**Guided Notes – The Digestive System**

(Outcome 24 & 25)

Name:  Date:

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**Purpose & Function**

* **Function 🡪 to help convert foods into simpler molecules that can be and by cells in the body**
* Your body cells convert the chemical energy stored in food into ATP
* Includes 🡪 mouth, esophagus, stomach, small intestine, and large intestine.

**Energy in Food**

* Energy in food can be measured by burning it 🡪
* – the amount of heat required to raise 1g of water by 1\*C
* Fat 🡪 9 calories per gram
* Carbs & Proteins 🡪 4 calories per gram
* Food supplies the raw materials used to and the body
	+ make proteins that regulate cellular reactions
	+ make phospholipids in cell membrane
	+ make the DNA in your genetic material

**Mouth**

* **Purpose** 🡪 **large food particles into smaller ones**
* 🡪 cut, tear and crush food
	+ anchored in bones of the jaw
	+ surface protected by mineralized enamel
* 🡪 breaks down and moistens food for easier chewing
	+ contains enzymes called amylase
	+ amylase – breaks down carbs and starches into sugars

**Esophagus & Stomach**

Esophagus

* **Purpose** 🡪 **to push (chewed up ball of food) down the throat**
* Food is moved along by contractions of smooth muscle –
* Sphincter closes the esophagus after food has passed into the stomach 🡪 prevents contents of stomach from moving back up the esophagus

Stomach

* **Purpose** 🡪 **a large where digestion is continued**
* Exits stomach through the pyloric sphincter

**Small Intestine**

1. Duodenum

* **Purpose** 🡪 **and of the food you eat**
* Lined with 🡪 tiny finger-like projections to increase surface area
* Almost all the digestive enzymes enters the small intestine
	+ Amylase 🡪 break down starch
	+ Trypsin 🡪 break down protein
	+ Lipase 🡪 break down fat
	+ Maltase, sucrase and lactase 🡪 break down carbohydrates further
	+ Peptidase 🡪 break down protein further
* Digestive fluid comes from the pancreas, liver, and lining of

2. Jejunum & Ileum

* **Purpose** 🡪 **of nutrients**
* Approx. 6m long
* Most digestion is complete at this point
* Most of digested proteins and carbs are absorbed into the capillaries ( )
* Molecules of undigested fat and some fatty acids are absorbed by lymph vessels
* There is very little enzymatic activity in your small intestine

**Pancreas**

* Behind the stomach
* **3 important functions**
1. Produce 🡪 regulate blood sugar levels (insulin)
2. Produces 🡪 break down CHO, proteins, lipids and nucleic acids
3. Produced 🡪 neutralizes stomach acids

**Liver**

* Just above and to the right of the stomach
* **Purpose** 🡪 **produces**
* – a dissolving detergent that helps dissolve fat in fatty foods
	+ Stored in a small pouch like organ called a
	+ Does not contain enzymes
	+ Breaks up large droplets of fat into smaller droplets

**Large Intestine (Colon)**

* **Purpose 🡪 to from undigested food**
* across the wall of the large intestine
* Bacteria present in the large intestine produce compounds that the body can use (ex. vitamin K)

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*Extension: What would happen to these bacteria if you took large amounts of antibiotics?*