BIOL 2402   A&P 2 Laboratory

The Human Digestive System: Anatomy and Physiology

NOTE: You need to use Anatomy & Physiology / Revealed, Version 2.0 software and your textbook (Chapter 24) to complete this Lab Assignment.

What do I have to know for this laboratory?
1. to name and locate the major organs & structures of the human digestive system.
2. to describe the function of the major organs & structures of the human digestive system.

Introduction
When we eat and swallow foods, most nutrients in them are not available to our body cells. Proteins, carbohydrates and lipids must be broken down into their building blocks before they can be absorbed from the gastrointestinal tract (GI tract) into the bloodstream. One of the main functions of the digestive system is to break down macromolecules into smaller ones so that body cells can then absorb them. The digestive system is composed of the alimentary canal or GI tract and accessory organs (glands). In this laboratory, you will first view an animation about the digestive system. Then the anatomical structures of the alimentary canal and accessory organs will be studied.

PART 1 Organs of the Digestive System

NOTE: Find the answers to PART 1 A) and B) questions in your textbk, Ch 24.

The digestive system consists of the digestive track or alimentary canal and accessory organs (glands).

A) List all the digestive system organs found in the alimentary canal.

B) List all the accessory organs (glands) of the digestive system.
A) To access the animation “Digestive System Overview”, click at the ANIMATIONS icon located at the top center of the Digestive System screen.

B) From the ANIMATION LIST, click at the down arrow and select “Digestive System Overview”

Click at this button to start the animation

Click at this button to pause the animation

To rewind or forward the animation, click and draw the round, red button.

Answer the following questions after viewing the animation:
1. The four main functions of the digestive system are?
2. Name the two types of digestions.
3. Digestion BEGINS at the _________________. How does this occur?
4. Another name for chewing is ________________
5. List the function of the salivary glands.
6. What is the function of saliva?
7. Name the structure that prevents food from entering the respiratory system.
8. Name the structure that connects the pharynx to the stomach.

9. When food is swallowed, it is called ________________

10. The involuntary “wavelike” contractions of muscles in esophagus that move the bolus to the stomach is called ________________________

11. What are rugae?

12. What are the functions of rugae?

13. List the secretions released from stomach cells.

14. The bolus, when mixed with stomach secretions, is called ____________

15. Chyme exits the stomach through the ________________________ and enters the ________________________

16. The major site of nutrient absorption in the digestive system is the ________

17. Name the three parts of the small intestine, from proximal to distal. Use the figure to label these structures.

18. What digestive secretions enter the duodenum? Where do they originate or come from?

19. Chyme that is not absorbed in the small intestine enters the _______________

20. List the sequence of structures that chyme passes through as it becomes feces.

21. What is absorbed from chyme as it passes through the colon (large intestine)?
22. Feces are stored at ____________________
23. Feces are eliminated through the ____________________

**PART 3** The Oral Cavity, Lateral View

**NOTE:** you need to be able to identify the parts of the human digestive system studied in this lab **AND** know functions for each organ or part studied.

A) After viewing the “Digestive System Overvies” animation, click at the DISSECTION icon

B) From the Select Topic, select “Oral Cavity and Pharynx” and then from the Select view select “Lateral”. Click then at the blinking green GO button.

C) Draw slowly the red arrow under LAYER 1 or Click LAYER 2 in the LAYER CONTROLS window, and the following image appears:

D) Mouse-over the pins on the screen and name only the labeled parts of the oral cavity that you see in this figure. **Label:**

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 
11. 
12. 
13. 
14. 
15.
**PART 4**  
Esophagus, Anterior View

A) Click **CHANGE TOPIC/VIEW**. From the **SELECT TOPIC/VIEW** choose “Esophagus” (Anterior view automatically is selected). Click then at the blinking green **GO** button.

B) Click at **LAYER 1** and mouse over the blue pins to learn the structures.
C) Click at **LAYER 2** and mouse over the blue pins to reveal the name of the structures.

D) Click at **LAYER 3** and mouse over the blue pins and the green pin to reveal the name of each structure.

E) Slowly draw down the red arrow under **LAYER 3** and then click at **LAYER 4**. You will see the following picture:

F) Mouse-over the pins on the screen and name only the labeled parts that you see in this figure.

**Label:**
1.
2.
3.

G) Click at **LAYER 5** and mouse-over the pins to reveal the names of the structures.

H) Is the esophagus anterior or posterior to the trachea?
PART 5  Digestive System: Abdominal Cavity, Anterior View

A) Click CHANGE TOPIC/VIEW. From the SELECT TOPIC/VIEW choose “Abdominal Cavity” (Anterior view automatically is selected). Click then at the blinking green GO button.

B) Click at LAYER 2. You will see the following picture:
Mouse-over the pins on the screen and name only the labeled parts that you see in this figure.

Label:
1.
2.
3.
4.

C) Click at LAYER 3. You will see the following picture:
Mouse-over the pins on the screen and name only the labeled parts that you see in this figure.

Label:
1.
2.
3.
4.
5.
6.
PART 6  The Stomach and Duodenum – Anterior View

A) Click CHANGE TOPIC/VIEW. From the SELECT TOPIC/VIEW choose “Stomach and Duodenum” (Anterior view automatically is selected). Click then at the blinking green GO button.

B) Click at LAYER 1 & you will see the following picture:
Mouse-over the pins on the screen and name only the labeled parts that you see in this figure.
Label:
1.
2.
3.
4.
5.

C) Click at LAYER 2 & you will see the next figure:

D) Mouse-over the pins on the screen and name only the labeled parts that you see in this figure:
Label:
1.
2.
3.
4.
5.
6.
PART 7  Liver – Anterior & Posterior-Inferior Views

A) Click **CHANGE TOPIC/VIEW**. From the **SELECT TOPIC/VIEW** choose “Liver” (Anterior & Posterior-inferior view automatically is selected). Click then at the blinking green **GO** button.

B) Click **LAYER 1** in the **LAYER CONTROLS** window, and the following image appears:

C) Mouse-over the pins on the screen and name only the labeled parts that you see in this figure:

   **Label:**
   
   **Anterior View**
   1.  
   2.  
   3.  

   **Posterior-Inferior View**
   4.

   ![Liver Views](image)

**REMEMBER:** you need to be able to identify the organs and parts of the human digestive system studied in this lab using similar pictures of the human digestive system AND know functions for each organ or parts reviewed in this laboratory. Use the attached table to write functions of the organs & parts of the digestive studied in this lab. Include other structures in this table as you do the laboratory.
Add other structures, besides the ones on this table, as you work in the lab and describe their functions.

### Functions of the Human Digestive System Organs & Parts

<table>
<thead>
<tr>
<th>Structure</th>
<th>Function or Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouth</td>
<td></td>
</tr>
<tr>
<td>Hard Palate</td>
<td></td>
</tr>
<tr>
<td>Soft Palate</td>
<td></td>
</tr>
<tr>
<td>Tongue</td>
<td></td>
</tr>
<tr>
<td>Pharynx</td>
<td></td>
</tr>
<tr>
<td>Epiglottis</td>
<td></td>
</tr>
<tr>
<td>Esophagus</td>
<td></td>
</tr>
<tr>
<td>Diaphragm</td>
<td></td>
</tr>
<tr>
<td>Stomach</td>
<td></td>
</tr>
<tr>
<td>Gastric Folds or rugae</td>
<td></td>
</tr>
<tr>
<td>Pyloric Sphincter</td>
<td></td>
</tr>
<tr>
<td>Duodenum</td>
<td></td>
</tr>
<tr>
<td>Small Intestine</td>
<td></td>
</tr>
<tr>
<td>Mesentery</td>
<td></td>
</tr>
<tr>
<td>Large Intestine</td>
<td></td>
</tr>
<tr>
<td>Liver</td>
<td>Describe the <strong>DIGESTIVE</strong> function of the liver:</td>
</tr>
<tr>
<td>Gallbladder</td>
<td></td>
</tr>
<tr>
<td>Pancreas</td>
<td>Describe the <strong>DIGESTIVE</strong> function of the pancreas.</td>
</tr>
</tbody>
</table>