Digestion and Nutrients

**Digestion**: is the process where food is broken down by the digestive system into small nutrients to be absorbed by the body

**Nutrients**: are very tiny molecules that are broken down from large molecules to be absorbed and used by body cells.
Digestion

There are two types of digestion:

- **Mechanical digestion**: Changes the physical form of food (physical changes)
- **Chemical digestion**: Changes the chemical composition of food into a new substance with the aid of digestive enzymes (chemical changes)
Mechanical Digestion = Physical Change

It takes place inside the mouth where teeth and tongue breakdown food. (Physical Changes)

- Chew
- Tear
- Grind
- Mash
- Mix
- Crush
Chemical Digestion = Chemical Change

- The **salivary glands** secrete mucus and an enzyme called saliva that breaks down carbohydrates into sugar.
Esophagus

- The **esophagus** is a muscular tube. As we swallow, we push food along the tube until the food reaches our stomach. This process of pushing down the food is called **peristalsis**.
Stomach

- The stomach mixes the Food with gastric juices called pepsin to form chyme.
- The chemical digestion of **proteins** begins in the stomach.
Which type of digestion?

- Chewing a saltine?
- Saliva breaking the saltine down into molecules of glucose?
- Your tongue breaking pieces of a hamburger apart?
- Pepsin (an enzyme) in your stomach breaking the hamburger into amino acids?
Small Intestines

- Here where fat molecules are broken down into smaller molecules. Which is an example of **chemical** digestion
- The remaining food is pushed down (peristalsis) to exit the digestive system. Which is an example of **physical** digestion.
Small intestine (small bowel)
Digestion Video

http://www.youtube.com/watch?v=AEsQxzeAry8&feature=related
Why Do We Eat?

- The food we eat has **chemical energy** stored in it.
- This energy is released by breaking the food down by the digestive system.
- The law of conservation of energy states: Energy can’t be destroyed or created. Energy changes forms.
Why Do We Eat?

Body uses this released energy to:

Walk, Jump, Talk, Breath by changing
- Chemical energy $\rightarrow$ Mechanical energy.

Also to generate body heat by changing.
- Chemical energy $\rightarrow$ Heat energy.