

Name: _____ Class: _____

Pig Digestive Tract Student Notes - Answer Key

Monogastric vs. Polygastric Digestive Systems

- **Monogastric:**
 - Stomach is a simple structure
 - One compartment
 - Humans have monogastric stomachs
 - Animals:
 - Pigs
 - Horses
 - Dogs
 - Rabbits
 - Fowl
- **Polygastric:**
 - Also called Ruminant digestive system
 - Stomach is a complex structure
 - Many compartments (4)
 - Animals:
 - Cow
 - Sheep

Digestive Tract of the Pig

- The digestive tract starts in the mouth and ends in the anus of the pig
- As food passes through, it is broken down into smaller and smaller parts
- Goals of digestive system:
 - Break down food for nutrients
 - Absorbed food as nutrients
 - Non-absorbable material passes through the body as urine or feces

Main Parts of the Digestive System

- Mouth:
- Esophagus:
- Stomach
- Small Intestine
- Large Intestine
- Anus

Mouth

- Where food enters
- Mechanical breakdown of the food begins here
- Teeth:
 - Used for chewing and grinding

Pig Stomach Model Curriculum

- **Saliva:**
 - Used to soften food particles
 - Contains enzymes to digest the starch
- **Tongue:**
 - Pushes the food down to the esophagus

Esophagus

- Carries food from the mouth to the stomach
- Swallowing is the first muscle contraction that pushes food from mouth to stomach
- Muscle contractions push the food through the esophagus to the stomach
- **Cardiac Valve:**
 - Prevents food from passing from the stomach back up to the esophagus once it has reached the stomach

Stomach

- Where chemicals are added to break down the food
- Hydrochloric acid & enzymes:
 - Break down the food into carbohydrates, **proteins**, and fats
 - **Particles of food are broken down for nutrients**

Parts of the Stomach

- **Esophageal region:** located at the entrance of the stomach from the esophagus. This region does not secrete digestive enzymes but has significance where ulcers can form in the pig
- **Cardiac region:** where mucus is secreted and mixes with the digested foods
- **Fundic region:** first major portion of the stomach where the digestive process begins
- **Pyloric region:** this region is responsible for secreting mucus to line the digestive membranes to prevent damage from the low pH of digested particles as it passes to the small intestine
- **Pyloric sphincter:** regulates the amount of digested particles that pass through to the small intestine

Small Intestine

- Spiral complex tube that fits in a small space
- Walls have finger-like projections called **villi**
- Villi helps absorb digestive foods as it moves through the small intestine
- The three sections of the small intestine are called the duodenum, jejunum, and the ileum

Large Intestine

- Main function is to absorb water
- digests fibrous material
- Moves waste material (feces) out of the system
- Connected there is the cecum which is known as the **"blind gut"**

Anus

- Opening where undigested food passes
- Passes as **feces**