

Sec.: _____ Name: _____

Experiment: The Stomach, Liver and Pancreas
(B. Science 10-38-2d)

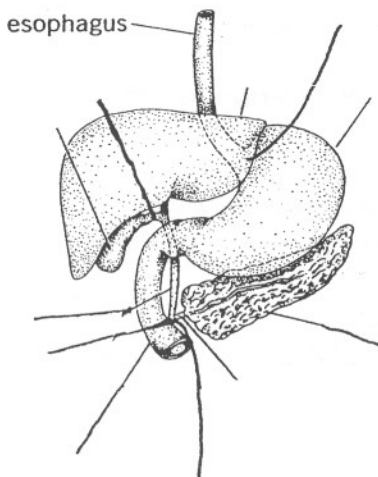
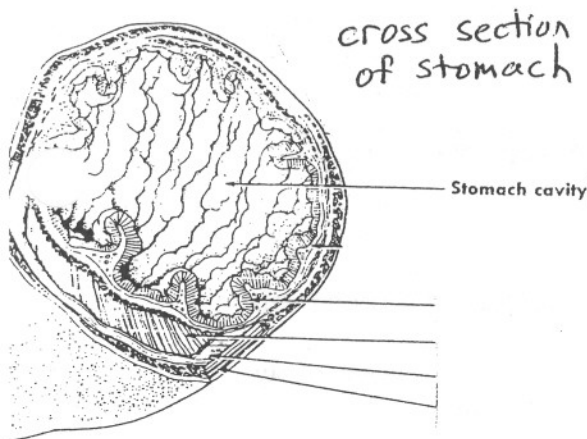
Purpose: To become familiar with the parts of and functions of the stomach, liver and pancreas.

Materials: human model (Mh 701-705)

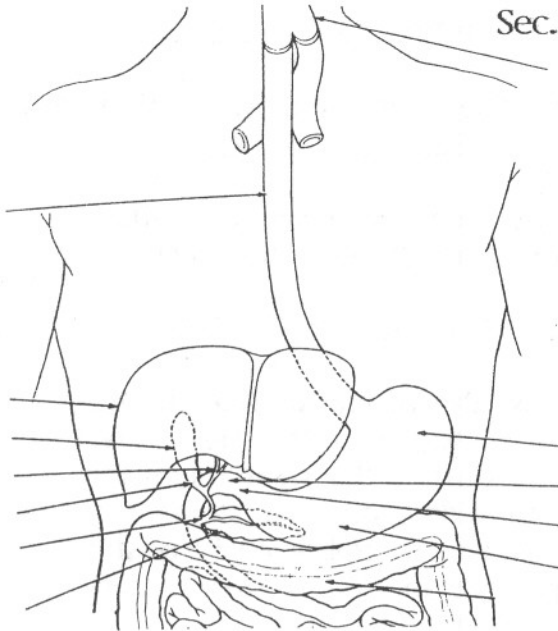
Methods: **Know the function and location of all the parts printed in bold. Be ready for a quiz on these during the next day's lab.**

1. Label the following parts of the stomach on the first diagram: mucous membrane with gastric glands, oblique muscle, circular muscle, and longitudinal muscles.
2. Label the second diagram with the parts printed in bold.

Chyme leaves the esophagus and enters the stomach by the **cardiac sphincter**. The first part of the stomach is the **fundus of stomach**, the remaining large portion is the **body of the stomach**. The **liver** is a dark chocolate colored organ and weighs about 1.5 kilograms. The liver is in the upper right area of the abdomen. The liver produces and secretes bile a brownish - green fluid used in the digestive process. This bile travels down the **bile duct**. Some bile travels down to the **Y - shape junction** on to the **common bile duct** and then on to the **duodenum** (small intestine). While some of the bile travels up the **cystic duct** to the **gall bladder**. Bile is stored here in concentrated form by removing some of the water. When bile is needed the bile leaves the gall bladder by the **cystic duct** to the bile duct to the common bile duct and to the duodenum. Jaundice occurs when the common bile duct becomes clogged by gallstone or a plug of mucus, which backs the bile up into the bloodstream. Jaundice turns eyes & skin a yellowish color.



The **pancreas**, is long and white and has many lobes, it looks similar to the salivary gland. It lies behind the **stomach** and the upper end of the **small intestine** against the back wall of the abdominal cavity. The pancreas performs two very different functions. It passes digestive secretions called pancreatic fluid into the small intestine by



the **pancreatic duct** which connects to the **common bile duct** which empties into the **duodenum**, (part of the small intestine). The pancreas also produces insulin which enables the liver to store glycogen.

Label all the parts of the diagram on this side of the page indicated by arrows.

Conclusions: 1. Describe the function(s) of the: three muscles in stomach:

pyloric valve:

gastric glands: 1. _____ 2. _____ 3. _____

liver:

common bile duct:

gall bladder:

pancreas: 1. _____ 2. _____

2. If the pancreas is not working properly, how could this affect your blood sugar level?

Discussion:

1. List the following parts of the alimentary canal in order as a particle of food travels through during the digestive process:

- | | | | | |
|-------------------|------------|-----------|---------------|--------------|
| fundus of stomach | tongue | esophagus | pharynx | mouth cavity |
| body of stomach | epiglottis | duodenum | pyloric valve | |
| a. _____ | b. _____ | c. _____ | | |
| d. _____ | e. _____ | f. _____ | | |
| g. _____ | h. _____ | i. _____ | | |

2. Replace the under lined phrase with the correct type of digestion.

a. The process of breaking food into smaller pieces increases the amount of food exposed to digestive chemicals. _____

b. Nutrient molecules that can be used by your body's cells are produced during the process of breaking complex molecules into simpler molecules.

3a. Two labs ago we learnt what meats were clean and what were unclean. What does God's dream to Peter (Acts 10:9-17a) possibly suggest about further observance to this rule?

3b. Did Peter then go out and eat unclean meats (Acts 10:14, 11:8)?

3c. What was the spiritual meaning of this dream that Peter understood and applied in his life (Acts 10:28, 44-48, 11: 1-18)?