Name: _____ Block: _____ Date: _____

☞ Trace A *Tofu, Lettuce, And Tomato Sandwich* Through The Human Alimentary Canal ☺

- This sandwich contains _____ (in the tofu, bread, and vegetables), _____(especially in the tofu), _____(in the bread and vegetables), _____ _____, **vitamins**, **minerals**, **trace elements**. Most of the nutrients must first be **broken down** before they can be absorbed.
- The mouth **grinds** up the food with the action of its _____**teeth**, which tear, grind, and mash to a pulp (now called a _____ _____) the food. The food is moistened and lubricated with saliva, and at the same time _____ _____ in the saliva breaks some of the _____ in the food to _____.
- The food passes through the pharynx and into the esophagus, and moves down this tube through peristalsis. It enters the stomach through the _____ _____.
- Presence of _____in the food (as well as the _____ of the stomach) causes _____ to be released into the blood, which causes the gastric glands at the top of the stomach to release _____ _____(containing _____and _____. which combine to form _____).
- In the stomach, the food is **churned** by the stomach, and the enzyme _____breaks down some of the _____to smaller _____. HCl kills much of the _____in the food.
- The food, now called _____ _____, passes through the _____ _____into the _____of the small intestine. It's presence causes the small intestine to release the hormones _____and _____. Secretin causes the pancreas to release _____ _____, which is sent through ducts to the small intestine, where it _____the _____ _____, and makes the pH of the small intestine slightly _____. CCK acts on the _____ _____, causing it to release _____into the small intestine. Bile **emulsifies** _____into small _____that can be more easily attacked by _____. CCK also acts on the pancreas, causing it to release **pancreatic** _____, which contains the enzymes _____ _____(digests **starch** to _____), _____(digests polypeptides to smaller polypeptides) **chymotrypsin** (digests other polypeptides to smaller polypeptides), _____(digests fats to glycerol and fatty acids), **carboxypeptidase** (digests some small polypeptides to amino acids), and _____(digest DNA and RNA to nucleotides).
- _____ _____in the small intestine itself produces **aminopeptidase** (digests some small polypeptides to amino acids), _____(digest small polypeptides and dipeptides to amino acids),

_____(digests maltose to glucose), _____(digest sucrose to glucose and fructose), _____(digests lactose to glucose and galactose), **phosphatases** (digests nucleotides), and **enterokinase** (digests trypsinogen).

- Thus, all parts of the food is digested to _____(e.g. glucose, amino acids, glycerol, fatty acids) in the small intestine.
- The digested food moves into the much longer _____and _____of the small intestine. Here it is **absorbed** across the walls of the _____lining the small intestine. _____, _____ **acids**, and other _____ -**soluble** compounds moving into the _____ **network** in each villus. They move in the blood to the **liver** through the _____ _____ **vein**. **Fatty acids** and _____ are absorbed across the villi, are **recombined** into **fat** molecules in the epithelial cells of the villus. The fats then move into the _____of each villus and enter the _____ **system**. The lymphatic system eventually rejoins the circulatory system where the two systems connect near the left shoulder.
- Absorption is both _____and **passive**.
- The _____ **processes** all the nutrients, storing some, interconverting others, and releases them into the bloodstream as necessary to maintain nutrient levels (e.g. the concentration of glucose is constant at 0.1% in the blood, regardless of the carbohydrate content of a meal).
- The **non-**_____ **material** that is left (consisting of water, cellulose fiber, bacteria, and traces of other materials such as heavy metals) passes from the small intestine, through the cecum, and into the _____ _____.
- In the large intestine, about _____**%** of the water is absorbed from the non-digestible material, now called **feces**. **Bacteria** in the large intestine, including _____ _____**,** the most common bacteria in the digestive system, feed on non-digested material, and in the process produce the gases **methane**, **hydrogen sulfide**, and **vitamin** _____ (which is absorbed by the host). Finally, the feces passes out of the body via the _____.

⇒ ***There are a total of 80 blanks in this assignment. Total up the # of correct answers, then divide by 8 to get a mark out of 10 (answer to one decimal place)***

Raw Score		divide by 8 ➔	
	80		10