewe is interested, then she will stand still for mating
- Rams typically prefer older ewes and females from their same breed
- Normally 1 ram is used in a group of ewes to reduce the chances of rams fighting over mates

Slides 15-22: Estrous Cycle

- The cycle begins with the release of hormones from the pituitary and hypothalamus glands
- Hormonal release has internal triggers, but external triggers exist
- This includes the length of day and if a male is present or not
- Once the cycle starts follicles in the ovaries, where oocytes (eggs) are stored, begin to successively produce until some rupture and release

- At this point, the released eggs are referred to as secondary oocytes, which appear during ovulation
- The released eggs pass through the oviduct to join the spermatozoa (sperm)
- The ruptured follicle by which the egg is released transforms into a corpus luteum
- The development of the follicle is under the control of FSH (follicle stimulating hormone) and LH (luteinizing hormone)
- Both are released by the pituitary gland and referred to as gonadotropins
- Through a hormonal feedback loop, gonadotropins also control the release of estrogen from the ovaries
- The release of estrogen is what causes the ewe's "tail wagging behavior"
- Following ovulation, the luteinized follicle, or corpus luteum, releases progesterone, preparing the uterus for pregnancy
- At the same time, gonadotropins are suppressed to stop further follicular development
- If pregnancy is not achieved, then prostaglandin is released by the uterus and a new cycle starts
- Pregnancy occurs when the ovum is fertilized by the spermatozoon
- This fertilization occurs in the oviduct and must be timed between insemination and ovulation events
- The timing is very important because the spermatozoa are only viable for 12 hours in the female reproductive system and the lifespan of an egg is 12-24 hours
- If the timing is right, the sperm will break through the zona pellucida, which surrounds the egg
 - This is done by enzymes in the cap of the sperm head
- This fusion of the sperm cell with the egg prevents other sperms from fertilizing the egg
- Within 24 hours, the fertilized eggs move from the oviduct to the uterus
- It is uncommon for ewes to give birth to 1 lamb
- In general, ewes will give birth to 2-3 lambs

- The fertilized eggs or developing embryos will continue to develop
- During this time, they are free-floating
- 15-20 days after fertilization is very important
- This is the time the embryos attach to the uterus
- For this attachment to occur, the uterus must be primed with progesterone, which is provided throughout the gestation period by the corpus luteum

Slide 23: Pregnancy Development

- The developing fetus is in the placenta, which is where the maternal and fetus circulation occur
- The most growth for the placenta occurs during days 90-110 of the pregnancy compared to the fetal growth, which speeds up during the third trimester

Slide 24: Labor and Delivery

- Estrogen is increased 24 hours prior to the delivery of lambs
- To prepare for delivery, ligaments are relaxed in the pelvic area, uterine contractions are stimulated by the release of oxytocin, and the placenta ruptures
- Lambs are normally born 2-3 hours after the start of labor
- The release of estrogen also helps stir maternal behavior along with the movement of the lamb through the cervical region during the birthing process

Slides 25-29: Ram Reproduction

- The male sheep's reproductive system is broken down into several parts
- It starts with the testes where the male gametes or spermatozoa and sex hormone or testosterone are produced
- Inside the testes, there is the germinal epithelium, which is where sperm production takes place
- They Leydig cells that line the interstitial tissue inside the testes produce the sex hormone
- The testes are in the ram's scrotum

- The scrotum's job is temperature regulation of the testes, which needs to be kept between 37.4° and 41° C
- Spermatozoa moves from the testes to a structure in the scrotum called epididymis
- While the spermatozoa hang out in the epididymis, they mature and are stored until needed
- From the epididymis, you will find the vas deferens that connects the epididymis to the ampulla and accessory sex glands
- These sex glands are in the pelvic region and provide fluid for the spermatozoa to travel in during ejaculation
- The penis is the last stop of the male reproductive system
- The purpose is to deposit sperm inside the ewe
- In the ram, the sigmoid flexure allows the penis to extend up to 12 in. by filling the empty space in the tissues with blood
- When the season is not right, the penis is protected in its sheath
- Just like the ovaries, production of sperm is controlled by gonadotropins, LH and FSH
- The number of eggs a ewe will produce in her lifetime is determined prior to birth while rams produce sperm throughout their life
- The amount of sperm available at one time is determined by age, season, and sexual activity

Slides 30-31: Ram Success

- While any ram can be successful at the mating game, research has shown that successful rams have large testicles
- Testicle size can be enhanced by improving nutrition 2 months before introducing the ram to a ewe herd
- Overfeeding has the opposite result
- Another indication is the tail of the ram
- A ram with a long, firm tail will be a very successful breeder
- A ram with a small, soft tail will not be as successful when it comes to breeding

Slides 32-34: Puberty Influences

Sheep Kit Curriculum

- Ewes and rams can reach puberty between 150 and 365 days
- Nutrition is one of the most important factors that influence puberty
- Factors that influence puberty include
 - Nutrition
 - Location
 - Breed
 - Season of birth
- Poor nutrition delays puberty
- Improved nutrition can speed up puberty
- Overeating and a diet too nutritious will reduce fertility and mammary gland development
- When a lamb is born will determine the season they mature
- Spring-born lambs need to be brought to puberty
- Encouraging spring-born lambs to sexually mature can be done by introducing a mature ram to the herd
- If this is not done, spring-born lambs will not mature sexually until the following breeding season
- There is a point that the days become so short that the ewe's estrous cycle stops as does the ram's sex drive

Slide 35: Day Length

- As the days get shorter, sheep are stimulated to breed
- An animal whose natural breeding cycle is in tune to the amount of sunlight available is referred to as a "short day breeder"

Name: _____ Class: _____

Sheep Reproduction

Directions: Watch the presentation and fill in the blanks with the proper information.

1. Sheep _____

- _____: Another _____ for _____
- _____: A sheep between the _____ of _____
- _____: A _____ that has been _____ but _____ used for _____
- _____:
- _____:
- _____:
- _____: _____ who are _____ a _____
- _____: _____ on a _____ so he can _____ with _____
- The term _____ has _____
 - A _____
 - To give _____ a _____
 - The _____ a _____ that is _____

2. _____

- A _____ starts with the _____, meaning she has her _____
- _____ with _____ or the _____ by which _____

3. _____ of _____

- The _____ is _____ the _____
_____ but normally _____ between _____

- _____ that play into when _____
_____ are _____ and _____

4. _____

- The _____ of a _____ is _____ to the

- This is _____ as _____
_____ and simply means that the species _____

- A ewe's estrous _____ as the _____

- _____ is around _____
- Ewes _____-round because they cycle
when _____ is _____ the

- A _____
_____ is between _____

- In many places, this _____ to the _____ that

5. _____

- While _____,
the _____ can be _____
_____, and _____
- _____ typically a _____

- _____ have a _____

- _____ have a _____

6. The _____ with an

- Since a _____ is _____
_____, the _____
_____, this can _____
- A _____ be
_____ the _____ a

7. _____

- The _____ can be done _____ a _____
_____ that is _____
- Just _____ encourage the
_____ of _____
- The best approach is to _____ a _____ to the herd _____ -
_____ an _____ is

- Once _____, the _____ should be
_____ into the _____ the
_____ are _____
- _____ to mate will _____ the
_____ the herd and _____
- _____ that _____ to _____
- The _____ the urine, _____
_____, and _____ his _____
- The ram _____ his _____ is _____ the
" _____ "
- If the ewe is _____, then _____ will _____

- _____ typically _____ and
_____ their _____
- Normally _____ is _____ in a _____ to
_____ the _____ of _____
_____ over mates

8. _____

- The _____ with the _____
_____ from the _____ and
hypothalamus glands
- _____ has _____
_____, but _____

- This _____ the _____ and if a

- Once the _____,
_____ the _____, where _____ (_____)
_____, _____ to
_____ until _____

- At this point, the _____ are _____
_____ as _____, which

- The released _____ the
_____ to _____ the _____
(_____)
- The _____ by which the _____
_____ a

- The _____ of the _____ is under
the _____ (_____)

(_____)
- _____ are _____ the
_____ and _____
_____ as _____
- _____ a _____
_____, _____ also _____
the _____ of _____ the

- The _____ of _____ is what
_____ on the _____ “
_____ behavior”
- _____, the
_____, _____
_____, _____

- _____, _____ the

- At the _____, _____ are suppressed to _____
 - If _____ is _____, then _____ by the _____ and a _____ starts
 - _____ when the _____ is _____ by the _____
 - This _____ in the _____ and must be _____ and _____
 - The _____ is _____ because the _____ are _____ in the female reproductive system and the _____ an _____ is _____
 - If the _____ is _____, the _____ will _____ the _____, which _____ the _____
 - This is _____ by _____ the _____ the _____
 - This _____ of the _____ the _____ other _____ from _____ the _____
 - _____, the _____ move _____ the _____
 - It is _____ for _____ to _____ to _____
 - In general, _____ will _____ to _____
 - The _____ or _____ will _____
 - During _____, they are _____
 - _____ is _____
 - This is the _____ attach _____

- For this _____ to occur, the _____
_____ be _____
_____, which is _____
_____ the gestation period by the _____

9. _____

- The _____ is _____ the
_____, which is _____ the

- The _____ for the _____
_____ - _____ of the
_____ to the
_____, which _____ during the

10. _____

- _____ is _____
_____ to the _____ of

- To _____,
_____ are _____ the
_____, _____
_____ are _____ by the
_____, and the

- _____ are normally _____ - _____ after the

- The _____ of _____ also _____
_____ along with the
_____ of the _____ the
_____ during the

11. _____

- The _____ is _____ into _____

- It _____ with the _____ where the _____
_____ and _____

- _____ are
- _____
- _____ the _____, there is the _____
_____, which is _____
_____ takes _____
- The _____ that _____ the
_____ the _____
- The _____ are in the ram's _____
- The _____ is _____
_____ of the _____, which needs to be
_____ between _____
- _____ from the _____ to a
_____ the _____
- While the _____ the
_____, they _____ and are _____
- _____ the _____, you will _____ the _____
_____ that _____ the
_____ the _____ and
- _____ are in the _____
_____ and provide _____
_____ to _____ in _____
- The _____ is the _____ of the _____
- The _____ is to _____
_____ the _____
- In the _____, the _____ the
_____ to _____ by
_____ the _____ in the _____
- When the _____ is _____, the _____ is
_____ its _____
- Just like the ovaries, _____ is
_____, _____
- The _____ a _____ will _____
_____ her _____ is _____ to

- _____ while _____
_____ their _____
- The _____ of _____ at one time is _____, _____, and _____

12. _____
- While _____ can be _____ at the _____, _____ has _____ that _____
 - _____ can be _____ by _____ introducing the _____ a _____
 - _____ has the _____
 - _____ is the _____ the _____
 - A _____ with a _____, _____ will be a _____
 - A _____ with a _____, _____ will _____ be _____ when it comes to _____

13. _____
- _____ can _____ between _____
 - _____ is _____ factors that _____
 - _____ that _____
 - _____
 - _____
 - Breed _____
 - _____ of birth
 - _____
 - _____
 - _____ too _____ gland development
 - _____ will _____

- _____ - _____ brought to _____
- Encouraging _____ -born _____ mature _____
_____ by introducing a _____
- _____ this is not _____, spring-born _____
_____ the _____

14. _____

- As the _____, _____ are _____
- An animal whose _____ is _____
_____ the _____
_____ available is _____
as a " _____ "
- There is a point that the _____
_____ that the _____
_____ as does the _____

Sheep Reproduction – Answer Key

Directions: Watch the presentation and fill in the blanks with the proper information.

1. Sheep Terms

- Yoe: Another term for female sheep
- Yearling: A sheep between the ages of 1 and 2 years
- Teaser: A ram that has been altered to prevent reproducing but is still used for mating
- Ram: Male sheep
- Ewe: Female sheep
- Sire: Father of sheep
- Ram effect: Stimulating ewes who are not ovulating with a ram or teaser ram
- Raddle: Color pigment placed on a ram's brisket so he can mark the ewe he mates with
- The term lamb has many meanings
 - A young sheep
 - To give birth to a lamb
 - The meat from a sheep that is less than a year old

2. Puberty

- A ewe lamb's puberty starts with the first estrous cycle and cyclic ovarian activity, meaning she has her first period
- Ram lamb's puberty begins with spermatogenesis or the process by which sperm mature

3. Age of Puberty

- The age is dependent on the breed of sheep but normally occurs between 5 and 12 months
- Other factors that play into when puberty occurs are nutrition and date of birth

4. Length of Day and Estrous Cycle

- The estrous cycle of a ewe is tied to the length of the day
- This is referred to as seasonally polyestrous and simply means that the species does not cycle year-round
- A ewe's estrous cycle occurs as the days get shorter
- Estrous cycle is around 17 days
- Ewes do not cycle year-round because they cycle when food is easily available in the wild
- A domesticated sheep's gestation period is between 144 and 152 days
- In many places, this equates to the same time that fresh grass starts growing

5. Changing Gestation Period

- While day length triggers estrus, the gestation period can be changed by high temperatures, quality of nutrition, and breeding pairs
- Medium-wool breeds and meat-type breeds typically have a shorter gestation period
- Ewes bred to white-faced, wool-breed rams have a slightly longer gestation period
- Ewes bred to black-faced, meat-type rams have a slightly shorter gestation period

6. The Reproductive Dance Starts With an Introduction

- Since a ewe's cycle is naturally triggered by the shortness of the day, this can limit breeding opportunities
- A ewe's estrous cycle can be stimulated by the presence of a ram

7. Ram Effect

- The ram effect can be done with a fertile male or one that is surgically sterile
- Just his presence will encourage the start of estrus
- The best approach is to introduce a ram to the herd 10-14 days before an estrous cycle is desired
- Once estrus starts, the ram should be brought back into the herd because the ewes are ready to mate
- Ewes that are ready to mate will chase the ram around the herd and sniff him
- Ewes that want to mate urinate often
- The ram will sniff the urine, extend his leg, and curl his lip
- The ram curling his lip is called the "flehmen response"
- If the ewe is interested, then she will stand still for mating
- Rams typically prefer older ewes and females from their same breed
- Normally 1 ram is used in a group of ewes to reduce the chances of rams fighting over mates

8. Estrous Cycle

- The cycle begins with the release of hormones from the pituitary and hypothalamus glands
- Hormonal release has internal triggers, but external triggers exist
- This includes the length of day and if a male is present or not
- Once the cycle starts, follicles in the ovaries, where oocytes (eggs) are stored, begin to successively produce until some rupture and release
- At this point, the released eggs are referred to as secondary oocytes, which appear during ovulation
- The released eggs pass through the oviduct to join the spermatozoa (sperm)
- The ruptured follicle by which the egg is released transforms into a corpus luteum
- The development of the follicle is under the control of FSH (follicle stimulating hormone) and LH (luteinizing hormone)
- Both are released by the pituitary gland and referred to as gonadotropins

- Through a hormonal feedback loop, gonadotropins also control the release of estrogen from the ovaries
- The release of estrogen is what causes on the ewe's "tail wagging" behavior"
- Following ovulation, the luteinized follicle, or corpus luteum, releases progesterone, preparing the uterus for pregnancy
- At the same time, gonadotropins are suppressed to stop further follicular development
- If pregnancy is not achieved, then prostaglandin is released by the uterus and a new cycle starts
- Pregnancy occurs when the ovum is fertilized by the spermatozoon
- This fertilization occurs in the oviduct and must be timed between insemination and ovulation events
- The timing is very important because the spermatozoa are only viable for 12 hours in the female reproductive system and the lifespan of an egg is 12-24 hours
- If the timing is right, the sperm will break through the zona pellucida, which surrounds the egg
 - This is done by enzymes in the cap of the sperm head
- This fusion of the sperm cell with the egg prevents other sperms from fertilizing the egg
- Within 24 hours, the fertilized eggs move from the oviduct to the uterus
- It is uncommon for ewes to give birth to 1 lamb
- In general, ewes will give birth to 2-3 lambs
- The fertilized eggs or developing embryos will continue to develop
- During this time, they are free-floating
- 15-20 days after fertilization is very important
- This is the time the embryos attach to the uterus
- For this attachment to occur, the uterus must be primed with progesterone, which is provided throughout the gestation period by the corpus luteum

9. Pregnancy Development

- The developing fetus is in the placenta, which is where the maternal and fetus circulation occur
- The most growth for the placenta occurs during days 90-110 of the pregnancy compared to the fetal growth, which speeds up during the third trimester

10. Labor and Delivery

- Estrogen is increased 24 hours prior to the delivery of lambs
- To prepare for delivery, ligaments are relaxed in the pelvic area, uterine contractions are stimulated by the release of oxytocin, and the placenta ruptures
- Lambs are normally born 2-3 hours after the start of labor
- The release of estrogen also helps stir maternal behavior along with the movement of the lamb through the cervical region during the birthing process

11. Ram Reproduction

- The male sheep's reproductive system is broken down into several parts
- It starts with the testes where the male gametes or spermatozoa and sex hormone or testosterone are produced
- Inside the testes, there is the germinal epithelium, which is where sperm production takes place
- The Leydig cells that line the interstitial tissue inside testes produce the sex hormone
- The testes are in the ram's scrotum
- The scrotum's job is temperature regulation of the testes, which needs to be kept between 37.4° and 41° C
- Spermatozoa moves from the testes to a structure in the scrotum called epididymis
- While the spermatozoa hang out in the epididymis, they mature and are stored until needed
- From the epididymis, you will find the vas deferens that connects the epididymis to the ampulla and accessory sex glands
- These sex glands are in the pelvic region and provide fluid for the spermatozoa to travel in during ejaculation
- The penis is the last stop of the male reproductive system
- The purpose is to deposit sperm inside the ewe
- In the ram, the sigmoid flexure allows the penis to extend up to 12 in. by filling the empty space in the tissues with blood
- When the season is not right, the penis is protected in its sheath
- Just like the ovaries, production of sperm is controlled by gonadotropins, LH and FSH
- The number of eggs a ewe will produce in her lifetime is determined prior to birth while rams produce sperm throughout their life
- The amount of sperm available at one time is determined by age, season, and sexual activity

12. Ram Success

- While any ram can be successful at the mating game, research has shown that successful rams have large testicles
- Testicle size can be enhanced by improving nutrition 2 months before introducing the ram to a ewe herd
- Overfeeding has the opposite result
- Another indication is the tail of the ram
- A ram with a long, firm tail will be a very successful breeder
- A ram with a small, soft tail will not be as successful when it comes to breeding

13. Puberty Influences

- Ewes and rams can reach puberty between 150 and 365 days
- Nutrition is one of the most important factors that influence puberty

- Factors that influence puberty include
 - Nutrition
 - Location
 - Breed
 - Season of birth
- Poor nutrition delays puberty
- Improved nutrition can speed up puberty
- Overeating and a diet too nutritious will reduce fertility and mammary gland development
- When a lamb is born will determine the season they mature
- Spring-born lambs need to be brought to puberty
- Encouraging spring-born lambs to sexually mature can be done by introducing a mature ram to the herd
- If this is not done, spring-born lambs will not mature sexually until the following breeding season

14. Day Length

- As the days get shorter, sheep are stimulated to breed
- An animal whose natural breeding cycle is in tune to the amount of sunlight available is referred to as a "short day breeder"
- There is a point that the days become so short that the ewe's estrous cycle stops as does the ram's sex drive

Lesson Four – Sheep Reproduction

REVIEW: Sheep Reproduction Recap

10 minutes

Purpose:

Participants will review the reproductive system of goats and then take a quiz.

Materials:

- Sheep Gestation Wheel
- *Sheep Reproduction Quiz*
- *Sheep Reproduction Quiz – Answer Key*

Facilitation Steps:

1. Divide participants into pairs and instruct them on how to use the gestation wheel.
2. After five minutes, instruct participants to put away the wheel and have participants return to their seats.
3. Distribute the quiz and explain how to complete it.
4. After five minutes, collect the quiz.

Name: _____ Class: _____

Sheep Reproduction Quiz

Directions: Indicate whether the statement is true or false by circling the answer.

1. A teaser ram is placed in the herd to encourage estrus. True or False
2. The term "lamb" can be defined as a young sheep, giving birth to lambs, or another name for meat from sheep. True or False
3. When puberty occurs can be affected by date of birth, nutrition, and the age of the sire. True or False
4. Seasonally polyestrous means the female animal has a period every month. True or False
5. The ram effect occurs when two rams or male sheep fight. True or False
6. A ewe's estrous cycle is triggered by the amount of sunlight. True or False
7. The gestation period of ewes can be changed by high temperatures, quality of nutrition, and breeding pairs. True or False
8. Ewes that are ready to mate do not urinate very often. True or False
9. Release of estrogen is what causes the tail wagging in ewes. True or False
10. It is unusual for ewes to give birth to more than one lamb. True or False
11. The amount of sperm available during ram reproduction depends on age, sexual activity, and season. True or False
12. The mating success of the ram is tied to the size of the scrotum. True or False
13. The shortening of the day causes estrus in ewes, but there comes a point that there is too little sunlight and estrus stops. True or False
14. Overfeeding a ram will improve his reproduction success. True or False
15. Day length also affects the ram's sex drive. True or False
16. The term "short day breeder" means this species only breeds during the day. True or False

Sheep Reproduction Quiz – Answer Key

Directions: Indicate whether the statement is true or false by circling the answer.

1. A teaser ram is placed in the herd to encourage estrus. **True** or False
2. The term “lamb” can be defined as a young sheep, giving birth to a lamb, or another name for meat from sheep. **True** or False
3. When puberty occurs can be affected by date of birth, nutrition, and the age of the sire. True or **False**
4. Seasonally polyestrous means that the female has a period every month. True or **False**
5. The ram effect occurs when two rams or male sheep fight. True or **False**
6. A ewe’s estrous cycle is triggered by the amount of sunlight. **True** or False
7. The gestation period of ewes can be changed by high temperatures, quality of nutrition, and breeding pairs. **True** or False
8. Ewes that are ready to mate do not urinate very often. True or **False**
9. Release of estrogen is what causes the tail wagging in ewes. **True** or False
10. It is unusual for ewes to give birth to more than one lamb. True or **False**
11. The amount of sperm available during ram reproduction depends on age, sexual activity, and season. **True** or False
12. The mating success of the ram is tied to the size of the scrotum. **True** or False
13. The shortening of the day causes estrus in ewes, but there comes a point that there is too little sunlight and estrus stops. **True** or False
14. Overfeeding a ram will improve his reproduction success. True or **False**
15. Day length also affects the ram’s sex drive. **True** or False
16. The term “short day breeder” means this species only breeds during the day. True or **False**

Lesson Five – Sheep Body Systems

Lesson Overview

Participants will learn about the basic systems of a sheep and their important functions.

Lesson Objectives

After completing this lesson, participants will be able to:

- List the components that make up the skeletal system
- List the number of bones sheep have
- List the shapes of bones
- Explain the function of each shape of bone
- Explain how bones are held together
- Describe the other functions of the skeletal system
- Explain the difference between voluntary and involuntary muscles
- Define the three types of muscle
- Describe where the three types of muscle are located
- Explain how a ruminant's stomach works
- List the four glands that make up the endocrine system

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>How Many Bones Do I Have?</i> worksheet • <i>How Many Bones Do I Have?</i> – Answer Key	1. Print/photocopy <i>How Many Bones Do I Have?</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Sheep Body Systems</i> slide presentation • <i>Sheep Body Systems</i> worksheet • <i>Sheep Body System</i> – Answer Key	1. Print/photocopy <i>Sheep Body Systems</i> worksheet (one per participant) 2. Prepare <i>Sheep Body Systems</i> slide presentation for viewing	40 minutes
REVIEW	• Sheep whiteboards • <i>Sheep Body Systems Quiz</i> • <i>Sheep Body Systems Quiz</i> – Answer Key	1. Prepare sheep whiteboards 2. Print/photocopy <i>Sheep Body Systems Quiz</i> (one per participant)	10 minutes

Lesson Five – Sheep Body Systems

FOCUS: Intro to Sheep Body Systems

10 minutes

Purpose:

Participants will be introduced to the sheep's body systems by figuring out the number of bones different animals have in their skeleton.

Materials:

- *How Many Bones Do I Have?* worksheet
- *How Many Bones Do I Have?* – Answer Key

Facilitation Steps:

1. Have participants pair up and distribute the worksheet.
2. Explain how to fill out the worksheet and give participants five minutes to complete it.
3. Have participants separate from their pairs and exchange worksheets.
4. Go over the answers of the worksheet while the participants grade each other's papers.
5. Collect the worksheet.

Name: _____ Class: _____

How Many Bones Do I Have?

Directions: For each species on the left, write the correct letter associated with the proper number of bones on the right.

- | | |
|-----------------------|--------|
| 1. Human _____ | A. 205 |
| 2. Beef cattle _____ | B. 215 |
| 3. Domestic cat _____ | C. 321 |
| 4. Fox _____ | D. 229 |
| 5. Rabbit _____ | E. 206 |
| 6. Dog _____ | F. 244 |
| 7. Horse _____ | G. 207 |
| 8. Sheep _____ | H. 170 |

How Many Bones Do I Have? – Answer Key

Directions: For each species on the left, write the correct letter associated with the proper number of bones on the right.

- | | | |
|-----------------|----------|--------|
| 1. Human | <u>E</u> | A. 205 |
| 2. Beef cattle | <u>G</u> | B. 215 |
| 3. Domestic cat | <u>F</u> | C. 321 |
| 4. Fox | <u>H</u> | D. 229 |
| 5. Rabbit | <u>D</u> | E. 206 |
| 6. Dog | <u>C</u> | F. 244 |
| 7. Horse | <u>A</u> | G. 207 |
| 8. Sheep | <u>B</u> | H. 170 |

Lesson Five – Sheep Body Systems

LEARN: Sheep Body Systems

40 minutes

Purpose:

Participants will learn about the different body systems of sheep by watching a slide presentation and filling out a worksheet.

Materials:

- *Sheep Body Systems* slide presentation
- *Sheep Body Systems* worksheet
- *Sheep Body Systems* – Answer Key

Facilitation Steps:

1. Set up the slide presentation and distribute the worksheet.
2. Provide directions on how to fill the worksheet out and collect it once the presentation is complete.

Slide 1: Title slide

Slide 2: Skeletal System

- Consists of bones, cartilages, and ligaments
- The framework that supports and protects all the other body systems of the sheep
- Sheep have 215 bones

Slide 3: Not All Bones Are the Same

- The skeleton is made up of different bone shapes
- Each shape has a purpose
- Long bones provide support, similar to columns, allowing the animal to move
- Short bones are shaped like cubes
- These cubes are found in joints, protecting the body from friction and impacts
- Flat bones protect the organs of the animal, including the heart, lungs, and brain

Slide 4: What Keeps the Bones Together?

- The skeletal system is held together in 3 ways
- Joints occur where 2 or more bones meet
- Ligaments are bands of connective tissue that keep bones together
- Tendons are thick bands that connect bone and muscle

Slide 5: Muscular System

Slide 6: Function of the Muscular System

- Muscles allow the body to move
- Muscles can be either voluntary or involuntary
 - Voluntary muscles are those you control, such as the ones in your hand that allow you to write
 - Involuntary muscles are those that are not controlled by the animal, such as the heart

Slide 7: 3 Types of Muscle

- Smooth muscles are those found in the walls of internal organs and are involuntary
- Cardiac muscles are involuntary and make up the heart
- Skeletal muscles are voluntary and attached to the bones, aiding in movement

Slide 8: Digestive System

Slide 9: How Does the Digestive System Work?

- The digestive system breaks food down into small molecules so that the body can get nutrition from the food
- The digestive system consists of the
 - Mouth
 - Tongue
 - Pharynx
 - Esophagus
 - Stomach
 - Small intestine
 - Large intestine
 - Anus

Slide 10: How Does a Ruminant Stomach Work?

- Sheep are what is called a ruminant
- This means the stomach is broken into 4 compartments
 - Reticulum
 - Rumen
 - Omasum
 - Abomasum

Slides 11-12: The Journey of Food From Beginning to End

- The sheep eats and breaks down the food with their teeth
- This food then forms a bolus that goes down the esophagus and into the rumen
- The bolus then goes back up through the esophagus into the mouth where it is broken down into smaller parts
- These smaller pieces are swallowed again, but this time it enters the reticulum
- This goes from the reticulum to the omasum where these small pieces are broken down into molecules
- These molecules then enter the abomasum and are absorbed by the body
- The molecules not absorbed go through the small intestine and then the large intestine, ending up as solid waste

Slide 13: Endocrine System

Slide 14: What Does the Endocrine System Do?

- The endocrine system is made up of glands that produce hormones
- Hormones are chemicals that control different types of bodily functions
- There are 4 glands that create this system

Slides 15-16: The Glands and Their Uses

- The hypothalamus gland controls the pituitary gland and makes an antidiuretic hormone
- The pituitary gland makes amino acids and releases growth hormone
- The thyroid gland creates amino acids and encourages growth, along with metabolism
- The adrenal gland makes amino acids as well as releases epinephrine and norepinephrine

Name: _____ Class: _____

Sheep Body Systems

Directions: As you watch the slide presentation, fill in the blanks below with the information presented.

1. _____
 - _____ of _____, _____, and _____
 - The _____ that supports and _____ the _____ of the sheep
 - _____ have _____

2. _____ Are the _____
 - The _____ is _____ of _____
 - _____ has a _____
 - _____ similar to _____, allowing the _____ to _____
 - _____ are _____
 - These _____ are _____, _____ the _____ from _____ and _____
 - _____ the _____ of the animal, _____ the _____, _____, and _____

3. _____ the _____?
 - The _____ is _____ in _____
 - _____ where _____
 - _____ are _____ that _____
 - _____ are _____ that _____

4. _____ of the _____
- _____ the _____
 - _____ can be _____
 - _____ are _____ you control, such as the _____ that _____ to _____
 - _____ are those that are _____ the _____, such as the _____

5. _____ of _____
- _____ are those _____ the _____ and are _____
 - _____ are involuntary and _____
 - _____ are voluntary and _____ the _____, _____

6. _____ Does the _____?
- The _____ into _____ so that the _____ can get _____ the _____
 - The _____ of the
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____

7. _____ Does a _____?
- _____ are what is _____ a _____
 - This _____ the _____ is _____

- _____
- _____
- _____
- _____

8. The Journey of _____

- The _____ and _____ the _____
_____ their _____
- This _____ then forms a _____ that _____ the
_____ and _____ the _____
- The _____ then _____
the _____ the _____ where it is
_____ into _____
- These _____ are
_____, but _____ it
_____ the _____
- This _____ the _____ the
_____ these _____ are
_____ into _____
- These _____ then _____ the
_____ and are _____ the

- The _____ go
_____ the _____ and
_____ the _____,
_____ as _____

9. _____ the _____?

- The _____ is _____ of
_____ that _____
- _____ are _____ that
_____ of

- There are _____ that _____ this

10. The _____ and _____

- The _____
_____ the _____ and
_____ an _____

- The _____
_____ and _____

- The _____
_____ and _____,

- The _____
_____ as well as _____
_____ and _____

Sheep Body Systems – Answer Key

Directions: As you watch the slide presentation, fill in the blanks below with the information presented.

1. **Skeletal System**

- Consists of bones, cartilages, and ligaments
- The framework that supports and protects all the other body systems of the sheep
- Sheep have 215 bones

2. **Not All Bones Are the Same**

- The skeleton is made up of different bone shapes
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- Cardiac muscles are involuntary and make up the heart
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 - Large intestines
 - Anus

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 - Rumen
 - Omasum
 - Abomasum

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- The adrenal gland makes amino acids as well as releases epinephrine and norepinephrine

Lesson Five – Sheep Body Systems

REVIEW: Recap of Sheep Body Systems

10 minutes

Purpose:

Participants will review the sheep body system by using the sheep whiteboard. Once the review is over, participants will take a quiz.

Materials:

- Sheep whiteboards
- *Sheep Body Systems Quiz*
- *Sheep Body Systems Quiz – Answer Key*

Facilitation Steps:

1. Have participants pair up and give them the whiteboards.
2. Go over how to review the body systems and give participants five minutes to do so.
3. Collect the whiteboards and have participants return to their seats.
4. Distribute the quiz and go over the directions.
5. After five minutes, collect the quiz.

Name: _____ Class: _____

Sheep Body Systems Quiz

Directions: For each statement, indicate whether it is true or false.

1. The skeletal system consists of bones, cartilages, and ligaments. True or False
2. Sheep have five different types of bones. True or False
3. A muscle's function can be voluntary, sedentary, or involuntary. True or False
4. Sheep have three types of muscle: Cardiac, skeletal, and smooth. True or False
5. The digestive system of sheep consists of the mouth, tongue, pharynx, esophagus, stomach, small intestine, medium intestine, large intestine, and anus. True or False
6. The sheep's stomach contains four compartments. True or False
7. There are eight glands that make up the endocrine system. True or False
8. The pituitary gland releases growth hormone. True or False
9. The role of the muscle system is to allow the sheep's body to produce hormones. True or False
10. Bones are held together through joints, ligaments, and tendons. True or false
11. The purpose of the digestive system is to break food down into smaller pieces so the sheep's body can absorb nutrients. True or False
12. When sheep eat, they swallow their food whole. True or False
13. Sheep have 400 bones that make up their skeleton. True or False
14. Molecules of food that are not absorbed enter the small intestine and then the large intestine where they turn into waste. True or False
15. Tendons are thick bands that connect bone and muscle. True or False
16. The first step of the digestive process begins with a sheep grinding food with its teeth, which aids in the formation of a bolus. True or False

Sheep Body Systems Quiz – Answer Key

Directions: For each statement, indicate whether it is true or false.

1. The skeletal system consists of bones, cartilages, and ligaments. **True** or False
2. Sheep have five different types of bones. True or **False**
3. A muscle's function can be voluntary, sedentary, or involuntary. True or **False**
4. Sheep have three types of muscle: Cardiac, skeletal, and smooth. **True** or False
5. The digestive system of sheep consists of mouth, tongue, pharynx, esophagus, stomach, small intestine, medium intestine, large intestine, and anus. True or **False**
6. The sheep's stomach contains four compartments. **True** or False
7. There are eight glands that make up the endocrine system. True or **False**
8. The pituitary gland releases growth hormone. **True** or False
9. The role of the muscle system is to allow the sheep's body to produce hormones. True or **False**
10. Bones are held together through joints, ligaments, and tendons. **True** or false
11. The purpose of the digestive system is to break food down into smaller pieces so the sheep's body can absorb nutrients. **True** or False
12. When sheep eat, they swallow their food whole. True or **False**
13. Sheep have 400 bones that make up their skeleton. True or **False**
14. Molecules of food that are not absorbed enter the small intestine and then the large intestine where they turn into waste. **True** or False
15. Tendons are thick bands that connect bone and muscle. **True** or False
16. The first step of the digestive process begins with a sheep grinding food with its teeth, which aids in the formation of a bolus. **True** or False

Lesson Six – Sheep Judging

Lesson Overview

Participants will learn the basics of how a sheep show is run, what judges look for, and the different types of competition available.

Lesson Objectives

After completing this lesson, participants will be able to:

- List the types of sheep judging
- Describe what is judged regarding showmanship of a sheep
- Describe the five characteristics that judges look for during a sheep show
- List when a sheep should be sheared in preparation for a meat-breed show
- List how a wool-breed sheep is prepared for a show regarding their fleece
- Describe characteristics evaluated for dual-purpose sheep breeds
- Describe what is looked for regarding rams and their ability to reproduce
- Describe traits evaluated for market lambs
- List the judging classes for sheep
- Explain how oral reasoning is conducted in a sheep show

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Intro To Judging Terms</i> worksheet • <i>Intro To Judging Terms – Answer Key</i>	1. Print/photocopy <i>Intro to Judging Terms</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Sheep Judging</i> slide presentation • <i>Sheep Judging</i> worksheet • <i>Sheep Judging – Answer Key</i>	1. Print/photocopy <i>Sheep Judging</i> worksheet (one per participant) 2. Prepare <i>Sheep Judging</i> slide presentation for viewing	40 minutes
REVIEW	• <i>Sheep Judging</i> poster • <i>Sheep Judging Quiz</i> • <i>Sheep Judging Quiz – Answer Key</i>	1. <i>Sheep Judging</i> poster 2. Print/photocopy <i>Sheep Judging Quiz</i> (one per participant)	10 minutes

Lesson Six – Sheep Judging

FOCUS: Intro To Sheep Judging

10 minutes

Purpose:

Participants will be introduced to terms used in sheep judging by unscrambling words in a group and then correcting the worksheet.

Materials:

- *Intro To Judging Terms* worksheet
- *Intro To Judging Terms* – Answer Key

Facilitation Steps:

1. Have participants pair up and give them the worksheet.
2. Provide instructions on how to complete the worksheet and give participants five minutes to work on it.
3. Have participants return to their seats and exchange papers.
4. Go over the answers while participants grade the worksheets.
5. Collect the worksheets.

Name: _____ Class: _____

Intro To Judging Terms

Directions: Unscramble the words on the right and place the answer in the blank on the left.

1. _____ nessound
- 2 _____ rafme ezis
- 3 _____ larutcurts nesstcroe
4. _____ greedge fo clingmus
5. _____ bealanc
6. _____ greede fo sleannes
7. _____ deegre fo shifin

Intro To Judging Terms – Answer Key

Directions: Unscramble the words on the right and place the answer in the blank on the left.

1. _____ **Soundness** _____ nessound
2. _____ **Frame Size** _____ rafme ezis
3. _____ **Structural Correctness** _____ larutcurts nesstcroe
4. _____ **Degree of Muscling** _____ greedge fo clingmus
5. _____ **Balance** _____ bealanc
6. _____ **Degree of Leanness** _____ greede fo sleannes
7. _____ **Degree of Finish** _____ deegree fo shifin

Lesson Sheep – Sheep Judging

LEARN: Sheep Judging

40 minutes

Purpose:

Participants will learn about sheep judging by watching a slide presentation and filling out a worksheet.

Materials:

- *Sheep Judging* slide presentation
- *Sheep Judging* worksheet
- *Sheep Judging* – Answer Key

Facilitation Steps:

1. Set up the slide presentation and distribute the worksheets.
2. Provide directions on how to fill out the worksheet and present the slides.
3. When the slide presentation is finished, collect the worksheet.

Slide 1: Title Slide

Slide 2: What Goes Into Sheep Judging?

- Showmanship
- Meat, wool, and dual-purpose breeds
- Breeding stock and market lambs
- Oral reasoning

Slides 3-6: Showmanship

- Showmanship is the evaluation of the handler, not the sheep
- It can require that the handler answer questions about their sheep as well as sheep in general
- The showmanship process starts with setting up your sheep
- This is done by setting the legs so that each leg is on a corner of the body and the weight is evenly spaced
- You then want to get your sheep to rest their chest on your leg so you can lift their chin
- When the sheep lifts its chin, this allows them to really show off their muscles, which is very similar to what a body builder does in competition

- During this type of competition, the sheep is shaved so that the muscles are easier to see
- Considerations include
 - Cleanliness of the sheep and showman
 - How well the sheep is controlled
 - How the sheep is shown
 - How well questions are answered
 - How the sheep's assets are displayed

Slides 7-8: How Are Meat Breeds Judged?

- When judging meat breeds, you are looking for the breed standard for both rams and ewes
- Sheep should be sheared 30 days before the show so that the characteristics of the breed are visible
- The coat needs to be cut very short
- Currying and carding the coat several times a few days before the show will help create a smooth finish
- A sheep show based on a breed is not only breed specific but also age specific
- The age breakdown is lamb, yearling, and senior

Slide 9: Beyond the Breed Standard

- A judge will look at the breed standard as it applies to the following:
 1. Degree of muscling
 2. Degree of finish
 3. Balance and style
 4. Frame size
 5. Soundness and structural correctness

Slide 10: Degree of Muscling

- The most important characteristic when it comes to meat breeds
- This is determined by
 - Thickness of the center of the leg
 - Width between the rear legs as the animal walks
 - Length of the hind saddle
 - Shape over the rack

Slide 11: Degree of Finish

- This is an accumulation of degree of muscling, frame size, and stage of maturity along with a breed's standard

Slides 12-13: Balance and Style

- Balance in sheep judging means that the animal has equal portions, including body width, depth, and length
- Body length is given special importance
- Style in sheep is concerned with 2 issues:
 1. Correctness of structure
 2. Straightness of design
- Both are based on breed standard

Slide 14: Frame Size

- Frame size is a measurement of length and height
- Length is measured from fore flank to rear flank
- Height is measured from the shoulder to the floor

Slide 15: Soundness and Structure

- This is evaluated by looking at the
 - Feet and pasterns
 - Hocks
 - Knees
 - Rump
 - Shoulders

Slides 16-22: Wool Breed Judging

- Wool breeds are not shaved down to the skin, making it harder to see what is under the coat
- Some recommend the stomach of the sheep be sheared about 2 weeks before a show
- This will allow the sheep to look taller
- While you want the sheep clean, they are not bathed so their natural color is visible
- Wool breeds follow the same evaluation standards as meat breeds, including
 - Degree of muscling
 - Degree of finish
 - Balance and style
 - Frame size
 - Soundness and structure correctness
- It is highly important that the judges put their hands on the sheep, especially while measuring the degree of muscling

- This is because the sheep is not completely shown with the wool hiding many aspects of the sheep's body
- Once the basic evaluation is over, the next step is assessing the wool
- This is done by considering several factors
 1. Consistency
 2. Size
 3. Boldness
 4. Quality of crimp
 5. Size of lock, which only occurs in coarse wool breeds
 6. Density of fleece
 7. Fleece uniformity
- Consistency means the sheep's coat is evaluated from front to back and top to bottom
 - Amount of belly wool
 - Presence of kemp, which is "hair" in the wool
- Size and boldness of the wool go together and follow a breed standard
- Quality of crimp is a measurement of the natural wave of the wool
- The coarser the wool, the more crimping one should see
- This is undesirable for fine wool breeds
- The size of lock only applies to coarse wool breeds, which desire a thick lock
- Density of fleece is an evaluation of how well the sheep is covered in fleece
- Fleece uniformity is the fleece being the same all over the sheep's body
 - The uniformity also looks at texture and color of fleece
 - Fleece standards are based on the breed being evaluated

Slide 23: Dual-Purpose Judging

- When it comes to judging dual-purpose breeds, both the meat and wool requirements are considered
- The sheep's ability to produce meat and wool is evaluated not just meat or wool

Slides 24-25: How Does This Differ From Wool Breed Judging?

- Since the sheep's coat is not shown, the judge still needs to feel for degree of muscling

- While meat and wool breeds go through the same judging according to their breed's standard, the difference in this judging comes from the sheep's purpose
- Meat breeds need to exhibit positive traits so they can reach their 130-lb. market goal
- Wool breeds need to exhibit positive traits regarding their body structure so they can successfully support fleece
 - The fleece must also meet certain requirements

Slide 26: Breeding Stock

- Both ewes and rams are judged
- Breeding ewes are judged on the following
 1. Balance and style
 2. Frame size
 3. Soundness and structural correctness
 4. Degree of muscling
 5. Degree of leanness
 6. Wool

Slide 27: Judging of Breeding Ewes

- All these characteristics are evaluated as a way of determining how successful the ewe will be as a breeder/mother
- The ewe judging also involves positive traits that are transferred to offspring

Slide 28: Judging of Breeding Rams

- When it comes to rams, the judging characteristics are the same as those for meat breeds or market lambs
- There are 2 additions to the judging characteristics, including maleness and testicle size
- The size of the testicles is an indication as to how successful this ram is when it comes to breeding
- Judging of breeding stock can be organized by breed or sex

Slide 29: Judging of Market Lambs

- A market lamb is defined as one that is 6-12 months of age
- The purpose of the judging is to evaluate lambs for their marketability, meaning they

have the traits to reach the average market size of 130 lbs.

Slide 30: Evaluating Factors for Market Lambs

- The traits judged for market lambs are the same as meat breeds
 1. Degree of muscling
 2. Degree of finishing
 3. Balance and style
 4. Frame size
 5. Soundness and structure correctness

Slide 31: Judging Classes for Sheep

- Beyond breed and sex, sheep can be shown in 3 categories
 - Lamb (between 6 and 12 months of age)
 - Yearling (between 1 and 2 years of age)
 - Senior (older than 2 years)

Slides 32-33: Oral Reasoning

- Oral reasoning is where an individual reviews 4 sheep and presents their findings to a judge
- In this type of judging, the evaluation is on the person defends their ranking of the 4 sheep
- In oral reasoning, the presenter is being judged, not the sheep
- All types of sheep judging can also be done as an oral reasoning competition, including
 - Breed
 - Meat
 - Wool
 - Dual-purpose
 - Breeding
 - Market lamb

Name: _____ Class: _____

Sheep Judging

Directions: As you watch the slide presentation, fill in the blanks below.

1. _____ Goes _____ Sheep _____?

- _____
- _____, _____, and _____ - _____
- _____ and _____
- _____

2. _____

- _____ is _____ the _____ of the _____, _____ the _____
- It can _____ that the _____ their sheep as well as _____ in _____
- The _____ starts _____ setting up your _____
- This is _____ by _____ the _____ so that each _____ is on a _____ of the _____ and the _____ is evenly spaced
- You then want to get your sheep to rest their chest on your _____ so you can _____ their _____
- When the _____ its _____, this _____ them to really _____ their muscles, which is very similar to what a body builder does in competition
- _____ this _____ of _____, the _____ is shaved so that the _____ are _____ to see
- _____
 - Cleanliness of the _____ and _____
 - How well the sheep is _____
 - How the sheep is _____
 - How well _____ are _____
 - How the sheep's _____ are _____

3. How Are _____?

- When _____, you are _____ the _____ for _____
- Sheep should be _____ the _____ so that the _____ the _____ are _____
- The _____ needs to be _____
- _____ and _____ the _____ a _____ will help create a _____
- A _____ a _____ is not only breed specific but also _____
- The age _____ is _____, _____, and _____

4. _____ the _____

- A _____ will _____ at the _____ as it _____ to the following:
 1. _____
 2. _____
 3. _____
 4. _____
 5. _____

5. _____

- The _____ when it comes to _____
- This is _____
 - _____ of the _____ of the _____
 - _____ between the _____ as the _____
 - _____ and _____ of _____
 - _____ of the _____
 - _____ over the _____

6. Degree of Finish

- This is an _____ of _____ of muscling, _____, and stage of _____ along with a _____

7. _____

- Balance in sheep _____ that the _____ has equal _____, _____ body _____, depth, and _____
- _____ is given _____
- _____ in _____ is _____ with 2 _____ :
 1. _____ of structure
 2. Straightness of _____
- Both are based on _____

8. _____

- Frame size is a _____ of _____ and _____
- _____ is _____ from _____ to rear _____
- _____ is _____ from the _____ to the _____

9. _____

- This is evaluated by _____ the
 ○ _____
 ○ _____
 ○ _____
 ○ _____
 ○ _____

10. _____

- _____ are _____ down to the _____, making it _____ to _____ what is _____ the _____
- Some _____ the _____ of the sheep be _____ about _____ a _____
- This will _____ the _____ to _____

- While you want the _____, they are _____
_____ so their _____ is _____

- _____ follow the _____
_____ as _____
_____, including
 - _____
 - _____
 - _____
 - _____
 - _____
- It is _____ that the _____
_____ their _____ on the _____
_____, especially while _____

- This is because the _____ is not _____
with the _____ hiding many _____ of the _____ body
- Once the _____ is _____, the _____
_____ is _____ the _____
- This is _____ by _____ several factors
 1. _____
 2. _____
 3. _____
 4. _____
 5. _____, _____
 6. _____
 7. _____
- _____ the _____
_____ is _____ at from _____
_____ and _____
 - _____
 - _____ of _____, which is “_____”
_____ the _____
- _____ and _____ of the _____
_____ and _____ a _____

- _____ is a _____
_____ the _____
_____ of the _____

- The _____ the _____, the _____
one _____
- This is _____ for _____

- The _____ only _____ to
_____, which _____
a _____
- _____ is an _____ of
how well the _____ is _____ in _____
- Fleece _____ is the _____ being the _____ all
_____ the _____
 - The _____ also looks at _____ and
_____ of _____
 - Fleece standards are _____ on the _____ being

11. _____ - _____
- When it comes to _____ - _____
_____, _____ the _____
_____ are _____
 - The sheep's ability to _____ and
_____ is _____ just _____ or

12. How Does This _____
_____?
- Since the _____ is _____,
the _____ still _____ to _____ for

 - While _____ go through the
_____ to their
_____, the
_____ in this _____
_____ from the _____
 - _____ need to _____
_____ so they can _____ their
_____.
 - _____ need to _____
_____ regarding their _____
_____ so they can successfully _____

- The _____ must also _____ certain

13. _____

- _____ and _____ are _____
- _____ are _____ the following
 1. _____
 2. _____
 3. _____
 4. _____
 5. _____
 6. _____

14. _____ of _____

- _____ these _____ are evaluated as a way of _____ the _____ as a _____ / _____
- The _____ also _____ that are _____

15. _____ of _____

- When it comes to _____, the _____ are the _____ as _____ for _____
- There are _____ to the _____ and _____
- The _____ the _____ is an _____ as to _____ this _____ when it _____
- _____ of breeding stock can be _____ by _____

16. _____ of _____
- A _____ is _____ as one that is _____
 - The _____ the _____ is to _____ their _____, meaning that they have the _____ to _____ the _____ of _____.

17. _____ for _____
- The traits that are _____ are the _____ as _____
1. _____
 2. _____
 3. _____
 4. _____
 5. _____

18. _____ for _____
- Beyond breed and sex, sheep can be _____
1. _____ (_____)
 2. _____ (between 1 and 2 _____ of age)
 3. _____ (older than 2 _____)

19. _____
- _____ is where an individual _____ and _____ a _____
 - In this _____ of _____, the _____ is on _____ the _____ their _____ of the _____ sheep
 - In oral reasoning, the presenter is being judged, _____ the _____
 - _____ of _____ judging can also be _____ as an _____ reasoning competition, _____
 - _____
 - Meat
 - _____

Sheep Kit Curriculum

- _____ - _____
- Breeding
- _____ - _____

Sheep Judging – Answer Key

Directions: As you watch the slide presentation, fill in the blanks below.

1. What Goes Into Sheep Judging?

- Showmanship
- Meat, wool, and dual-purpose breeds
- Breeding stock and market lambs
- Oral reasoning

2. Showmanship

- Showmanship is mostly the evaluation of the handler, not the sheep
- It can require that the handler answer questions about their sheep as well as sheep in general
- The showmanship process starts with setting up your sheep
- This is done by setting the legs so that each leg is on a corner of the body and the weight is evenly spaced
- You then want to get your sheep to rest their chest on your leg so you can lift their chin
- When the sheep lifts its chin, this allows them to really show off their muscles, which is very similar to what a body builder does in competition
- During this type of competition, the sheep is shaved so that the muscles are easier to see
- Considerations include
 - Cleanliness of the sheep and showman
 - How well the sheep is controlled
 - How the sheep is shown
 - How well questions are answered
 - How the sheep's assets are displayed

3. How Are Meat Breeds Judged?

- When judging meat breeds, you are looking for the breed standard for both rams and ewes
- Sheep should be sheared 30 days before the show so that the characteristics of the breed are visible
- The coat needs to be cut very short
- Currying and carding the coat several times a few days before the show will help create a smooth finish
- A sheep show based on a breed is not only breed specific but also age specific
- The age breakdown is lamb, yearling, and senior

4. Beyond the Breed Standard

- A judge will look at the breed standard as it applies to the following:
 1. Degree of muscling
 2. Degree of finish
 3. Balance and style
 4. Frame size
 5. Soundness and structural correctness

5. Degree of Muscling

- The most important characteristic when it comes to meat breeds
- This is determined by
 - Thickness of the center of the leg
 - Width between the rear legs as the animal walks
 - Width and length of loin
 - Length of the hind saddle
 - Shape over the rack

6. Degree of Finish

- This is an accumulation of degree of muscling, frame size, and stage of maturity along with a breed's standard

7. Balance and Style

- Balance in sheep judging means that the animal has equal portions, including body width, depth, and length
- Body length is given special importance
- Style in sheep is concerned with 2 issues:
 1. Correctness of structure
 2. Straightness of design
- Both are based on breed standard

8. Frame Size

- Frame size is a measurement of length and height
- Length is measured from fore flank to rear flank
- Height is measured from the shoulder to the floor

9. Soundness and Structure

- This is evaluated by looking at the
 - Feet and pasterns
 - Hocks
 - Knees
 - Rump

- Shoulders

10. Wool Breed Judging

- Wool breeds are not shaved down to the skin, making it harder to see what is under the coat
- Some recommend the stomach of the sheep be sheared about 2 weeks before a show
- This will allow the sheep to look taller
- While you want the sheep clean, they are not bathed so their natural color is visible
- Wool breeds follow the same evaluation standards as meat breeds, including
 - Degree of muscling
 - Degree of finish
 - Balance and style
 - Frame size
 - Soundness and structure correctness
- It is highly important that the judges put their hands on the sheep, especially while measuring the degree of muscling
- This is because the sheep is not completely shown with the wool hiding many aspects of the sheep's body
- Once the basic evaluation is over, the next step is assessing the wool
- This is done by considering several factors
 1. Consistency
 2. Size
 3. Boldness
 4. Quality of crimp
 5. Size of lock, which only occurs in coarse wool breeds
 6. Density of fleece
 7. Fleece uniformity
- Consistency means the sheep's coat is looked at from front to back and top to bottom
 - Amount of belly wool
 - Presence of kemp, which is "hair" in the wool
- Size and boldness of the wool go together and follow a breed standard
- Quality of crimp is a measurement of the natural wave of the wool
- The coarser the wool, the more crimping one should see
- This is undesirable for fine wool breeds
- The size of lock only applies to coarse wool breeds, which desire a thick lock
- Density of fleece is an evaluation of how well the sheep is covered in fleece
- Fleece uniformity is the fleece being the same all over the sheep's body
 - The uniformity also looks at texture and color of fleece
 - Fleece standards are based on the breed being evaluated

11. Dual-Purpose Judging

- When it comes to judging dual-purpose breeds, both the meat and wool requirements are considered
- The sheep's ability to produce meat and wool is evaluated not just meat or wool

12. How Does This Differ From Wool Breed Judging?

- Since the sheep's coat is not shown, the judge still needs to feel for degree of muscling
- While meat and wool breeds go through the same judging according to their breed's standards, the difference in this judging comes from the sheep's purpose
- Meat breeds need to exhibit positive traits so they can reach their 130-lb. market goal
- Wool breeds need to exhibit positive traits regarding their body structure so they can successfully support fleece
 - The fleece must also meet certain requirements

13. Breeding Stock

- Both ewes and rams are judged
- Breeding ewes are judged on the following
 1. Balance and style
 2. Frame size
 3. Soundness and structural correctness
 4. Degree of muscling
 5. Degree of leanness
 6. Wool

14. Judging of Breeding Ewes

- All these characteristics are evaluated as a way of determining how successful the ewe will be as a breeder/mother
- The ewe judging also involves positive traits that are transferred to offspring

15. Judging of Breeding Rams

- When it comes to rams, the judging characteristics are the same as those for meat breeds or market lambs
- There are 2 additions to the judging characteristics, including and testicle size
- The size of the testicles is an indication as to how successful this ram is when it comes to breeding
- Judging of breeding stock can be organized by breed or sex

16. Judging of Market Lambs

- A market lamb is defined as one that is 6-12 months of age
- The purpose of the judging is to evaluate lambs for their marketability, meaning that they have the traits to reach the average market size of 130 lbs.

17. Evaluating Factors for Market Lamb

- The traits that are judged for market lambs are the same as meat breeds
 1. Degree of muscling
 2. Degree of finishing
 3. Balance and style
 4. Frame size
 5. Soundness and structure correctness

18. Judging Classes for Sheep

- Beyond breed and sex, sheep can be shown in 3 categories
 1. Lamb (between 6 and 12 months of age)
 2. Yearling (between 1 and 2 years of age)
 3. Senior (older than 2 years)

19. Oral Reasoning

- Oral reasoning is where an individual reviews 4 sheep and presents their findings to a judge
- In this type of judging, the evaluation is on how the person defends their ranking of the 4 sheep
- In oral reasoning, the presenter is being judged, not the sheep
- All types of sheep judging can also be done as an oral reasoning competition, including
 - Breed
 - Meat
 - Wool
 - Dual-Purpose
 - Breeding
 - Market lamb

Lesson Six – Sheep Judging

REVIEW: Recap of Sheep Judging

10 minutes

Purpose:

Participants will review the process of sheep judging by studying a poster. Once the review is complete, participants will take a quiz.

Materials:

- *Sheep Judging* Poster
- *Sheep Judging Quiz*
- *Sheep Judging Quiz – Answer Key*

Facilitation Steps:

1. Display the poster and instruct participants to review it.
2. After five minutes, remove the poster from view and distribute the quiz.
3. Provide directions on how to complete the quiz and give participants five minutes to complete it.
4. Collect the quiz.

Name: _____ Class: _____

Sheep Judging Quiz

Directions: After reading each statement, indicate whether it is true or false.

1. Lambs judged as market lambs are 2 years and older. True or False
2. When judging rams for breeding purposes, the judge takes into consideration the size of the testicles. True or False
3. A sheep shown in a showmanship class are judged by their personality. True or False
4. Oral reasoning occurs when a judge evaluates four sheep and discuss why they ranked the sheep in a particular order. True or False
5. When meat breeds are judged, they are measured by their breed standard. True or False
6. Meat breeds are never shown before being judged. True or False
7. The type of sheep that are judged are wool, meat, and dual-purpose breeds. True or False
8. The most important trait to look at when it comes to meat breeds is the degree of muscling. True or False
9. When it comes to wool breeds, the structure of the animal is just as important as the quality of the fleece. True or False
10. Market lambs are evaluated on their ability to reach a market standard of 130 pounds. True or False
11. Wool breeds are shaved to the skin so that the wool can be judged. True or False
12. Dual-purpose breeds are those judged for meat production and their ability to be good pets. True or False
13. Crimp in wool is not a factor considered when judging wool breeds. True or False
14. When wool breeds are judged, it is very important that the judge can put their hands on the animal to determine degree of muscling. True or False
15. Sheep are not only judged by breed and use but also by age. True or False
16. The amount of hair in fleece is not important when judging wool breeds. True or False
17. A yearling is a sheep that is 1 to 2 years of age. True or False
18. Characteristics that judges look for when judging sheep includes degree of muscling, degree of finishing, balance and style, frame size, and soundness and structure correctness. True or False
19. Frame size is a measurement of length and height. True or False
20. Degree of finish is a term used to describe how well the sheep is groomed. True or False

Sheep Judging Quiz – Answer Key

Directions: After reading each statement, indicate whether it is true or false.

1. Lambs judged as market lambs are 2 years and older. True or **False**
2. When judging rams for breeding purposes, the judge takes into consideration the size of the testicles. **True** or False
3. A sheep shown in a showmanship class are judged by their personality. True or **False**
4. Oral reasoning occurs when a judge evaluates four sheep and discuss why they ranked the sheep in a particular order. **True** or False
5. When meat breeds are judged, they are measured by their breed standard. **True** or False
6. Meat breeds are never shown before being judged. True or **False**
7. The type of sheep that are judged are wool, meat, and dual-purpose breeds. **True** or False
8. The most important trait to look at when it comes to meat breeds is the degree of muscling. **True** or False
9. When it comes to wool breeds, the structure of the animal is just as important as the quality of the fleece. **True** or False
10. Market lambs are evaluated on their ability to reach a market standard of 130 pounds. **True** or False
11. Wool breeds are shaved to the skin so that the wool can be judged. True or **False**
12. Dual-purpose breeds are those judged for meat production and their ability to be good pets. True or **False**
13. Crimp in wool is not a factor considered when judging wool breeds. True or **False**
14. When wool breeds are judged, it is very important that the judge can put their hands on the animal to determine degree of muscling. **True** or False
15. Sheep are not only judged by breed and use but also by age. **True** or False
16. The amount of hair in fleece is not important when judging wool breeds. True or **False**
17. A yearling is a sheep that is 1 to 2 years of age. **True** or False
18. Characteristics that judges look for when judging sheep includes degree of muscling, degree of finishing, balance and style, frame size, and soundness and structure correctness. **True** or False
19. Frame size is a measurement of length and height. **True** or False
20. Degree of finish is a term used to describe how well the sheep is groomed. True or **False**

Lesson Seven – Sheep Production Careers

Lesson Overview

Participants will explore careers involved in sheep production.

Lesson Objectives

After completing this lesson, participants will be able to:

- List five careers in the sheep production industry
- Describe the tasks that each of these five careers perform
- Use research skills to find out more about a sheep career of interest

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Careers in Sheep Production Scramble</i> worksheet • <i>Careers in Sheep Production Scramble – Answer Key</i>	1. Print/photocopy <i>Careers in Sheep Production Scramble</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Careers in Sheep Production</i> slide presentation • <i>Sheep Production Careers</i> worksheet • <i>Sheep Production Careers – Answer Key</i>	1. Print/photocopy <i>Sheep Production Careers</i> worksheet (one per participant) 2. Prepare <i>Careers in Sheep Production</i> slide presentation for viewing	40 minutes
REVIEW	• <i>Career Exploration Career Graphic Organizer</i> worksheet • <i>Sheep Production Careers Quiz</i> • <i>Sheep Production Careers Quiz – Answer Key</i>	1. Print/photocopy <i>Career Exploration Career Graphic Organizer</i> worksheet (one per participant) 2. Print/photocopy <i>Sheep Production Careers Quiz</i> (one per participant)	10 minutes

Lesson Seven – Sheep Production Careers

FOCUS: Intro to Careers in Sheep Production

10 minutes

Purpose:

Participants will be introduced to the careers in sheep production by working in pairs to unscrambled words on the worksheet that list some of the possible jobs in this industry.

Materials:

- *Careers in Sheep Production Scramble* worksheet
- *Careers in Sheep Production Scramble – Answer Key*

Facilitation Steps:

1. Have participants pair up and distribute the worksheet to them.
2. Go over the directions on how to complete the worksheet and give participants five minutes to work on it.
3. Have participants return to their seats and trade papers.
4. Go over the answers while participants grade the papers before collecting the worksheet.

Name: _____ Class: _____

Careers in Sheep Production

Directions: Uncover the different careers in sheep production by unmixing the letters on the right to fill in the blank on the left.

- | | |
|-----------|--------------------------------|
| 1. _____ | A. owol serclas |
| 2. _____ | B. chubter |
| 3. _____ | C. peeshgod rainter |
| 4. _____ | D. gnideerb gramorp stilspecia |
| 5. _____ | E. fehcn |
| 6. _____ | F. redeef blam stooperain |
| 7. _____ | G. yuaqlit derrga |
| 8. _____ | H. nairaniretev |
| 9. _____ | I. mafr ganamer |
| 10. _____ | J. minruant stinoitirtnu |

Careers in Sheep Production – Answer Key

Directions: Uncover the different careers in sheep production by unmixing the letters on the right to fill in the blank on the left.

- | | |
|---|--------------------------------|
| 1. _____ wool classer _____ | A. owol serclas |
| 2. _____ butcher _____ | B. chubter |
| 3. _____ sheepdog trainer _____ | C. peeshgod rainter |
| 4. _____ breeding program specialist _____ | D. gnideerb gramorp stilspecia |
| 5. _____ chef _____ | E. fehcn |
| 6. _____ feeder lamb operations _____ | F. redeef blam stooperain |
| 7. _____ quality grader _____ | G. yuaqlit derrga |
| 8. _____ veterinarian _____ | H. nairaniretev |
| 9. _____ farm manager _____ | I. mafr ganamer |
| 10. _____ ruminant nutritionist _____ | J. minruant stinoitirtnu |

Lesson Seven – Sheep Production Careers

LEARN: Careers in Sheep Production

40 minutes

Purpose:

Participants will learn about careers in sheep production by watching a slide presentation while filling out a worksheet.

Materials:

- *Careers in Sheep Production* slide presentation
- *Sheep Production Careers* worksheet
- *Sheep Production Careers – Answer Key*

Facilitation Steps:

1. Set up the slide presentation and distribute the worksheet.
2. Provide instructions on how to fill the worksheet out and collect it once the presentation is complete.

Slide 1: Title slide

Slides 2-4: Veterinarian

- To become a veterinarian, one must earn a doctorate in veterinary medicine
- Must have excellent grades
- Requirements
 - Must be compassionate
 - Be able to use both hands with ease
 - Have a strong stomach
 - Have excellent problem-solving skills
 - Excellent communicator
- Works on the farm and in the office
- Work hours are typically over 40 hours per week
- Provides
 - Checkups
 - General care
 - Surgery
 - Emergency care for sheep issues

Slides 5-8: Veterinary Technician

- When it comes to vet tech requirements, they differ from state to state
- Some states require a license

- Some states will allow one to take the licensing test without any college coursework
- A vet tech is an animal nurse for a veterinarian
- Just like in the nursing field, one can earn different licensing
- Typically, the basic vet tech licensing will require an associate degree or 2-year program
- For an advanced license or specialty, one will need a 4-year degree
- A vet tech can work on the farm and in the lab with the veterinarian
- Job duties can include
 - Monitoring the health conditions of animals
 - Helping to restrain animals
 - Performing lab tests
 - Taking x-rays
 - Aiding in recordkeeping
 - Assisting the veterinarian in surgery and anesthetic procedures
 - Preparing vaccines and serums

Slides 9-12: Butcher

- Being a butcher does not require a degree
- These skills can be developed through the job or an apprenticeship
- Can earn a butcher certificate
- If you would like to own a butcher shop, an associate degree is recommended
- If you have no experience or want to learn more about being a butcher, butcher school is an option
- In butcher school, you will learn about
 - Meat industry technology
 - Meat evaluation
 - Meat selection
 - Meat animal processing
- Can earn a meat processing and food safety certificate along with artisanal modern meat production
- A butcher can be found working in a butcher shop, grocery store, and even in a restaurant

- Job requirements
 - Able to stand for long periods of time in a variety of temperatures
 - Excellent eye-hand coordination
 - Able to lift at least 40 lbs.

Slides 13-15: Wool Classer

- Must be certified as a wool classer, which typically consists of participating in a 3-day program and mentoring with a certified wool classer
- As the name implies, a wool classer grades wool for different uses in the American wool industry
- A wool classer works in a shearing shed
- Need to be able to tolerate a variety of environments and temperatures
- Must have people skills because they manage the wool handling team
- Must be organized and an excellent record-keeper
- Being able to stand on your feet for long hours and lift fleece is required

Slides 16-18: Sheepdog Trainer

- While earning a certification as a professional dog trainer can be helpful, most sheepdog trainers learn on the job
- Many start out training their own dog and then move on to apprenticing with other dogs in the art of herding sheep
- Need to be outside a lot with a dog and sheep
- Must be able to walk long distances and stand for long periods of time
- Must be willing to work in a variety of environmental conditions and terrain

Slides 19-21: Feed Sales Specialist

- There is no education requirement for this job
- For advancement, it is recommended that one have a degree in agriculture, animal science, business, or marketing
- The job entails selling livestock feed and nutritional supplements to farmers, retail stores, and other businesses that use these products
- Beyond sales, the feed specialist may educate farmers and dealers' sales teams about new products

- A diverse work environment is the norm for a feed sales specialist, working in both farms and stores
- Must be a people person, a good communicator, and organized

Slides 22-25: Chef

- Does not require a college degree, but a culinary arts degree does exist
- Can get on-the-job training
- Requirements
 - Able to stand for long hours
 - Good communication skills
 - Well groomed
 - Able to tolerate hot conditions
- A chef is normally found in a restaurant but can also cook at farms and ranches
- Continuous learning is required to keep up to date with food safety regulations and consumer preferences
- Other skills that may be required include
 - Butchering
 - Recipe development
 - Food cost calculating
 - Nutrition assessment
 - Presentation

Slides 26-28: Breeding Program Specialist

- For entry level, one must have a 4-year degree in an agricultural science
- To move up in position, one will need to get at least one advanced degree
- Work inside barns and out in pasture aiding in breeding and moving animals from breeding locations
- Requirements
 - Organized
 - Excellent at recordkeeping
 - Good communicator
 - Steady hands
 - Calm demeanor
 - Compassionate
 - Physically fit
 - Willing to work in a variety of environmental conditions

Slides 29-31: Farm Manager

- Can be a farm manager if raised in the industry, but it is better to have a degree in agriculture, agronomy, and/or animal science

Sheep Kit Curriculum

- Can be found working in an office and outside
- In charge of day-to-day operations and the farm's long-term goals
- Requirements
 - Works well with others
 - Makes good decisions in a timely fashion
 - Excellent communication and critical thinking skills
 - Above average computer skills to handle accounting and programs such as FarmLogic
 - Able to work on farm machinery

Slides 32-35: Feeder Lamb Operations

- A job in feeder lamb operations can be a solo job for a large operation or part of a sheep farm
- Does not require a college degree
- A person involved in this industry takes on the responsibility of caring for lambs and their mothers
- Job tasks
 - Ensure sheep have feed and water
 - Bottle feed lambs when needed
 - Assist in tagging lambs
 - Give vaccines and medication
 - Cut lamb tails if required
 - Monitor sheep for health problems and treat/contact the veterinarian
 - Assist in breeding programs
 - Provide aid as needed during labor and delivery
- Works outside and in barns
- Required traits
 - Observant
 - Gentle
 - Willing to work long hours
 - Organized
 - Excellent record-keeper
 - Able to follow directions
 - Good communicator
 - Physically fit and able to load animals into a livestock trailer
 - Have a drivers license

Slides 36-38: Ruminant Nutritionist

- This job requires one to determine feed rations and conduct research

- This individual will also work with farmers and ranchers on their present feeding practices and how to improve them based on their livestock goals
- Requires at least a master's degree in animal science, forage production, and/or ruminant nutrition
- To advance in this field, you will also need a doctorate in animal science, ruminant nutrition, or a related field
- Works inside as well as out on farms, ranches, and retail businesses
- Required traits
 - Excellent written and verbal communication skills
 - Excellent listening skills
 - Be a problem solver
 - Able to work alone and with a team
 - Above average computer skills
 - Must also be able to adapt research to a client's needs while following federal regulations

Slides 39-43: Ruminant Geneticist

- Education requirements
 - Bachelor's degree in one or more of the following
 - Animal science
 - Biology
 - Sheep science
 - Master's degree in one or more of the following
 - Animal science
 - Biology
 - Biotechnology
 - Sheep science
 - Advancement may require a PhD
- Job tasks
 - Improving on the selection process for traits
 - Assisting in mapping the genomes of different species
 - Investigating disease resistance
 - Crossbreeding animals to obtain new breeds that potentially can solve species problems
 - Summarizing and communicating genetic trends for reports

Sheep Kit Curriculum

- Can be found working in a lab and/or out in the field collecting DNA for a pharmaceutical firm, agribusiness, or university
- Required traits
 - Organized
 - Excellent written and verbal communication skills
 - Above average computer skills
 - Able to follow directions easily
 - Comfortable doing research
- Good communication skills
- Organized
- Well groomed
- Able to work independently
- Able to travel

Slides 44-46: Quality Grader

- This job entails grading mutton as
 - Prime
 - Choice
 - Good
 - Utility
- A quality grader works in a meat processing plant
- Requires a 4-year degree in animal science, food science, or microbiology
- Must be able to stand on your feet for long periods of time
- Works in cold conditions, such as freezers
- Required traits

Name: _____ Class: _____

Sheep Production Careers

Directions: As you watch the slide presentation, fill in the blanks below.

1. _____
 - To become a veterinarian, one must _____ a _____ in _____
 - Must _____
 - Requirements
 - Must be _____
 - Be able to _____ with ease
 - _____ a _____
 - Have _____ - _____
 - _____
 - _____ the _____ and in the _____
 - _____ are typically _____ per week
 - Provides
 - _____
 - _____
 - _____
 - _____ care for _____
2. _____
 - When it comes to _____, they _____
 - _____ a _____
 - _____ will _____ to _____ the _____ any _____
 - A _____ is an _____ a _____
 - Just _____ in the _____, one can _____

- Typically, the _____ will _____ an _____ or _____ program
- For an _____, one will _____ a _____
- A vet tech _____ the _____ and _____ the _____ the _____
- _____ can include
 - _____ the _____ of animals
 - _____ to _____
 - _____
 - _____ - _____
 - _____ in _____
 - _____ the veterinarian _____ and _____
 - _____ and _____

3. _____

- Being a _____ a _____
- These _____ can be _____ the _____ an _____
- _____ a _____
- If you would like to _____ a _____, an _____ is _____
- If you have _____ or want to learn more about being a butcher, _____ is an _____
- In butcher school, you will _____ about
 - _____
 - _____

- _____
- _____
- _____
- _____ a _____

 along _____

- A _____ can be _____
 _____ a _____,
 _____, and even _____ a

- Job requirements
 - Able to _____
 of time in a _____

 - _____ - _____

 - Able to _____

4. _____

- _____ as a wool classer, which typically
 consists of _____ -
 _____ and _____
 _____ a _____

- As the name implies, a wool classer _____ the

- A wool classer _____ a _____

- _____ be able to _____ a
 _____ and

- Must _____ because _____
 _____ the _____

- Must _____ and an _____
 _____ - _____
- Being able to _____ for _____
 _____ and _____ is

5. _____
- While _____ a _____ as a _____ can be _____, most sheepdog trainers _____ the _____
 - Many _____ out _____ their _____ and then _____ to _____ with _____ in the _____ of _____
 - _____ to be _____ with a _____ and a _____
 - Must _____ to _____ and _____ for _____ of time
 - Must be willing to _____ a _____ of _____ and _____

6. _____
- There is _____ for this job
 - _____, it is _____ that one _____ a _____ in _____, _____, or _____
 - The job _____ and _____ to _____, _____, and other _____ that _____ these _____
 - _____, the feed specialist _____ and _____ about _____
 - A _____ is the norm for a feed sales specialist, working in _____ and _____

- _____ a _____, a _____, and _____

7. _____

- _____ a _____, but a _____ does _____
- Can _____ -the- _____
- Requirements
 - _____ to _____ for _____
 - _____
 - _____
 - Able to _____
- A _____ is _____ a _____ but can also _____ at _____ and _____
- _____ is _____ to _____ with _____ and _____
- _____ that _____ be _____ include
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____

8. _____

- For _____, one _____ a _____ - _____ in an _____
- To _____ in position, one will need to _____ at _____

- _____ inside _____ and _____ in _____
aiding in _____ and _____ animals from
_____ locations
- Requirements
 - _____
 - _____ at _____
 - Good _____
 - _____
 - _____
 - _____
 - _____
 - Willing to _____ in a _____ of _____
conditions

9. _____

- _____ a _____ if
_____ the _____, but it is
_____ to have a _____ in
_____, _____, and/or

- Can be _____ an
_____ and _____
- _____ of _____ - _____ - _____
_____ and the _____ - _____
goals
- Requirements
 - Works _____ with _____
 - Makes _____ in a _____

 - _____ communication and _____
_____ skills
 - _____
_____ to _____ and programs
such as _____
 - Able to _____ on _____

10. _____

- A job in feeder lamb operations can be a _____ for a
_____ or _____ of a _____ farm
- Does not _____ a _____

- A _____ in this _____ takes on the _____ of _____ for _____ and their _____
- Job _____
 - _____ have _____ and _____
 - Bottle feed _____ when _____
 - _____ in _____
 - _____ vaccines and _____
 - _____ if _____
 - Monitor _____ for _____ and _____/_____ the veterinarian
 - _____ in _____ programs
 - _____ as _____ during _____ and _____
- Works _____ and in _____
- _____ traits
 - Observant
 - _____
 - _____ to _____ hours
 - _____
 - _____ - _____
 - Able to _____
 - Good communicator
 - Physically fit and able to _____ into a _____
 - Have a _____ license

11. _____

- This job _____ to _____ and _____
- This individual _____ also _____ and _____ on their _____ and _____ to _____ them _____ their _____
- _____ a _____ degree in _____, _____

- _____, and/or _____
- _____ in this field, you will also _____ a _____ in _____, _____, or a _____
 - _____ inside as well as _____ on _____, _____, and _____
 - Required traits
 - _____ and _____
 - _____
 - Be a _____
 - Able to _____ and _____ a _____
 - _____
 - Must also _____ to _____ to a _____ while _____

12. _____

- Education requirements
 - _____ in _____ or _____ of the _____
 - _____ science
 - _____
 - _____ science
 - Master's degree in one or more of the _____
 - Animal _____
 - _____
 - _____
 - _____
 - Advancement may _____ a _____
- _____
 - _____ on the _____ process for _____
 - Assisting in mapping the genomes of _____

- Investigating _____
- _____ to _____ that _____ can _____ problems
- Summarizing and _____ for _____
- Can be _____ in a _____ and/or out in the _____ for a _____ firm, agribusiness, or university
- Required traits
 - Organized
 - Excellent written and verbal _____
 - _____
 - Able to _____ directions easily
 - Comfortable doing research

13. _____

- This job _____ as
 - _____
 - _____
 - _____
 - _____
- A quality grader _____ a _____
- _____ a _____ in _____, _____, or _____
- _____ be able to _____ your _____ for _____ of _____
- _____ in _____, such as freezers
- Required _____
 - _____
 - _____
 - _____
 - Able to _____
 - Able to _____

Sheep Production Careers – Answer Key

Directions: As you watch the slide presentation, fill in the blanks below.

1. Veterinarian

- To become a veterinarian, one must earn a doctorate in veterinary medicine
- Must have excellent grades
- Requirements
 - Must be compassionate
 - Be able to use both hands with ease
 - Have a strong stomach
 - Have excellent problem-solving skills
 - Excellent communicator
- Works on the farm and in the office
- Work hours are typically over 40 hours per week
- Provides
 - Checkups
 - General care
 - Surgery
 - Emergency care for sheep issues

2. Veterinary Technician

- When it comes to vet tech requirements, they differ from state to state
- Some states require a license
- Some states will allow one to take the licensing test without any college coursework
- A vet tech is an animal nurse for a veterinarian
- Just like in the nursing field, one can earn different licensing
- Typically, the basic vet tech licensing will require an associate degree or 2-year program
- For an advanced license or specialty, one will need a 4-year degree
- A vet tech can work on the farm and in the lab with the veterinarian
- Job duties can include
 - Monitoring the health conditions of animals
 - Helping to restrain animals
 - Performing lab tests
 - Taking x-rays
 - Aiding in recordkeeping

- Assisting the veterinarian in surgery and anesthetic procedures
- Preparing vaccines and serums

3. Butcher

- Being a butcher does not require a degree
- These skills can be developed through the job or an apprenticeship
- Can earn a butcher certificate
- If you would like to own a butcher shop, an associate degree is recommended
- If you have no experience or want to learn more about being a butcher, butcher school is an option
- In butcher school, you will learn more about
 - Meat industry technology
 - Meat evaluation
 - Meat selection
 - Meat animal processing
- Can earn a meat processing and food safety certificate along with artisanal modern meat production
- A butcher can be found working in a butcher shop, grocery store, and even in a restaurant
- Job requirements
 - Able to stand for long periods of time in a variety of temperatures
 - Excellent eye-hand coordination
 - Able to lift at least 40 lbs.

4. Wool Classer

- Must be certified as a wool classer, which typically consists of participating in a 3-day program and mentoring with a certified wool classer
- As the name implies, a wool classer grades wool for different uses in the American wool industry
- A wool classer works in a shearing shed
- Need to be able to tolerate a variety of environments and temperatures
- Must have people skills because they manage the wool handling team
- Must be organized and an excellent record-keeper
- Being able to stand on your feet for long hours and lift fleece is required

5. Sheepdog Trainer

- While earning a certification as a professional dog trainer can be helpful, most sheepdog trainers learn on the job
- Many start out training their own dog and then move on to apprenticing with other dogs in the art of herding sheep
- Need to be outside a lot with a dog and a sheep

- Must be able to walk long distances and stand for long periods of time
- Must be willing to work in a variety of environmental conditions and terrain

6. Feed Sales Specialist

- There is no education requirement for this job
- For advancement, it is recommended that one have a degree in agriculture, animal science, business, or marketing
- The job entails selling livestock feed and nutritional supplements to farmers, retail stores, and other businesses that use these products
- Beyond sales, the feed specialist may educate farmers and dealers' sales teams about new products
- A diverse work environment is the norm for a feed sales specialist, working in both farms and stores
- Must be a people person, a good communicator, and organized

7. Chef

- Does not require a college degree, but a culinary arts degree does exist
- Can get on-the-job training
- Requirements
 - Able to stand for long hours
 - Good communication skills
 - Well groomed
 - Able to tolerate hot conditions
- A chef is normally found in a restaurant but can also cook at farms and ranches
- Continuous learning is required to keep up to date with food safety regulations and consumer preferences
- Other skills that may be required include
 - Butchering
 - Recipe development
 - Food cost calculating
 - Nutrition assessment
 - Presentation

8. Breeding Program Specialist

- For entry level, one must have a 4-year degree in an agricultural science
- To move up in position, one will need to get at least one advanced degree
- Work inside barns and out in pastures aiding in breeding and moving animals from breeding locations
- Requirements
 - Organized
 - Excellent at recordkeeping

- Good communicator
- Steady hands
- Calm demeanor
- Compassionate
- Physically fit
- Willing to work in a variety of environmental conditions

9. Farm Manager

- Can be a farm manager if raised in the industry, but it is better to have a degree in agriculture, agronomy, and/or animal science
- Can be found working in an office and outside
- In charge of day-to-day operations and the farm's long-term goals
- Requirements
 - Works well with others
 - Makes good decisions in a timely fashion
 - Excellent communication and critical thinking skills
 - Above average computer skills to handle accounting and programs such as FarmLogic
 - Able to work on farm machinery

10. Feeder Lamb Operations

- A job in feeder lamb operations can be a solo job for a large operation or part of a sheep farm
- Does not require a college degree
- A person involved in this industry takes on the responsibility of caring for lambs and their mothers
- Job tasks
 - Ensure sheep have feed and water
 - Bottle feed lambs when needed
 - Assist in tagging lambs
 - Give vaccines and medication
 - Cut lamb tails if required
 - Monitor sheep for health problems and treat/contact the veterinarian
 - Assist in breeding programs
 - Provide aid as needed during labor and delivery
- Works outside and in barns
- Required traits
 - Observant
 - Gentle
 - Willing to work long hours
 - Organized

- Excellent record-keeper
- Able to follow directions
- Good communicator
- Physically fit and able to load animals into a livestock trailer
- Have a drivers license

11. Ruminant Nutritionist

- This job requires one to determine feed rations and conduct research
- This individual will also work with farmers and ranchers on their present feeding practices and how to improve them based on their livestock goals
- Requires at least a master's degree in animal science, forage production, and/or ruminant nutrition
- To advance in this field, you will also need a doctorate in animal science, ruminant nutrition, or a related field
- Works inside as well as out on farms, ranches, and retail businesses
- Required traits
 - Excellent written and verbal communication skills
 - Excellent listening skills
 - Be a problem solver
 - Able to work alone and with a team
 - Above average computer skills
- Must also be able to adapt research to a client's needs while following federal regulations

12. Ruminant Geneticist

- Education requirements
 - Bachelor's degree in one or more of the following
 - Animal science
 - Biology
 - Sheep science
 - Master's degree in one or more of the following
 - Animal science
 - Biology
 - Biotechnology
 - Sheep science
 - Advancement may require a PhD
- Job tasks
 - Improving on the selection process for traits
 - Assisting in mapping the genomes of different species
 - Investigating disease resistance

- Crossbreeding animals to obtain new breeds that potentially can solve species problems
- Summarizing and communicating genetic trends for reports
- Can be found in a lab and/or out in the field collecting DNA for a pharmaceutical firm, agribusiness, or university
- Required traits
 - Organized
 - Excellent written and verbal communication skills
 - Above average computer skills
 - Able to follow directions easily
 - Comfortable doing research

13. Quality Grader

- This job entails grading mutton as
 - Prime
 - Choice
 - Good
 - Utility
- A quality grader works in a meat processing plant
- Requires a 4-year degree in animal science, food science, or microbiology
- Must be able to stand on your feet for long periods of time
- Works in cold conditions, such as freezers
- Required traits
 - Good communication skills
 - Organized
 - Well groomed
 - Able to work independently
 - Able to travel

Lesson Seven – Sheep Production Careers

REVIEW: Recap of Careers in Sheep Production

10 minutes

Purpose:

Participants will explore a career they have interest in by using the careers graphic organizer and then they will test their knowledge by taking a quiz.

Materials:

- *Career Exploration Career Graphic Organizer* worksheet
- *Sheep Production Careers Quiz*
- *Sheep Production Careers Quiz – Answer Key*

Facilitation Steps:

1. Distribute the *Career Exploration Graphic Organizer* worksheet and provide directions on how to fill it out.
2. Give participants five minutes to fill out the information on their career choice before collecting the worksheet.
3. Distribute the quiz and provide directions on how to fill it out.
4. After five minutes, collect the quiz.

Name: _____ Class: _____

Sheep Production Careers Quiz

Directions: After reading each statement below, indicate whether it is true or false by circling your answer.

1. A veterinary technician is someone that acts like a nurse to a veterinarian. True or False
2. To be a sheepdog trainer, one must earn a professional dog trainer certification. True or False
3. A quality grader can learn this position by simply working at a meat processing plant. True or False
4. The ruminant nutritionist works with farmers and ranchers in formulating feed to meet their animal goals. True or False
5. A career in feeder lamb operations requires a college degree. True or False
6. Although an individual born into the farming industry can become a farm manager without a college degree, it is recommended that one get at least a four-year degree in agriculture, agronomy, and/or animal science. True or False
7. Individuals who work as wool classers must have a four-year degree in animal science. True or False
8. A veterinarian only works in an office. True or False
9. A breeding program specialist requires at least a four-year degree. True or False
10. It is not important for butcher to be able to lift at least 40 pounds easily. True or False

Sheep Production Careers Quiz – Answer Key

Directions: After reading each statement below, indicate whether it is true or false by circling your answer.

1. A veterinary technician is someone that acts like a nurse to a veterinarian. **True** or False
2. To be a sheepdog trainer, one must earn a professional dog trainer certification. True or **False**
3. A quality grader can learn this position by simply working at a meat processing plant. True or **False**
4. The ruminant nutritionist works with farmers and ranchers in formulating feed to meet their animal goals. **True** or False
5. A career in feeder lamb operations requires a college degree. True or **False**
6. Although an individual born into the farming industry can become a farm manager without a college degree, it is recommended that one get at least a four-year degree in agriculture, agronomy, and/or animal science. **True** or False
7. Individuals who work as wool classers must have a four-year degree in animal science. True or **False**
8. A veterinarian only works in an office. True or **False**
9. A breeding program specialist requires at least a four-year degree. **True** or False
10. It is not important for butcher to be able to lift at least 40 pounds easily. True or **False**

Name: _____ Class: _____

Career Exploration Graphic Organizer

Compare and contrast careers working in the career cluster of agriculture that relates to sheep. Possible sources for information include your school library, public library, Bureau of Labor Statistics website, Occupational Outlook Handbook website, FFA, or other career-related websites on the internet.

CAREER: _____

Degree or license required	
Length of time to complete training or earn degrees	
Average starting salary per year	
Average hourly wage	
Job outlook	
5 skills needed for this job	
Describe the job setting	
What are the primary job duties?	
Do you work alone or with people?	
What needs or wants does this occupation fill?	
What is one thing an employer would expect from someone in this position?	

Sheep Kit Curriculum

What kinds of people will be successful in this career?	
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