

Chicken Kit Curriculum



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Curriculum Structure

The *Chicken Kit* curriculum is composed of the following lessons. Approximate lesson times are included.

Lesson	Title	Approximate Time
One	Intro to Chicken Breeds	60 minutes
Two	Chicken Feeding and Management	60 minutes
Three	Chicken Diseases and Parasites	60 minutes
Four	Chicken Reproduction	60 minutes
Five	Chicken Body Systems	60 minutes
Six	Selection and Judging of Chickens	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 – Intro to Chicken Breeds

Lesson Overview

Participants will learn about the major chicken breeds raised in the United States for egg, meat, and dual-purpose production.

Lesson Objectives

After completing this lesson, participants will be able to:

- List basic terms used in the production side of the chicken industry
- Explain why some breeds are favored for egg production while others are valued for meat production and why some are valued for both
- Identify breeds with unique characteristics

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Chicken Terms</i> worksheet • <i>Chicken Terms</i> – Answer Key	1. Print/photocopy <i>Chicken Terms</i> (one per participant)	10 minutes
LEARN	• <i>Chicken Breeds</i> slide presentation • <i>Chicken Breeds</i> worksheet • <i>Chicken Breeds</i> – Answer Key	1. Print/photocopy <i>Chicken Breeds</i> (one per participant) 2. Prepare <i>Chicken Breeds</i> slide presentation for viewing	40 minutes
REVIEW	• Chicken Breeds ID cards • <i>Chicken Breed Quiz</i> • <i>Chicken Breed Quiz</i> – Answer Key	1. Chicken Breeds ID cards 2. Print/photocopy <i>Chicken Breed Quiz</i> (one per participant)	10 minutes

Lesson One – Intro to Chicken Breeds

FOCUS: Intro to Chicken Terminology

10 minutes

Purpose:

Participants will learn some common terms used in chicken production.

Materials:

- *Chicken Terms* worksheet
- *Chicken Terms – Answer Key*

Facilitation Steps:

1. Have participants divide into pairs.
2. Pass out the worksheet and explain the directions.
3. Give participants five minutes to complete the worksheet.
4. Have the participants break out of their pairs and trade papers.
5. Go over the answer of the worksheet while participants grade the papers.
6. Collect the worksheet.

Name: _____ Class: _____

Chicken Terms

Directions: Match the definition with the term below by placing the correct letter of the definition in the blank with the corresponding word.

1. Cockeral _____

2. Pullet _____

3. Hen _____

4. Flock _____

5. Cock _____

6. Coop _____

7. Clutch _____

8. Rooster _____

9. Sickles _____

10. Brood _____

11. Chick _____

12. Purebred _____

13. Broiler _____

14. Roaster _____

15. Scratch _____

16. Spent _____

- A. A young or baby chick
- B. To care for a batch of chicks
- C. Long, curved tail feathers of some roosters
- D. Immature male chicken
- E. Offspring from a hen and rooster of the same breed
- F. Immature female bird
- G. A meat type chicken
- H. Adult female chicken
- I. A meat type of chicken that is raised to a certain size that makes it suitable for roasting

- J. A group of birds living together
- K. A hen that no longer lays eggs
- L. Adult male chicken
- M. Adult male chicken
- N. A group of eggs or chicks
- O. The habit of chickens to scratch their claws on the ground to loosen food. It is also a term used to refer to any whole grain feed that is fed to chickens
- P. The house or cage that houses the poultry

Chicken Terms – Answer Key

Directions: Match the definition with the term below by placing the correct letter of the definition in the blank with the word.

1. Cockeral **D**

2. Pullet **F**

3. Hen **H**

4. Flock **J**

5. Cock **L or M**

6. Coop **P**

7. Clutch **N**

8. Rooster **L or M**

9. Sickles **C**

10. Brood **B**

11. Chick **A**

12. Purebred **E**

13. Broiler **G**

14. Roaster **I**

15. Scratch **O**

16. Spent **K**

A. A young or baby chick

B. To care for a batch of chicks

C. Long, curved tail feathers of some roosters

D. Immature male chicken

E. Offspring from a hen and rooster of the same breed

F. Immature female bird

G. A meat type chicken

H. Adult female chicken

I. A meat type chicken that is raised to a certain size that makes it suitable for roasting

J. A group of birds living together

K. A hen that no longer lays eggs

L. Adult male chicken

M. Adult male chicken

N. A group of eggs or chicks

O. The habit of chickens to scratch their claws on the ground to loosen food. It is also a term used to refer to any whole grain feed that is fed to chickens

P. The house or cage that houses the poultry

Lesson One – Intro to Chicken Breeds

LEARN: Common Chicken Breeds

40 minutes

Purpose:

Participants will learn the common breeds of chickens that are involved in egg, meat, and dual-purpose production.

Materials:

- *Chicken Breeds* slide presentation
- *Common Chicken Breeds* worksheet
- *Common Chicken Breeds – Answer Key*

Facilitation Steps:

1. Prepare slide presentation for viewing
2. Pass out the worksheet and provide instruction on how to complete it
3. Present the *Chicken Breeds* slide presentation

Slide 1: Title Slide

Slides 2-4: Egg Producers

- All female chickens produce eggs regardless of breed
- All female chickens will lay non-fertilized eggs if they have not been with a rooster
- To get chicks, the eggs must be fertilized
- The breeds in this presentation have been selected because they produce eggs in an economic fashion
- On average, a hen will lay one egg every 26 hours
- As the hen ages, her ability to lay eggs decreases
- Hens that are referred to as broody are those that want to sit on their eggs
- Non-sitting hens are those who do **not** want to sit on their eggs
- Keep in mind that if hens are being raised for chick production, then being broody is an advantage
- Not all breeds are noted for the nesting desires
- When this happens, the personality of the hen comes into play

Slides 5-7: Ameraucana

- Medium size
- Lays large, blue/green eggs
- Excellent egg layer
- Colorful feathers
- Varieties:
 - Black
 - Blue
 - Blue wheaton
 - Brown red
 - Buff
 - Silver
 - Wheaton
 - White

Slides 8-9: Ancona

- Lays extra-large, white eggs
- Excellent egg producers
- Non-sitting
- Varieties include single comb and rose comb

Slides 10-11: Brahma

- Heavy bodied bird
- Lays large, brown eggs
- Varieties include light, dark, and buff

Slides 12-13: Buttercup

- Used mainly for egg production
- Lays medium, white eggs
- Varieties include gold and silver

Slides 14-15: Campine

- Small-bodied breed
- Lays medium, white eggs
- Varieties include silver and golden

Slides 16-18: Cochin

- Considered one of the largest breeds
- Has fluffy feathers
- Lays small, brown eggs
- Broody
- Varieties:
 - Buff

Chicken Kit

- Partridge
- White
- Black
- Barred
- Silver laced
- Golden laced
- Blue
- Brown

Slides 19-20: Hamburg

- Good foragers
- Lays medium, white eggs
- Varieties:
 - Black
 - Golden penciled
 - Golden spangled
 - Silver penciled
 - Silver spangled
 - White

Slides 21-22: Leghorn

- Prolific egg layer
- Lays extra-large, white eggs
- Varieties:
 - Light brown
 - Dark brown
 - White
 - Buff
 - Black
 - Silver
 - Red
 - Black-tailed red
 - Columbian

Slides 23-24: Minorca

- Large-frame, hardy bird that is very active
- Lays extra-large, white eggs
- Varieties:
 - Single comb black
 - Single comb white
 - Rose comb black
 - Single comb buff
 - Rose comb white

Slides 25-26: Polish Bearded and Non-Bearded

- Prolific egg layers equal to the leghorn breed
- Lays medium, white eggs
- Varieties:
 - Golden silver
 - White

- Buff laced
- White crested blue
- Black
- Crested white

Slides 27-28: Welsummers

- Good egg producer
- Cold tolerant
- Very docile in nature
- Lays large, very dark brown eggs
- Only 1 variety

Slide 29: Meat Breeds

- These breeds are good meat producers because they use their feed effectively for proper weight gain
- Meat breeds also have their own terms

Slide 30: Broiler or Fryer

- Slaughtered at 7 weeks
- Average weight at that time is 3-5 pounds
- Produces a carcass weighing 2 ½-4 pounds

Slide 31: Cornish Game Hen

- There are a couple different meanings of Cornish
 1. Cornish is a breed of chicken used in meat production
 2. When dealing with production, a Cornish game hen is one that is slaughtered at 5 weeks

Slide 32: Rooster

- A rooster is a male bird that is grown out to an age of 12 weeks or older before slaughter

Slide 33: Capons

- Male chicken that is castrated between 3 and 4 weeks of age
- At the 18-week mark, the chicken is slaughtered

Slides 34-35: Cornish

- Produces excellent chicken meat
- Varieties:
 - Dark
 - White
 - White laced
 - Blue
 - Brown

Slides 36-37: Cornish Cross

- Also known as a broiler
- A Cornish cross is created by mating a Cornish breed with a White Plymouth Rock breed
- Most common meat chicken in grocery stores
- Harvest in 8-10 weeks
- Produces about 5-10 pounds of meat

Slides 38-39: Bresse

- Mature size at 16 weeks
- When slaughtered, the processed meat weighs 3-6 pounds
- Tasty, marbled meat
- Active forager

Slides 40-41: Jersey Giant

- Mature at 20 weeks
- Weight at maturity is 10-13 pounds
- Large birds
- Sustainable chickens in that they will take care of their young

Slides 42-43: Big Red Broiler

- Mature at 12 weeks
- After slaughter, this chicken breed produces 3-8 pounds of meat
- Good foragers
- Good tasting meat

Slides 44-45: Kosher King

- Mature at 12 weeks
- Mature weight is 5-7 pounds
- Excellent foragers
- Grows fast

Slides 46-47: Turken

- Also known as “Naked Neck Chickens”
- Mature at 20 weeks
- Good natured
- Cold weather tolerant
- Fewer feathers to pluck during processing
- Weight of mature chicken is 6-8 pounds

Slides 48-49: Ginger Broiler

- Mature at 8 weeks
- Weight at maturity is 5 pounds
- Gains weight quickly
- Good foragers

Slide 50: Dual-Purpose Breeds

- Dual-purpose breeds are those that are both egg and meat producers
- While all hens will lay eggs and all chickens end up as a meat source, these breeds are more cost effective because they can efficiently use their feed for both egg and meat production

Slides 51-53: Wyandotte

- Cold hardy
- Makes a good exhibit bird
- Lays large, brown eggs
- Varieties:
 - Silver laced
 - Golden laced
 - White
 - Black
 - Buff
 - Partridge
 - Silver penciled
 - Columbian
 - Blue

Slides 54-55: Sussex

- Lays large, brown eggs
- Varieties:
 - Speckled
 - Red
 - Light brown
 - Silver
 - Buff

Slides 56-57: Rhode Island Red

- Lays large, brown eggs
- Varieties include single comb and rose comb

Slides 58-59: Redcap

- Is a good egg producer, meat producer, and exhibitor
- Lays medium, white eggs

Slides 60-62: Plymouth Rock

- Tolerates the cold
- Broody, making them good mothers
- Lays large, brown eggs
- Varieties:
 - Barred
 - White
 - Buff

Chicken Kit

- Partridge
- Silver penciled
- Blue Columbian

Slides 63-64: Orpington

- Excellent in egg and meat production
- Does well in laying eggs during winter
- Lays large, brown eggs
- Varieties:
 - Black
 - Blue
 - Buff
 - White

Slides 65-66: New Hampshire Red

- Are used as a dual-purpose bird but often just grown for meat
- Lays extra-large, brown eggs
- Only variety is red

Common Chicken Breeds

Directions: Fill in the blanks with information from the slide presentation.

1. All _____ chickens _____ regardless of breed
2. All female chickens will lay _____ if they _____
_____ with a _____
3. To get chicks, the _____ must be _____
4. The breeds in this presentation have been selected because they _____ in
an _____
5. On _____, a hen will lay _____ every _____
6. As the _____, her ability to lay _____
7. _____ that are _____ as _____ are those that
want to _____ their _____
8. _____ are those who _____
want to _____ their _____
9. Keep in mind that if hens are being raised for _____, then being
_____ is an _____
10. _____ breeds are noted for the _____
11. When this happens, the _____ of the _____ comes into play

Ameraucana

1. _____ size
2. Lays _____ / _____
3. _____ egg _____
4. _____ feathers
5. Varieties: black, _____, blue wheaten, _____, buff,
_____, wheaten, and _____

Ancona

1. Lays _____ - _____
2. _____ egg _____
3. _____-setting
4. _____ include _____ comb and _____

Brahma

1. _____ bird
2. Lays _____
3. Varieties include _____, dark, and _____

Chicken Kit

Buttercup

1. _____ for _____
2. Lays _____ white _____
3. _____ include _____ and _____

Campine

1. _____ - _____ breed
2. _____, white _____
3. _____ include _____ and _____

Cochin

1. Considered _____ of the _____
2. Has _____
3. Lays _____, _____
4. Broody
5. Varieties: buff, _____, white, _____, barred, _____, golden laced, _____, and _____

Hamburg

1. Good _____
2. Lays _____, _____
3. Varieties: black, golden penciled, _____, silver penciled, _____, and white

Leghorn

1. _____ egg _____
2. Lays _____, white _____
3. Varieties: light brown, _____, white, _____, black, _____, red, _____ - _____, and Columbian

Minocra

1. _____-frame, _____ bird that is _____
2. _____ - _____ white _____
3. Varieties: single comb black, single comb white, _____, single comb buff, and _____

Polish Bearded and Non-Bearded

1. _____ egg _____ the _____ breed
2. Lays _____, white _____
3. Varieties: golden, silver, _____, buff laced, _____, black, and _____

Welsummer

1. _____
2. Cold tolerant
3. _____ in nature
4. Lays _____, very dark _____
5. Only _____

Chicken Kit

Meat Breeds

1. These breeds are good _____ because _____ use _____ feed effectively for proper weight gain
2. Meat breeds also have their own _____

Broiler or Fryer

1. _____ at _____
2. Average weight at that time is _____ - _____
3. Produces a _____ weighing 2 1/2-4 _____

Cornish Game Hen

1. There are a couple _____ of Cornish
2. _____ is a breed of chicken used in _____
3. When _____ with production, a Cornish game hen is one that is slaughtered at _____ weeks

Rooster

1. A _____ is a _____ that is grown out to an age of _____ or _____ before slaughter

Capons

1. Male _____ that is _____ 3 and 4 weeks of _____
2. At the _____ - _____ mark, the _____ is _____

Cornish

1. Produces _____ chicken _____
2. Varieties: dark, _____, _____, blue, and _____

Cornish Cross

1. Also known as a _____
2. A _____ is created by mating a _____ with a _____ breed
3. Most _____ chicken in grocery _____
4. Harvest in _____ - _____
5. _____ about _____ - _____ of meat

Bresse

1. _____ at _____
2. When _____, the processed meat _____ - _____
3. Tasty, _____ meat
4. Active _____

Chicken Kit

Jersery Giant

1. _____ at _____
2. _____ at maturity is _____ - _____
3. _____ birds
4. _____ chickens in that they will _____
_____ their _____

Big Red Broiler

1. _____ at _____
2. After _____, this chicken breed produces _____ - _____
_____ of meat
3. Good _____
4. _____ meat

Kosher King

1. _____ at _____
2. Mature _____ is _____ - _____
3. Excellent _____
4. _____

Turken

1. Also known as " _____ "
2. _____ at _____
3. _____
4. _____ weather _____
5. _____ to _____ during processing
6. _____ of mature chicken is _____ - _____

Ginger Broiler

1. _____ at _____
2. _____ at maturity is _____
3. _____
4. Good _____

Dual-Purpose Breeds

1. _____ - _____ breeds are those that are both _____
and _____ producers
2. While all hens will lay eggs and all chickens end up as a meat source, these breeds are more
_____ because they can effectively _____
_____ feed for both egg and meat production

Wyandotte

1. _____
2. Makes a good _____
3. Lays _____, _____ eggs
4. Varieties: silver laced, _____, white, _____, buff,
_____, silver penciled, _____, and blue

Chicken Kit

Sussex

1. Lays large, _____
2. Varieties: _____, red, _____ brown, _____, and buff

Rhode Island Red

1. Lays large, _____
2. _____ include _____ and _____

Redcap

1. Is a _____, _____ producer, and _____
2. _____ medium, _____

Plymouth Rock

1. _____ the _____
2. _____, making them good mothers
3. Lays large, _____
4. Varieties: barred, white, _____, partridge, _____, and blue Columbian

Orpington

1. _____ in _____ and _____ production
2. Does well in _____ during _____
3. Lays large, _____
4. Varieties: black, _____, buff, and _____

New Hampshire Red

1. Are used as a dual-purpose bird but _____ just _____ for _____
2. Produces extra-large, _____
3. _____ variety is _____

Common Chicken Breeds – Answer Key

Directions: Fill in the blanks with information from the slide presentation.

1. All **female** chickens **produce eggs** regardless of breed
2. All female chickens will lay **non-fertilized eggs** as long as they **have not been** with a **rooster**
3. To get chicks, the **eggs** must be **fertilized**
4. The breeds in this presentation have been selected because they **produce eggs** in an **economic fashion**
5. On **average**, a hen will lay 1 egg every **26 hours**
6. As the **hen ages**, her ability to lay **eggs decreases**
7. **Hens** that are **referred to** as **broody** are those that want to **sit on** their **eggs**
8. **Non-sitting hens** are those who **do not** want to **sit on** their **eggs**
9. Keep in mind that if hens are being raised for **chick production**, then being **broody** is an **advantage**
10. **Not all** breeds are noted for the **nesting desires**
11. When this happens, the **personality** of the **hen** comes into play

Ameraucana

1. **Medium** size
2. Lays **large, blue/green eggs**
3. **Excellent** egg layer
4. **Colorful** feathers
5. Varieties: black, **blue**, blue wheaten, **brown red**, buff, **silver**, wheaten, and **white**

Ancona

1. Lays **extra-large, white eggs**
2. **Excellent** egg producers
3. **Non-setting**
4. **Varieties** include **single** comb and **rose comb**

Brahma

1. **Heavy bodied** bird
2. Lays **large, brown eggs**
3. Varieties are **light**, dark, and **buff**

Buttercup

1. **Used mainly** for **egg production**
2. **Medium**, white **eggs**
3. **Varieties** include **gold** and **silver**

Chicken Kit

Campine

1. Small-bodied breed
2. Lays medium, white eggs
3. Varieties include silver and golden

Cochin

1. Considered one of the largest breeds
2. Has fluffy feathers
3. Lays small, brown eggs
4. Broody
5. Varieties: buff, partridge, white, black, barred, silver laced, golden laced, blue, and brown

Hamburg

1. Good foragers
2. Lays medium, white eggs
3. Varieties: black, golden penciled, golden spangled, silver penciled, silver spangled, and white

Leghorn

1. Prolific egg layer
2. Lays extra-large, white eggs
3. Varieties: light brown, dark brown, white, buff, black, silver, red, black-tailed red, and Columbian

Minocra

1. Large-frame, hardy bird that is very active
2. Extra-large, white eggs
3. Varieties: single comb black, single comb white, rose comb black, single comb buff, and rose comb white

Polish Bearded and Non-Bearded

1. Prolific egg layers equal to the leghorn breed
2. Lays medium, white eggs
3. Varieties: golden, silver, white, buff laced, white crested blue, black, and crested white

Welsummer

1. Good egg producer
2. Cold tolerant
3. Very docile in nature
4. Lays large, very dark brown eggs
5. Only 1 variety

Meat Breeds

1. These breeds are good meat producers because they use their feed effectively for proper weight gain
2. Meat breeds also have their own terms

Broiler or Fryer

1. Slaughtered at 7 weeks
2. Average weight at that time is 3-5 pounds
3. Produces a carcass weighing 2 1/2-4 pounds

Chicken Kit

Cornish Game Hen

1. There are a couple different meanings of Cornish
2. Cornish is a breed of chicken used in meat production
3. When dealing with production, a Cornish game hen is one that is slaughtered at 5 weeks

Rooster

1. A rooster is a male bird that is grown out to an age of 12 weeks or older before slaughter

Capons

1. Male chicken that is castrated between 3 and 4 weeks of age
2. At the 18-week mark, the chicken is slaughtered

Cornish

1. Produces excellent chicken meat
2. Varieties: dark, white, white laced, blue, and brown

Cornish Cross

1. As known as a broiler
2. A Cornish cross is created by mating a Cornish breed with a White Plymouth Rock breed
3. Most common meat chicken in grocery stores
4. Harvest in 8-10 weeks
5. Produces about 5-10 pounds of meat

Bresse

1. Mature at 16 weeks
2. When slaughtered, the processed meat weighs 3-6 pounds
3. Tasty, marbled meat
4. Active forager

Jersery Giant

1. Mature at 20 weeks
2. Weight at maturity is 10-13 pounds
3. Large birds
4. Sustainable chickens in that they will take care of their young

Big Red Broiler

1. Mature at 12 weeks
2. After slaughter, this chicken breed produces 3-8 pounds of meat
3. Good foragers
4. Good tasting meat

Kosher King

1. Mature at 12 weeks
2. Mature weight is 5-7 pounds
3. Excellent foragers
4. Grows fast

Chicken Kit

Turken

1. Also known as "Naked Neck Chickens"
2. Matures at 20 weeks
3. Good natured
4. Cold weather tolerant
5. Fewer feathers to pluck during processing
6. Weight of mature chicken 6-8 pounds

Ginger Broiler

1. Mature at 8 weeks
2. Weight at maturity is 5 pounds
3. Gains weight quickly
4. Good foragers

Dual-Purpose Breeds

1. Dual-purpose breeds are those that are both egg and meat producers
2. While all hens will lay eggs and all chickens end up as a meat source, these breeds are more cost effective because they can efficiently use their feed for both egg and meat production

Wyandotte

1. Cold hardy
2. Makes a good exhibit bird
3. Lays large, brown eggs
4. Varieties: silver laced, golden laced, white, black, buff, partridge, silver penciled, Columbian, and blue

Sussex

1. Lays large, brown eggs
2. Varieties: speckled, red, light, brown, silver, and buff

Rhode Island Red

1. Lays large, brown eggs
2. Varieties include single comb and rose comb

Redcap

1. Is a good egg producer, meat producer, and exhibitor
2. Lays medium, white eggs

Plymouth Rock

1. Tolerates the cold
2. Broody, making them good mothers
3. Lays large, brown eggs
4. Varieties: barred, white, buff, partridge, silver penciled, and blue Columbian

Chicken Kit

Orpington

1. Excellent in egg and meat production
2. Does well in laying eggs during the winter
3. Lays large, brown eggs
4. Varieties: black, blue, buff, and white

New Hampshire Red

1. Are used as a dual-purpose bird but often just grown for meat
2. Lays extra-large, brown eggs
3. Only variety is red

Lesson One – Chicken Breeds

REVIEW: Recap of Chicken Breeds

10 minutes

Purpose:

Participants will review the common chicken breeds through ID cards and then test their knowledge through a quiz.

Materials:

- Chicken Breed ID Cards
- *Chicken Breed Quiz*
- *Chicken Breed Quiz – Answer Key*

Facilitation Steps:

1. Pass out to participants the Chicken Breed ID cards and provide direction on how to use them.
2. After five minutes, collect the ID cards.
3. Pass out to participants the quiz and provide instruction on how to fill it out.
4. Once five minutes have passed, collect the quiz.

Name: _____ Class: _____

Chicken Breed Quiz

Directions: Indicate the answer by circling true or false for each statement.

1. Chickens are raised for egg production, meat production, and exhibiting in competitions. True or False
2. All chicken eggs are white. True or False
3. The turken breed has no feathers on its neck. True or False
4. A broiler is a chicken that is slaughtered at 7 weeks of age. True or False
5. The Jersey Giant is the most common chicken breed found in grocery stores. True or False
6. A broody hen is one that lays eggs but will not sit on them. True or False
7. Cochon is considered one of the largest breeds. True or False
8. All chickens are white. True or False
9. The Bresse chicken breed is valued in meat production due to its thin skin and light bones. True or False
10. Chickens who can use their feed effectively for both egg and meat production are referred to as dual-purpose. True or False

Chicken Breed Quiz – Answer Key

Directions: Indicate the answer by circling true or false for each statement.

1. Chickens are raised for egg production, meat production, and exhibiting in competitions. **True** or False
2. All chicken eggs are white. True or **False**
3. The turken breed has no feathers on its neck. **True** or False
4. A broiler is a chicken that is slaughtered at 7 weeks of age. **True** or False
5. The Jersey Giant is the most common chicken breed found in grocery stores. **True** or False
6. A broody hen is one that lays eggs but will not sit on them. True or **False**
7. Cochin is considered one of the largest breeds. **True** or False
8. All chickens are white. True or **False**
9. The Bresse chicken breed is valued in meat production due to its thin skin and light bones. **True** or False
10. Chickens who can use their feed effectively for both egg and meat production are referred to as dual-purpose. **True** or False

Lesson Two – Chicken Feeding and Management

Lesson Overview

Participants will learn what chickens eat and the different types of feed. They will also learn about chicken management needs.

Lesson Objectives

After completing this lesson, participants will be able to:

- List foods that chickens can eat
- List foods that chickens cannot eat
- Describe the different types of feed that chickens are given according to use or stage of life
- List the basic equipment that chickens require

Lesson at a Glance

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

Lesson Two – Chicken Feeding and Management

FOCUS: What Do Chickens Eat?

10 minutes

Purpose:

Participants will be introduced to what chickens should and should not eat.

Materials

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

Facilitation Steps:

1. Break participants into groups of two.
2. Pass out the worksheet and provide directions on how to fill it out.
3. Give participants five minutes to complete the task.
4. Instruct participants to go back to their seats and trade papers for grading.
5. Go over the correct answers with the class.
6. Collect the worksheets.

Name: _____ Class: _____

What Do Chickens Eat?

Directions: Circle the foods listed that you think chickens eat.

1. Vegetables
2. Raw meat
3. Chocolate
4. Coffee grounds
5. Processed food
6. Fruits
7. Rotten or spoiled food
8. Raw potato skins
9. Cheese
10. Grains
11. Avocado skins and/or pits
12. Garlic
13. Onions
14. Insects
15. Fish meal

What Do Chickens Eat? – Answer Key

Directions: Circle the foods listed that you think chickens eat.

1. Vegetables

2. Raw meat

3. Chocolate

4. Coffee grounds

5. Processed food

6. Fruits

7. Rotten or spoiled food

8. Raw potato skins

9. Cheese

10. Grains

11. Avocado skins and/or pits

12. Garlic

13. Onions

14. Insects

15. Fish meal

Lesson Two – Chicken Feeding and Management

LEARN: Chicken Dietary Needs

Length: 40 minutes

Purpose:

Participants will learn about the dietary needs of chickens as they view the slide presentation and fill out a worksheet.

Materials:

- *Chicken Feeding and Management* slide presentation
- *What Does a Chicken Really Need?* worksheet
- *What Does a Chicken Really Need?* – Answer Key

Facilitation Steps:

1. Set up the slide presentation.
2. Pass out the worksheet and provide instruction on how to fill it out.
3. Present the *Chicken Feeding and Management* slide presentation.

Slide 1: Title slide

Slides 2-3: A chicken's diet makes it a...

1. Herbivore
 2. Omnivore
 3. Carnivore
- Omnivore
 - What does this mean?
 - An omnivore is an organism that consumes both plant and animal food sources

Slide 4: The diet consists of several ingredients including...

- Grains
- Fruits
- Vegetables
- Oyster shell
- Limestone
- Insects

Slide 5: Grains

- Includes:
 - Corn
 - Wheat
 - Barley
 - Sorghum
- Grains provide protein

Slides 6-7: Corn

- Also known as field corn
- The varieties are dent or flint corn

Slides 8-9: Barley

- 6-row barley is the variety that is the highest in protein

Slides 10-11: Sorghum

- This grain is not normally used in feed in the U.S. but is a common feed grain in Africa

Slide 12: Diversified grains in feed provide...

- A mix of different forms or types of protein that are important for chicken growth

Slides 13-14: Other Plant Protein Sources

- Typically, the other plant sources do not come from the whole plant
- Instead, the plant sources come from production of certain oils such as:
 - Sunflower
 - Soybean
 - Canola
- Or the protein source can come directly from the sources such as field peas

Slides 15-16: Animal Protein Sources

- Fish meal
- Meat and bone meal from slaughterhouses

Slide 17: Insects as Another Protein Source

- Foraging chickens in the past were used around the house to reduce the number of insects entering the home

Chicken Kit

- Today, chickens consume insects whether they are foraging or confined
- The food chickens eat attracts many insects, making it easy for chickens to find them

Slides 18-19: Fruits

- It is very important that chickens are fed a diet high in protein, but fruits can be given to chickens as a treat
- To make sure that chickens are getting enough protein, fruits should not be given until the chickens are 3-4 months old
- Includes:
 - Apples
 - Berries
 - Watermelon and rind
- Do not serve fruits that are spoiled or have pits

Slides 20-21: Vegetables

- Can be cooked or raw
- Includes:
 - Broccoli
 - Carrots
 - Shredded or cooked cabbage
 - Sweet potatoes
 - Lettuce
 - Chard
 - Squash
 - Kale
 - Spinach

Slide 22: Not all vegetables are safe for chickens though...

- This includes white potato or Irish potato skins as they can be toxic
- Strong-flavored vegetables such as garlic and onions
- Any vegetable product that is spoiled
- Canned vegetables

Slides 23-24: Oyster Shell

- Female chickens (hens) have oyster shells added to their feed if they are being raised for egg production
- This is because oyster shells are high in calcium
- Calcium is needed so that the shells of the eggs are strong and will not easily break

Slides 25-26: Grit

- Grit acts as teeth for a chicken
- It is added to feed in the form of limestone and stored in the gizzard where it helps grind up food
- Chickens that forage acquire their own grit through the process of foraging but are still given feed with grit added
- Foraged grit can be small stones and even sand

Slide 27: Stages of Feed

- Chick starter
- Finisher feed
- Developer feed
- Layer feed

Slide 28: Chick Starter Feed

- Given to chicks that are 0-10 weeks old
- Provides the highest level of protein the chicken will receive in feed

Slide 29: Finisher Feed

- Fed to broilers or chickens being raised for meat production

Slide 30: Developer Feed

- Fed to pullets and cockerels that are used for breeding stock
- It is fed to these birds from the time they are 10 weeks old until they reach 20 weeks of age

Slide 31: Layer Feed

- Only fed to hens being raised for egg production that are 20 weeks or older in age

Slide 32: Equipment Required for Chicken Production

Slide 33: What Chickens Need

- Container for water
- Food trough, which will reduce waste
- Chicken coop or barn
- Nesting boxes if you are raising hens for egg production

Slide 34: Debeaking

- This treatment is normally only done to layers
- It is the process by which the “egg tooth” is burned off to reduce chickens hurting other chickens with their sharp beaks
- This is done twice
- The first time is during the first week of life and again at 12-20 weeks of age

What Does a Chicken Really Need?

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

1. A chicken's diet makes it an...

- _____
- What does this mean?
- An _____ is an organism that _____ both _____ and _____ sources

2. The _____ consists of several _____ including...

- _____
- Fruits
- _____
- Oyster shell
- _____
- Insects

3. Grains

- Includes:
 - Corn
 - _____
 - _____
 - Sorghum
- Grains _____

4. Corn

- Also known as _____
- The _____ are _____ or _____

5. Barley

- _____ - _____ is the variety that is the _____ in _____

6. Sorghum

- This grain is not normally used in feed in the U.S. but is a common _____ grain in _____

7. Diversified grains in _____ provide...

- A mix of _____ or types _____ that are important for _____

8. Other Plant Protein Sources

- Typically, the other plant sources _____ from the _____
- Instead, the plant sources come from _____ certain _____ such as:
 - _____
 - Soybean
 - _____
- Or the _____ source can come _____ from the _____ such as _____

9. Animal Protein Sources

- _____
- _____ and _____ from slaughterhouses

10. _____ as Another _____

- _____ in the _____ were used _____ the _____ to _____ the number of _____ entering the home
- _____, chickens _____ whether they are _____
- The _____ chickens eat _____ many _____, making it _____ for chickens to _____

11. Fruits

- It is very important that chickens are fed a diet high in protein, but fruits can be _____ to chickens as a _____
- To make sure that chickens are getting enough protein, fruits should not be given until the _____ are _____ - _____
- Includes:
 - Apples
 - _____
 - Watermelon and _____
- Do not _____ that are _____ or have _____

12. Vegetables

- _____ be _____ raw
- Includes:
 - _____
 - Carrots

Chicken Kit

- _____ or _____
- Sweet potatoes
- _____
- Chard
- _____
- _____
- Spinach

13. _____ are _____ for chickens though...

- This _____ or Irish potato skins as they can be _____
- _____ - _____ such as _____ and _____
- Any _____ product that is _____
- _____

14. Oyster Shell

- _____ (hens) have _____ added to _____ if they are being _____ for _____
- This _____ because oyster shells are high in calcium
- _____ is _____ so that the shells of the _____ are _____ and will _____ easily break

15. Grit

- _____ as _____ for a chicken
- It is _____ to feed in the _____ and _____ the _____ where it _____ up _____
- _____ that _____ their _____ the process of _____ but are still given _____ added
- _____ can be _____ and even _____

16. _____ of _____

- _____
- Finisher feed
- _____
- Layer feed

17. _____ Feed

- Given to _____ that are _____ - _____ old
- _____ the _____ of _____ the chicken will receive in feed

18. _____

- Fed to broilers or chickens being raised _____

19. _____

- _____ to _____ and _____ that are used for _____
- It is fed to these birds from the time they are 10 _____ they reach _____

20. _____

- Only fed to _____ being _____ egg production that are _____ older in _____

21. What Chickens Need

- _____ for _____
- _____, which will _____
- Chicken _____ or _____
- _____ if you are raising _____

22. _____

- This treatment is normally _____ done to _____
- It is the _____ by which the “_____” is _____ to _____ other _____ with their sharp beaks
- This is _____
- The first time is during the _____ and again at _____ - _____ of age

What Does a Chicken Really Need?

– Answer Key

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

1. A chicken's diet makes it an...

- Omnivore
- What does this mean?
- An omnivore is an organism that consumes both plant and animal food sources

2. The diet consists of several ingredients including...

- Grains
- Fruits
- Vegetables
- Oyster shell
- Limestone
- Insects

3. Grains

- Includes:
 - Corn
 - Wheat
 - Barley
 - Sorghum
- Grains provide protein

4. Corn

- Also known as field corn
- The varieties are dent or flint corn

5. Barley

- 6-row is the variety that is the highest in protein

6. Sorghum

- This grain is not normally used in feed in the U.S. but is a common feed grain in Africa

7. Diversified grains in feed provide...

- A mix of different forms or types of protein that are important for chicken growth

8. Other Plant Protein Sources

- Typically, the other plant sources do not come from the whole plant
- Instead, the plant sources come from production of certain oils such as:
 - Sunflower
 - Soybean
 - Canola
- Or the protein source can come directly from the sources such as field peas

9. Animal Protein Sources

- Fish meal
- Meat and bone meal from slaughterhouses

10. Insects as Another Protein Source

- Foraging chickens in the past were used around the house to reduce the number of insects entering the home
- Today, chickens consume insects whether they are foraging or confined
- The food chickens eat attracts many insects, making it easy for chickens to find them

11. Fruits

- It is very important that chickens are fed a diet high in protein, but fruits can be given to chickens as a treat
- To make sure that chickens are getting enough protein, fruits should not be given until the chickens are 3-4 months old
- Includes:
 - Apples
 - Berries
 - Watermelon and rind
- Do not serve fruits that are spoiled or have pits

12. Vegetables

- Can be cooked or raw
- Includes:
 - Broccoli
 - Carrots
 - Shredded or cooked cabbage
 - Sweet potatoes
 - Lettuce
 - Chard

- Squash
- Kale
- Spinach

13. Not all vegetables are safe for chickens though...

- This includes white potato or Irish potato skins as they can be toxic
- Strong-flavored vegetables such as garlic and onions
- Any vegetable product that is spoiled
- Canned vegetables

14. Oyster Shell

- Female chickens (hens) have oyster shells added to their feed if they are being raised for egg production
- This is because oyster shells are high in calcium
- Calcium is needed so that the shells of the eggs are strong and will not easily break

15. Grit

- Grit acts as teeth for a chicken
- It is added to feed in the form of limestone and stored in the gizzard where it helps grind up food
- Chickens that forage acquire their own grit through the process of foraging but are still given feed with grit added
- Foraged grit can be small stones and even sand

16. Stages of Feed

- Chick starter
- Finisher feed
- Developer feed
- Layer feed

17. Chick Starter Feed

- Given to chicks that are 0-10 weeks old
- Provides the highest level of protein the chicken will receive in feed

18. Finisher Feed

- Fed to broilers or chickens being raised for meat production

19. Developer Feed

- Fed to pullets and cockerels that are used for breeding stock

Chicken Kit

- It is fed to these birds from the time they are 10 weeks old until they reach 20 weeks of age

20. Layer Feed

- Only fed to hens being raised for egg production that are 20 weeks or older in age

21. What Chickens Need

- Container for water
- Food trough, which will reduce waste
- Chicken coop or barn
- Nesting boxes if you are raising hens for egg production

22. Debeaking

- This treatment is normally only done to layers
- It is the process by which the “egg tooth” is burned off to reduce chickens hurting other chickens with their sharp beaks
- This is done twice
- The first time is during the first week of life and again at 12-20 weeks of age

Lesson Two – Chicken Feeding and Management

REVIEW: Recap of Feeding and Management

10 minutes

Purpose:

Participants will review what is required for chicken production regarding feed and management.

Materials:

- Chicken Feeding and Management Poster
- *Chicken Feeding and Management Quiz*
- *Chicken Feeding and Management Quiz – Answer Key*

Facilitation Steps:

1. Direct the participants to where the poster is located.
2. Explain to the participants that they will need to review the needs of chickens by viewing the Chicken Feeding and Management poster.
3. After five minutes, pass out the quiz and provide directions on how to fill it out.
4. Give participants five minutes to complete the quiz.
5. Collect the quiz.

Name: _____ Class: _____

Chicken Feeding and Management Quiz

Directions: For each statement, circle true or false as the correct answer.

1. Chickens are herbivores. True or False
2. The grains that chickens can eat are corn, wheat, barley, and sorghum. True or False
3. Grains provide only fiber to the chicken's diet. True or False
4. A common name for corn feed to chickens is field corn. True or False
5. Eight-row barley has the highest amount of protein. True or False
6. Other plant sources for protein include field peas, sunflowers, canola, and soybeans. True or False
7. Chickens have fish, meat, and bone meal added to their feed for protein. True or False
8. Chickens do not eat insects. True or False
9. Fruits can be given to chickens after they reach three months of age. True or False
10. Chickens should never be fed vegetables. True or False
11. Oyster shell is only fed to roosters. True or False
12. Grit is added to chicken feed so that chickens can clean their teeth. True or False
13. Grit is stored in the gizzard. True or False
14. Chicken starter is fed to chicks that are 0 to 10 weeks of age. True or False
15. Finisher feed is fed to chickens grown for egg laying. True or False
16. Developer feed is one that is fed to chickens that are going to be used for breeding stock. True or False
17. Developer feed should be given to chickens that are 10 weeks old through 20 weeks of age. True or False
18. Layer feed is fed to hens that are 20 weeks and older. True or False
19. All chickens need nesting boxes. True or False
20. Debeaking is tattooing the chicken beak with a number. True or False

Chicken Feeding and Management Quiz – Answer Key

Directions: For each statement, circle true or false as the correct answer.

1. Chickens are herbivores. True or **False**
2. The grains that chickens can eat are corn, wheat, barley, and sorghum. **True** or False
3. Grains provide only fiber to the chicken's diet. True or **False**
4. A common name for corn feed to chicken's is field corn. **True** or False
5. Eight-row barley has the highest amount of protein. True or **False**
6. Other plant sources for protein include field peas, sunflowers, canola, and soybeans. **True** or False
7. Chickens have fish, meat, and bone meal added to their feed for protein. **True** or False
8. Chickens do not eat insects. True or **False**
9. Fruits can be given to chickens after they reach three months of age. **True** or False
10. Chickens should never be fed vegetables. True or **False**
11. Oyster shell is only fed to roosters. True or **False**
12. Grit is added to chicken feed so that chickens can clean their teeth. True or **False**
13. Grit is stored in the gizzard. **True** or False
14. Chicken starter is fed to chicks that are 0 to 10 weeks of age. **True** or False
15. Finisher feed is fed to chickens grown for egg laying. True or **False**
16. Developer feed is one that is fed to chickens that are going to be used for breeding stock. **True** or False
17. Developer feed should be given to chickens that are 10 weeks old through 20 weeks of age. **True** or False
18. Layer feed is fed to hens that are 20 weeks and older. **True** or False
19. All chickens need nesting boxes. True or **False**
20. Debeaking is tattooing the chicken beak with a number. True or **False**

Lesson Three – Chicken Diseases and Parasites

Lesson Overview

Participants will learn about the common diseases and parasites that chickens can get as well as symptoms and treatment.

Lesson Objectives

After completing this lesson, participants will be able to:

- List common symptoms that indicate a chicken is not well
- List the two classifications of disease
- List the two classifications of parasites
- Describe four healthy practices that farmers can do to keep their chickens healthy
- List two bacterial diseases, two viral diseases, two parasites (internal), and two parasites (external)

Lesson at a Glance

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

Lesson Three – Chicken Diseases and Parasites

FOCUS: Intro to Diseases and Parasites

10 minutes

Purpose:

Participants will be introduced to chicken diseases and parasites by learning symptoms that chickens display when they are sick.

Materials:

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

Facilitation Steps:

1. Break participants into pairs.
2. Pass out the worksheet and provide direction on how to fill it out.
3. Give participants five minutes to fill the sheet out.
4. Instruct participants to go back to their seats and exchange papers.
5. Go over the answers and collect the worksheet.

Name: _____ Class: _____

Is my Chicken Sick?

Directions: Circle the symptoms that you think chickens show when they are sick.

1. Scratching
2. Runny nose
3. Hanging out near the heater
4. Coughing
5. Increased appetite
6. Decreased egg laying
7. Fighting
8. Chirping happily
9. Not drinking water
10. Gray eyes
11. Discolored beak
12. Green or yellow diarrhea
13. Discolored legs
14. Feathers falling out

Is my Chicken Sick? – Answer Key

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

1. Scratching
2. Runny nose
3. Hanging out near the heater
4. Coughing
5. Increased appetite
6. Decreased egg laying
7. Fighting
8. Chirping happily
9. Not drinking water
10. Gray eyes
11. Discolored beak
12. Green or yellow diarrhea
13. Discolored legs
14. Feathers falling out

Lesson Three – Chicken Diseases and Parasites

LEARN: Chicken Diseases and Parasites

40 minutes

Purpose:

Participants will learn about chicken diseases and parasites as they view the slide presentation and fill out the worksheet.

Materials:

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

Facilitation Step

1. Prepare the slide presentation for viewing..
2. Pass out the worksheet and provide directions on how to fill it out.
3. Present the *Chicken Diseases and Parasites* slide presentation.

Slide 1: Title slide

Slide 2: Types of Diseases and Parasites

- Bacterial diseases
- Viral diseases
- Parasitic diseases (internal)
- Parasitic diseases (external)

Slide 3: Bacterial Diseases

- Includes:
 - Colibacillosis or Coliform infection
 - Mycoplasmosis
 - Fowl Cholera
 - Necrotic Enteritis
 - Ulcerative Enteritis
 - Pullorum Disease
 - Fowl Typhoid
 - Botulism
 - Infectious Coryza
 - Omphalitis
 - Erysipelas

Slide 4: Colibacillosis or Coliform Infection

- Caused by *Escherichia coli* or *E. coli*
- All ages can get it
- Can cause death or just a mild infection
- Can be transmitted by way of the respiratory system or gastrointestinal system
- Symptoms include:
 - Listlessness with ruffled feathers
 - Fever
 - Labored breathing
 - Coughing
 - Diarrhea
- Prevention starts with:
 - Good ventilation
 - Good litter
 - A clean environment
 - Sterilized equipment
 - Reducing the stress the birds are under

Slide 5: Mycoplasmosis

- Caused by *Mycoplasma gallisepticum*
- Not limited to just chickens
- Passed on from an infected hen to the egg
- The chick is then exposed to the infection when it hatches
- A blood test is required to confirm they have it
- Symptoms include:
 - Drooping
 - Lack of appetite
- Prevention starts with:
 - Destroying the disease is the best approach
 - Adding broad-spectrum antibiotics to the water source is a prevention and cure for the disease

Slides 6-7: Fowl Cholera

- Caused by *Pasteurella multocida*
- This disease-causing organism can survive 1 month in droppings, 3 months in decaying bird carcasses, and up to 3 months in soil
- Infection comes from contaminated water and/or food from diseased bird waste and dead birds with the disease
- It's carried from one area to another by contaminated clothing and shoes of farmers
- Symptoms include:
 - Loss of appetite
 - Difficulty breathing
 - Green or yellowish diarrhea
 - Swollen wattles
- Prevention includes:
 - Depopulation of the flock and not restocking immediately to allow for the disease-causing organism to die
 - Controlling rodents
 - Cleaning and sterilizing the environment
 - Removal of dead birds
 - Making sure water and feed are fresh and clean
- Treatment includes:
 - Sulfa drugs
 - Broad-spectrum antibiotics

Slide 8: Necrotic Enteritis

- Little is known about this disease
- Caused by *Clostridium perfringens*
- Appears to be transmitted by oral consumption of waste from infected birds
- Symptoms occur quickly
- Chickens appear depressed at first and die within hours
- There is no treatment, only prevention options such as:
 - Addition of vitamins and bacitracin placed in feed
 - Bacitracin placed in feed **and** water
 - A virginiamycin can also be added to feed

Slide 9: Ulcerative Enteritis

- Caused by *Clostridium colinum*
- Spread from fecal matter dropped by diseased birds and picked up orally off the floor
- Very resistant to disinfectants
- Appears as healthy birds dying unexpectedly or a listless nature of the flock
- Prevention starts with:
 - Keeping birds on wire floors
 - Adding low levels of bacitracin to the feed when wire flooring is not possible

Slide 10: Pullorum Disease

- Caused by *Salmonella pullorum*
- Highly fatal to chicks
- Transmitted from:
 - Infected hen to egg
 - Egg to chick
 - Chick to chick in incubator or chick box, brooder, or house
- A chicken that survives becomes an infected breeder, which continues the cycle
- Disease can be carried on farmers' clothes and equipment
- Isolating of possible carriers and laboratory tests are the only way of diagnosing the disease
- Prevention starts with:
 - If a positive test results, birds must be destroyed to stop the spread

Slides 11-12: Fowl Typhoid

- Caused by *Salmonella gallinarum*
- Transmission methods are the same as pullorum disease, but the most common way is through mechanical methods, such as on clothing, shoes, and equipment
- Any chicken can get this disease but it's more common in birds older than 12 weeks
- Symptoms include:
 - Sudden death
 - Increased thirst
 - Loss of appetite

- Green or yellow diarrhea
 - Listlessness
- Prevention and control is the best approach
- Prevention starts with:
 - Using egg stock that is free of this disease
 - Keeping the environment clean
 - Keeping water and feed fresh
 - Properly disposing of dead birds
- Can live outside the bird's body for over 6 months
- If an outbreak occurs, do not restock the area for 6 months if possible
- Drug treatment is not dependable

Slides 13-15: Botulism

- Caused by *Clostridium botulinum*
- Botulism is not a bacterial infection
- However, the infection comes as a toxin produced by *Clostridium botulinum*
- Eating the bacterium does not mean the chicken will get the disease
- The bacterium requires a high temperature and an environment that is moist with decaying organic matter for the toxin to be produced
 - Example: Stagnant pools of water with buried decaying matter
- Chickens can get this toxin by eating or drinking directly from the source or by consuming insects feeding on the decaying organic matter
- Symptoms include weakness as well as paralysis of the neck, wings, and legs
- Birds with paralyzed necks develop "limberneck"
- The best approach is prevention which starts with:
 - Removing dead birds
 - Controlling insects
 - Getting rid of standing water
 - Not allowing decaying organic material to build up
 - Debeaking
- If the disease is found, remove the source and move any birds showing symptoms to a cool area
- Birds without symptoms should be given a mild laxative

- Antitoxin therapy should only be given to economically valuable birds

Slides 16-17: Infectious Coryza

- Respiratory disease caused by *Hemophilus gallinarum*
- Appears in semi-mature to adult birds
- Transmitted by:
 - Contact
 - Nasal discharge in the water source
 - Breathing in dust
 - Respiratory droplets from infected chickens
- Symptoms show up 3 days after exposure
- Symptoms include:
 - Swelling of face around the eyes and wattles
 - Nasal discharge
 - Watery discharge from eyes
 - Vision can be affected due to the swelling
- Prevention is the only treatment which starts with:
 - Removing and destroying birds with the disease because, if they survive, they will always be carriers
 - Cleaning and sterilizing the environment and equipment

Slides 18-19: Omphalitis

- A general term that describes the improper closure of the vanel that causes inflammation
- Caused by several different bacteria including *Staphylococcus*, *Streptococcus*, *Proteus*, and others
- Appears in the first few days of life
- Transmitted from unsanitary equipment to chicks
- Symptoms include:
 - Lack of interest in feed or water
 - Constantly standing by the heat source
 - Droopy
 - Down is puffed up
- Deaths start after 24 hours and peak at the 5-day mark

- Prevention is the only option which starts with:
 - Proper management and sanitation of the hatchery

Slides 20-21: Erysipelas

- Caused by *Irysipelas insidiosus*
- Lives for a long period of time in soil
- Sheep and swine are believed to be carriers
- Humans can get this bacterium
- The first sign of a problem is a few birds dying
- While the rate per day will be low, the number of deaths will continue over a long period of time
- Other symptoms include:
 - General weakness
 - Loss of appetite
 - Green and/or yellow diarrhea
- Prevention is the best approach and starts with:
 - Not placing chickens in areas that contain sheep, swine, or turkeys
 - Debeak the chickens
 - Avoid overcrowding
 - Reduce injury from fighting
 - Make sure the environment is well draining
- For chickens with this disease, separate them from the flock and administer a shot of penicillin into the leg or breast muscle

Slide 22: Viral Diseases

- Viral diseases of chickens include:
 - Avian pox
 - Newcastle disease
 - Infectious bronchitis
 - Lymphoid leukosis
 - Marek's disease
 - Infectious bursal disease

Slides 23-24: Avian Pox

- Avian pox is broken down into 3 different strains:
 - Fowl pox virus
 - Pigeon pox virus
 - Canary pox virus
- Can be transmitted by direct and indirect contact

- Can survive under scabbed sores and contaminated environments
- Also spread by several different species of mosquitoes
- It can take 3-5 weeks for symptoms to begin to show up
- Symptoms occur at all ages of the birds and include:
 - Delayed growth
 - Reduced egg laying
- Beyond the symptoms, the disease can manifest in 2 ways:
 - Dry pox
 - Wet pox
- Dry pox is the formation of a white-colored wart on featherless body parts
 - The wart will scab over, the scab will fall off, and another scab will form in the same area
- Wet pox occurs as lesions in the throat
- Once developed, there is no cure for this disease
- Prevention includes vaccinating the chicks as young as a day old and broilers only if mosquitoes are a problem

Slides 25-26: Newcastle Disease

- Caused by contaminated shoes and clothing with the disease along with diseased free-flying birds
- Highly contagious and will show up 3-5 days after exposure
- Shows up in both chicks and adult birds
- Chicks' symptoms include:
 - Difficulty breathing and wheezing that can last 10-14 days
 - Then, a nervous system disorder can form, which can mean the paralysis of 1 or both wings and/or legs as well as twisted neck
- Adults develop respiratory problems such as:
 - Nasal drainage
 - Excessive mucus in the throat
 - Cloudy air sacs
 - Cloudiness in the cornea of the eye
- There is no treatment for this disease

- Prevention is the best approach, which means vaccinating the birds
- The vaccination is administered at 7-10 days of age for broilers
- Layers are vaccinated at 7 days, 4 weeks, and again at 4 months

Slides 27-28: Infectious Bronchitis

- Considered the most contagious chicken disease
- Has a high level of mortality in chicks 3 weeks or younger
- Normally doesn't kill chickens older than 5 weeks
- Layers that get this disease end up not laying any eggs after a few weeks of exposure
- The eggs that are laid will have soft shells and will be misshaped
- There is no cure for this disease and once present it does not respond to sanitation
- Prevention is the only option which starts with:
 - All layers being vaccinated

Slides 29-30: Lymphoid Leukosis

- Appears only in adult chickens
- Transmitted through the bird's body into eggs and in feces
- It can also be passed on mechanically through dirty equipment as well as the farmer's clothing and shoes
- Blood-sucking insects can also pass the disease from one bird to another
- Symptoms include loss of appetite and weight as well as diarrhea
- If present, symptoms show up shortly after egg production
- Prevention is the only option and starts with:
 - Only buying birds that are genetically resistant to this disease
 - Keeping the incubator clean and disinfected
 - Not mixing ages of birds together
 - Controlling numbers of blood-sucking parasites

Slides 31-33: Marek's Disease

- Caused by a virus in the herpes group
- In all age groups but most often found in young chickens
- Virus found in feather follicles and dander
- Can survive a long time in dander
- Transmission of this disease comes from the dust and dander of infected birds entering the air
- 4 types of Marek's disease:
 - Neural
 - Ocular
 - Skin
 - Acute
- Neural symptoms:
 - Loss of weight
 - Paralysis of wings, legs, and neck
 - Labored breathing
 - Anemia
 - Diarrhea
- Ocular symptoms:
 - "Gray-eye" that causes an irregular shape of the iris
 - Emaciation
 - Diarrhea
 - Death
- Skin symptoms are not noticed until the bird reaches the processing plant
- If enlarged feather follicles are found, the bird will be discarded at the poultry plant
- The acute symptom is sudden death of healthy birds
- Prevention comes from vaccinating day-old chicks

Slide 34: Infectious Bursal Disease

- Highly contagious in young birds
- Severe losses but not directly from the viral disease
- Disease weakens the immune system so it cannot provide protection from other diseases, resulting in death
- Transmitted through:
 - Bird-to-bird contact
 - Feces
 - Contaminated litter
 - Farmer
 - Insects

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- Contaminated air
 - Wild birds
- Symptoms:
 - Ruffled feathers
 - Slight tremor in the beginning
 - Strained defecation
 - Dehydration
 - Loss of appetite
- Vaccination is the only form of prevention

Slide 35: Parasitic Diseases (Internal)

- Parasitic diseases that occur internally in chickens include:
 - Ascarids
 - Cecal worms
 - Tapeworms
 - Gapeworms

Slides 36-37: Ascarids

- Known as large intestinal roundworms
- Chickens that are 3-4 months of age are resistant to this parasite
- Death only occurs if the chicken has a severe case of this parasite
- Can be seen with the naked eye
- Transmission of the roundworm starts with female roundworms laying eggs in the intestine, which are then carried out in the feces
- In 2-3 weeks, the larvae reaches the infectious stage
- If chickens eat the eggs at this stage they will develop roundworm
- Prevention starts with:
 - Harvesting chickens all at the same time and then completely cleaning the chicken house before replacing with new chickens
 - Not mixing different ages of chickens in a flock

Slide 38: Cecal Worms

- This parasite is called *Heterakis gallinae*
- Lives in the ceca of chickens
- Does not harm the chicken
- No symptoms
- The parasite lives for a long time outside the body and is resistant to environmental factors such as heat and cold

- The only treatment that exists is fenbendazole

Slide 39: Tapeworms

- Tapeworms cause damage to young birds in weight gain and food efficacy, meaning they require more feed and gain less weight
- Chickens are not the direct host of tapeworms
- Snails, earthworms, houseflies, slugs, and even grasshoppers can carry the pest
- These organisms eat bird poop, which contains the eggs of the tapeworm
- The organisms are then eaten by chickens and the eggs are transferred to these birds
- The easiest way of controlling tapeworms in chickens is to prevent them from eating the intermediate host

Slide 40: Gapeworms

- Gapeworm is a parasite that gets its name because it wraps around the windpipe of the chicken
- When this happens, it causes the bird to breathe through the mouth
- Chickens get gapeworm when they eat earthworms that contain gapeworm larvae
- Prevention is the only economical solution
- Prevention consists of deworming the chickens every 15-30 days

Slide 41: Parasitic Disease (External)

- This includes:
 - Poultry mites
 - Poultry lice
 - Fowl tick
 - Chiggers, red bugs, or harvest mites

Slide 42: Poultry Mites

- While there are several different types of poultry mites that attack different parts of the chicken, the damage is the same and that is blood sucking
- The sucking only occurs at night and causes the chickens to lose weight
- Sources can come from wild birds, humans going from barn to barn, and

Chicken Kit

infected barns since the mites hide in cracks until the evening

- If poultry mites are spotted, the best treatment is the application of permethrin on the birds and housing
- Repeat application every 1-2 months

Slide 43: Poultry Lice

- Different types of lice attack different parts of the chicken
- Symptoms include:
 - Loss of appetite
 - Scratching
 - Reduced sleeping, which decreases weight and egg production
- Treatment comes from applying permethrin to the chicken's body and repeating every 1-2 months

Slide 44: Fowl Tick

- *Argas persicus* or commonly called "blue tick"
- If there are enough ticks, the chicken will become weak, reduce egg production, and can die
- This is a big problem in the Southern United States
- It is difficult to control
- It is best to observe birds for signs
- If fowl tick is the problem, it is important to treat the barn and yard with insecticide and not the birds

Slides 45-46: Chiggers, Red Bugs, or Harvest Mites

- This includes *Trombicula splendens*, *Trombicula alfreddugesi*, and *Neoschongastia americana*
- Only the larvae of chiggers attack chickens

- The larvae attach to the wing, breast, and neck
- The damage is not seen until the chicken is processed or dressed
- Once this is discovered, the lesion caused by the parasites can reduce the market value
- Treat with an insecticide

Chicken Diseases and Parasites

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

1. _____ of _____ and _____
 - _____ diseases
 - _____ diseases
 - _____ diseases (_____)
 - _____ diseases (_____)

2. _____ Diseases
 - Includes:
 - _____ or Coliform infections
 - Mycoplasmosis
 - _____
 - Necrotic enteritis
 - _____
 - Pullorum disease
 - _____
 - Botulism
 - _____
 - Omphalitis
 - _____

3. Colibacillosis or _____
 - Caused by _____ or E. coli
 - _____ can get it
 - Can _____ or just a _____
 - Can be _____ by way of the _____ and/or the _____
 - _____ include:
 - _____ with _____
 - Fever
 - _____
 - Coughing
 - _____
 - _____ starts with:
 - _____
 - Good litter
 - A _____

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- Sterilized equipment
- _____ the _____ the birds are under

4. _____

- _____ by _____
- _____ to just _____
- _____ on from an _____ the _____
- The chicken is then _____ to the _____ when it _____
- A _____ is required to confirm they have it
- _____ include:
 - Drooping
 - A _____ of _____
- Prevention starts with:
 - _____ the _____
 - Adding _____ - _____ to the _____ source is a prevention and cure for the disease

5. _____

- _____ by _____
- This _____-causing _____ can _____
_____ in _____, _____
_____ in decaying _____, and up to _____
_____ in the _____
- _____ comes from _____ and/or
_____ from diseased bird _____ birds with
_____ disease
- It's _____ from one area to another by contaminated clothing and shoes of _____
- Symptoms include:
 - Loss of appetite
 - Difficulty breathing
 - Green or yellowish diarrhea
 - Swollen wattles
- _____ starts with:
 - _____ of the flock and _____
_____ to allow for the disease-causing organism to die
 - Controlling rodents
 - _____ and sterilizing the _____
 - _____ of _____
 - Making sure _____ and _____ are _____ and clean
- _____ includes:
 - _____
 - _____ - _____

6. _____
- _____ is _____ about this disease
 - _____ by _____
 - Appears to be _____ by _____ of _____ from _____ birds
 - _____ occur _____
 - Chickens appear _____ at _____ and die within hours
 - _____ is no treatment, only prevention options such as:
 - Addition of _____ and _____ placed _____
 - Bacitracin placed in feed **and** water
 - A _____ can also be added _____

7. _____
- _____ by _____
 - _____ from _____ dropped by diseased birds and _____ off the floor
 - _____ to disinfectants
 - _____ as healthy birds _____ a listless nature of the flock
 - _____ starts with:
 - _____ on _____
 - _____ of _____ to the _____ when wire flooring is not possible

8. _____
- _____ by _____
 - _____ to _____
 - Transmitted from:
 - _____ to _____
 - _____ to _____
 - _____ to _____ in _____ or chick _____, brooder, or _____
 - A chicken that survives becomes an infected breeder, which continues the cycle
 - Disease can be _____ on farmers' clothes and _____
 - _____ of possible _____ and _____ is the only way of _____ the disease
 - Prevention starts with:
 - _____ the bird if tested _____ to stop the spread

9. _____
- _____ by _____

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- _____ methods are the same as pullorum disease, but the most common way is through mechanical methods, such as on _____, _____, and _____
- Any chicken can get this _____ but it's _____ in birds
- _____ include:
 - _____
 - Increased thirst
 - _____
 - Green or yellow diarrhea
 - _____
- _____ and control is the _____ approach
- Prevention _____:
 - _____ egg stock _____ is _____ disease
 - Keeping _____ clean
 - Keeping _____ and feed _____
 - Properly disposing of _____
- Can _____ the bird's body for over 6 months
- If an outbreak occurs, _____ the area for _____ if possible
- _____ treatment is _____

10. _____

- _____ by _____
- Botulism is _____ a _____
- However, the infection _____ as a _____ by _____
- _____ the bacterium _____ the chicken will get the _____
- The bacterium requires a _____ and an environment that is _____ with _____ for the toxin to be produced
 - Example: _____ of water with _____ matter
- Chickens can get this _____ by _____ or _____ directly _____ the _____ or by _____ on the _____ organic _____
- _____ include _____ as well as paralysis of the neck, wings, and legs
- Birds with paralyzed necks develop what is called "_____"
- The _____ approach is prevention which involves:
 - Removing dead birds
 - Controlling insects
 - Getting _____ of _____
 - Not allowing decaying organic material build up

- _____
- If the disease is _____, remove the source and move _____ showing symptoms to a _____
- Birds _____ symptoms should be given a _____
- _____ should _____ be given to _____

11. _____

- _____ disease _____ by _____
- Appears in _____ - _____ to _____ birds
- _____ by:
 - _____
 - Nasal discharge in the water source
 - _____
 - Respiratory _____ from _____
- _____ show up _____ after exposure
- Symptoms include:
 - Swelling of face around the eyes and wattles
 - _____
 - Watery discharge from eyes
 - _____ can be _____ due to the _____
- _____ is the _____ and includes:
 - Removing and _____ with this disease because, if they survive, they will _____
 - _____ and _____ the _____ and _____

12. _____

- A _____ that describes the _____ of the _____ that causes _____
- _____ by several different bacteria including _____, _____, and others
- _____ in the _____ of life
- _____ from _____ to chicks
- _____ include:
 - _____ of _____ in _____ or _____
 - Constantly standing by the heat source
 - _____
 - _____ is _____
- _____ start after _____ and _____ at the _____ - _____ mark
- _____ is the _____ which starts with:

- Proper management and sanitation of the _____ is very important in preventing this disease

13. _____

- _____ by _____
- _____ for a _____ period of time in _____
- _____ and _____ are _____ to be _____
- _____ this bacterium
- The _____ of a problem is a _____
- While the _____ will be _____, the number of deaths will _____ over a _____ of time
- Other _____ include:
 - General weakness
 - _____
 - green and/or yellow diarrhea
- _____ is the _____ approach and starts with:
 - _____ placing chickens in _____ that contain _____, _____, or _____
 - _____ the chickens
 - Avoid overcrowding
 - _____ injury from _____
 - Make sure the _____ is _____
- For chickens with this disease, _____ from the _____ and administer a _____ of _____ into the _____ or _____ muscle

14. _____ Diseases

- Viral diseases of chickens include:
 - _____
 - Newcastle disease
 - _____
 - Lymphoid leukosis
 - Marek's disease
 - Infectious bursal disease

15. _____

- Avian pox is broken down into _____:
 - Fowl pox virus
 - Pigeon pox virus
 - Canary pox virus
- Can be _____ by _____ and _____ contact
- Can _____ under _____ and _____

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- Also _____ by several different species of _____
- It can take _____ - _____ for symptoms to begin to _____
- _____ occur at _____ of the birds and include:
 - _____
 - _____
- Beyond the symptoms, the disease can manifest in _____:
 - _____
 - _____
- _____ is the formation of a _____ - _____ on _____
 - The _____ will _____, the scab will _____, and another _____ will _____ in the _____
- _____ occurs as lesions _____ the _____
- Once developed, there is _____ for this disease
- _____ starts with:
 - Vaccinating the chicks as young as _____
 - Vaccinating _____ only if _____ are a _____

16. _____
- _____ by _____ and _____ with the disease along with _____ free- _____
 - _____ and will _____ 3-5 _____ after exposure
 - _____ in both _____ and _____
 - _____ include:
 - Difficulty in breathing and _____ that can last _____ - _____
 - Then, a _____ can form, which can mean the _____ of 1 or both _____ and/or _____ as well as a _____
 - _____ develop _____ such as:
 - _____
 - Excessive mucus in the throat
 - _____
 - Cloudiness in the cornea of the eye
 - There is _____ for this disease
 - _____ is the _____ approach, which means _____ the _____
 - The _____ is administrated at _____ - _____ of age for _____
 - _____ are _____ at _____, _____, and again at _____

17. _____
- Considered the _____ chicken disease
 - Has a _____ of _____ in _____
_____ or _____
 - Normally doesn't _____ chickens _____ than _____ weeks
 - _____ that get this disease end up _____ any
_____ after a few weeks of exposure
 - The eggs that are laid will have _____ and will be misshaped
 - There is _____ for this disease and once present it does not respond to sanitation
 - _____ is the only _____ which starts with:
 - All layers being _____

18. _____
- _____ only in _____
 - _____ through the bird's _____ into _____ and in _____
 - It can also be passed on mechanically through dirty _____ as well as the farmer's clothing and _____
 - _____ - _____ insects can also pass the disease from one bird to another
 - _____ include:
 - _____ and weight
 - _____
 - If present, symptoms will begin to show up shortly after egg production
 - _____ is the _____ option and starts with::
 - Only buying birds _____ resistant to this disease
 - Keeping the incubator clean and disinfected
 - _____ of birds together
 - Controlling numbers of blood-sucking parasites

19. Marek's _____
- _____ by a _____ in the _____
 - In _____ but more likely found in young chickens
 - _____ found in _____ and _____
 - Can _____ a _____ in _____
 - _____ of this disease comes from the _____ and _____ of infected birds entering the air
 - _____ of Marek's disease:
 - _____
 - _____
 - _____
 - _____
 - _____:

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- _____
 - Paralysis of wings, legs, and neck
 - Labored breathing
 - _____
 - Diarrhea
 - _____:
 - “_____ - _____” that causes an irregular shape of the iris
 - Emaciation
 - Diarrhea
 - _____
 - _____ are not noticed until the bird _____ the processing plant
 - If _____ feather _____ are found, the bird will be _____ at the _____
 - The _____ is the _____ of healthy birds
 - _____ comes from _____ day-old chicks
20. _____
- _____ in _____
 - _____ but _____ directly from the viral _____
 - Disease weakens the immune system so _____ protection from other _____, resulting _____
 - _____ through:
 - _____ - _____ - _____
 - Feces
 - _____
 - Farmer
 - _____
 - Contaminated air
 - _____
 - _____:
 - _____
 - Slight _____ in the beginning
 - Strained defecation
 - Dehydration
 - _____
 - _____ is the only prevention
21. _____ (_____)
- _____ that occur internally in chickens include:
 - _____
 - Cecal worms
 - _____

○ Gapeworms

22. _____

- Known as large _____
- _____ that are _____ - _____ of age are _____ to this parasite
- _____ only occurs if the chicken has a _____ of this parasite
- Can be _____ with the _____
- _____ of the roundworm starts with female roundworms laying _____ the _____, which eggs are then _____ out _____ feces
- In _____ - _____, the _____ reaches the _____
- If chickens _____ the _____ at this _____, they will _____
- _____ starts with:
 - Harvesting chickens _____ same time _____ completely cleaning the _____ before replacing with new chickens
 - _____ different _____ of chickens in a flock

23. _____

- This parasite is called _____
- _____ the _____ of chickens
- _____ the chicken
- No symptoms
- The parasite _____ for a long time _____ the _____ and is _____ to _____ such as heat and cold
- The only _____ that exists is _____

24. _____

- Tapeworms cause _____ to _____ in _____ and _____, meaning they require more feed and gain less weight
- _____ are _____ the _____ of tapeworms
- Snails, _____, houseflies, _____, and even _____ can carry the pest
- These _____ bird _____, which _____ the _____ of the tapeworm
- These _____ are then _____ and the eggs are transferred to these birds

- The easiest way of controlling tapeworms in chickens is to _____ them from _____ the _____

25. _____

- Gapeworm is a parasite that gets its name because it _____ the windpipe of the chicken
- When this happens, it causes the bird to _____ through the _____
- Chickens _____ when they _____ that _____
- _____ is the _____ economical _____
- Prevention consists of _____ the chickens every 15-30 days

26. _____ (_____)

- This _____:
 - Poultry mites
 - _____
 - Fowl tick
 - _____, red bugs, or _____

27. _____

- While there are several _____ of poultry mites that _____ of the chicken, the damage is the same and that is blood sucking
- The _____ only occurs _____ and causes the chickens to _____
- _____ can come from _____, human going from barn to barn, and _____ since the mites hid in cracks until the evening
- If poultry mites are spotted, the best _____ is the application of _____ on _____ birds _____
- Repeat _____ every _____ - _____ months

28. _____

- _____ of _____ attack _____ of the chicken
- _____:
 - Loss of appetite
 - _____
 - _____, which _____ and _____
- _____ comes from applying _____ to the chicken's _____ and _____ every _____ - _____

29. _____
- _____ or commonly called “_____”
 - If there _____ enough ticks, the _____ will become weak, reduce _____, and _____
 - This is a big _____ in the _____ United States
 - It is difficult to control
 - It is _____ observe birds for signs
 - If fowl tick is the problem, it is important to _____ the _____ and _____ with _____ and _____ the _____

30. _____, _____, or _____
- This includes _____, *Trombicula alfreddugesi*, and _____ *americana*
 - Only the _____ chiggers attack chickens
 - While _____ larvae attach to the wings, _____, and neck
 - The damage _____ not _____ the chicken is processed or dressed
 - _____ this is discovered, _____ lesion caused by the parasites can reduce the market value
 - _____ with an insecticide

Chicken Diseases and Parasites – Answer Key

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

1. Types of Diseases and Parasites

- Bacterial diseases
- Viral diseases
- Parasitic diseases (internal)
- Parasitic diseases (external)

2. Bacterial Diseases

- Includes:
 - Colibacillosis or Coliform infections
 - Mycoplasmosis
 - Fowl cholera
 - Necrotic enteritis
 - Ulcerative enteritis
 - Pullorum disease
 - Fowl typhoid
 - Botulism
 - Infectious coryza
 - Omphalitis
 - Erysipelas

3. Colibacillosis or Coliform Infection

- Caused by *Escherichia coli* or E. coli
- All ages can get it
- Can cause death or just a mild infection
- Can be transmitted by way of the respiratory system and/or the gastrointestinal system
- Symptoms include:
 - Listlessness with ruffled feathers
 - Fever
 - Labored breathing
 - Coughing
 - Diarrhea
- Prevention starts with:
 - Good ventilation
 - Good litter
 - A clean environment

- Sterilized equipment
- Reducing the stress the birds are under

4. Mycoplasmosis

- Caused by *Mycoplasma gallisepticum*
- Not limited to just chickens
- Passed on from an infected hen to the egg
- The chicken is then exposed to the infection when it hatches
- A blood test is required to confirm they have it
- Symptoms include:
 - Drooping
 - Lack of appetite
- Prevention starts with:
 - Destroying the disease ,
 - Adding broad-spectrum antibiotics to the water source is a prevention and cure for the disease

5. Fowl Cholera

- Caused by *Pasteurella multocida*
- This disease-causing organism can survive 1 month in droppings, 3 months in decaying bird carcasses, and up to 3 months in the soil
- Infection comes from contaminated water and/or food from diseased bird waste and dead birds with the disease
- It's carried from one area to another by contaminated clothing and shoes of farmers
- Symptoms include loss of appetite, difficulty breathing, green or yellowish diarrhea, and swollen wattles
- Prevention starts with:
 - Depopulation of the flock and not restocking immediately to allow for the disease-causing organism to die
 - Controlling rodents
 - Cleaning and sterilizing the environment
 - Removal of dead birds
 - Making sure water and feed are fresh and clean
- Treatment includes:
 - Sulfa drugs
 - Broad-spectrum antibiotics

6. Necrotic Enteritis

- Little is known about this disease
- Caused by *Clostridium perfringens*
- Appears to be transmitted by oral consumption of waste from infected birds
- Symptoms occur quickly
- Chickens appear depressed at first and die within hours
- There is no treatment, only prevention options such as:

- Addition of vitamins and bacitracin placed in feed
- Bacitracin placed in feed and water
- A virginiamycin can also be added to feed

7. Ulcerative Enteritis

- Caused by *Clostridium colinum*
- Spread from fecal matter dropped by diseased birds and picked up orally off the floor
- Very resistant to disinfectants
- Appears as healthy birds dying unexpectedly or a listless nature of the flock
- Prevention starts with:
 - Keeping birds on wire floors
 - Adding low levels of bacitracin to the feed when wire flooring is not possible

8. Pullorum Disease

- Caused by *Salmonella pullorum*
- Highly fatal to chicks
- Transmitted from:
 - Infected hen to egg
 - Egg to chick
 - Chick to chick in incubator or chick box, brooder, or house
- A chicken that survives becomes an infected breeder, which continues the cycle
- Disease can be carried on farmers' clothes and equipment
- Isolating of possible carriers and laboratory tests is the only way of diagnosing the disease
- Prevention starts with:
 - Destroying the bird, if tested positive to stop the spread.

9. Fowl Typhoid

- Caused by *Salmonella gallinarum*
- Transmission methods are the same as pullorum disease, but the most common way is through mechanical methods, such as on clothing, shoes, and equipment
- Any chicken can get this disease but it's more common in birds older than 12 weeks
- Symptoms include:
 - Sudden death
 - Increased thirst
 - Loss of appetite
 - Green or yellow diarrhea
 - Listlessness
- Prevention and control is the best approach
- Prevention starts with:
 - Using egg stock that is free of this disease
 - Keeping the environment clean

- Keeping water and feed fresh
- Properly disposing of dead birds
- Can live outside the bird's body for over 6 months
- If an outbreak occurs, do not restock the area for 6 months if possible
- Drug treatment is not dependable

10. Botulism

- Caused by *Clostridium botulinum*
- Botulism is not a bacterial infection
- However, the infection comes as a toxin produced by *Clostridium botulinum*
- Eating the bacterium does not mean the chicken will get the disease
- The bacterium requires a high temperature and an environment that is moist with decaying organic matter for the toxin to be produced
 - Example: Stagnant pools of water with buried decaying matter
- Chickens can get this toxin by eating or drinking directly from the source or by consuming insects feeding on the decaying organic matter
- Symptoms include weakness as well as paralysis of the neck, wings, and legs
- Birds with paralyzed necks develop what is called "limberneck"
- The best approach is prevention which involves:
 - Removing dead birds
 - Controlling insects
 - Getting rid of standing water
 - Not allowing decaying organic material build up
 - Debeaking
- If the disease is found, remove the source and move any birds showing symptoms to a cool area
- Birds without symptoms should be given a mild laxative
- Antitoxin therapy should only be given to economically valuable birds

11. Infectious Coryza

- Respiratory disease caused by *Hemophilus gallinarum*
- Appears in semi-mature to adult birds
- Transmitted by:
 - Contact
 - Nasal discharge in the water source
 - Breathing in dust
 - Respiratory droplets from infected chickens
- Symptoms show up 3 days after exposure
- Symptoms include:
 - Swelling of face around the eyes and wattles
 - Nasal discharge
 - Watery discharge from eyes

- Vision can be affected due to the swelling
- Prevention is the only treatment and includes:
 - Removing and destroying birds with this disease because, if they survive, they will always be carriers
 - Cleaning and sterilizing the environment and equipment

12. Omphalitis

- A general term that describes the improper closure of the navel that causes inflammation
- Caused by several different bacteria including *Staphylococcus*, *Streptococcus*, *Proteus*, and others
- Appears in the first few days of life
- Transmitted from unsanitary equipment to chicks
- Symptoms include:
 - Lack of interest in feed or water
 - Constantly standing by the heat source
 - Droopy
 - Down is puffed up
- Deaths start after 24 hours and peak at the 5-day mark
- Prevention is the only option which starts with:
 - Proper management and sanitation of the hatchery is very important in preventing this disease

13. Erysipelas

- Caused by *Erysipelas insidiosa*
- Lives for a long period of time in soil
- Sheep and swine are believed to be carriers
- Humans can get this bacterium
- The first sign of a problem is a few birds dying
- While the rate per day will be low, the number of deaths will continue over a long period of time
- Symptoms include:
 - General weakness,
 - Loss of appetite
 - Green and/or yellow diarrhea
- Prevention is the best approach and starts with:
 - Not placing chickens in areas that contain sheep, swine, or turkeys
 - Debeak the chickens
 - Avoid overcrowding
 - Reduce injury from fighting
 - Make sure the environment is well draining

- For chickens with this disease, separate them from the flock and administer a shot of penicillin into the leg or breast muscle

14. Viral Diseases

- Viral diseases of chickens include:
 - Avian pox
 - Newcastle disease
 - Infectious bronchitis
 - Lymphoid leukosis
 - Marek's disease
 - Infectious bursal disease

15. Avian Pox

- Avian pox is broken down into 3 different strains:
 - Fowl pox virus
 - Pigeon pox virus
 - Canary pox virus
- Can be transmitted by direct and indirect contact
- Can survive under scabbed sores and contaminated environments
- Also spread by several different species of mosquitoes
- It can take 3-5 weeks for symptoms to begin to show up
- Symptoms occur at all ages of the birds and include:
 - Delayed growth
 - Reduced egg laying
- Beyond the symptoms, the disease can manifest in 2 ways:
 - Dry pox
 - Wet pox
- Dry pox is the formation of a white-colored wart on featherless body parts
 - The wart will scab over, the scab will fall off, and another scab will form in the same area
- Wet pox occurs as lesions in the throat
- Once developed, there is no cure for this disease
- Prevention starts with:
 - Vaccinating the chicks as young as a day old
 - Vaccinating broilers only if mosquitoes are a problem

16. Newcastle Disease

- Caused by contaminated shoes and clothing with the disease along with diseased free-flying birds
- Highly contagious and will show up 3-5 days after exposure
- Shows up in both chicks and adult birds
- Chicks' symptoms include:
 - Difficulty in breathing and wheezing that can last 10-14 days

- Then, a nervous system disorder can form, which can mean the paralysis of 1 or both wings and/or legs as well as a twisted neck
- Adults develop respiratory problems such as:
 - Nasal drainage
 - Excessive mucus in the throat
 - Cloudy air sacs
 - Cloudiness in the cornea of the eye
- There is no treatment for this disease
- Prevention is the best approach, which means vaccinating the birds
- The vaccination is administered at 7-10 days of age for broilers
- Layers are vaccinated at 7 days, 4 weeks, and again at 4 months

17. Infectious Bronchitis

- Considered the most contagious chicken disease
- Has a high level of mortality in chicks 3 weeks or younger
- Normally doesn't kill chickens older than 5 weeks
- Layers that get this disease end up not laying any eggs after a few weeks of exposure
- The eggs that are laid will have soft shells and will be misshaped
- There is no cure for this disease and once present it does not respond to sanitation
- Prevention is the only option which starts with:
 - All layers being vaccinated

18. Lymphoid Leukosis

- Appears only in adult chickens
- Transmitted through the bird's body into eggs and in feces
- It can also be passed on mechanically through dirty equipment as well as the farmer's clothing and shoes
- Blood-sucking insects can also pass the disease from one bird to another
- Symptoms include:
 - Loss of appetite and weight
 - Diarrhea
- If present, symptoms will begin to show up shortly after egg production
- Prevention is the only option and starts with:
 - Only buying birds that are resistant to this disease
 - Keeping the incubator clean and disinfected
 - Not mixing ages of birds together
 - Controlling numbers of blood-sucking parasites

19. Marek's Disease

- Caused by a virus in the herpes group

- In all age groups but more likely found in young chickens
- Virus found in feather follicles and dander
- Can survive a long time in dander
- Transmission of this disease comes from the dust and dander of infected birds entering the air
- 4 types of Marek's disease:
 - Neural
 - Ocular
 - Skin
 - Acute
- Neural symptoms:
 - Loss of weight
 - Paralysis of wings, legs, and neck
 - Labored breathing
 - Anemia
 - Diarrhea
- Ocular symptoms:
 - "Gray-eye" that causes an irregular shape of the iris
 - Emaciation
 - Diarrhea
 - Death
- Skin symptoms are not noticed until the bird reaches the processing plant
- If enlarged feather follicles are found, the bird will be discarded at the poultry plant
- The acute symptom is the sudden death of healthy birds
- Prevention comes from vaccinating day-old chicks

20. Infectious Bursal Disease

- Highly contagious in young birds
- Severe losses but not directly from the viral disease
- Disease weakens the immune system so it cannot provide protection from other diseases, resulting in death
- Transmitted through:
 - Bird-to-bird contact
 - Feces
 - Contaminated litter
 - Farmer
 - Insects
 - Contaminated air
 - Wild birds
- Symptoms Include:
 - Ruffled feathers
 - Slight tremor in the beginning
 - Strained defecation
 - Dehydration
 - Loss of appetite
- Vaccination is the only prevention

21. Parasitic Diseases (Internal)

- Parasitic diseases that occur internally in chickens include:
 - Ascarids
 - Cecal worms
 - Tapeworms
 - Gapeworms

22. Ascarids

- Known as large intestinal roundworms
- Chickens that are 3-4 months of age are resistant to this parasite
- Death only occurs if the chicken has a severe case of this parasite
- Can be seen with the naked eye
- Transmission of the roundworm starts with female roundworms laying eggs in the intestine, which eggs are then carried out in the feces
- In 2-3 weeks, the larvae reaches the infectious stage
- If chickens eat the eggs at this stage, they will develop roundworm
- Prevention starts with:
 - Harvesting chickens all at the same time and then completely cleaning the chicken house before replacing with new chickens
 - Not mixing different ages of chickens in a flock

23. Cecal Worms

- This parasite is called *Heterakis gallinae*
- Lives in the ceca of chickens
- Does not harm the chicken
- No symptoms
- The parasite lives for a long time outside the body and is resistant to environmental factors such as heat and cold
- The only treatment that exists is fenbendazole

24. Tapeworms

- Tapeworms cause damage to young birds in weight gain and food efficacy, meaning they require more feed and gain less weight
- Chickens are not the direct host of tapeworms
- Snails, earthworms, houseflies, slugs, and even grasshoppers can carry the pest
- These organisms eat bird poop, which contains the eggs of the tapeworm
- These organisms are then eaten by chickens and the eggs are transferred to these birds
- The easiest way of controlling tapeworms in chickens is to prevent them from eating the intermediate host

25. Gapeworms

- Gapeworm is a parasite that gets its name because it wraps around the windpipe of the chicken
- When this happens, it causes the bird to breathe through the mouth
- Chickens get gapeworm when they eat earthworms that contain gapeworm larvae
- Prevention is the only economical solution
- Prevention consists of deworming the chickens every 15-30 days

26. Parasitic Disease (External)

- This includes:
 - Poultry mites
 - Poultry lice
 - Fowl tick
 - Chiggers, red bugs, or harvest mites

27. Poultry Mites

- While there are several different types of poultry mites that attack different parts of the chicken, the damage is the same and that is blood sucking
- The sucking only occurs at night and causes the chickens to lose weight
- Sources can come from wild birds, human going from barn to barn, and infected barns since the mites hid in cracks until the evening
- If poultry mites are spotted, the best treatment is the application of permethrin on the birds and housing
- Repeat application every 1-2 months

28. Poultry Lice

- Different types of lice attack different parts of the chicken
- Symptoms include:
 - Loss of appetite
 - Scratching
 - Reduced sleeping, which decreases weight and egg production
- Treatment comes from applying permethrin to the chicken's body and repeating every 1-2 months

29. Fowl Tick

- *Argas persicus* or commonly called "blue tick"
- If there are enough ticks, the chicken will become weak, reduce egg production, and can die
- This is a big problem in the Southern United States
- It is difficult to control
- It is best to observe birds for signs
- If fowl tick is the problem, it is important to treat the barn and yard with insecticide and not the birds

30. Chiggers, Red Bugs, or Harvest Mites

- This includes *Trombicula splendens*, *Trombicula alfreddugesi*, and *Neoschongastia americana*
- Only the larvae of chiggers attack chickens
- While the larvae attach to the wings, breast, and neck
- The damage is not seen until the chicken is processed or dressed
- Once this is discovered, the lesion caused by the parasites can reduce the market value
- Treat with an insecticide

Lesson Three – Chicken Diseases and Parasites

REVIEW: Recap Chicken Diseases and Parasites

10 minutes

Purpose:

Participants will review the diseases and parasites using trivia cards prior to taking a quiz over the topic.

Materials:

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

Facilitation Steps:

1. Divide participants into pairs.
2. Pass out the trivia cards and provide instruction on to how to use them.
4. Give participants five minutes to review.
5. Collect the trivia cards and have participants return to their seats.
6. Pass out the quiz and go over the directions.
7. Give participants five minutes to take the quiz.
8. Collect the quiz.

Name: _____ Class: _____

Chicken Diseases and Parasites Quiz

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

1. Debeaking is one way that a farmer can reduce the chances of their chickens getting sick. True or False
2. There are no chicken diseases or parasites that can be transferred to humans. True or False
3. Snails, slugs, and earthworms are just some of the animals that can give chickens parasites. True or False
4. Avian pox can show up as dry pox, wet pox, and hot pox. True or False
5. Any chicken that gets a disease or parasite must be destroyed. True or False
9. Marek's disease comes from a virus in the herpes group. True or False
10. Gapeworms are called this because the parasite wraps around the chicken's leg. True or False
11. No vaccine exists for any chicken disease and/or parasite. True or False
12. External parasites include poultry mites, poultry lice, fowl tick, and chiggers, red bugs or harvest mites. True or False
13. Cecal worms do not harm chickens. True or False
14. Infectious bursal disease is not highly contagious. True or False
15. The best treatment for Newcastle disease is prevention by vaccinating birds. True or False
16. Removing dead birds, providing fresh water and food, and reducing stress are just a few ways of reducing the chances of developing a disease and/or parasite issue in the flock. True or False
17. Fowl typhoid can live outside the chicken's body for over 6 months. True or False
18. When chickens are sick, they never get runny noses. True or False
19. Chicken fecal matter (poop) can carry diseases and/or parasites. True or False
20. Fowl cholera is a bacterial disease. True or False

Chicken Disease & Parasites Quiz – Answer Key

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

1. Debeaking is one way that a farmer can reduce the chances of their chickens getting sick. **True** or False
2. There are no chicken diseases or parasites that can be transferred to humans. True or **False**
3. Snails, slugs, and earthworms are just some of the animals that can give chickens parasites. **True** or False
4. Avian pox can show up as dry pox, wet pox, and hot pox. True or **False**
5. Any chicken that gets a disease or parasite must be destroyed. True or **False**
9. Marek's disease comes from a virus in the herpes group. **True** or False
10. Gapeworms are called this because the parasite wraps around the chicken's leg. True or **False**
11. No vaccine exists for any chicken disease and/or parasite. True or **False**
12. External parasites include poultry mites, poultry lice, fowl tick, and chiggers, red bugs or harvest mites. **True** or False
13. Cecal worms do not harm chickens. **True** or False
14. Infectious bursal disease is not highly contagious in young birds. True or **False**
15. The best treatment for Newcastle disease is prevention by vaccinating birds. **True** or False
16. Removing dead birds, providing fresh water and food, and reducing stress are just a few ways of reducing the chances of developing a disease and/or parasite issue in the flock. **True** or False
17. Fowl typhoid can live outside the chicken's body for over 6 months. **True** or False
18. When chickens are sick, they never get runny noses. True or **False**
19. Chicken fecal matter (poop) can carry diseases and/or parasites. **True** or False
20. Fowl cholera is a bacterial disease. **True** or False

Lesson Four – Chicken Reproduction

Lesson Overview

Participants will learn about the basic reproduction system of cockerels and pullets or hens and roosters.

Lesson Objectives

After completing this lesson, participants will be able to:

- Define the gestation period of chickens
- Define words associated with reproduction
- Explain how the egg moves through the hen's reproduction system
- Describe the life cycle of a chick

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> (one per participant)	10 minutes
LEARN	• <i>Chicken Reproduction</i> slide presentation • <i>Chicken Reproduction</i> worksheet • <i>Chicken Reproduction</i> – Answer Key	1. Print/photocopy <i>Chicken Reproduction</i> worksheet (one per participant) 2. Prepare <i>Chicken Reproduction</i> slide presentation for viewing	40 minutes
REVIEW	• Chick Life Cycle Exploration Set • <i>Chicken Reproduction Quiz</i> • <i>Chicken Reproduction Quiz</i> – Answer Key	1. Chick Life Cycle Exploration Set Print and photocopy <i>Chicken Reproduction Quiz</i> (one per participant)	10 minutes

Lesson Four – Chicken Reproduction

FOCUS: Intro to Gestation Length

10 minutes

Purpose:

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

Materials:

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

Facilitation Steps:

1. Break participants into pairs.
2. Pass out the worksheet and provide instruction on how to fill it out.
3. After five minutes, have participants break out of their groups.
4. Instruct the participants to trade papers for grading.
5. Go over the answers to the worksheet.
6. Collect the worksheet.

Name: _____ Class: _____

How Long Do I Carry My Baby?

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

Species

Gestation Period

1. Alpaca _____

A. 330-342 days

2. Hamster _____

B. 16-23 days

3. Chicken _____

C. 335-366 days

4. Domestic Dog _____

D. 52 days

5. Domestic Sheep _____

E. 21 days

6. Horse _____

F. 144-151 days

7. Red Fox _____

G. 335-366 days

How Long Do I Carry My Baby?– Answer Key

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

Species

Gestation Period

- | | |
|----------------------------------|-----------------|
| 1. Alpaca C _____ | A. 330-342 days |
| 2. Hamster B _____ | B. 16-23 days |
| 3. Chicken E _____ | C. 335-366 days |
| 4. Domestic Dog G _____ | D. 52 days |
| 5. Domestic Sheep F _____ | E. 21 days |
| 6. Horse A _____ | F. 144-151 days |
| 7. Red Fox D _____ | G. 58-65 days |

Lesson Four – Chicken Reproduction

LEARN: Reproductive System of Cockerels and Pullets or Roosters and Hens

40 minutes

Purpose:

Participants will learn about the components that make up the female and male reproductive systems of chickens.

Materials:

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

Facilitation Steps:

1. Set up the *Chicken Reproduction* slide presentation.
2. Pass out the *Chicken Reproduction* worksheet.
3. Explain how to fill out the worksheet.
4. Present the *Chicken Reproduction* slide presentation.

Slide 1: Title Slide

Slide 2: Are Chickens Mammals?

Slide 3: Chickens Are...

- A good example of what is referred to as an oviparous animal
- This means the females lay eggs, which they sit on until the eggs hatch
- Oviparous is a Latin word that combines ovum or “egg” with parire, which means “to bring forth”
- When talking about chickens, a cockerel is a male chicken less than a year old, while an older male is a rooster
- Pullet is a young female, and a hen is an older female

Slide 4: Why Don't We Get Chicks at the Grocery Store?

Slides 5-10: Chicken Reproduction Facts

- Hens do not get pregnant

- Hens lay eggs that are either fertilized or unfertilized
- If a male or rooster is not around, then all the eggs laid by the hen will be unfertilized
- If a male is around and he has a chance to visit a hen, then her eggs will be fertilized, meaning chicks will be produced
- Fertilization of an egg is not immediate
- It can take 7-10 days for the sperm to travel to the hen's oviduct
- The oviduct is where eggs are produced and where semen is stored
- The female or hen will stay fertile for 3-4 weeks after a hen has mated with a rooster
- How does the hen store the semen?
 - She has pockets in her oviduct where she stores the sperm until certain hormones are present
- This is why a hen can produce fertilized eggs for up to a month
- However, successful egg fertilization starts to decrease after 10 days
- When eggs are laid, they are around 105° F
- To keep the fertilized egg healthy, it must remain between 99.5° and 102° F
- Hens address this need by sometimes plucking their chest feathers so that the eggs touch their skin
- To keep the temperature just right, some producers will place eggs in an incubator
- While the heat will be right, the eggs also need to be turned 4-5 times a day, which the hen does on her own
- Why the egg turning?
 - Turning an egg keeps the embryo from sticking to inside of the shell
- On average, it will take 21 days for the eggs to hatch
- Unlike other bird species, chickens do not feed their chicks

Chicken Kit

- Chicks are born with the ability to feed themselves
- It has been noted that hens can tell fertilized eggs from unfertilized eggs
- In response to an unfertilized egg, a hen will “roll out” the unfertilized egg from the nest so that more heat can be concentrated on fertilized eggs
- Some hens have also been heard “cooing” to their eggs
- Once hatched, if a chick seems to be sickly, a hen can often be found ignoring the needs of this chick
- While hens can manipulate the nest temperature, so can an incubator
- It is believed that this slight manipulation can decide the sex of the chicks

Slides 11-14: The Mating Game

- The male or rooster will walk around the female or hen, stomping his feet while scratching the ground
- He will also open his wings like he is about to fly
- All this show is to tell the hen that he is ready to mate
- The hen will lower her body and flatten out her back
- The rooster will jump on her back and may hold on by biting down on the feathers that cover the top of her head and neck
- At this point, the hen will lift her tail feathers and the rooster will lower himself down so their vents or cloacae touch
- This is how sperm is transferred from a rooster to a hen
- A rooster can repeat this process 10-30 times a day on average, but it also depends on the age of the rooster
- There is no need for multiple matings as the hen will store the sperm for a couple of weeks to up to a month before breeding is needed for more chicks

Slides 15-20: How To Get a Hen Pregnant

- Hens do not get pregnant but use the sperm from the rooster to fertilize her eggs
- This process start when the hen and rooster’s vent or cloacae touch
- This is also called “cloacal kiss”

- Once this kiss occurs, the rooster deposits semen into the hen, which contains the sperm
- Since a rooster has no penis, how does this happen?
 - All birds have a cloaca, which is one opening on the butt of a bird that acts as an entrance and exit
- The purpose of this opening for a hen is to allow urine and feces to leave the body along with eggs
- The hen’s cloaca also collects sperm that is deposited by the rooster during mating
- The cloaca of a rooster allows body waste to pass but also sperm without a penis
- While a rooster does not have a penis, it does contain an organ called a papilla or papillae (plural)
- This organ is in the rooster’s cloaca, which appears as 2 small bumps
- 1 papilla acts as a penis that deposits sperm into the hen
- The mating is signaled by the amount of light the rooster and hen received
- This is supposed to mimic spring
- Roosters have their sexual organs inside the body
- In this case, the body temperature does not kill the sperm
- The testes are located along the rooster’s back near the top of the kidneys
- The testes themselves consist of many convoluted ducts that arise from the internal lining of the testes
- The ducts appear in groups that are separated by a thin membrane
- Each male gonad has its own vas deferens (the tube that stores sperm and carries it to the 2 papillae) located in the cloaca
- Once the “cloacal kiss” occurs, sperm is deposited
- Roosters, like other males, will continue to produce sperm throughout their lifetime
- Hens are just like other females in that their egg production is limited

Slides 21-28: Hen Reproduction

- Unlike other female animals, the hen’s reproduction system is a bit different

Chicken Kit

- Other female animals have 2 functioning ovaries; hens do not
- While they are born with 2 ovaries, when the hen hatches, the right ovary stops developing
- The left ovary continues to mature
- The functioning ovary is located on the back between the neck and tail
- This ovary consists of sacs that contain several tiny ova
- Each ovum is surrounded by its own follicle
- As the hen chick matures, the ova mature a few at a time into yolks
- While the yolk is completely formed in the ovary, it will continue its journey to the outside through the oviduct, which is between 25 and 27 inches long
- Once the yolk is fully developed, it will be released from the follicle where it will enter the infundibulum or start of the oviduct
- If you look at the yolk, you will notice a tiny spot that is whitish in color
- This is called a blastodisc
- The blastodisc holds a single female cell
- If sperm is not present, then the egg is not fertilized
- This is what you find in grocery stores
- If sperm is present and the yolk has traveled to the infundibulum, then fertilization will occur when the sperm penetrates the blastodisc
- A fertilized blastodisc is called a blastoderm
- At this point, the blastoderm is considered a “true egg”
- The “true egg” will start to develop by cell division, creating a chick
- The yolk will continue down the oviduct regardless if it is fertilized because this is where all the other parts of the egg are added
- The infundibulum makes up about 2 inches of the oviduct
- It takes the yolk about 15 minutes to travel the infundibulum
- The next stop for the yolk is the magnum, which makes up about 13 inches of the oviduct
- The yolk spends about 13 hours in the magnum
- It spends so much time there because 40-50% of the thick albumen of the egg is laid there
- The next stop down the oviduct is the isthmus, which is 4 inches long
- The egg will spend 1.25 hours there
- The isthmus is where the chalazae is formed, and the egg shape is determined
- The chalazae makes up an additional 10% of the albumen
- It consists of twisted bands of albumen on opposite sides of the yolk
- The purpose of these bands is to keep the yolk centered
- The uterus is next and consists of 4.2 inches of oviduct
- The egg spends 20.75 hours there
- While in the uterus, the remaining 40% of the albumen is placed, the shell is formed, and the color of the cuticle is decided
- The last stop on this journey through the oviduct is the vagina or cloaca
- The cloaca is 4 inches long
- Regardless if the egg is fertilized or not, it exits the hen’s body at this point
- Overall, the development of an egg takes 24 hours
- Once the egg has been laid, a yolk will start the journey again in 30 minutes

Slide 29: To Eat, or Not To Eat, That Is the Question

Slide 30: Eggs or Chicks?

- If a hen has not been with a rooster or she no longer has sperm stored in her oviduct, then the eggs she will produce will be unfertilized (what we buy at the store)
- On the other hand, if a hen has been with a rooster or she has sperm still in her oviduct, then fertilization will occur
- This means a chick will form

Chicken Reproduction

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

1. Chickens Are...

- A good example of what is referred to as an _____
- This means is the _____, which they sit on until the eggs hatch
- _____ is a _____ word that _____ or "_____" with _____, which means "_____."
- When talking about chickens, a _____ is a _____ chicken _____ than a _____, while an _____ is a _____
- _____ is a _____, and a _____ is an _____

2. _____ Reproduction _____

- _____ do _____ get _____
- Hens lay _____ that _____ either _____
- If a male or _____ is _____ then all the _____ laid by the hen will be _____
- If a _____ is _____ and he has a chance to _____ a hen, then her _____ will be _____, meaning _____ will be produced
- _____ of an egg is _____
- It can _____ - _____ for the _____ to _____ to the hen's _____
- The _____ is _____ are _____ and where _____ is _____
- The female or _____ will stay _____ for _____ - _____ after a hen has _____ with a _____
- _____ does the _____ the _____?
 - She has _____ her _____ by which her body _____ the _____ until certain _____ are _____
- This is _____ a _____ can _____ for up to a _____
- However, successful _____ starts to _____ after _____
- When _____ are _____, they are around _____ ° _____

- To keep the fertilized egg healthy, it _____ between _____.
- _____ address this need by sometimes _____ their _____ so that the _____ their _____
- To keep the _____ just _____, some _____ will _____ in an _____
- While the _____ will be _____, the eggs also need to be _____, which the hen does on her own
- Why the egg turning?
 - _____ an _____ the _____ from _____ the _____ of the _____
- On _____, it will _____ for the _____ to _____
- _____ other _____, _____ do _____ their _____
- Chicks are _____ with the _____ to _____
- It has been noted that _____ can _____ from _____
- In _____ to an _____, a _____ will " _____ " the _____ the _____ so that _____ can be _____ on _____
- Some _____ have also been _____ " _____ " to _____
- Once _____, if a _____ seems to be _____, a hen can often be _____ the _____ of this _____
- While _____ can _____ the _____, so can an incubator
- It is believed that this _____ can _____ the _____ of the _____

3. The _____

- The male or _____ will walk _____ the female or _____, _____ his _____ while _____ the _____
- He will also _____ his _____ like he is about to fly
- All this _____ is to tell the _____ that he is _____ to _____

Chicken Kit

- The _____ will _____ her _____ and _____
_____ her _____
- The _____ will _____ on her _____ and may
_____ on by _____ on the
_____ that cover the _____ of _____ and

- At this point, the _____ will _____ her _____
_____ and the _____ will _____
_____ down so _____ or

- This is how _____ is _____ from a
_____ a _____
- A _____ can _____ this process _____ - _____
_____ a _____ on average, but it also _____ on the
_____ of the _____
- There is _____ need for _____ as the _____
will _____ the _____ for a _____ of
_____ to up to a _____ before _____
is _____ for more _____

4. How To _____ a _____

- _____ do _____ get _____ but _____ the
_____ from the _____ to _____ her

- This _____ when the _____ and rooster's
_____ or _____
- This is also _____ " _____ "
- Once this _____, the rooster
_____ into the hen, which
_____ the _____
- Since a _____ has _____, how does this happen?
○ All _____ a _____, which is
_____ on the _____ of a _____ that
_____ as an _____ and _____
- The _____ of this opening _____ a _____ is to
_____ and _____ to _____ the
_____ along with _____
- The hen's _____ also _____ that is
_____ by the _____ during _____
- The _____ of a _____ allows body _____
_____ but _____
_____ a _____
- While a rooster _____ have a _____, it does
contain an _____ called a _____ or papillae (plural)
- This _____ is in the rooster's _____, which appears as

Chicken Kit

- 1 _____ as a _____ that _____ into the hen
- The _____ is _____ by the _____ the _____ and _____
- This is supposed to _____
- _____ have their _____ the body
- In this case, the _____ does _____ the _____
- The _____ are _____ along the rooster's _____ near the _____ of the _____
- The _____ themselves _____ of many _____ that _____ the _____ lining of _____
- The _____ appear _____ that are _____ a _____
- Each _____ has its _____ (the _____ that _____ and _____ to the _____) located in _____ cloaca
- Once the " _____ " occurs, _____ is deposited
- _____, like _____, will _____ to _____ throughout their _____
- _____ are just like _____ in that their _____ is _____

5. _____ Reproduction

- Unlike other _____, the hen's _____ is a bit _____
- Other _____ animals have 2 _____ ; _____
- While _____ are _____ with _____, when the _____ the _____
- The _____ continues _____
- The _____ is _____ on the _____ the _____ and _____
- This _____ of _____ that _____ several _____
- Each _____ is _____ its _____
- As the _____, the _____ a _____ at a time _____
- While the _____ is _____ the _____, it will continue its _____

- _____ the _____ the _____, which is between _____
- Once the _____ is _____, it will be _____ its _____ where it will _____ the _____ or _____ of the _____
 - If you _____ at the _____, you will notice a _____ that is _____ in _____
 - This is _____ a _____
 - The blastodisc holds a _____
 - If _____ is _____, then the _____ is _____ fertilized
 - _____ is what you _____ in grocery _____
 - If _____ is _____ and the _____ has _____ to the _____, then _____ will _____ when the _____ the _____
 - A _____ is called a _____
 - At this point, the _____ is considered to be a “_____”
 - The “_____” will start to _____ by _____, creating a chick
 - The _____ will continue _____ the _____ regardless if it is _____ because this is _____ all the _____ of the _____ are _____
 - The _____ makes _____ about _____ of the _____
 - It takes the _____ about _____ to _____ the _____
 - The _____ stop for the _____ is the _____, which makes up about 13 inches of the _____
 - The _____ spends _____ in the magnum
 - It _____ so much _____ because _____ - _____% of the _____ of the _____ is _____
 - The _____ stop down the oviduct _____ the _____, which is _____
 - The _____ will spend 1.25 _____
 - The isthmus is where the _____ is _____, and the _____ is _____
 - The _____ makes up an additional _____% of the _____
 - It _____ of twisted _____ of albumen _____ of the _____

Chicken Kit

- The _____ of these _____ is to _____ the _____ centered
- The _____ is _____ and consists of 4.2 _____ of the _____
- The _____ spends 20.75 _____ there
- While in the uterus, the remaining _____% of the _____ is _____, the _____ is _____, and the _____ the _____ is _____
- The _____ on this journey through the oviduct is the _____
- The _____ is _____
- Regardless if the _____ is _____ or _____, it _____ the hen's _____ at this point
- Overall, the _____ of an _____ takes 24 hours
- Once the _____ has been _____, a _____ will _____ the _____ in _____

6. _____ or _____?

- If a _____ has _____ been _____ a _____ she _____ has _____ in her _____, then the _____ she will _____ will be _____ (what _____ at the store)
- On the other hand, if a _____ has _____ a _____ or she has _____ in her _____, then _____ will _____
- This _____ a _____

Chicken Reproduction – Answer Key

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

1. Chickens Are...

- A good example of what is referred to as an **oviparous animal**
- What this means is the **females lay eggs**, which they sit on until the eggs hatch
- **Oviparous** is a **Latin** word that **combines ovium** or “**egg**” with **parire**, which means “**to bring forth**”
- When talking about chickens, a **cockerel** is a **male** chicken **less** than a **year old**, while an **older male** is a **rooster**
- **Pullet** is a **young female** and a **hen** is an **older female**

2. Chicken Reproduction Facts

- **Hens** do **not** get **pregnant**
- Hens lay **eggs** that are either **fertilized or unfertilized**
- If a male or **rooster** is **not around** then all the **eggs** laid by the hen will be **unfertilized**
- If a **male** is **around** and he has a chance to **visit** a hen, then her **eggs** will be **fertilized**, meaning **chicks** will be produced
- **Fertilization** of an egg is **not immediate**
- It can **take 7-10 days** for the **sperm** to **travel** to the hen's **oviduct**
- The **oviduct** is where **eggs** are **produced** and where **semen** is **stored**
- The female or **hen** will stay **fertile** for **3-4 weeks** after a hen has **mated** with a **rooster**
- **How** does the **hen** store the **semen**?
 - She has **pockets in** her **oviduct** by which her body **stores** the **sperm** until certain **hormones** are **present**
- This is **why** a **hen** can **produce fertilized eggs** for up to a **month**
- However, successful **egg fertilization** starts to **decrease** after **10 days**
- When **eggs** are **laid**, they are around **105° F**
- To keep the fertilized egg healthy, it **must remain** between **99.5° and 102° F**
- **Hens** address this need by sometimes **plucking** their **chest feathers** so that the **eggs touch** their **skin**
- To keep the **temperature** just **right**, some **producers** will **place** eggs in an **incubator**
- While the **heat** will be **right**, the eggs also need to be **turned 4-5 times a day**, which the hen does on her own
- Why the egg turning?
 - **Turning** an egg keeps the **embryo** from **sticking to** the **inside** of the **shell**
- On **average**, it will **take 21 days** for the **eggs** to **hatch**
- **Unlike other bird species**, chickens do not feed their **chicks**
- Chicks are **born** with the **ability** to **feed themselves**
- It has been noted that **hens** can **tell** fertilized eggs from **unfertilized eggs**
- In **response** to an **unfertilized egg**, a **hen** will “**roll out**” the **unfertilized egg** from the **nest** so that **more heat** can be **concentrated** on **fertilized eggs**

- Some hens have also been heard “cooing” to their eggs
- Once hatched, if a chick seems to be sickly, a hen can often be found ignoring the needs of this chick
- While hens can manipulate the nest temperature, so can an incubator
- It is believed that this slight manipulation can decide the sex of the chicks

3. The Mating Game

- The male or rooster will walk around the female or hen, stomping his feet while scratching the ground
- He will also open his wings like he is about to fly
- All this show is to tell the hen that he is ready to mate
- The hen will lower her body and flatten out her back
- The rooster will jump on her back and may hold on by biting down on the feathers that cover the top of her head and neck
- At this point, the hen will lift her tail feathers and the rooster will lower himself down so their vents or cloacae touch
- This is how sperm is transferred from a rooster to a hen
- A rooster can repeat this process 10-30 times a day on average, but it also depends on the age of the rooster
- There is no need for multiple matings as the hen will store the sperm for a couple of weeks to up to a month before breeding is needed for more chicks

4. How To Get a Hen Pregnant

- Hens do not get pregnant but use the sperm from the rooster to fertilize her eggs
- This process starts when the hen and rooster’s vent or cloacae touch
- This is also called “cloacal kiss”
- Once this kiss occurs, the rooster deposits semen into the hen, which contains the sperm
- Since a rooster has no penis, how does this happen?
 - All birds have a cloaca, which is one opening on the butt of a bird that acts as an entrance and exit
- The purpose of this opening for a hen is to allow urine and feces to leave the body along with eggs
- The hen’s cloaca also collects sperm that is deposited by the rooster during mating
- The cloaca of a rooster allows body waste to pass but also sperm without a penis
- While a rooster does not have a penis, it does contain an organ called a papilla or papillae (plural)
- This organ is in the rooster’s cloaca, which appears as 2 small bumps
- 1 papilla acts as a penis that deposits sperm into the hen
- The mating is signaled by the amount of light the rooster and hen received
- This is supposed to mimic spring
- Roosters have their sexual organs inside the body
- In this case, the body temperature does not kill the sperm
- The testes are located along the rooster’s back near the top of the kidneys
- The testes themselves consist of many convoluted ducts that arise from the internal lining of the testes
- The ducts appear in groups that are separated by a thin membrane

- Each male gonad has its own vas deferens (the tube that stores sperm and carries it to the 2 papillae) located in the cloaca
- Once the “cloacal kiss” occurs, sperm is deposited
- Roosters, like other males, will continue to produce sperm throughout their lifetime
- Hens are just like other females in that their egg production is limited

5. Hen Reproduction

- Unlike other female animals, the hen’s reproduction system is a bit different
- Other female animals have 2 functioning ovaries; hens do not
- While they are born with 2 ovaries, when the hen hatches, the right ovary stops developing
- The left ovary continues to mature
- The functioning ovary is located on the back between the neck and tail
- This ovary consists of sacs that contain several tiny ova
- Each ovum is surrounded by its own follicle
- As the hen chick matures, the ova matures a few at a time into yolks
- While the yolk is completely formed in the ovary, it will continue its journey to the outside through the oviduct, which is between 25 and 27 inches long
- Once the yolk is fully developed, it will be released from its follicle where it will enter the infundibulum or start of the oviduct
- If you look at the yolk, you will notice a tiny spot that is whitish in color
- This is called a blastodisc
- The blastodisc holds a single female cell
- If sperm is not present, then the egg is not fertilized
- This is what you find in grocery stores
- If sperm is present and the yolk has traveled to the infundibulum, then fertilization will occur when the sperm penetrates the blastodisc
- A fertilized blastodisc is called a blastoderm
- At this point, the blastoderm is considered to be a “true egg”
- The “true egg” will start to develop by cell division, creating a chick
- The yolk will continue down the oviduct regardless if it is fertilized because this is where all the other parts of the egg are added
- The infundibulum makes up about 2 inches of the oviduct
- It takes the yolk about 15 minutes to travel the infundibulum
- The next stop for the yolk is the magnum, which makes up about 13 inches of the oviduct
- The yolk spends 13 hours in the magnum
- It spends so much time there because 40-50% of the thick albumen of the egg is laid there
- The next stop down the oviduct is the isthmus, which is 4 inches long
- The egg will spend 1.25 hours here
- The isthmus is where the chalazae is formed, and the egg shape is determined
- The chalazae makes up an additional 10% of the albumen
- It consists of twisted bands of albumen on opposite sides of the yolk
- The purpose of these bands is to keep the yolk centered
- The uterus is next and consists of 4.2 inches of the oviduct
- The egg spends 20.75 hours there

Chicken Kit

- While in the uterus, the remaining 40% of the albumen is placed, the shell is formed, and the color of the cuticle is decided
- The last stop on this journey through the oviduct is the vagina or cloaca
- The cloaca is 4 inches long
- Regardless if the egg is fertilized or not, it exits the hen's body at this point
- Overall, the development of an egg takes 24 hours
- Once the egg has been laid, a yolk will start the journey again in 30 minutes

6. Eggs or Chicks?

- If a hen has not been with a rooster or she no longer has sperm stored in her oviduct, then the eggs she will produce will be unfertilized (what we buy at the store)
- On the other hand, if a hen has been with a rooster or she has sperm still in her oviduct, then fertilization will occur
- This means a chick will form

Lesson Four – Chicken Reproduction

REVIEW: Chicken Reproduction Recap

10 minutes

Purpose:

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

Materials:

- Chick Life Cycle Exploratrion Set
- *Chicken Reproduction Quiz*
- *Chicken Reproduction Quiz* – Answer Key

Facilitation Steps:

1. Have participants review using the Chick Life Cycle Exploratin Set.
2. After five minutes, put away the exploration set and instruct participants to return to their seats.
3. Pass out the *Chicken Reproduction Quiz*.
4. Give directions on how to fill out the quiz.
5. After five minutes, collect the quizzes.

Name: _____ Class: _____

Chicken Reproduction Quiz

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

1. A rooster is needed for egg production. True or False
2. A rooster has a penis. True or False
3. A pullet is a young male chicken. True or False
4. A cockerel is a young female chicken. True or False
5. Hens can become pregnant. True or False
6. The creation of an egg takes 36 hours. True or False
7. Hens store sperm in the oviduct. True or False
8. The more sunlight that a hen and rooster are exposed to, the more likely it is they will mate. True or False
9. Both the hen and rooster have two opening under their tail feathers. True or False
10. Blastodisc is considered to be a “true egg.” True or False
11. The start of the oviduct is the infundibulum. True or False
12. The yolk is formed in the vagina. True or False
13. Hens have two ovaries. True or False
14. Chickens are mammals. True or False
15. A rooster’s supply of sperm is limited. True or False
16. You know that mating has occurred when the “cloacal kiss” happens. True or False
17. A rooster’s testicals can be found outside their body. True or False
18. To keep a hen producing eggs, she must be mated at least once a week. True or False
19. When chickens are born, they are equipped to feed themselves. True or False
20. The temperature the eggs are kept at can determine the sex of the chicks. True or False

Chicken Reproduction Quiz – Answer Key

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

1. A rooster is needed for egg production. True or **False**
2. A rooster has a penis. True or **False**
3. A pullet is a young male chicken. True or **False**
4. A cockerel is a young female chicken. True or **False**
5. Hens can become pregnant. True or **False**
6. The creation of an egg takes 36 hours. True or **False**
7. Hens store sperm in the oviduct. **True** or False
8. The more sunlight that a hen and rooster are exposed to, the more likely it is they will mate. **True** or False
9. Both the hen and rooster have two opening under their tail feathers. True or **False**
10. Blastodisc is considered to be a “true egg.” True or **False**
11. The start of the oviduct is the infundibulum. **True** or False
12. The yolk is formed in the vagina. True or **False**
13. Hens have two ovaries. True or **False**
14. Chickens are mammals. True or **False**
15. A rooster’s supply of sperm is limited. True or **False**
16. You know that mating has occurred when the “cloacal kiss” happens. **True** or False
17. A rooster’s testicals can be found outside their body. True or **False**
18. To keep a hen producing eggs, she must be mated at least once a week. True or **False**
19. When chickens are hatched, they are equipped to feed themselves. **True** or False
20. The temperature the eggs are kept at can determine the sex of the chicks. **True** or False

Lesson Five – Chicken Body Systems

Lesson Overview

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

Lesson Objectives

After completing this lesson, participants will be able to:

- Explain the purpose of the skeletal system
- List the two different types of bones in chickens
- Explain how a chicken's digestive system works
- Explain the circulatory system of a chicken
- Describe the urinary system of a chicken

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>Chicken Body System</i> worksheet • <i>Chicken Body System</i> – Answer Key • <i>Chicken Body System</i> slide presentation	1. Print/photocopy <i>Chicken Body System</i> worksheet (one per participant) 2. Prepare <i>Chicken Body System</i> slide presentation for viewing	30 minutes
REVIEW	• Chicken Animal Whiteboards • <i>Chicken Body System Quiz</i> • <i>Chicken Body System Quiz</i> – Answer Key	1. Print/photocopy <i>Chicken Body System Quiz</i> (one per participant) 2. Prepare Chicken Animal Whiteboards	20 minutes

Lesson Five – Chicken Body Systems

FOCUS: Intro to Chicken Body Systems

10 minutes

Purpose:

Participants will be introduced to the chicken's body system by reviewing the number of bones different animals have in their skeletal system.

Materials:

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

Facilitation Steps:

1. Instruct participants to break into pairs.
2. Pass out the worksheet and provide direction on how to fill it out.
3. Give participants five minutes to fill out the handout.
4. Instruct participants to return to their seats.
5. Have participants exchange papers.
6. Go over the answers as participants grade the worksheet.
7. Collect the worksheet.

Name: _____ Class: _____

How many bones do I have?

Directions: Match the number of bones on the right with the correct animal on the left.

Species	Number of bones
1. Ox _____	A. 206
2. Beaver _____	B. 120
3. Elephant _____	C. 229
4. Human _____	D. 302
5. Horse _____	E. 208
6. Chicken _____	F. 282
7. Rabbit _____	G. 200

How many bones do I have? – Answer Key

Directions: Match the number of bones on the right with the correct animal on the left.

Species	Number of bones
1. Ox <u>E</u>	A. 206
2. Beaver <u>D</u>	B. 120
3. Elephant <u>F</u>	C. 229
4. Human <u>A</u>	D. 302
5. Horse <u>G</u>	E. 208
6. Chicken <u>B</u>	F. 282
7. Rabbit <u>C</u>	G. 200

Lesson Five – Chicken Body Systems

LEARN: Body Systems of Chickens

30 minutes

Purpose:

Participants will learn about the body systems of chickens.

Materials:

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

Facilitation Steps:

1. Set up the slide presentation.
2. Pass out the worksheet and provide directions on how to fill it out.
3. Present the slides while participants fill out the worksheet.

Slide 1: Title Slide

Slide 2: What Is Underneath All Those Feathers?

Slide 3: Body Systems

- Skeletal
- Digestive
- Circulatory
- Urinary

Slide 4: Skeletal System

- Consists of bones, cartilage, and ligaments
- The frame that all other body systems are built upon
- A chicken has 120 bones

Slides 5-8: Chicken Skeleton

- Chickens have 2 types of bones:
 - Pneumatic
 - Medullary
- Bird bones are lighter in weight
- Some of the bones are hollow and part of the chicken's respiratory system
- These types of bones are called pneumatic bones
- Medullary bones are an important source of calcium, which is very important for hens
- Without this type of bone, the hens' eggs would have soft shells

- Examples of medullary chicken bones:

- Tibia
- Femur
- Pubic bone
- Ribs
- Ulna
- Toe bones
- Scapula

- Other differences in a chicken's skeleton include sections of the backbone, sternum, and pygostyle
- Some of the backbone sections in a chicken are fused together to create rigidity, which is required for flight
- The sternum has a large enough surface area to accommodate the attachment of the main flight muscles
- The pygostyle is a section of fused bone that creates the tail
- While a chicken skeleton may look different compared to mammals, there are some similarities if you know where to look

Slide 9: Mammal and Bird Skeleton Similarities

- The joint between the scapula and humerus is called the shoulder
- The joint between the humerus and radius/ulna is referred to as the elbow
- The joint formed at the top of the femur is called the hip
- The joint created between the femur and the fibula/tibia is the knee

Slides 10-17: Digestive System

- Chicken digestive system parts:
 - Mouth (beak)
 - Esophagus
 - Crop
 - Proventriculus
 - Ventriculus
 - Small intestine
 - Ceca
 - Large intestine
 - Cloaca

Chicken Kit

- The digestive system starts as the chicken picks up feed with its beak
- From here, the feed enters the mouth where it is processed but it is not chewed because chickens do not have teeth
- The chicken's mouth contains 2 chemicals that aid in food processing
 - Saliva wets the food and makes it easier to move
 - Enzymes start the breakdown process
- The chicken moves the food toward the back of the mouth with its tongue
- When the food leaves the mouth, it continues down the digestive tract through the esophagus
- From the esophagus, the food goes to the crop
- The crop is a little pocket off the esophagus where food and water are stored until they can move on through the digestive tract by way of the esophagus
- The esophagus connects to the proventriculus
- The proventriculus is also known as the "true stomach" where digestion primarily begins
- Enzymes are produced, such as hydrochloric acid to breakdown food chemically
- From the proventriculus, the food travels to the ventriculus (also called the mechanical stomach or gizzard)
- Called the mechanical stomach because this is where the food is ground up with grit or little stones that are stored in the gizzard until they are ground small enough to pass on through the digestive tract
- From the gizzard, the food travels to the small intestine
- Some additional breakdown of food occurs in the upper part of the small intestine
- Nutrients are released and absorbed in the lower part of the small intestine
- As the food leaves the small intestine, it comes past 2 small pockets called ceca
- These pockets take in leftover water and coarse material
- The coarse material is fermented and produces several fatty acids and 8 B vitamins, which normally are not absorbed by the body
- Once the processed food leaves the small intestine, it enters the large intestine

- The large intestine's role is to absorb any remaining water
- The cloaca is the last stop in the digestive system
- Waste from the digestive tract and urinary system combine and leave the body as solid waste
- Chickens do not urinate
- This is the same area where the reproductive tract exists
- To prevent eggs from being covered in waste when laid, the vagina folds over to let the egg travel through the cloaca opening
- The folding prevents exposure to fecal matter and/or urine

Slides 18-19: Digestive System and Chicks

- When chicks are hatched, they have a sterile intestinal tract
- This means they have no microflora in their small and large intestine
- If a hen hatches the chick, the chick will acquire microflora by pecking at the ground and eating small amounts of fecal matter from its mother
- Chicks hatched in artificial incubation will have microflora added to their feed

Slides 20-21: Circulatory System

- The purpose of the circulatory system is to carry oxygen from the lungs and nutrients that have passed through the intestinal wall throughout the body
- The venous part of the circulatory system then takes deoxygenated blood back to the heart as well as waste products from the metabolism back to the kidneys for removal
- The heart of the chicken is made up of 4 chambers:
 - 2 atria
 - 2 ventricles
- The heart beats on average 300 times per minute
- Blood and lymph make up the other parts of the circulatory system
- In general, blood makes up 12% of a newly hatched chick's weight
- Blood in adult birds make up 6-8% of the weight

Slides 22-23: Urinary System

- The urinary system is a unique process that combines urine and fecal matter, meaning it comes out of the same opening
- The urinary system begins with the kidneys that are located behind the lungs
- The 2 kidneys are connected with 1 ureter
- The ureter carries the urine to the cloaca
- Urine is mostly uric acid, which is a byproduct of protein metabolism
- This uric acid is mixed with fecal matter in the cloaca
- When the waste leaves the chicken's body you will notice that it's white
- It's white because of the uric acid coating the outside of the fecal matter

Chicken Body Systems

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

1. Body _____

- _____
- Digestive
- _____
- Urinary

2. Skeletal System

- Consists of _____, _____, and _____
- The _____ that all _____ body _____ are _____
- A chicken has _____

3. Chicken Skeleton

- _____ have _____ of _____:
 - _____
 - _____
- Bird _____ are _____ in _____
- _____ of the _____ are _____ and _____ of the chicken's _____
- These types of bones are _____
- Medullary bones are an important _____, which is very _____ for _____
- Without this type of bone, the hens' _____ would have _____
- Examples of medullary chicken bones:
 - Tibia
 - _____
 - Pubic bone
 - _____
 - Ulna
 - _____
 - Scapula
- Other _____ in a chicken's _____ include sections of the _____, _____, and _____
- Some of the _____ in a chicken are _____ to create _____, which is _____ for _____

Chicken Kit

- The _____ has a _____ enough _____ to _____ the _____ of the _____ muscles
- The _____ is a section of _____ that _____ the _____
- While a _____ may look different compared to mammals, there are some _____ if you know where to look

4. Mammal and Bird Skeleton Similarities

- The _____ the _____ and _____ is _____ the _____
- The _____ the _____ and _____ / _____ is referred to _____ the _____
- The _____ formed at the _____ of the _____ is called the _____
- The _____ created _____ the _____ and the _____ / _____ is the _____

5. Digestive System

- Chicken digestive system parts:
 - _____ (beak)
 - Esophagus
 - Crop
 - _____
 - Ventriculus
 - _____
 - Ceca
 - _____
 - Cloaca
- The digestive system _____ as the chicken _____ up _____ with its _____
- From here, the feed _____ the _____ where it is processed but it is _____ because chickens _____ have _____
- The chicken's _____ contains _____ that _____ in _____
 - _____ the _____ and makes it easier to move
 - Enzymes _____ the _____ process
- The chicken _____ the _____ toward the _____ of the _____ its _____
- When the food leaves the mouth, it _____ the digestive tract _____ the _____
- From the _____, the food goes _____ the _____
- The _____ is a _____ the _____ where _____ and _____ are _____ until they can move on _____ the digestive tract _____ of the _____
- The _____ to the _____

Chicken Kit

- The _____ is also _____ as the “_____” where _____ primarily _____
- _____ are produced, such as _____ to _____ food _____
- From the _____ the food _____ the _____ (also _____ the _____ or _____)
- Called the mechanical stomach because this is where the _____ is _____ with _____ or little stones that are _____ in the _____ until they are _____ enough to _____ on _____ the _____
- From the _____, the _____ travels to the _____
- Some _____ of food occurs in the _____ of the _____
- _____ are _____ and _____ in the _____ of the _____
- As the _____ the _____, it goes _____ called _____
- These _____ take _____ and _____
- The _____ is _____ and _____ several _____ and _____, which normally _____ absorbed by the body
- Once the processed food _____ the _____, it _____ the _____
- The large intestine’s _____ is to _____ any remaining _____
- The _____ is the _____ in the digestive system
- _____ from the _____ and _____ and _____ the body as _____
- Chickens _____
- This is the _____ where the _____
- To _____ from being _____ in _____ when laid, the _____ over to _____ the _____ travel through the _____
- This folding prevents _____ to _____ and/or _____

6. Digestive System and Chicks

- When chicks _____, they _____ a sterile intestinal _____
- _____ means _____ have no _____ in _____ small and large _____
- _____ a hen hatches _____, the _____ acquire microflora _____ at the _____

- _____ and eating small _____ of fecal matter _____
mother
- Chicks hatched _____ will have microflora
_____ to their feed

7. Circulatory System

- The _____ of the _____ is to
_____ from the _____ and _____
that have _____ through the _____
throughout the body
- The _____ of the circulatory system then _____
_____ to the
_____ as well as _____ from the metabolism
_____ to the _____ for _____
- The _____ of the chicken is made up of _____:
 - _____
 - _____
- The _____ on average _____ per

- _____ and _____ make up the _____ of the

- In general, _____ makes up ____% of a _____
chick's _____
- _____ in _____ makes up __ - ____% of the

8. Urinary System

- The _____ is a _____ process that
_____ and _____, meaning it
_____ of the _____
- The urinary system _____ with the _____ that are located
_____ the _____
- The _____ are _____ with 1 _____
- The _____ the _____ the

- _____ is mostly _____, which is a _____ of

- This uric acid is _____ with _____ the

- When the _____ leaves the chicken's body, you will notice that it's

- It's _____ because of the uric acid _____
_____ of the _____

Chicken Body Systems – Answer Key

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

1. Body Systems

- Skeletal
- Digestive
- Circulatory
- Urinary

2. Skeletal System

- Consists of bones, cartilage, and ligaments
- The frame that all other body systems are built upon
- A chicken has 120 bones

3. Chicken Skeleton

- Chickens have 2 types of bones:
 - Pneumatic
 - Medullary
- Bird bones are lighter in weight
- Some of the bones are hollow and part of the chicken's respiratory system
- These types of bones are called pneumatic bones
- Medullary bones are an important source of calcium, which is very important for hens
- Without this type of bone, the hens' eggs would have soft shells
- Examples of medullary chicken bones:
 - Tibia
 - Femur
 - Pubic bone
 - Ribs
 - Ulna
 - Toe bones
 - Scapula
- Other differences in a chicken's skeleton include sections of the backbone, sternum, and pygostyle
- Some of the backbone sections in a chicken are fused together to create rigidity, which is required for flight
- The sternum has a large enough surface area to accommodate the attachment of the main flight muscles
- The pygostyle is a section of fused bone that creates the tail

- While a chicken skeleton may look different compared to mammals, there are some similarities if you know where to look

4. Mammal and Bird Skeleton Similarities

- The joint between the scapula and humerus is called the shoulder
- The joint between the humerus and radius/ulna is referred to as the elbow
- The joint formed at the top of the femur is called the hip
- The joint created between the humerus and the fibula/tibia is the knee

5. Digestive System

- Chicken digestive system parts:
 - Mouth (beak)
 - Esophagus
 - Crop
 - Proventriculus
 - Ventriculus
 - Small intestine
 - Ceca
 - Large intestine
 - Cloaca
- The digestive system starts as the chicken picks up feed with its beak
- From here, the feed enters the mouth where it is processed but it is not chewed because chickens do not have teeth
- The chicken's mouth contains 2 chemicals that aid in food processing
 - Saliva wets the food and makes it easier to move
 - Enzymes start the breakdown process
- The chicken moves the food toward the back of the mouth with its tongue
- When the food leaves the mouth, it continues down the digestive tract through the esophagus
- From the esophagus, the food goes to the crop
- The crop is a little pocket off the esophagus where food and water are stored until they can move on through the digestive tract by way of the esophagus
- The esophagus connects to the proventriculus
- The proventriculus is also known as the "true stomach" where digestion primarily begins
- Enzymes are produced, such as hydrochloric acid to break down food chemically
- From the proventriculus, the food travels to the ventriculus (also called the mechanical stomach or gizzard)
- Called the mechanical stomach because this is where the food is ground up with grit or little stones that are stored in the gizzard until they are ground small enough to pass on through the digestive tract
- From the gizzard, the food travels to the small intestine
- Some additional breakdown of food occurs in the upper part of the small intestine
- Nutrients are released and absorbed in the lower part of the small intestine
- As the food leaves the small, it goes past 2 small pockets called ceca
- These pockets take in leftover water and coarse material
- The coarse material is fermented and produces several fatty acids and 8 B vitamins, which normally are not absorbed by the body

- Once the processed food leaves the small intestine, it enters the large intestine
- The large intestine's role is to absorb any remaining water
- The cloaca is the last stop in the digestive system
- Waste from the digestive tract and urinary system combine and leave the body as solid waste
- Chickens do not urinate
- This is the same area where the reproductive tract exists
- To prevent eggs from being covered in waste when laid, the vagina folds over to let the egg travel through the cloaca opening
- This folding prevents exposure to fecal matter and/or urine

6. Digestive System and Chicks

- When chicks are hatched, they have a sterile intestinal tract
- This means they have no microflora in their small and large intestine
- If a hen hatches the chick, the chick will acquire microflora by pecking at the ground and eating small amounts of fecal matter from its mother
- Chicks hatched in artificial incubation will have microflora added to their feed

7. Circulatory System

- The purpose of the circulatory system is to carry oxygen from the lungs and nutrients that have passed through the intestinal wall throughout the body
- The venous part of the circulatory system then takes deoxygenated blood back to the heart as well as waste products from the metabolism back to the kidneys for removal
- The heart of the chicken is made up of 4 chambers:
 - 2 atria
 - 2 ventricles
- The heart beats on average 300 times per minute
- Blood and lymph make up the other parts of the circulatory system
- In general, blood makes up 12% of a newly hatched chick's weight
- Blood in adult birds makes up 6-8% of the weight

8. Urinary System

- The urinary system is a unique process that combines urine and fecal matter, meaning it comes out of the same opening
- The urinary system begins with the kidneys that are located behind the lungs
- The 2 kidneys are connected with 1 ureter
- The ureter carries the urine to the cloaca
- Urine is mostly uric acid, which is a byproduct of protein metabolism
- This uric acid is mixed with fecal matter in the cloaca
- When the waste leaves the chicken's body, you will notice that it's white
- It's white because of the uric acid coating the outside of the fecal matter

Lesson Five – Chicken Body Systems

REVIEW: Recap of Chicken Body Systems

20 minutes

Purpose:

Participants will review the body systems of chickens using whiteboards in preparation for a quiz.

Materials:

- Chicken Whiteboards
- *Chicken Body Systems Quiz*
- *Chicken Body Systems Quiz – Answer Key*

Facilitation Steps:

1. Break participants into groups.
2. Pass out the whiteboards.
3. Provide instruction on how to use the whiteboards to review the body systems.
4. Give the participants 10 minutes to review.
5. Collect the whiteboards.
6. Have participants return to their seats.
7. Pass out the quiz and provide directions on how to fill it out.
8. After five minutes, inform the participants that testing time is completed.
9. Collect the quiz.

Name: _____ Class: _____

Chicken Body Systems Quiz

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

1. Chickens have three different types of bones. True or False
2. Chickens do not urinate. True or False
3. Chickens have a five-chambered heart. True or False
4. Chicks must eat chicken poop to get microflora in their digestive tract. True or False
5. Chicken waste is white due to uric acid coating the outside of the fecal matter. True or False
6. The vagina folds over during egg laying to prevent fecal matter from contaminating the egg. True or False
7. The ventriculus is known as the “true stomach.” True or False
8. Pygostyle is a section of fused bone that makes up the neck of the chicken. True or False
9. Medullary bone is a good source of vitamin D. True or False
10. Bones of a chicken are heavier in weight compared to mammals. True or False
11. Chickens have 50 bones. True or False
12. The crop is a little pocket off the esophagus. True or False
13. A chicken’s crop stores food and water until it can move through the digestive tract. True or False
14. Ceca are two pockets that are between the small and large intestine. True or False
15. The gizzard is where the grit is stored. True or False
16. Chickens have teeth. True or False

Name: _____

Class: _____

Chicken Body Systems Quiz – Answer Key

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

1. Chickens have three different types of bones. True or **False**
2. Chickens do not urinate. **True** or False
3. Chickens have a five-chambered heart. True or **False**
4. Chicks must eat chicken poop to get microflora in their digestive tract. **True** or False
5. Chicken waste is white due to uric acid coating the outside of the fecal matter. **True** or False
6. The vagina folds over during egg laying to prevent fecal matter from contaminating the egg. **True** or False
7. The ventriculus is known as the “true stomach.” True or **False**
8. Pygostyle is a section of fused bone that makes up the neck of the chicken. True or **False**
9. Medullary bone is a good source of vitamin D. True or **False**
10. Bones of a chicken are heavier in weight compared to mammals. True or **False**
11. Chickens have 50 bones. True or **False**
12. The crop is a little pocket off the esophagus. **True** or False
13. A chicken’s crop stores food and water until it can move through the digestive tract. **True** or False
14. Ceca are two pockets that are between the small and large intestine. **True** or False
15. The gizzard is where the grit is stored. **True** or False
16. Chickens have teeth. True or **False**

Lesson Six – Selection and Judging of Chickens

Lesson Overview

Participants will learn the importance of proper selection of chickens and the basic principles and terminology used in chicken judging.

Lesson Objectives

After completing this lesson, participants will be able to:

- List and describe the four different types of chicken judging
- Explain how pullets and hens are judged differently
- Explain how yellow pigment can indicate an hen's laying ability
- List characteristics considered during rooster judging
- List characteristics used to grade ready-to-cook chicken
- Describe the candling process
- Describe the three ways eggs are judged

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> (one per participant)	10 minutes
LEARN	• <i>Chicken Selection and Judging</i> slide presentation • <i>What To Look For in Chickens</i> worksheet • <i>What To Look For in Chickens – Answer Key</i>	1. Print/photocopy <i>What To Look For in Chickens</i> (one per participant) 2. Prepare <i>Chicken Selection and Judging</i> slide presentation for viewing	40 minutes
REVIEW	• <i>Chicken Selection and Judging</i> Poster • <i>Selection and Judging Quiz</i> • <i>Selection and Judging Quiz – Answer Key</i>	1. <i>Chicken Selection and Judging</i> Poster 2. Print/photocopy <i>Selection and Judging Quiz</i> (one per participant)	10 minutes

Lesson Six – Selection and Judging of Chickens

FOCUS: Intro to Selection And Judging of Chickens

10 minutes

Purpose:

Participants will be introduced to the selection and judging process by breaking into groups to unscramble judging terms.

Materials:

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

Facilitation Steps:

1. Instruct participants to break into pairs.
2. Distribute the worksheet and provide directions.
3. Give participants five minutes to unscramble the words.
4. Instruct participants to return to their seats and exchange papers.
5. Go over the correct answers with the class.
6. Collect the worksheet.

Name: _____ Class: _____

Intro to Judging Terms

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

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

roloc fo lumpage
phase
roloc fo sebolrae
ypet fo bocm
feadeerthing
roloc fo skanhs nad kins

Intro to Judging Terms – Answer Key

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

- | | |
|-----------------------------|---------------------------|
| 1. color of plumage | roloc fo lumpage |
| 2. shape | phase |
| 3. color of earlobes | roloc fo sebolrae |
| 4. type of comb | ypet fo bocm |
| 5. defeathering | feadeerthing |
| 6. color of shanks and skin | roloc fo skanhns nad kins |

Lesson Six – Selection and Judging of Chickens

LEARN: How to Judge Chickens

40 minutes

Purpose:

Participants will learn the basics on how to judge chickens and their eggs.

Materials:

- *Chicken Selection and Judging* slide presentation
- *What To Look For in Chickens* worksheet
- *What To Look For in Chickens – Answer Key*

Facilitation Steps:

1. Set up the slide presentation.
2. Pass out the worksheet and provide instruction on how to fill it out.
3. Present the slides as students fill out the worksheet.

Slide 1: Title Slide

Slide 2: Types of Judging

- Purebred or heritage breed
- Production judging
- Ready-to-cook carcass judging
- Market egg judging

Slides 3-5: Judging Purebred or Heritage Breed

- Same as a dog show where animals are judged by certain characteristics for that breed (exhibition)
- In chickens, the standard is based on the American Poultry Association's Standard of Perfection
- While males and females are judged separate as far as their breed's standards, they both follow the same standards
- Standards:
 - Body weight, shape, and type
 - Color of plumage, shanks, skin, and earlobes
 - Shape and type of comb
- This type of judging is conducted by a person that is an expert in that breed, not a student
- The role of the student in this type of judging is to select the best animal to show

Slide 6: Production Judging

Slide 7: Production Judging Breeds

- Both male and female
- Breed examples:
 - White Leghorn
 - Rhode Island Red
 - White Plymouth Rock
 - Barred Plymouth Rock
 - Females that are red or black sex-linked

Slides 8-16: Pullet/Hen Production Judging

- Female chickens are judged according to their past and present production
- A pullet is judged based on characteristics that can indicate whether she will be a good producer or not
- One important characteristic beyond health is the amount of yellow pigment or xanthophyll that is put into the skin, beak, shanks, and feet while the pullet is growing
- A pullet with a lot of yellow color in these areas will be an excellent layer
- While a pullet is judged by her projected ability to be a good layer, a hen is judged by her past and present egg laying
- Past production is judged by several factors, which include persistency, intensity, and health and vigor
- Persistency is defined as the longest period of production
- This can be tested by looking at the yellow pigment left in the hen along with molting, which is loss of feathers
- The pigment is removed and placed in the yolk
- The pigment is removed from the hen's body in a certain order that can tell one how much more time she has for production
- The order is:
 - Vent
 - Eye ring
 - Earlobe

Chicken Kit

- Beak (base to tip)
 - Shanks
 - Top of feet and toes
- The closer to the feet the loss of pigment gets, the reduced amount of laying time or production the hen has
- Keep in mind that this loss of pigment does not mean she will never lay again, it just means she is not as productive as other hens due to the part of the egg laying cycle she is in
- The loss of yellow pigment or bleaching can tell you at what point the hen is at in production
- Following this order of bleaching can also tell you the total eggs the hen has laid so far
- When the vent is bleached, there are 10 eggs produced in the cycle
- When the eye ring is bleached, there are 8-12 eggs produced in the cycle
- When the earlobe is bleached, there are 10-15 eggs produced in the cycle
- Beak base is bleached, 25 eggs produced in the cycle
- Beak tip is bleached, 35 eggs produced in the cycle
- Shanks are bleached, 100-160 eggs produced in the cycle
- Top of feet are toes, 180 eggs produced in the cycle
- Intensity is the next characteristic that needs to be examined
- This is defined as a measure of the current rate of production
- Things to look at include handling qualities and abdominal capacity
- Health and vigor is the last characteristic
- This is a measure of how close to the end of production this hen is at and includes looking at the:
 - Shape and brightness of the eye
 - Proportional shape of the head
 - Condition of the comb and wattles
- A hen that is close to her laying cycle will have a comb and wattles that are:
 - Small
 - Pale
 - Shriveled
- A hen early in her production will have her comb and wattles:

- Large
 - Red
 - Soft
 - Waxy
- A hen who is close to ending her egg laying cycle will have an abdomen that is hard, while a hen who is just laying well will have a soft stomach
- The vent of a poor layer will be pigmented, puckered, and dry
- On the other hand, a good layer will have a moist vent that is not pigmented

Slides 17-18: Male Production Judging

- Judging is strictly limited to physical condition, alertness, and activity

Slides 19-21: Ready-to-Cook Carcass Judging

- This type of judging consists of looking at negative consequences of processing
- This includes exposed flesh, broken or disjointed bones, and missing body parts
- There are 3 weights for judging:
 - 2–6-pound broilers
 - 6–16-pound heavy broilers
 - Turkeys over 16 pounds
- Each class has its own standards, but we are only going to cover broilers 2-6 pounds

Slide 21: Ready-to-Cook Carcass Judging: Exposed Flesh

- Look for exposed flesh and where it is located
- Exposed flesh does not necessarily mean that this carcass cannot be a Grade A
- However, if it is located on the breast or leg, then very little or none can be exposed

Slide 22: Grade A Carcass Requirements

- Weight: 2-6 pounds
- Any exposed flesh cannot be any larger than 1/4 inch on the breast or leg
- Anywhere else the exposed flesh can be up to 1 1/2 inches

Slide 23: Grade B Carcass Requirements

- Weight: 2-6 pounds
- Exposed flesh cannot cover more than 1/3 of the part it is on, such as 1/3 of the back
- The exposed flesh cannot be any deeper than 1/8 inch

Slide 24: Grade C Carcass Requirements

- Weight: 2-6 pounds
- No limit on exposed flesh

Slide 25: Processing Cuts Requirements

- Processing cuts are cuts made at the neck and vent to remove internal organs
- Grade A allows 1-inch cuts in the areas of:
 - Neck
 - Breast
 - Vent
 - Thigh
- Anything larger than 1 inch is considered Grade B

Slides 26-28: Disjointed or Broken Bones Requirements

- A broken bone can be sticking out of the skin or not
- Grade A is a carcass that has 1 disjointed bone and no broken bones
- Grade B can have several acceptable situations
 1. Can be 2 disjointed bones and no broken bones
 2. Can have 1 disjointed bone and 1 bone that has not broken the skin
 3. Has no disjointed bones and 1 broken bone that has not gone through the skin
- Grade C is automatically given if a broken bone has gone through the skin
- There is no limit on the number of disjointed bones or broken bones

Slide 29: Missing Parts Judging Requirements

- Grade A consists of missing wing tip(s) and tail is at base
- Grade B consists of missing wing to second joint and tail is missing up to or less than halfway to the hip joint
- Grade C consists of missing wings and tail missing more than halfway up to the hip joint

Slides 30-31: Market Egg Judging

- Market egg judging is broken down into exterior, internal and broken-outs

Slides 32-34: Exterior Market Egg Judging

- Eggs cannot be touched

- Many factors of the exterior part of the egg are considered:
 - Cleanliness
 - Shape
 - Shell texture
 - Ridges
 - Body checks (cracks in eggs when the egg was being formed)
 - Shell thickness
- Grade AA or A eggs are clean with these qualities:
 - May have a few stains
 - Normal egg shape
 - May have a few rough spots
 - Slight ridges
 - Free of thin spots
 - No body checks
- Grade B consists of clean eggs but with stains that cannot be any larger than 1/32 of the shell or scattered stains that make up less than 1/16 of the shell
- The shape of the egg is unusual and has an extremely rough surface with pronounced ridges, and evident thin spots
- An egg will be rejected if it is dirty or covered in foreign matter
- It will also be rejected if stains cover more than 1/32 of the egg or accumulation of stains makes up more than 1/16 of the egg

Slides 35-38: Internal Market Egg Judging

- Internal judging consists of ranking an egg Grade AA and A, B, or rejected (also known as inedible)
- This type of judging is done with the egg still in the shell
- The internal structures are viewed through a process called candling
- Candling is done in the dark with a candler light turned on
- Hold the egg with your first 2 fingers and thumb
- Place the large end of the egg into the opening of the candler light
- At this point, hold the egg at a slight angle and turn it to the left and then right
- This will cause the inside of the egg to whirl around
- Turn the egg around so that the small end is in the candler light and repeat

Chicken Kit

- You are looking for blood or meat spots that can appear anywhere in the egg
- If seen, this egg is rejected
- If the egg passes the blood spots test, then return the large end of the egg to the candler light
- You are looking for the air cell
- Grade AA eggs will have an air cell that is less than 1/8 inch deep (the size of a dime)
- Grade A eggs will have a space that is greater than 1/8 inch but less than 1/16 inch (the size of a nickel)
- Anything larger than 3/16 inch (the size of a quarter) is classified as a Grade B

Slides 39-41: Broken-Out Egg Judging

- This is a separate type of judging in the internal category
- It consists of a group of eggs being broken onto a plate
- An egg will be rejected if it has a blood or meat spot greater than an 1/8 inch
- An egg has a blood or meat spot that is less than an 1/8 inch will be classified as Grade B
- The characteristic considered when grading these eggs is the height of the thick albumen (white) compared to the egg's size
- It is important to look down at the egg to get an idea of how much area the albumen covers and the side for the height of the albumen (the most important aspect in this type of judging)

Slide 42: Grade AA Broken-Out Egg Characteristics

- For an egg to be a Grade AA it must have a thick and firm egg white

- The total area covered by the albumen is small and the thick white part of the albumen is bigger compared to the thin white

Slide 43: Grade A Broken-Out Egg Characteristics

- An egg that is Grade A looks like a Grade AA but with a few differences
- The albumen takes up a small area and is still firm
- The thick white part of the albumen does not sit as high as a Grade AA
- The thinner part of the albumen is slightly more spread out compared to Grade AA

Slide 44: Grade B Broken-Out Egg Characteristics

- A Grade B egg has replaced the thick albumen with a flatter and thinner version
- This albumen covers more area compared to the thinner egg white

What To Look For in Chickens

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

1. _____ of Judging

- _____ or _____
- _____ judging
- _____ - _____ - _____ judging
- _____ judging

2. _____ Purebred or _____

- _____ as a _____ where animals are _____ by certain _____ for that _____ (_____)
- In _____, the _____ is _____ on the _____

- While _____ and _____ are _____ as far as their breed's _____, they both follow the _____
- Standards:
 - _____, shape, and type
 - _____, shanks, skin, _____
 - Shape and type of comb
- This type of _____ is conducted _____ a person that is an _____ in that _____, not a student
- The role of the _____ in this type of judging is to _____ the _____ to _____

3. _____ Breeds

- Both _____ and _____
- Breed examples;
 - White Leghorn
 - _____
 - White Plymouth Rock
 - _____
 - Females that are red or black sex-linked

4. _____ / _____ Judging

- _____ are _____ according to their _____ and _____ production
- A _____ is _____ based on _____ that can _____ she will be a _____ or not

Chicken Kit

- One _____ beyond health is the _____ of _____ or _____ that is _____ the _____, beak, _____, and _____ while the pullet is growing
- A pullet with a lot of _____ in these _____ will be an _____
- While a _____ is judged by her _____ to be a _____, a _____ is _____ by her _____ and _____ egg _____
- _____ is judged by _____, which include _____, intensity, and _____ and vigor
- _____ is defined as the _____ of _____
- This can be _____ by looking at the _____ in the hen _____ with _____, which is _____
- The _____ is _____ and _____ the _____
- The _____ is _____ the hen's _____ in a _____ that can _____ how much more time _____ for _____
- The _____ is:
 - _____
 - Eye ring
 - _____
 - Beak (base to tip)
 - _____
 - Top of feet and toes
- The _____ to the _____ the loss of pigment gets, the _____ of _____ or _____ production the hen has
- Keep in mind that this _____ of _____ does not mean she will _____, it just means she is _____ as other hens due to the part of the _____ she is in
- The _____ of yellow _____ or _____ can tell you at _____ the hen is at in _____
- Following this _____ can also tell you the _____ the hen has _____ so far

Chicken Kit

Bleaching of Body Part	Number of Eggs Produced in the Cycle
Vent	_____
_____	8-12 eggs
Earlobe	_____
_____	25 eggs
Beak Tip	_____
_____	100-160 eggs
Top of Feet and Toes	_____

- _____ is the _____ that needs to be examined
- This is _____ as a _____ of the _____ of _____
- Things to _____ include _____ and _____
- Health and _____ is the _____
- This is a _____ of how _____ to the _____ this hen is at and includes _____ at the:
 - _____ and _____ of the _____
 - Proportional _____ of the _____
 - _____ of the _____ and _____
- A _____ that is _____ to her _____ will have a _____ and _____ that are:
 - _____
 - _____
 - _____
- A _____ in her _____ will have her _____ and _____:
 - _____
 - _____
 - _____
 - _____
- A hen who is _____ to _____ her _____ will have an _____ that is _____ while a _____ who is _____ will have a _____

Chicken Kit

- The _____ of a _____ will be _____, _____, and _____
 - On the other hand, a _____ will have a _____ that is _____
5. _____ Judging
- Judging is strictly _____ to _____, _____, and _____
6. _____ Judging
- This type of judging _____ of _____ at _____ of _____
 - This _____, _____ or _____, and _____
 - There are _____ for _____:
 - _____ broiler
 - _____ broiler
 - _____
 - _____ has its _____, but we are only going to _____ pounds
7. _____-to-Cook _____: Exposed Flesh
- Look for _____ it is located
 - Exposed _____ not necessarily _____ a _____
 - However, if it is _____ breast _____, then very little or _____ can be _____
8. _____ Requirements
- Weight: _____ pounds
 - Any _____ be any _____ on the _____ or _____
 - _____ the _____ can be _____ 1 1/2 _____
9. _____ Requirements
- Weight: 2-6 pounds
 - _____ cover more than 1/3 of the _____ on, such as 1/3 of the back
 - The exposed flesh _____ any _____ than 1/8 _____
10. _____ Requirements
- Weight: 2-6 pounds
 - _____ on _____

11. _____ Requirements

- _____ cuts are _____ at the _____
_____ vent to _____ internal _____
- Grade _____ 1- _____ the _____

 - Neck
 - Breast
 - _____
 - _____
- _____ 1 _____
_____ Grade _____

12. _____ Requirements

- A _____ can be _____ of the
_____ or not
- _____ is a carcass that has _____
and _____
- _____ can have _____

 1. Can be _____ and _____
 2. Can have _____ and _____
that has _____
 3. Has _____ and _____
_____ that has _____
_____ the _____
- _____ is _____ if a
_____ has _____ the

- There is _____ on the _____ of _____
_____ or _____

13. _____ Judging Requirements

- _____ consists of _____ tip(s) and _____
- _____ consists of _____
joint and _____ or _____
_____ to the _____
- _____ consists of _____ and _____
_____ than _____ to the _____

14. _____ Judging

- Market egg judging is _____ into _____,
_____, and _____ - _____

15. _____ Egg Judging

- Eggs _____ be _____

- Many factors _____ the _____ of the _____ considered:
 - Cleanliness
 - _____
 - Shell _____
 - _____
 - _____ (_____ in _____ when the egg was _____)
 - Shell thickness
- _____ or _____ are _____ with _____
 - May have a _____
 - _____ egg shape
 - May have a few rough spots
 - Slight ridges
 - _____ spots
 - No body checks
- _____ consists _____ eggs but with _____ that _____ be any _____ than 1/32 of the _____ or _____ that make up _____ than 1/16 of the _____
- The _____ of the egg is _____ and has an _____ with _____, and evident thin _____
- An _____ will be _____ if it is _____ or _____ in _____
- It will also be _____ if _____ than 1/32 of the _____ or _____ makes up _____ than 1/16 of the _____

16. _____ Judging

- _____ consists of ranking an egg _____ and A, _____, or rejected (also known as inedible)
- This type of judging is done with the _____ in the _____
- The _____ are _____ a process called _____
- This is done through a process called candling
- _____ is done _____ the _____ with a _____ turned on
- _____ the _____ with your _____ and _____
- _____ the _____ of the _____ the _____ of the _____
- At this point, _____ the _____ at a _____ and _____ it _____ the _____ and _____ the _____
- This will cause the _____ of the egg to _____

- _____ the _____ so that the _____ is in the _____ and _____
- You are _____ blood or meat spots _____ can appear _____ in the egg
- If seen, _____ is rejected
- _____ the _____ passes _____ blood _____ test, then _____ large _____ the egg _____ the _____
- You are _____ for the _____
- Grade AA eggs _____ an air _____ than 1/8-inch deep (_____ of a _____)
- Grade _____ will have _____ space that _____ 1/8 inch but less than 1/16 inch (_____ size _____ nickel)
- Anything _____ than 3/16 inch (the _____ of a _____) is classified as a _____

17. _____ Judging

- This is a _____ type of _____ in the _____
- It _____ of a _____ of _____ being _____ a _____
- An _____ will be _____ if it has a _____ or _____ than an 1/8 _____
- An egg has a _____ or _____ that is _____ than an 1/8 _____ will be _____ as _____
- The _____ considered when _____ is the _____ of the _____ (white) _____ to the egg's _____
- It is important to look down at the _____ to get an idea of how much _____ the _____ and the _____ for the _____ of the _____ (the most important aspect in this type of judging)

18. _____ Broken-Out Egg _____

- For an egg to be a _____ it must have a _____ and _____
- The total _____ by the _____ is _____ and the _____ of the _____ is _____ to the _____

19. _____ Broken-Out Egg Characteristics

- An egg that is _____ looks _____ a _____ but with a _____
- The _____ takes up a _____ and is _____
- The thick white part of the _____ does _____ sit _____ as a Grade AA

Chicken Kit

- The _____ of the _____ is _____ out compared to Grade AA

20. _____ Broken-Out Egg Characteristics

- A Grade B has replaced _____ albumen _____ a _____ version
- _____ albumen _____ area _____ to _____ egg white

What to Look for in Chickens – Answer Key

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

1. **Types** of Judging

- Purebred or heritage breed
- Production judging
- Ready-to-cook carcass judging
- Market egg judging

2. **Judging** Purebred or Heritage Breed

- Same as a dog show where animals are judged by certain characteristics for that breed (exhibition)
- In chicken, the standard is based on the American Poultry Association's Standard of perfection
- While males and females are judged separate as far as their breed's standards, they both follow the same standards
- Standards:
 - Body weight, shape, and type
 - Color of plumage, shanks, skin, and earlobes
 - Shape and type of comb
- This type of judging is conducted by a person that is an expert in that breed, not a student
- The role of the student in this type of judging is to select the best animal to show

3. **Production Judging** Breeds

- Both male and female
- Breed examples;
 - White Leghorn
 - Rhode Island Red
 - White Plymouth Rock
 - Barred Plymouth Rock
 - Females that are red or black sex-linked

4. **Pullet/Hen** Production Judging

- Female chickens are judged according to their past and present production
- A pullet is judged based on characteristics that can indicate she will be a good producer or not
- One important characteristic beyond health is the amount of yellow pigment or xanthophyll that is put into the skin, beak, shanks, and feet while the pullet is growing
- A pullet with a lot of yellow color in these areas will be an excellent layer
- While a pullet is judged by her projected ability to be a good layer, a hen is judged by her past and present egg laying

- Past production is judged by several factors, which include persistency, intensity, and health and vigor
- Persistency is defined as the longest period of production
- This can be tested by looking at the yellow pigment left in the hen along with molting, which is loss of feathers
- The pigment is removed and placed in the yolk
- The pigment is removed from the hen's body in a certain order that can tell one how much more time she has for production
- The order is:
 - Vent
 - Eye ring
 - Earlobe
 - Beak (base to tip)
 - Shanks
 - Top of feet and toes
- The closer to the feet the loss of pigment gets, the reduced amount of laying time or production the hen has
- Keep in mind that this loss of pigment does not mean she will never lay again, it just means she is not as productive as other hens due to the part of the egg laying cycle she is in
- The loss of yellow pigment or bleaching can tell you at what point the hen is at in production
- Following this order of bleaching can also tell you the total eggs the hen has laid so far

Bleaching of Body Part	Number of Eggs Produced in the Cycle
Vent	10 eggs
Eye Ring	8-12 eggs
Earlobe	10-15 eggs
Beak Base	25 eggs
Beak Tip	35 eggs
Shanks	100-160 eggs
Top of Feet and Toes	180 eggs

- Intensity is the next characteristic that needs to be examined
- This is defined as a measure of the current rate of production
- Things to look at include handling qualities and abdominal capacity
- Health and vigor is the last characteristic
- This is a measure of how close to the end of production this hen is at and includes looking at the:

- Shape and brightness of the eye
- Proportional shape of the head
- Condition of the comb and wattles
- A hen that is close to her laying cycle will have a comb and wattles that are:
 - small
 - pale
 - shriveled
- A hen early in her production will have her comb and wattles:
 - Large
 - Red
 - Soft
 - Waxy
- A hen who is close to ending her egg laying cycle will have an abdomen that is hard while a hen who is just laying well will have a soft stomach
- The vent of a poor layer will be pigmented, puckered, and dry
- On the other hand, a good layer will have a moist vent that is not pigmented

5. Male Production Judging

- Judging is strictly limited to physical condition, alertness, and activity

6. Ready-to-Cook Carcass Judging

- This type of judging consists of looking at negative consequences of processing
- This includes exposed flesh, broken or disjointed bones, and missing body parts
- There are 3 weights for judging:
 - 2-6-pound broiler
 - 6-16-pound heavy broiler
 - Turkeys over 16 pounds
- Each class has its own standards, but we are only going to cover broilers 2-6 pounds

7. Ready-to-Cook Carcass Judging: Exposed Flesh

- Look for exposed flesh and where it is located
- Exposed flesh does not necessarily mean that this carcass cannot be a Grade A
- However, if it is located on the breast or leg, then very little or none can be exposed

8. Grade A Carcass Requirements

- Weight: 2-6 pounds
- Any exposed flesh cannot be any larger than 1/4 inch on the breast or leg
- Anywhere else the exposed flesh can be up to 1 1/2 inches

9. Grade B Carcass Requirements

- Weight: 2-6 pounds
- Exposed flesh cannot cover more than 1/3 of the part it is on, such as 1/3 of the back
- The exposed flesh cannot be any deeper than 1/8 inch

10. Grade C Carcass Requirements

- Weight: 2-6 pounds
- No limit on exposed flesh

11. Processing Cuts Requirements

- Processing cuts are cuts made at the neck and vent to remove internal organs
- Grade A allows 1-inch cuts in the areas of:
 - Neck
 - Breast
 - Vent
 - Thigh
- Anything larger than 1 inch is considered Grade B

12. Disjointed or Broken Bones Requirements

- A broken bone can be sticking out of the skin or not
- Grade A is a carcass that has 1 disjointed bone and no broken bones
- Grade B can have several acceptable situations
 1. Can be 2 disjointed bones and no broken bones
 2. Can have 1 disjointed bone and 1 bone that has not broken the skin
 3. Has no disjointed bones and 1 broken bone that has not gone through the skin
- Grade C is automatically given if a broken bone has gone through the skin
- There is no limit on the number of disjointed bones or broken bones

13. Missing Parts Judging Requirements

- Grade A consists of missing wing tip(s) and tail is at base
- Grade B consists of missing wing to second joint and tail is missing up to or less than halfway to the hip joint
- Grade C consists of missing wings and tail missing more than halfway to the hip joint

14. Market Egg Judging

- Market egg judging is broken down into exterior, internal, and broken-outs

15. Exterior Market Egg Judging

- Eggs cannot be touched
- Many factors of the exterior part of the egg are considered:
 - Cleanliness
 - Shape
 - Shell texture
 - Ridges
 - Body checks (cracks in eggs when the egg was being formed)
 - Shell thickness
- Grade AA or A eggs are clean with these qualities
 - May have a few stains
 - Normal egg shape
 - May have a few rough spots
 - Slight ridges
 - Free of thin spots

- No body checks
- Grade B consists of clean eggs but with stains that cannot be any larger than 1/32 of the shell or scattered stains that make up less than 1/16 of the shell
- The shape of the egg is unusual and has an extremely rough surface with pronounced ridges, and evident thin spots
- An egg will be rejected if it is dirty or covered in foreign matter
- It will also be rejected if stains cover more than 1/32 of the egg or accumulation of stains makes up more than 1/16 of the egg

16. Internal Market Egg Judging

- Internal judging consists of ranking an egg Grade AA and A, B, or rejected (also known as inedible)
- This type of judging is done with the egg still in the shell
- The internal structures are viewed through a process called candling
- This is done through a process called candling
- Candling is done in the dark with a candler light turned on
- Hold the egg with your first 2 fingers and thumb
- Place the large end of the egg into the opening of the candler light
- At this point, hold the egg at a slight angle and turn it to the left and then the right
- This will cause the inside of the egg to whirl around
- Turn the egg around so that the small end is in the candler light and repeat
- You are looking for blood or meat spots that can appear anywhere in the egg
- If seen, this egg is rejected
- If the egg passes the blood spots test, then return the large end of the egg to the candler light
- You are looking for the air cell
- Grade AA eggs will have an air cell that is less than 1/8-inch deep (the size of a dime)
- Grade A eggs will have a space that is greater than 1/8 inch but less than 1/16 inch (the size of a nickel)
- Anything larger than 3/16 inch (the size of a quarter) is classified as a Grade B

17. Broken-Out Egg Judging

- This is a separate type of judging in the internal category
- It consists of a group of eggs being broken onto a plate
- An egg will be rejected if it has a blood or meat spot greater than an 1/8 inch
- An egg has a blood or meat spot that is less than an 1/8 inch will be classified as Grade B
- The characteristic considered when grading these eggs is the height of the thick albumen (white) compared to the egg's size
- It is important to look down at the egg to get an idea of how much area the albumen covers and the side for the height of the albumen (the most important aspect in this type of judging)

18. Grade AA Broken-Out Egg Characteristics

- For an egg to be a Grade AA it must have a thick and firm egg white
- The total area covered by the albumen is small and the thick white part of the albumen is bigger compared to the thin white

19. Grade A Broken-Out Egg Characteristics

Chicken Kit

- An egg that is Grade A looks like a Grade AA but with a few differences
- The albumen takes up a small area and is still firm
- The thick white part of the albumen does not sit as high as a Grade AA
- The thinner part of the albumen is slightly more spread out compared to Grade AA

20. Grade B Broken-Out Egg Characteristics

- A Grade B has replaced the thick albumen with a flatter and thinner version
- This albumen covers more area compared to the thinner egg white

Lesson Six – Selection and Judging of Chickens

REVIEW: Recap of Selection and Judging of Chickens

10 minutes

Purpose:

Participants will review the Chicken Selection and Judging Poster and then take a quiz.

Materials:

- Chicken Selection and Judging Poster
- *Selection and Judging of Chickens Quiz*
- *Selection and Judging of Chickens Quiz – Answer Key*

Facilitation Steps:

1. Direct participants' attention to the poster for recap.
2. Instruct participants to review the information for five minutes.
3. Pass out the quiz and provide direction on how to fill it out.
4. After five minutes, collect the quiz.

Name: _____ Class: _____

Selection and Judging of Chicken Quiz

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

1. Candling an egg is a process by which one shines a light on the egg's surface to look for defects.
True or False
2. When showing exhibit chickens or purebred, all breeds can be judged in this type of show. True or False
3. Dirt on an egg is no reason to reject the egg or label it inedible. True or False
4. When judging hens for their egg laying ability, one should only consider the age of each hen. True or False
5. If a blood or meat spot is found on the inside of an egg, it will be rejected. True or False
6. Eggs are judged in three different ways. This includes external, internal, and broken-outs. True or False
7. The amount of yellow pigment left in certain areas of a hen can indicate if she is still a productive layer. True or False
8. A Grade A chicken carcass is one that has one disjointed bone and no broken bones. True or False
9. A chicken carcass is automatically labeled a Grade C if a broken bone has gone through the skin.
True or False
10. Chickens shown as exhibit birds are graded according to their breed standards. True or False
11. When grading ready-to-cook chicken carcasses, the amount of exposed flesh is not important.
True or False
12. The judging of male chickens only looks at their height, alertness, and size of comb. True or False
13. A pullet is judged by her past record of egg laying. True or False
14. Missing parts of a chicken carcass will not decrease the grade of the chicken. True or False

Selection And Judging of Chicken

Quiz – Answer Key

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

1. Candling an egg is a process by which one shines a light on the egg's surface to look for defects.
True or **False**
2. When showing exhibit chickens or purebred, all breeds can be judged in this type of show. True or **False**
3. Dirt on an egg is no reason to reject the egg or label it inedible. True or **False**
4. When judging hens for their egg laying ability, one should only consider the age of each hen. True or **False**
5. If a blood or meat spot is found on the inside of an egg, it will be rejected. **True** or False
6. Eggs are judged in three different ways. This includes external, internal, and broken-outs. **True** or False
7. The amount of yellow pigment left in certain areas of a hen can indicate if she is still a productive layer. **True** or False
8. A Grade A chicken carcass is one that has one disjointed bone and no broken bones. **True** or False
9. A chicken carcass is automatically labeled a Grade C if a broken bone has gone through the skin.
True or False
10. Chickens shown as exhibit birds are graded according to their breed standards. **True** or False
11. When grading ready-to-cook chicken carcasses, the amount of exposed flesh is not important.
True or **False**
12. The judging of male chickens only looks at their height, alertness, and size of comb. True or **False**
13. A pullet is judged by her past record of egg laying. True or **False**
14. Missing parts of a chicken carcass will not decrease the grade of the chicken. True or **False**

Lesson Seven – Marketing, Careers, and Training

Lesson Overview

Participants will be exposed to a wide range of different careers one can have in the poultry industry through a slide presentation and self-exploration.

Lesson Objectives

After completing this lesson, participants will be able to:

- List five careers in poultry production
- Describe the role that each of the five careers has in poultry production
- List three tasks that each of the five careers is responsible for

Lesson at a Glance

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

Lesson Seven – Marketing, Careers, and Training

FOCUS: Intro to Careers With Poultry

10 minutes

Purpose:

Participants will be introduced to careers in the poultry industry by completing a word scramble.

Materials:

- *Careers in Poultry Scramble* worksheet
- *Careers in Poultry Scramble – Answer Key*

Facilitation Steps:

1. Pass out the worksheet and provide directions on how to complete it.
2. Give participants five minutes to complete the task before exchange papers.
3. Instruct the participants to grade the paper as you go over the answers.
4. Collect the papers.

Name: _____ Class: _____

Careers in Poultry Scramble

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

1. _____

A. tsinoitirtun

2. _____

B. chetrahy nagmaer

3. _____

C. trouply terinvearian

4. _____

D. fodo neicsstti

5. _____

E. deebring vissorruasp

6. _____

F. mapharmcuetial lasse erp

7. _____

G. naavi gooblisti

8. _____

H. plelut fram ganamer

9. _____

I. yorpult worrke

10. _____

J. outncy tensionxe tagen

Careers in Poultry Scramble – Answer Key

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

- | | |
|-----------------------------|---------------------------|
| 1. Nutritionist | A. tsinoitirtun |
| 2. hatchery manager | B. chetrahynagmaer |
| 3. poultry veterinarian | C. trouplyterinvearian |
| 4. food scientist | D. fodo neicsstti |
| 5. breeding supervisor | E. deebringvissorusp |
| 6. pharmaceutical sales rep | F. mapharmcuetiallasseerp |
| 7. avian biologist | G. naavi gooblisti |
| 8. pullet farm manager | H. plelutframganamer |
| 9. poultry worker | I. yorpultworcke |
| 10. county extension agent | J. outncytensionxetagen |

Lesson Seven – Marketing, Careers, and Training

LEARN: Careers in Poultry Production

40 minutes

Purpose:

Participants will learn about careers in poultry production.

Materials:

- *Marketing, Careers, and Training* slide presentation
- *Careers in Poultry Production* worksheet
- *Careers in Poultry Production* – Answer Key

Facilitation Steps:

1. Set up the slide presentation.
2. Pass out the worksheet and explain the directions.
3. Present the slides while participants fill out the worksheet.

Slide 1: Title Slide

Slide 2: Beyond the Farm: Careers in Chicken Production

Slides 3-4: Broiler Processing Manager

- Works at a poultry processing plant
- Makes sure the chicken is processed according to company standards
- Responsible for ensuring the product meets local and federal food safety regulations

Slides 5-7: Quality Control Manager

- Works inside a manufacturing plant examining the quality of the product at the end of the manufacturing process
- May supervise workers preparing the product for selling and shipping to make sure product quality requirements are followed
- Trains employees on how to handle food products properly and educates them on signs of unsatisfactory production

Slides 8-10: USDA Food Inspector

- Works for the United States Department of Agriculture (USDA)

- Visits poultry manufacturing facilities, touring the location to ensure they meet both local and federal food safety standards
- A food inspector must be a Certified Professional in Food Safety, which is earned through the National Environmental Health Association

Slides 11-13: USDA Grader

- Works for the United States Department of Agriculture
- Examines and grades chicken carcasses as they come down the assembly line on hooks
- Decides the grade based on several factors determined by the poultry industry
- Records evaluation data on the tag and attaches the tag to the carcass

Slides 14-15: Live Production Supervisor

- Works for a CAFO or confined animal feedlot operation, such as Tyson®
- Teaches farmers how to take care of their chickens
- Visits farms to check on the health of the chickens and troubleshoot any issues with the poultry

Slides 16-17: Farm Transporter

- Transports several different kinds of chickens
- Carries chickens from the hatchery farmers
- Takes broilers from farmers to processing plant
- Moves pullets to layer farms

Slides 18-20: Hatchery Manager

- Oversees all aspects of the hatchery
- Manages and coordinates personnel when it comes to hatchery activities such as
 - Egg pickup and delivery, care, incubation, and hatching
 - Grading
 - Vaccination
 - Preparation and shipping of chicks
- Manages and maintains the weekly hatch schedule

- Supervises animal welfare program
- Plans and oversees hatchery budget
- Monitors facility equipment and repairs
- Keeps up to date on current knowledge of industry trends

Slides 21-23: Feed Mill Manager

- Responsible for taking in individual ingredients that the feed mill carries
- Does quality tests on feed coming in and feed that is stored
- Makes sure that all safety procedures are followed and that all employees are trained in these safety procedures
- Keeps up to date on new safety procedures
- Handles customers questions and complaints
- Documents that the feed meets state and federal laws along with regulations that ensure the feed is compliant
- Must be able to lift 60 pounds, climb a ladder, and operate a pallet jack

Slides 24-26: Nutritionist (Human)

- Helps develop new products made of poultry
- Analyzes the nutritional value of existing products and advises on how this can be improved
- Keeps up to date on consumer preferences in poultry products
- Writes and publishes articles about poultry products
- Creates nutrition plans using poultry products
- Conducts scientific research in the nutrition field, showing the role poultry products can play in diet

Slides 27-29: Nutritionist (Poultry)

- Tests feed to make sure that it meets the dietary needs of different stages of poultry development
- Formulates feed required for the special needs of poultry farmers
- Keeps up to date with changes in dietary requirements for poultry
- Tests new ingredients for their value as a poultry feed or additive

Slides 30-32: Marketing Specialist

- Works with a marketing team that comes up with new ways of promoting a product to different groups of people
- Can belong to an advertising group that develops a marketing plan to encourage new people to buy the product
- Can also be a marketing specialist that researches the market through focus groups and researches the public's opinion on the brand, product, and/or poultry industry

Slides 33-35: Pharmaceutical Sales Rep

- Works for a pharmaceutical company
- Sell pharmaceutical products to veterinarians
- Travels to different facilities selling their products through in-person sales
- Can also work at an office and make contact online and through phone calls
- Stays informed on new products
- Stays connected with existing clients to make sure they are satisfied with the products they purchased
- Continues to educate existing clients of new products developed by the pharmaceutical company

Slides 36-37: Agribusiness Lender Specializing in Poultry Management

- Works at a bank
- Specializes in evaluating business plans from businesses involved in agriculture-related industries
- Determines if the business can get a business loan
- Keeps up to date on government programs available for poultry businesses and shares this information with clients

Slides 38-40: Poultry Veterinarian

- Works in the poultry industry to ensure the safety and health of the birds as they produce eggs and breeding stock
- Helps the product meet federal and local regulations regarding food safety
- Examines birds and makes recommendations for their continued care and/or notes problems with their health, which can keep disease from spreading through a flock

Slides 41-43: Food Scientist

- Works for a poultry manufacturer's research and development department
- Researches ways to create or improve food processes that increase quality and efficiency for the manufacturer
- Can be involved in testing for food quality
- Works in a lab or production facility
- Involved in testing food additives and/or storage methods to find better ways of storing and preserving the product for later use
- Enforces food regulations for both federal and local governments

Slides 44-46: Avian Biologist

- Studies the life cycle and behaviors of birds
- Works in the poultry industry developing safe and ethical practices for raising and producing poultry products
- May work in the field handling birds or in a lab examining samples from the flock
- Develops reports, papers, and presentations on their findings and recommendations

Slides 47-49: Breeding Supervisor

- Works in a poultry manufacturing plant where they coordinate activities of workers that are involved in raising, collecting, and breeding poultry
- Establishes a breeding program that will grow the flock and/or enhance a certain characteristic
- Will keep records of the breeding practices so that they can be repeated for a successful breeding program

Slides 50-51: Pullet Farm Manager

- Works on a poultry farm that raises young hens
- Monitors the pullets' health and wellbeing
- Involved in making sure the feed is correct for this stage of development
- May also be responsible for the layer farm

Slides 52-54: Poultry Worker

- May work on a farm or poultry plant helping with daily operations
- Typically have a set of tasks that are based on their experience
- May work with the birds, monitoring their wellbeing and collecting eggs
- Could also work on the assembly line, preparing meat and eggs for storage and consumer use
- Can be involved in maintenance of the building, equipment, and land the poultry use

Slides 55-57: County Extension Agent

- Travels throughout the county they serve
- Provides educational programs for farmers and the general public on several topics including poultry production
- Can develop educational material that deals with poultry nutrition
- Can oversee agricultural demonstrations and trials for universities

Careers in Poultry Production

Directions: Fill in the blanks with the information on the slide presentation.

1. Broiler Processing Manager

- _____ at a _____
- Makes sure that the _____ is _____ according to _____
- _____ for ensuring the _____ and _____

2. Quality Control Manager

- _____ inside a _____ the _____ the _____ at the _____ the _____
- May _____ the _____ for _____ and _____ to make sure that product _____ are _____
- _____ on how to _____ food _____ and _____ them _____ of _____

3. USDA Food Inspector

- _____ for the _____ (_____)
- Visit poultry manufacturing facilities, _____ to ensure _____ both _____ and _____
- A _____ must be a _____, which is _____ the _____

4. USDA Grader

- _____ for the _____
- _____ and _____ as they _____ the _____ on _____

- _____ the _____ based on several _____
_____ the _____
- _____ evaluation _____ on the _____ and _____ the
_____ to the _____

5. Live Production Supervisor

- _____ for a _____ or confined animal feedlot operation,
_____ as _____
- _____ how to _____ of
their _____
- _____ to _____ on the _____ of the
_____ and _____ any _____ the

6. Farm Transporter

- _____ several _____ kinds of

- _____ from the _____ to

- Takes _____ from farmers to _____

- Moves _____ to _____

7. Hatchery Manager

- Oversees _____ aspects of the _____
- _____ and coordinates personnel _____ to hatchery
activities _____ as
 - Egg pickup _____, care, incubation, and _____
 - _____
 - _____
 - Preparation and shipping _____ chicks
- Manages and _____ weekly hatch schedule
- _____ program
- Plans and _____ hatchery budget
- Monitors _____ and repairs
- Keeps _____ on current knowledge _____ industry trends

8. Feed Mill Manager

- _____ for taking in _____
_____ that the _____
- Does _____ on _____ and _____
that is _____
- _____ sure that all _____ are _____ and that
all _____ are _____ in these _____

- Keeps _____ on _____
- _____ customers' _____ and _____

- _____ that the _____ and _____
_____ along with regulations that _____ the _____ is _____
- Must be able to _____, _____ a _____,
and _____ a _____

9. Nutritionist (Human)

- Helps _____ made of _____
- _____ the _____ of _____
_____ and _____ on to how this can _____
- _____ to date on _____ in

- _____ and _____ about poultry _____
- _____ nutrition _____ products
- _____ scientific _____ in the _____,
showing the _____ can play _____

10. Nutritionist (Poultry)

- _____ to make sure that it _____ the _____
_____ of different _____ of _____
- _____ required for _____
needs of _____
- _____ to date with _____ in _____
_____ for poultry
- _____ new _____ for _____ as a
_____ or _____

11. Marketing Specialist

- _____ with a _____ that comes up with _____
_____ of _____ a _____ to _____ of
people
- Can _____ to an _____ that
_____ a _____ to _____ new _____
to _____ the _____
- Can also _____ a _____ that
_____ the _____ through _____ and
_____ the public's _____ on the _____,
and/or _____

12. Pharmaceutical Sales Rep

- _____ for a _____
- _____ pharmaceutical products _____
- _____ to different facilities _____ through
_____ - _____
- _____ also _____ at an _____ and make _____ and
through _____
- Stays _____ on _____

- _____ connected with _____ to make sure they are _____ with the products they have purchased
- Continues to _____ of _____ developed _____ the _____

13. Agribusiness Leader Specializing in Poultry Management

- _____ at _____
- _____ in evaluating business plans from businesses involved in _____-related _____
- _____ if the business can _____ a _____
- _____ to date _____ and _____ this _____ with clients

14. Poultry Veterinarian

- _____ in the _____ to _____ the _____ and _____ of the _____ as they _____ and _____
- _____ the product _____ and _____ regarding _____
- _____ and makes _____ for their _____ and/or _____ with their _____, which can _____ from spreading through a flock

15. Food Scientist

- _____ for a poultry manufacturer's _____ and _____
- _____ ways to create or _____ that _____ and _____ for the manufacturer
- Can be _____ in _____ for _____
- _____ in a _____ or _____
- Involved in _____ and/or _____ to find better ways of storing and _____ the _____ for later use
- _____ food _____ for both _____ and _____

16. Avian Biologist

- _____ the _____ and _____ of _____
- _____ in the _____ developing _____ and _____ for _____ and _____ poultry
- May work _____ the _____ handling birds _____ in a _____ examining _____ the _____

- Develops _____, _____, and _____ on their _____ and _____

17. Breeding Supervisor

- _____ in a poultry _____ where they _____ of _____ that are involved in _____, _____, and _____ poultry
- Establishes a _____ that will _____ the _____ and/or _____ a certain _____
- Will _____ of the _____ so that they can _____ for a _____

18. Pullet Farm Manager

- _____ on a _____ that _____
- _____ the pullets' _____ and _____
- Involved in _____ the _____ is _____ for this _____
- _____ also _____ for the _____

19. Poultry Worker

- May _____ on a _____ or _____ helping with _____
- Typically have a _____ of _____ that are _____ their _____
- May _____ with the birds, _____ their _____ and _____
- Could also work on the assembly line, _____ and _____ for _____ and _____
- _____ be involved in _____ of the _____, _____, and _____ that the poultry use

20. County Extension Agent

- _____ throughout the _____ they serve
- _____ educational _____ for _____ and the _____ on several topics including poultry production
- Can develop _____ that deals with _____
- Can _____ and _____ for _____

Careers in Poultry Production – Answer Key

Directions: Fill in the blanks with the information on the slide presentation.

1. Broiler Processing Manager
 - Works at a poultry processing plant
 - Makes sure that the chicken is processed according to company standards
 - Responsible for ensuring the product meets local and federal food safety regulations
2. Quality Control Manager
 - Works inside a manufacturing plant examining the quality of the product at the end of the manufacturing process
 - May supervise workers preparing the product for selling and shipping to make sure that product quality requirements are followed
 - Trains employees on how to handle food products properly and educates them on signs of unsatisfactory production
3. USDA Food Inspector
 - Works for the United States Department of Agriculture (USDA)
 - Visit poultry manufacturing facilities, touring the location to ensure they meet both local and federal food safety standards
 - A food inspector must be a Certified Professional in Food Safety, which is earned through the National Environmental Health Association
4. USDA Grader
 - Works for the United States Department of Agriculture
 - Examines and grades chicken carcasses as they come down the assembly line on hooks
 - Decides the grade based on several factors determined by the poultry industry
 - Records evaluation data on the tag and attaches the tag to the carcass
5. Live Production Supervisor
 - Works for a CAFO or confined animal feedlot operation, such as Tyson®
 - Teaches farmers how to take care of their chickens
 - Visits farms to check on the health of the chickens and troubleshoot any issues with the poultry
6. Farm Transporter
 - Transports several different kinds of chickens
 - Carries chickens from the hatchery to farmers
 - Takes broilers from farmers to processing plant
 - Moves pullets to layer farms

7. Hatchery Manager

- Oversees all aspects of the hatchery
- Manages and coordinates personnel when it comes to hatchery activities such as
 - Egg pickup and delivery, care, incubation, and hatching
 - Grading
 - Vaccination
 - Preparation and shipping of chicks
- Manages and maintains the weekly hatch schedule
- Supervises animal welfare program
- Plans and oversees hatchery budget
- Monitors facility equipment and repairs
- Keeps up to date on current knowledge of industry trends

8. Feed Mill Manager

- Responsible for taking in individual ingredients that the feed mill carries
- Does quality tests on feed coming in and feed that is stored
- Makes sure that all safety procedures are followed and that all employees are trained in these safety procedures
- Keeps up to date on new safety procedures
- Handles customers' questions and complaints
- Documents that the feed meets state and federal laws along with regulations that ensure the feed is compliant
- Must be able to lift 60 pounds, climb a ladder, and operate a pallet jack

9. Nutritionist (Human)

- Helps develop new products made of poultry
- Analyzes the nutritional value of existing products and advises on to how this can be improved
- Keeps up to date on consumer preferences in poultry products
- Writes and publishes articles about poultry products
- Creates nutrition plans using poultry products
- Conducts scientific research in the nutrition field, showing the role poultry products can play in diet

10. Nutritionist (Poultry)

- Tests feed to make sure that it meets the dietary needs of different stages of poultry development
- Formulates feed required for the special needs of poultry farmers
- Keeps up to date with changes in dietary requirements for poultry
- Tests new ingredients for their value as a poultry feed or additive

11. Marketing Specialist

- Works with a marketing team that comes up with new ways of promoting a product to encourage new of people
- Can belong to an advertising group that develops a marketing plan to encourage new people to buy the product

- Can also be a marketing specialist that researches the market through focus groups and researches the public's opinion on the brand, product, and/or poultry industry

12. Pharmaceutical Sales Rep

- Works for a pharmaceutical company
- Sells pharmaceutical products to veterinarians
- Travels to different facilities selling their products through in-person sales
- Can also work at an office and make contact online and through phone calls
- Stays informed on new products
- Stays connected with existing clients to make sure they are satisfied with the products they have purchased
- Continues to educate existing clients of new products developed by the pharmaceutical company

13. Agribusiness Leader Specializing in Poultry Management

- Works at a bank
- Specializes in evaluating business plans from businesses involved in the agriculture-related industries
- Determines if the business can get a business loan
- Keeps up to date on government programs available for poultry businesses and shares this information with clients

14. Poultry Veterinarian

- Works in the poultry industry to ensure the safety and health of the birds as they produce eggs and breeding stock
- Helps the product meet federal and local regulations regarding food safety
- Examines birds and makes recommendations for their continued care and/or notes problems with their health, which can keep disease from spreading through a flock

15. Food Scientist

- Works for a poultry manufacturer's research and development department
- Researches ways to create or improve food processes that increase quality and efficiency for the manufacturer
- Can be involved in testing for food quality
- Works in a lab or production facility
- Involved in testing food additives and/or storage methods to find better ways of storing and preserving the product for later use
- Enforces food regulations for both federal and local governments

16. Avian Biologist

- Studies the life cycle and behaviors of birds
- Works in the poultry industry developing safe and ethical practices for raising and producing poultry products
- May work in the field handling birds or in a lab examining samples the flock
- Develops reports, papers, and presentations on their findings and recommendations

17. Breeding Supervisor

- Works in a poultry manufacturing plant where they coordinate activities of workers that are involved in raising, collecting, and breeding poultry
- Establishes a breeding program that will grow the flock and/or enhance a certain characteristic
- Will keep records of the breeding practices so that they can be repeated for a successful breeding program

18. Pullet Farm Manager

- Works on a poultry farm that raises young hens
- Monitors the pullets' health and wellbeing
- Involved in making sure the feed is correct for this stage of development
- May also be responsible for the layer farm

19. Poultry Worker

- May work on a farm or poultry plant helping with daily operations
- Typically have a set of tasks that are based on their experience
- May work with the birds, monitoring their wellbeing and collecting eggs
- Could also work on the assembly line, preparing meat and eggs for storage and consumer use
- Can be involved in maintenance of the building, equipment, and land that the poultry use

20. County Extension Agent

- Travels throughout the county they serve
- Provides educational programs for farmers and the general public on several topics including poultry production
- Can develop educational material that deals with poultry nutrition
- Can oversee agricultural demonstrations and trials for universities

Lesson Seven – Marketing, Careers, and Trainings

REVIEW: Careers in Poultry Production Recap

10 minutes

Purpose:

Participants will review careers in poultry production by first exploring a career they have interest in and then test their career knowledge with a quiz.

Materials:

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

Facilitation Steps:

1. Pass out the *Career Exploration Graphic Organizer* worksheet.
2. Instruct participants on how to fill out their worksheet along with where information for their career can be found.
3. Give participants five minutes to explore their career.
4. Collect the worksheet.
5. Pass out the *Careers in Swine Production Quiz*.
6. Instruct the participants on how to fill out the quiz.
7. Give the participants five minutes.
8. Collect the quiz.

Name: _____ Class: _____

Careers in Poultry Production Quiz

Directions: After reading each statement, determine if the statement is true or false. Answer by circling your choice.

1. A USDA Grader's job is to evaluate the worker's job performance and suggest when pay raises should be given. True or False
2. A live production supervisor works for a company such as Tyson® and educates farmers on how to care for their chickens being raised for the company. True or False
3. There are three types of nutritionists that can work in the poultry industry. True or False
4. Pharmaceutical sales reps market their products to veterinarians. True or False
5. Food scientists in this industry develop new recipes for consumers True or False
6. A pullet farm manager works with young hens, making sure they are healthy and receiving the proper feed for their stage of development. True or False
7. A breeding supervisor works in a poultry manufacturing plant where they work on raising, breeding, and collecting poultry for breeding programs. True or False
8. An avian biologist works with birds in the poultry industry, making sure that they are safe and ethically treated during the growing and processing steps. True or False
9. Agribusiness lenders are knowledgeable about different types of agribusinesses, including poultry. This knowledge is used to aid and advise agribusinesses in financial matters, which includes whether they get a loan or not. True or False
10. A marketing specialist works with a team of other people who research ways of selling products to new customers and they also do research on what the customer thinks of the brand and/or product.
True or False

Careers in Poultry Production Quiz – Answer Key

Directions: After reading each statement, determine if the statement is true or false. Answer by circling your choice.

1. A USDA Grader's job is to evaluate the workers job performance and suggest when pay raises should be given. True or **False**
2. A live production supervisor works for a company such as Tyson® and educates farmers on how to care for their chickens being raised for the company. **True** or False
3. There are three types of nutritionists that can work in the poultry industry. True or **False**
4. Pharmaceutical sales reps market their products to veterinarians. **True** or False
5. Food scientists in this industry develop new recipes for consumers True or **False**
6. A pullet farm manager works with young hens, making sure they are healthy and receiving the proper feed for their stage of development. **True** or False
7. A breeding supervisor works in a poultry manufacturing plant where they work on raising, breeding, and collecting poultry for breeding programs. **True** or False
8. An avian biologist works with birds in the poultry industry, making sure that they are safe and ethically treated during the growing and processing steps. **True** or False
9. Agribusiness lenders are knowledgeable about different types of agribusinesses, including poultry. This knowledge is used to aid and advise agribusinesses in financial matters, which includes whether they get a loan or not. **True** or False
10. A marketing specialist works with a team of other people who research ways of selling products to new customers and they also do research on what the customer thinks of the brand and/or product. **True** or False

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