

Unit A: Introduction to Poultry Science

Lesson 5: External Anatomy of Geese

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

1. Explain general information about geese.
2. Describe how geese can be useful to the farmer.
3. Identify external anatomy of geese.

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.fao.org/docrep/005/y4359e/y4359e03.htm>

List of Equipment, Tools, Supplies, and Facilities

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

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

- **Abdomen**
- **Back**
- **Beak**
- **Breast**
- **Crown**
- **Dewlap**
- **Ear**
- **Eye**
- **Neck**
- **Shank**
- **Tail**
- **Thigh**
- **Throat**
- **Webbed Foot and Toes**
- **Wing**

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 geese. Write these facts about geese 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 geese.

(PowerPoint Slide #3)

- I. Geese belong to the order Anseriformes, which includes all sorts of waterfowl.
 - A. Swans and geese are the largest waterfowl, characterized by long necks and non-iridescent coloration.
 - 1. Even though they are waterfowl, geese spend most of their time on land.
 - 2. A male goose is called a gander.
 - a. A female goose is called a goose.
 - b. A baby goose is called a gosling.
 - c. A group of geese is called a gaggle.
 - d. The life expectancy of geese is 25 years.

(PowerPoint Slide #4)

- B. There are two major genera among the geese: Anser geese and Branta geese.
 - 1. Anser geese usually have pink, orange or gray legs and bills.
 - a. Their bills are serrated.
 - b. Belonging to this group are the species Bar-Headed, Bean, Emperor, Greylag, Pink-Footed, Ross', Snow, Swan Goose and White-Fronted.
 - 2. Branta geese always have black bills, which are softer than those of the anser geese and without serrations.
 - a. Belonging to this group are the species Barnacle, Brant, Canada, Nene or Hawaiian and Red-Breasted.

PowerPoint Slide #5 shows examples of the Anser species of geese. Note the Pilgrim and Whit and Brown Chinese geese are in this species and raised in Afghanistan. PowerPoint Slide #6 shows two examples of the Branta species of geese. Based upon the two major genera, have the students classify the other breeds of geese raised in Afghanistan as either Anser or Branta.

(PowerPoint Slide #7)

- C. Geese fly in V formation.
 - 1. The flapping of wings of one goose creates an uplift for the goose immediately following.
 - 2. Flying in V formation adds at least 71% greater flying range, than if each goose flew alone.
 - 3. When the goose in front gets tired, another goose will take over the front position.
 - 4. Geese will honk to encourage those up front to keep up their speed.

PowerPoint Slide #8 shows geese as they are flying in the “V” formation.

(PowerPoint Slide #9)

- D. Geese will choose a mate when they are about three years old and will stay monogamous for life, raising new families together each year.
 - 1. If one mate dies, the other mate will sometimes wait several years before choosing a new partner or might even stay single.
- E. The female goose will build a nest and line it with down plucked from her body.
 - 1. She will lay one egg each day until the full clutch of about 5 eggs is obtained.

PowerPoint Slide #10 shows pictures of nests that have been made by the goose. Note the down feathers that line the inside of the nest and will help to keep the eggs warm.

(PowerPoint Slide #11)

- 2. After all the eggs are laid, she will sit on her nest to incubate the eggs, which takes about 28-30 days.
- 3. Whenever she leaves the nest, she will cover the eggs with sticks to keep them warm and to camouflage to nest.
- 4. During all this, the male goose will stand somewhere nearby to keep watch, but not too close as to give away the location of the nest to a predator.

Engage the students in a discussion of the different breeds of geese raised in Afghanistan and the types of nests they may have when laying their eggs and hatching their young.

Objective 2: Describe how geese can be useful to the farmer.

(PowerPoint Slide #12)

- II. Geese are not nearly as popular to raise as chickens or ducks but they serve a purpose and are fun to watch.
 - A. Geese are good at controlling pests such as snails, slugs and common garden bugs.
 - 1. It takes very little to raise them in terms of feed for this very reason.
 - 2. One very popular reason to raise geese is for their down and feathers.
 - a. Down pillows and blankets are in very high demand.

(PowerPoint Slide #13)

- B. Geese are used with great success to control and eradicate troublesome grass and certain weeds in a variety of crops and plantings.
 - 1. The geese eat grass and young weeds as quickly as they appear, but do not touch certain cultivated plants.
 - 2. Why do geese eat certain plants with relish while showing no interest whatsoever for others?
 - a. Perhaps only a goose knows the answer.
 - b. Nevertheless, farmers throughout the world take advantage of this unusual characteristic.

PowerPoint Slide #14 shows examples of geese as they forage in grass and an orchard to help glean the fields of bugs and weeds.

(PowerPoint Slide #15)

3. Geese work continuously from daylight to dark, seven days a week (even on bright, moonlit nights) nipping off the grass and weeds promptly as new growth appears.
 - a. Geese remove grass and weeds next to plants that cannot be removed by hoeing or cultivation.
 - b. Roots of the cultivated plants are not damaged as is so often the case with hoeing and machine cultivating.
 - c. Geese also keep fence rows and irrigation ditches clean and work when the ground is too wet to hoe or cultivate.
 - d. In general, geese should be placed in the fields or plantings early in the season when grass and weed growth first starts to appear.

(PowerPoint Slide #16)

4. Under average conditions, two to four geese per half hectare are enough in row plantings.
 - a. Usually no more than two geese per half hectare should ever be needed if they are put into fields when the first grass appears in spring.
 - b. More may be required where plantings are in beds, since beds have a larger area where grass and weeds can grow.
 - c. More geese also may be required if grass and weed infestation is heavy during wet seasons, or if grass and weeds have made considerable growth before geese are placed in the fields.

(PowerPoint Slide #17)

5. Water troughs should be placed in fields at the far end of rows so that geese will work the full length of rows on their way to drink.
 - a. Water containers may be moved occasionally to make birds concentrate their efforts where they are most needed.
 - b. If there are no trees in the field, provide temporary structures for shade.
6. White Chinese geese are the favorites for weeding purposes, or Africans where a larger bird is desired for marketing at the end of the weeding season.

(PowerPoint Slide #18)

- C. Geese are excellent foragers.
 1. Good succulent pasture or lawn clippings can be provided as early as the first week.
 2. By the time the birds are 5-6 weeks old, a good share of their feed can be from forage
- D. Geese do not do well if enclosed in a house.
 1. They should be confined to a yard with a house for shelter protection during winter storms.
 2. When green pasture is not available, breeders can be maintained on roughage such as leafy clover or alfalfa hay, corn or pea silage, with a small amount of grain.
 3. If breeding stock becomes overly fat, poor fertility and hatchability may result.

Ask the students if they have observed geese foraging through the fields and orchards. Have the students share their observations.

Objective 3: Identify External Anatomy of Geese

(PowerPoint Slide #19)

III. The anatomy of a goose 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 goose:

1. **Abdomen.** The abdomen is the ventral part of the bird, homologous to the human stomach region (also called the belly). It is comprised of the area between the vent and the posterior sternum. A bird will sleep with one foot tucked into its abdomen.
2. **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.

(PowerPoint Slide #20)

3. **Beak.** The hard, protruding portion of a goose's mouth, consisting of an upper beak and a lower beak.
4. **Breast.** The breast is the upper chest area of a goose. 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. **Crown.** The top of the goose's head, located between the forehead and the back of the head.
6. **Dewlap.** A longitudinal flap of skin that hangs beneath the lower jaw or neck. More noticeable in some breeds than others.

(PowerPoint Slide #21)

7. **Ear.** The ears are the rounded areas on the bird's face, also called facial discs. They are not homologous to human ears.
8. **Eye.** The eye is the organ of sight. The bird's eyes are larger compared to the bird's skull and are, therefore, proportionally larger than human eyes. Since the skull is lighter compared to the human skull (adjusted for size), the eyes take up about 15% of the weight.
9. **Neck.** The neck connects the head to the body of the bird, homologous to the human neck. The neck allows the bird to move his head to increase its visual area without moving his body.
10. **Shank.** The part of a goose's leg between the spur and the first joint.

(PowerPoint Slide #22)

11. **Tail.** The cluster of feathers closest to the goose's rear.
12. **Thigh.** The true femoral region that is hidden by the skin or feathers of the body.
13. **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.

14. **Webbed Foot and Toes.** A membrane that connects the toes that aids in swimming.
15. **Wing.** The wing is the feathered appendage that allows a bird to fly. Strong flight muscles are attached to the wing such that the bird can lift its own bodyweight.

Use PowerPoint Slide #23 to show the external parts of a goose. A live bird can also be used if available. Copies of TM: 5-1 can also be distributed to the students or WS: 5-1 can be completed by the students as each part of the goose is discussed. PowerPoint Slide #24 can be used as a review by the teacher pointing to a specific part of the goose 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 #25. Have students explain the content associated with each objective. If possible bring a couple of geese to class or take the students outside to view a gander and goose to discuss the different characteristics about geese and to review their external anatomy.

Application: Application can involve the student activity in identifying external parts of live geese and or completing WS 5-1.

Evaluation: Evaluation should focus on student achievement of this lesson's objectives. Use WS: 5-1 as an evaluation or ask the students to identify the external anatomy of the goose. A sample written test is attached.

Answers to Sample Test:

Part One: Matching

1. E
2. C
3. D
4. A
5. B

Part Two: Completion

6. Eye
7. Beak
8. Dewlap

9. Throat
10. Breast
11. Shank
12. Webbed Foot and Toes
13. Thigh
14. Abdomen
15. Tail
16. Wing
17. Back
18. Neck
19. Ear
20. Crown

Test

Lesson A-5: External Anatomy of Geese

Part One: Matching

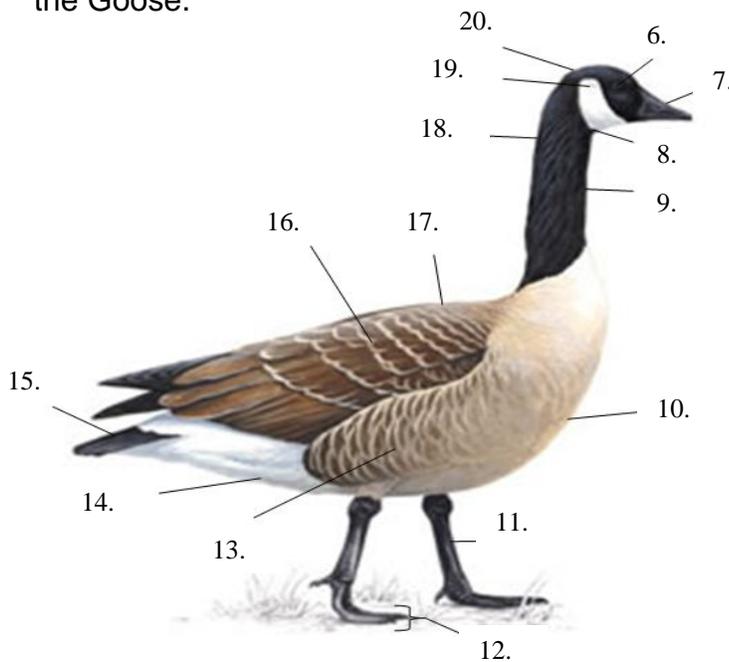
Instructions: Match the term with the correct response. Write the letter of the term by the definition.

- a. Gander
- b. Down
- c. Gosling
- d. Gaggle
- e. Goose

- ___1. Name for a female goose.
- ___2. Name used for baby geese.
- ___3. What a group of geese are called.
- ___4. Name given to a male goose.
- ___5. Soft undercoating of feathers.

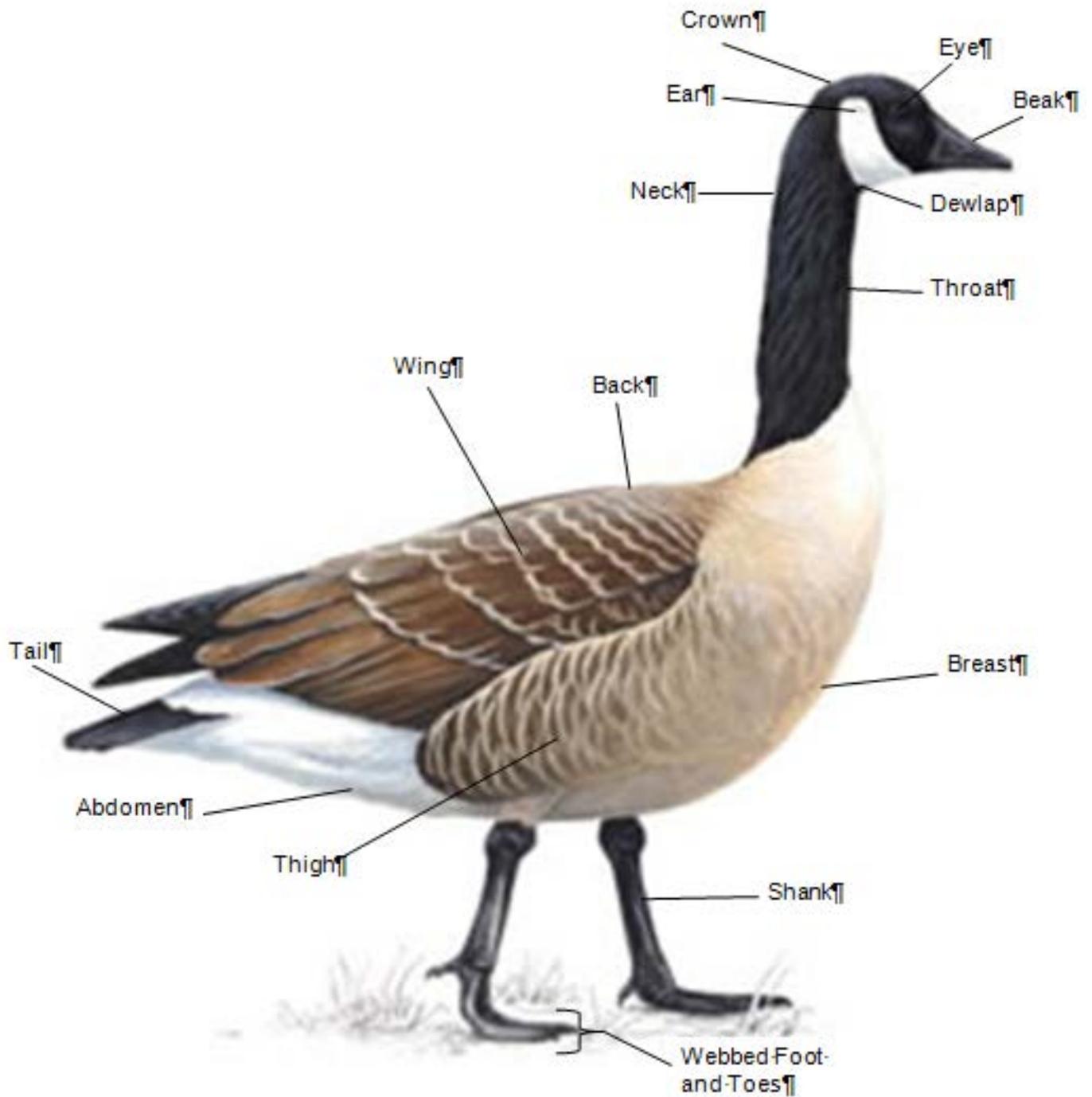
Part Two: Fill in the Blank

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



- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____
- 11. _____
- 12. _____
- 13. _____
- 14. _____
- 15. _____
- 16. _____
- 17. _____
- 18. _____
- 19. _____
- 20. _____

EXTERNAL ANATOMY OF A GOOSE



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