

**Course:** Animal Science I

## **Unit:** *Animal Digestion*

### **Unit Objectives:**

- A. Describe the major parts and functions of the digestive system
- B. Define monogastric and list characteristics of monogastric animals
- C. Describe the Ruminant Digestive System
- D. Describe the Avian Digestive System
- E. Classify animals according to their type of digestion
- F. List Digestive Enzymes and their function

### Interest Approach:

Use slides 2 & 3 of PowerPoint and have students guess on a scrap sheet of paper the source of the track. Answers can be found in the notes below the slide. Guess the foot/h hoof tracks first, then the feces. After the students have guessed and you have given the answers, begin asking students what clues they used to guess the species. Ask if the feces give any clue of what type of digestion system they have, what type of food they eat, etc. Throughout this unit, they will learn about the different digestive structures that turn feed into energy in animals.

### **Objective A: Describe the major parts and functions of the digestive system**

- Using notes and PowerPoint slides, teach and illustrative objective to students.

### **Objective B: Define monogastric and list characteristics of monogastric animals**

- Using notes and PowerPoint slides, teach and illustrative objective to students.
- Search YouTube or other website online for a short video clip or animation of the monogastric digestive system
- **Assignment: Monogastric Digestive System Model**
  - Have students describe the function of the digestive organs listed on the front of the worksheet using their notes and/or textbook.
  - Provide play doh to students to make a model of the pig's digestive system. If play doh can't be provided, you can substitute it by assigning them to sketch it with colored pencils.
  - Have students model each organ and lay it on the pig. After it is modeled, have them use a pen or pencil to draw arrows and label each organ on the worksheet.

### **Objective C: Describe the ruminant digestive system**

- Using notes and PowerPoint slides, teach and illustrative objective to students.



- Search YouTube or other website online for a short video clip or animation of the ruminant digestive system
- **Assignment: Ruminant Digestive System Sketch**
  - Have students sketch the ruminant digestive system.
  - Be sure they are labeling the process in the correct order.
- **Lab: Ruminant Digestive System Dissection**
  - Ask a butcher or local farmer/rancher to keep the digestive system of a sheep or cow that is being slaughtered. Lamb digestive systems are much smaller and easier to move. They also don't smell as strong since they are smaller.
  - Lay the system out on a table in front of the class in a well-ventilated area with the esophagus on one side and intestines on the opposite side.
  - Start with the esophagus and cut open each section. Move through the entire system. Have students observe what the feed looks like in each stage of digestion (chewed in big pieces, small pieces, mixed with a lot of digestive juices, dry, wet, etc)
  - To keep students engaged during the dissection, have them fill out the dissection worksheet with their observations. There aren't necessarily right and wrong answers for some of the observations. The worksheet will help students pay attention.

## Objective D: Describe the avian digestive system

- Using notes and PowerPoint slides, teach and illustrative objective to students.
- Search YouTube or other website online for a short video clip or animation of the ruminant digestive system
- **Lab: Avian Digestive System Dissection**
  - Collect the digestive system of a bird
  - Lay the system out on a table in front of the class in a well-ventilated area with the esophagus on one side and intestines on the opposite side.
  - Start with the esophagus and cut open each section. Move through the entire system. Have students observe what the feed looks like in each stage of digestion (chewed in big pieces, small pieces, mixed with a lot of digestive juices, dry, wet, etc)
  - Emphasize the differences found in avian digestion. Be sure to cut open the gizzard.
  - To keep students engaged during the dissection, have them fill out the dissection worksheet with their observations. There aren't necessarily right and wrong answers for some of the observations. The worksheet will help students pay attention.

## Objective E: Classify animals according to their type of digestion

- Using notes and PowerPoint slides, teach and illustrative objective to students.



- Explain to students what a “modified monogastric” is. The only difference between modified monogastrics and monogastrics is that they have an enlarged cecum which helps ferment roughages (similar to the rumen) to allow the animal to break down feed into useable energy. The term “Pseudo ruminant” can also be used.

## Objective F: List digestive enzymes and their function

- Using notes and PowerPoint slides, teach and illustrative objective to students.

## Unit Review:

- **Assignment: Magic School Bus Digestive System Tour**
  - Pass out worksheet and ask students what they remember about the Magic School Bus and “Miss Frizzle.” They likely watched it in elementary school. Miss Frizzle shrunk the magic school bus and took it to many places. She described everything they saw through the bus window.
  - Instruct students to be creative and write a short essay describing each digestive system as Miss Frizzle would.
  - It may help students to be more creative if they watched short clips of the magic school bus before they start. “The Magic School Bus for Lunch” is the episode on the digestive system. It may be available on Netflix, YouTube, or another website.
- **Class Review: Test Review Basketball**
  - Divide class into teams. Use garbage can as a “basket.” Get a small ball to use as a basketball. Place 3 lines on the floor in front of the basket. Mark the closest line “1 Point,” the middle line “2 Points,” and the farthest line “3 Points.”
  - Use the PowerPoint to ask each question. The first team to answer each question correctly gets a chance to shoot a basket and acquire the associated points.
  - Re-teach and clarify as needed to prepare for the test.

## Unit Test

