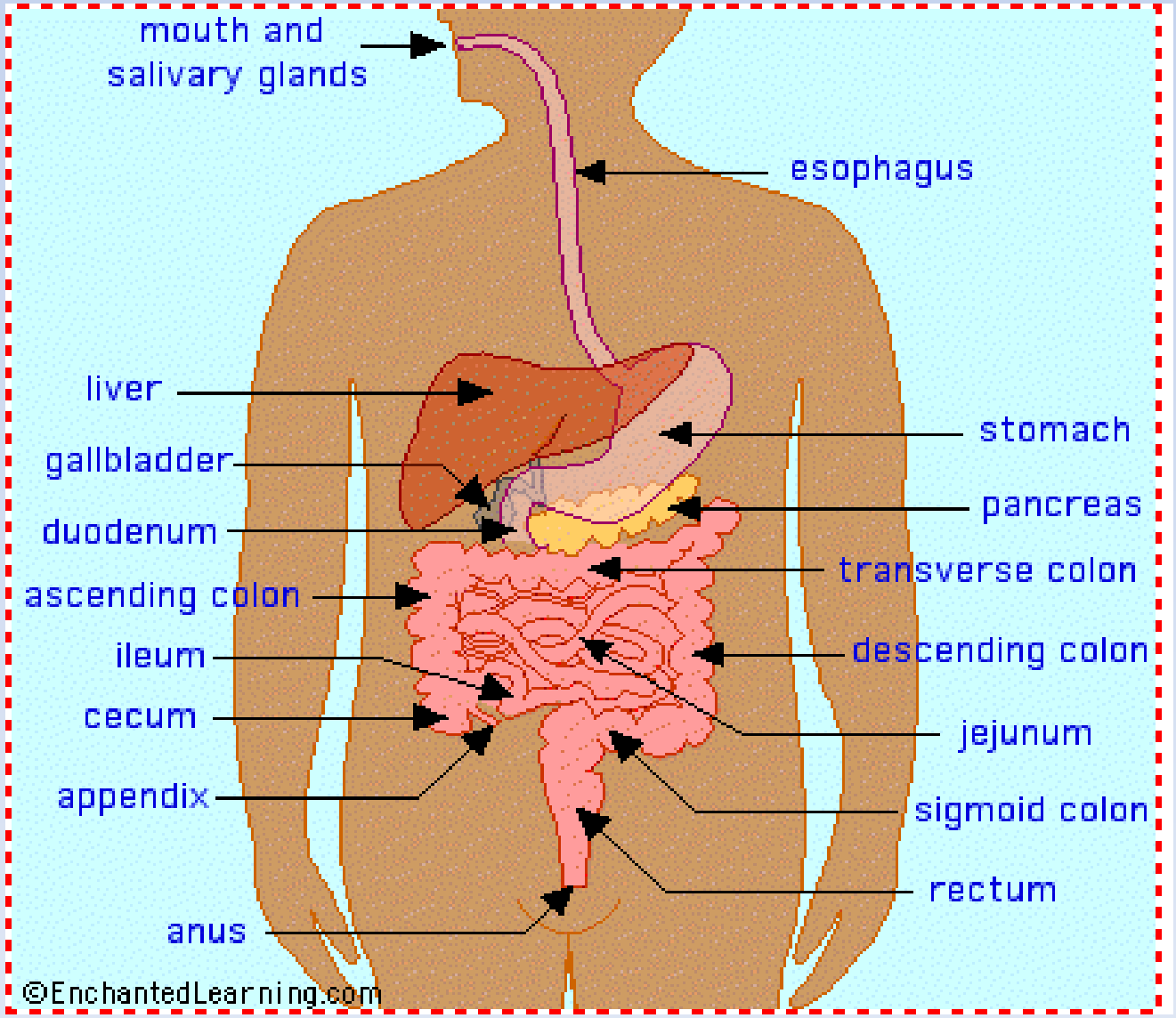
Digestive System Overview

Where did the food go?

DIGESTIVE SYSTEM



Purpose:
to convert food particles into simpler micro-molecules that can be absorbed into the bloodstream and used by the body.

How does the system work?

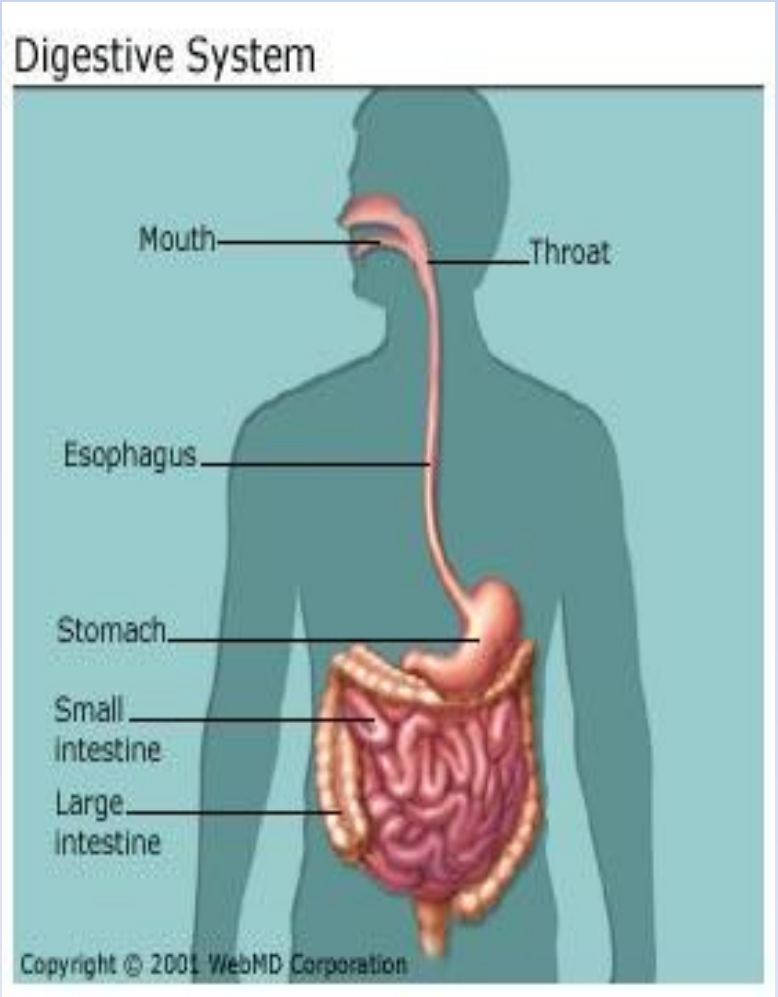
The digestive system has 2 main parts:

- The Gastrointestinal Tract* (aka the GI tract or Digestive tract) and the
- Accessory Organs

- *Gastrointestinal means "involving both the stomach and the intestines."*
- *Tract means "a series of connected body parts that work together to perform a task"*

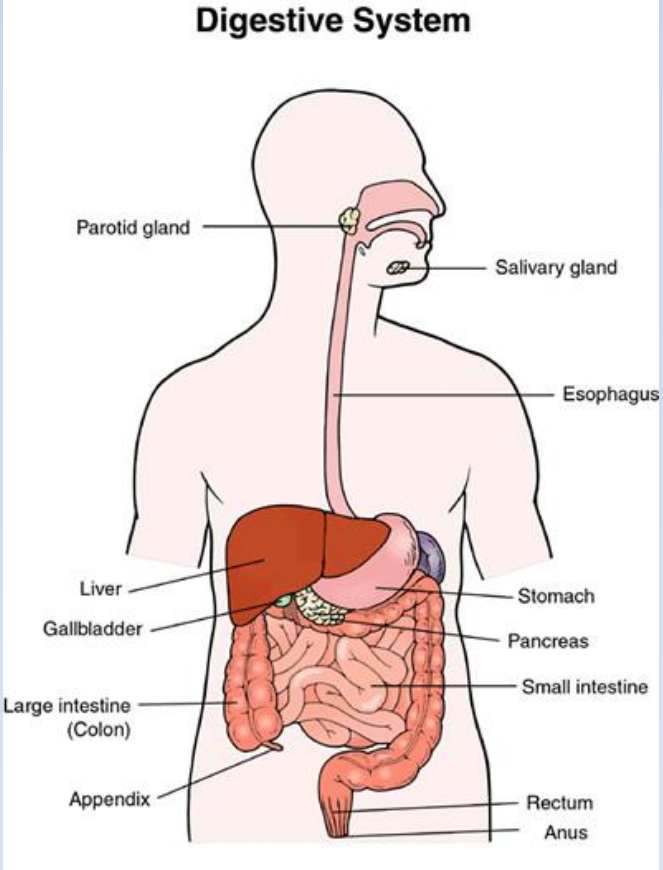
The Gastrointestinal Tract

- The GI tract includes a series of connected, hollow organs through which food passes.
- The GI tract starts at the mouth and continues through the esophagus, stomach, small intestine, and large intestine.



The Accessory Organs

- Food does not actually pass through the accessory organs. Instead, the accessory organs contribute various enzymes (like saliva and bile) to the GI tract to help it do it's job. Just like fashion accessories do for clothes (they are not the main components of the outfit but they make it look good!).



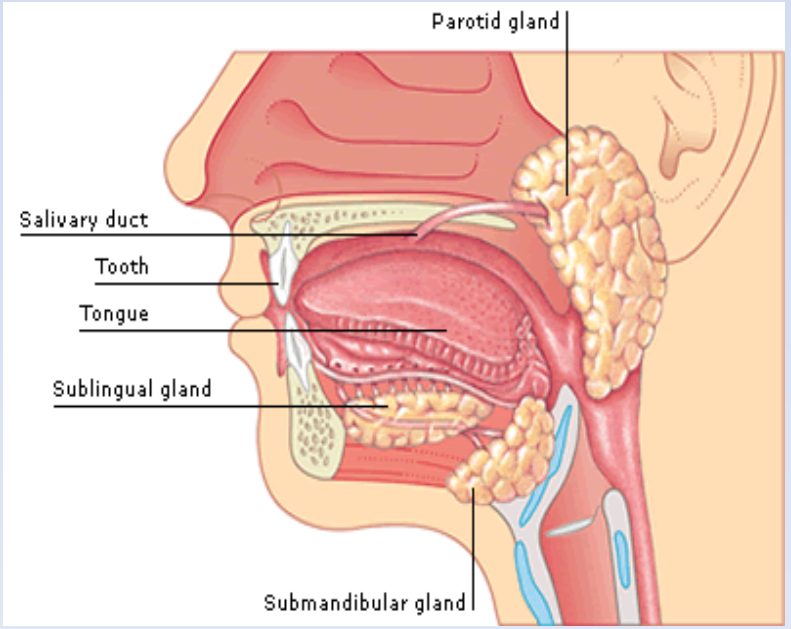
The accessory organs include the salivary gland, liver, pancreas, gallbladder, and appendix.

Watch Your Mouth!

Digestion starts with **INGESTION**. *Ingestion is the process of putting food into your body by swallowing.* This happens in the mouth.

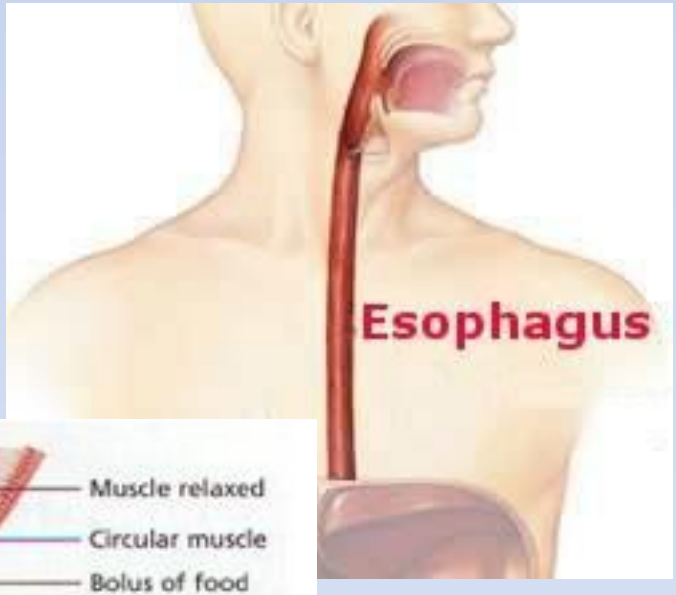
- Your teeth break food into pieces small enough to swallow (mastication) and
- saliva helps to soften food up and begin the digestion process.
  - We have 3 salivary glands which produce saliva. Saliva contains water, mucus, and amylase (an enzyme that breaks down starches).

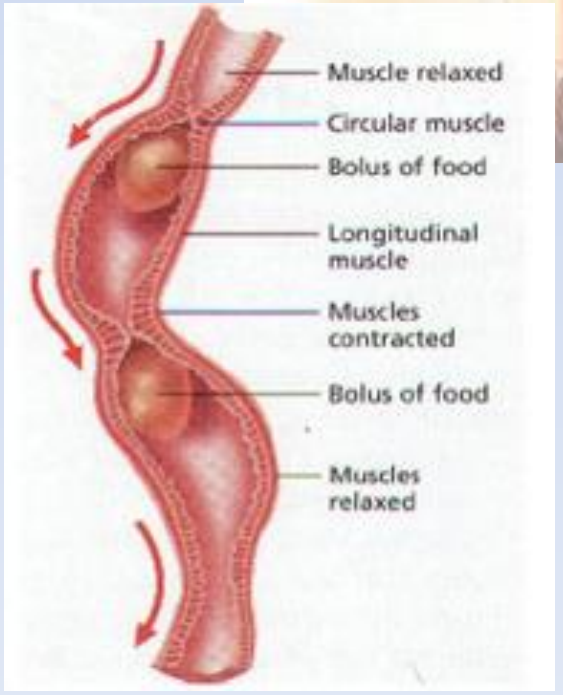
*The hunk of chewed up food is called a **BOLUS**



Amylase (Am-uh-lays)
Bolus (Bṑ-Lus

Down the Chute!

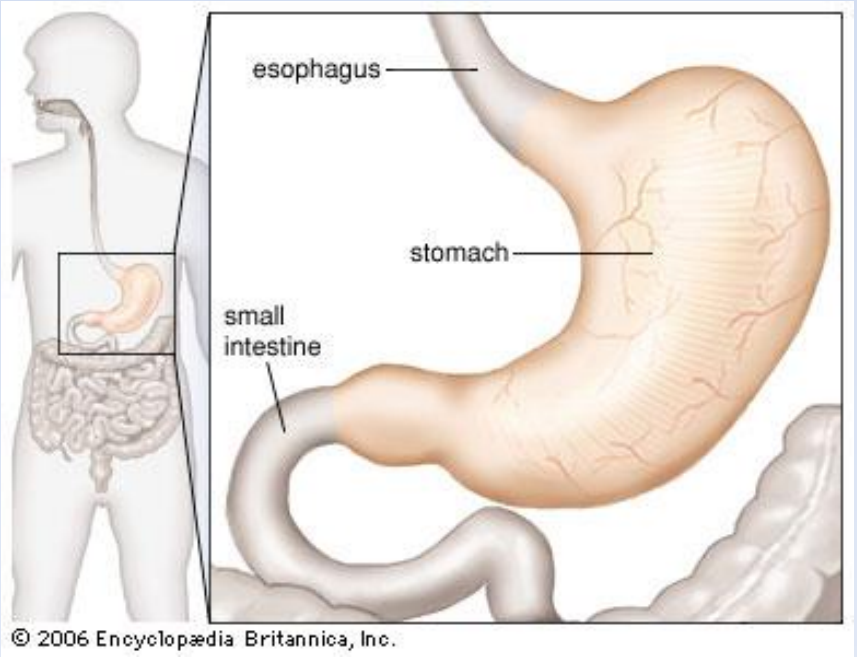




- Once the bolus is pushed to the back of the mouth by your tongue and swallowed, it travels down the esophagus in a process called deglutition.
- This long, thin muscular tube contracts to force the food down to the stomach.
- The narrow shape of the esophagus is why we need to chew food into tiny pieces.

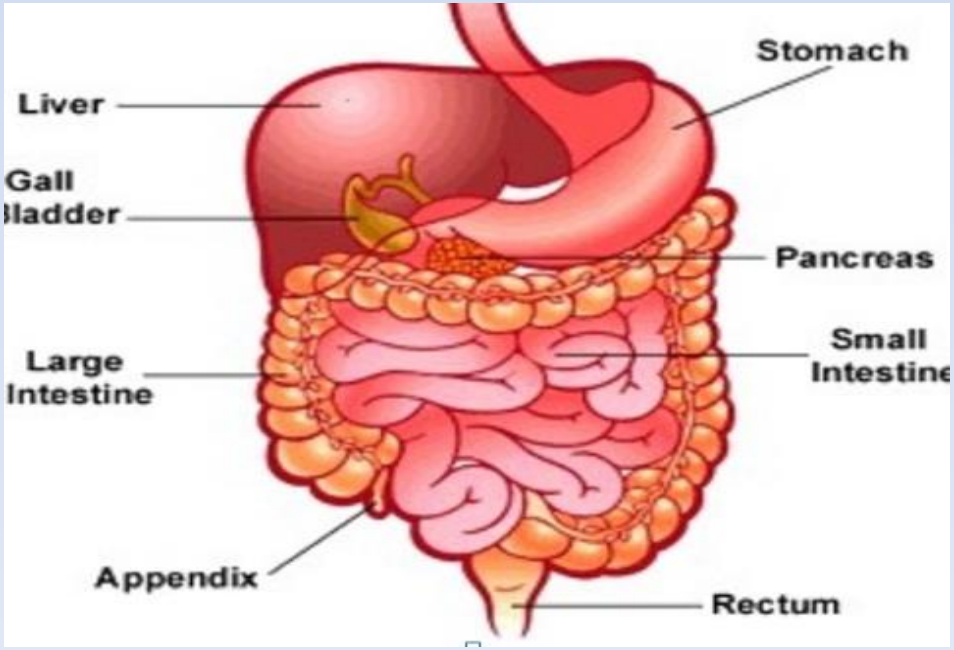
A Rumbling in my Tummy

- The bolus enters the stomach which continuously contracts in order to help break down food through mechanical digestion.
- It also contains stomach acid which helps to break down food through chemical digestion. This acid is especially good for breaking down proteins.
- The lining of the stomach keeps the acid from eating through.
- Food usually stays in the stomach for 30 minutes or more.
- Chyme is the name for the partially digested food that leaves the stomach and travels into the small intestine.



The Small Intestine

- Chyme goes into the small intestine which is over 20ft long in adults!
- Most digestion happens here. The small intestine gets help from the liver, gallbladder, and pancreas to continue chemical digestion.



- The liver produces bile which is stored in the gallbladder. It helps to break down fats.
- The pancreas produces multiple enzymes (including pancreatic fluid and insulin) that help to break down starches, sugars and carbohydrates.
- These nutrients are filtered through perforations into the bloodstream for use by other organs.
- Food typically takes about 2 hours to travel through the entire small intestine but it can sometimes take up to 8 hours!

The Large Intestine

- While shorter than the small intestine, the large intestine is much wider!
- Often referred to as the colon, it is the end of the GI tract.
- Here, water is removed from the food and waste is prepared for elimination.
- The appendix is often thought of as a useless organ but scientists are beginning to learn that the bacteria contained here is actually beneficial in helping to get vitamins from food and, possibly, in digesting unclean foods (undercooked meats for example).
- The last section of the colon is called the rectum. Waste is stored here until elimination time.
- The opening at the end of the large intestine, called the anus, is where waste exits the body.