Unit A: Introduction to Poultry Science

Lesson 3: External Anatomy of Turkeys

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Explain general information about turkeys.
2. Identify external anatomy of turkeys.

Recommended Teaching Time: 1 hour

Recommended Resources: The following resources may be useful in teaching this lesson:

- A PowerPoint has been developed for use with this lesson plan.
- http://www.worldpoultry.net/
- http://www.poultrypages.com/

List of Equipment, Tools, Supplies, and Facilities

Writing surface
PowerPoint Projector
PowerPoint Slides
Transparency Masters
Student Worksheet
Live Poultry - Turkeys

Terms: The following terms are presented in this lesson (shown in bold italics and on PowerPoint Slide #2):

Back	**Keel**	**Spur**
Beak	**Leg**	**Tail Coverts**
Beard	**Neck**	**Tail**
Breast	**Nostril**	**Throat**
Caruncle	**Hock Joint**	**Toe**
Ear	**Shoulder**	**Wattle**
Eye	**Snood**	
Foot	**Shank**	

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

Ask the students what they know about turkeys. Write these facts about turkeys on the board. Use this information to lead into a discussion of Objective one.

Summary of Content and Teaching Strategies

Objective 1: Explain general information about turkeys.

(PowerPoint Slide #3)

I. Turkeys are large birds related to pheasants.
   A. They lived almost 10 million years ago.
      1. Wild turkeys are native to wooded areas of North America.
      2. Turkeys are the only breed of poultry native to the Western Hemisphere.
      3. They were first domesticated in Mexico and brought to Europe in the 16th century.

PowerPoint Slide #4 shows pictures of wild turkeys. Note the long beard hanging from their breasts.

(PowerPoint Slide #5)

   B. Turkeys are able to adapt to a wide variety of habitats.
      1. However, most wild turkeys are found in hardwood forests with grassy areas.
      2. Wild turkeys can fly for short distances at speeds up to 88 kilometers per hour.
      3. On the ground they can reach speeds of 40 kilometers per hour.
      4. Domesticated turkeys usually weigh too much to be able to fly.
      5. Their weight is about twice the weight of a wild turkey.

PowerPoint Slide #6 is a picture of a wild turkey flying up in a tree to roost.

(PowerPoint Slide #7)

   C. The carancle is a brightly colored growth on the head and upper neck.
      1. The snood is the flap of skin that hangs over the turkey's beak.
      2. The wattle is the flap of skin under the turkey's chin.
      3. The bare skin on the throat and head can change color from flat gray to shades of red, white and blue when the turkey becomes distressed or excited.

PowerPoint Slide #8 shows the major external parts on the head of a turkey. PowerPoint Slides 9, 10, 11, and 12 explain a very interesting characteristic of the snood.

(PowerPoint Slide #13)

   D. Turkeys have great hearing , but no external ears.
      1. They have a field of vision of about 270 degrees and are able to see in color.
      2. They can see movement almost a hundred yards away.
      3. They don't see well at night.
      4. They have a poor sense of smell, but a good sense of taste.

(PowerPoint Slide #14)

E. Male turkeys will start making their gobbling sound before sunrise and continue through most of the morning.
    1. Hens make a clicking sound.
F. Turkeys are social animals.
    1. They enjoy the company of other creatures, including humans.
    2. They love having their feathers stroked.

(PowerPoint Slide #15)

G. In the spring, male turkeys puff up their bodies, spread their tail feathers, grunt and make their gobbling sound to attract as many females as possible.
    1. After mating, the female turkey prepares a nest under a bush in the woods and lays her eggs.
    2. She will lay one egg each day until she has a complete clutch of about 8 to 16 eggs. The eggs are tan and speckled brown eggs.
    3. It takes about 28 days for the chicks to hatch.
    4. After hatching, the babies will flock with their mother all year.
    5. The first two weeks they won't be able to fly and the mother will roost with them on the ground.

PowerPoint Slide #16 shows a male turkey with his body puffed and strutting.

(PowerPoint Slide #17)

H. Today, many advances have been made in the genetics of turkeys.
    1. This has helped to increase the size of the bird with lesser feed and in lesser time.
    2. The white broad-breasted turkey has been the most common commercially raised turkey breed, since the 1960s.
    3. There are also different strains of the white broad-breasted turkey that are reared in different parts of North America.
    4. Turkeys are bred specially to have more meat in the breast and thighs.
    5. White feathered turkeys are generally preferred, since they do not leave any ugly pigment spots when plucked.

(PowerPoint Slide #18)

I. Turkeys take around 4-5 months to grow to full size.
    1. Birds less than 8 months of age are known as young turkeys.
    2. The hen turkeys take 16 weeks to mature completely, and average around 3.6 to 7.3 kgs in weight.
    3. The tom turkey takes around 19 weeks and weighs anywhere between 7.3 and 10.9 kgs.
    4. Larger tom turkeys may weigh up to 18 kgs.
        a. These take a few more weeks to mature.
        b. A breeder tom turkey can generate up to 1,500 poults in a hen's six-month laying cycle.

PowerPoint Slide #19 shows a flock of domestic turkey.

(PowerPoint Slide #20)

5. The feet and shank portions of the legs have scales and most turkeys have three or four toes with claws used in scratching.

(PowerPoint Slide #21)

J. Turkeys are covered with feathers but have a few vestigial hairs scattered over the body.
   1. The average consumer does not see these hairs, because they are singed off in the processing plant

K. The turkey has a beak and does not have teeth.
   1. Any mastication occurs in the gizzard.
   2. Many commercial poultry producers do not provide grit to their turkeys, because they feed a ground feed of fine meal consistency that can be digested by the bird's digestive juices.

(PowerPoint Slide #22)

L. Turkeys have both white (breast) and dark (legs, thighs, back, and neck) meat.
   1. The wings contain both light and dark fibers.

Ask the students if they know someone who raises turkeys. Have the students share any knowledge they may have about raising turkeys and why people would raise this type of poultry.

Objective 2: Identify External Anatomy of Turkeys

(PowerPoint Slide #23)

II. The anatomy of a turkey includes a study of both external and internal parts. Both can influence the way birds grow, reproduce and need to be managed.

A. The following external parts help describe the turkey:
   1. **Back.** The back is the dorsal part of the bird between the bases of the wings and from the neck to the tail. It is homologous to the human back.
   2. **Beak.** The hard, protruding portion of a bird's mouth, consisting of an upper beak and a lower beak.

(PowerPoint Slide #24)

   3. **Beard.** A male turkey grows a cluster of long, hairlike feathers from the center of its chest.
   4. **Breast.** The breast is the upper front part of a bird. Underneath the breast is where the major flight muscles are located which are then attached to the wings to help the bird lift its own weight. The muscles are attached to an enlarged breastplate which is a skeletal part unique to birds.
   5. **Caruncle.** Fleshy growths on the head of both males and females.

(PowerPoint Slide #25)

   6. **Ear.** Responsible for maintaining equilibrium as well as sensing sound.
   7. **Eye.** An organ of vision or of light sensitivity.
   8. **Foot.** The feet are located at the terminal part of the legs, just like in humans, and most birds have four toes.
   9. **Keel.** Also known as the sternum or breast bone it is so large that it forms much of the bird's ventral body wall.
   10. **Leg**. The legs are limbs used for supporting the bird, homologous in function to the human legs. Proportionally the bird's legs are extremely strong in order for it to be able to land and take off without getting injured.

(PowerPoint Slide #26)

11. **Neck**. The neck connects the head to the body of the bird, homologous to the human neck. Different species have different neck lengths. The neck allows the bird to move his head to increase its visual area without moving his body.
12. **Nostril.** External openings on the top of the beak and their function is to warm air on inhalation and remove moisture on exhalation.
13. **Hock Joint**. A joint in the leg of a domestic fowl.
14. **Shoulder.** The shoulder refers to the relatively short feathers overlying the median secondary coverts on the top of the wing. They are located near the back and can be seen as the "first row" of feathers on the bird's wing. They are also called marginal coverts and lesser secondary coverts.

(PowerPoint Slide #27)

15. **Snood.** Found on both males and females it is the fleshy protrubances that hang over their bills and can be extended or contracted at will. The snood of an adult male is usually much larger than that of a female. No one knows for sure what these growths are for, but both probably developed as ways to attract mates.
16. **Shank.** The part of a chicken's leg between the claw and the first joint.
17. **Spur.** A sharp horny growth on the leg of a turkey.
18. **Tail Coverts.** The tail coverts are the shorter tail feathers covering the bases of the long extending tail feathers.

(PowerPoint Slide #28)

19. **Tail.** The tail comprises of long feathers extending from the rear of the bird and is used for balance and as an asset to attract potential mates. Certain species have extremely elaborate tail feathers, such as peacocks, which serve no other purpose than to convey a positive message to a female during courtship.
20. **Throat.** The throat is similar to the human throat and is located the front of the neck. It is often called jugulum, foreneck or throat patch. Internally, it contains the main food passage from the bird's bill to its stomach as well as air passages to the lungs.
21. **Toe.** The toes are digits attached to the feet just like human toes. Most birds have four toes. The first toe points backwards while the other three toes point forward. The second, third and fourth digits or toes are counted from the inside of the foot out and have 2, 3 and 4 phalanges respectively. Most birds do not have a fifth toe, except for some where it has evolved into a defensive spur, such as in the turkey.

(PowerPoint Slide #29)

22. **Wattle.** The red or purplish flap of flesh that dangles under a turkey's chin.

Use PowerPoint Slide #30 to show the external parts of the turkey. A live bird can also be used if available. Copies of TM: 3-1 can also be distributed to the students or WS: 3-1 can be completed by the students as each external body part is discussed. PowerPoint Slide #31 and #32 can be used as a review by the teacher pointing to a specific body part and asking the students to raise their hand if they can identify the body part.

Review/Summary: Use the student learning objectives to summarize the lesson. There are also Review Questions on PowerPoint Slide #33. Have students explain the content associated with each objective. Bring a couple of turkeys to class or take the students outside to view a tom and hen to discuss the different characteristics about turkeys and to review their external anatomy.

Application: Application can involve the student activity in identifying external parts of live turkeys and or completing WS 3-1.

Evaluation: Evaluation should focus on student achievement of this lesson's objectives. Use WS: 3-1 as an evaluation or ask the students to identify the external anatomy of the turkey. A sample written test is attached.

Answers to Sample Test:

Part One: Matching

1. G
2. B
3. A
4. D
5. C
6. H
7. I
8. F
9. E

Part Two: Completion

10. Ear
11. Back
12. Tail Coverts
13. Hock Joint
14. Spur
15. Breast
16. Beard
17. Caruncle
18. Wattle
19. Snood
20. Beak

Sample Test Name: _____

Test
Lesson A-3: External Anatomy of Turkeys

Part One: Matching

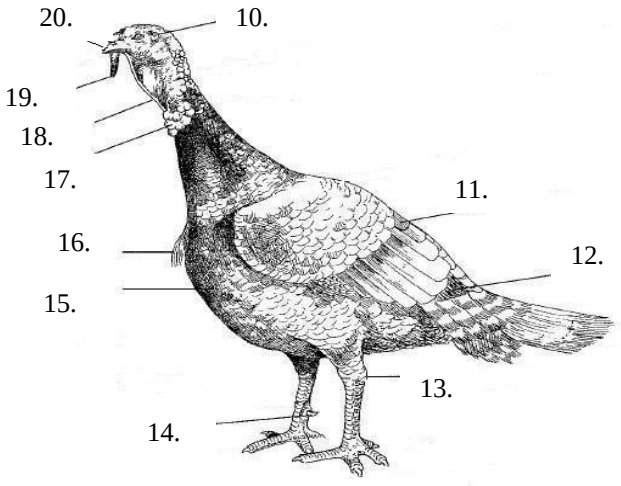
Instructions: Match the term with the correct response. Write the letter of the term by the definition.

a. Breast	b. Snood	c. Beard
d. Tom	e. Hen	f. Tail
g. Caruncle	h. Wattle	i. Spur

___1. Brightly colored growth on the head and upper neck of a turkey.
___2. Flap of skin that hangs over the turkey's beak.
___3. Bred to have more meat in this area.
___4. Name given to a male turkey.
___5. A cluster of long, hairlike feathers from the center of the turkey's chest.
___6. Flap of skin under the turkey's chin.
___7. A sharp horny growth on the leg of a turkey.
___8. Long feathers that help with balance and to attract potential mates.
___9. Name given to a female turkey.

Part Two: Fill in the Blank

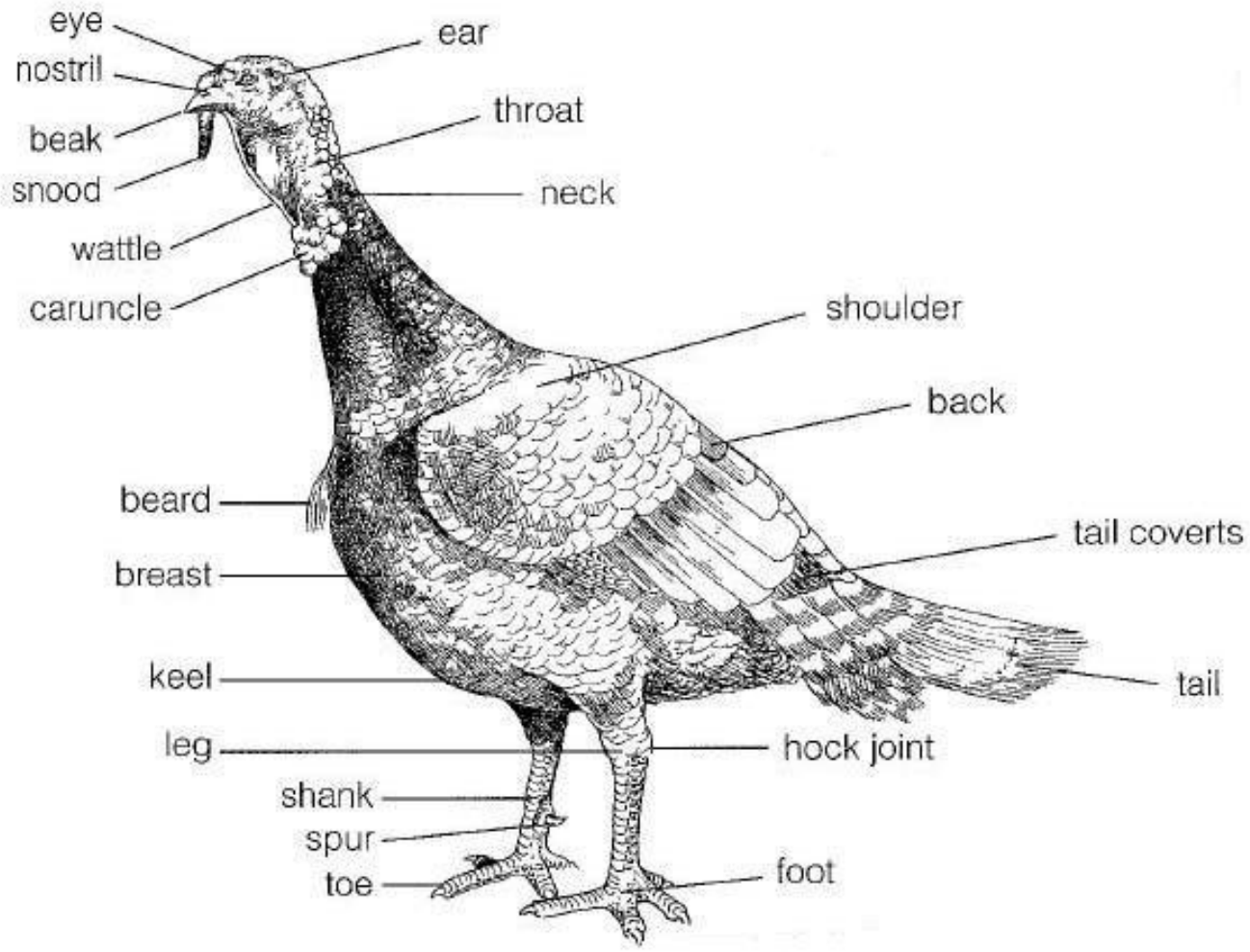
Instructions: Provide the word or words to correctly identify the external anatomy part of the Turkey.



10._____
11._____
12._____
13._____
14._____
15._____
16._____
17._____
18._____
19._____
20._____

TM: 3-1

EXTERNAL PARTS OF A TURKEY



WS:3-1

EXTERNAL PARTS OF A TURKEY