

**Project 3.2.2 and Project 3.2.3: Student Resource Sheet**

Use the information found below to guide your research and to design your model. Guiding questions are broken down by assignment. Take notes, answer questions, and complete sketches in your laboratory journal.

**1. Oral cavity, pharynx, (must also include accessory organs such as salivary glands, tongue, and teeth)**

* What is the oral cavity and what does it contain?
* What is the function of the salivary glands?
* What is the function of the tongue?
* What is a bolus?
* Where are the soft and hard palate located and what are their functions?
* What mechanical and chemical digestion occurs in the oral cavity?
* What mechanisms are in place to make sure food does not “go down the wrong tube” and into the windpipe?

**2. Esophagus and Stomach**

* What is peristaltic movement and how does it function in the esophagus?
* Does any digestion of food occur in the esophagus?
* What are the primary functions of the stomach?
* What is chyme and how does the stomach mix this material?
* What role does the stomach play in decontaminating the incoming food matter?
* What cells in the stomach function to form enzymes and acids?
* Why doesn’t gastric juice digest the inside of the stomach?
* What are sphincters and how are they related to the stomach?
* What mechanical and chemical digestion occurs in the stomach?

**3. Small Intestine and Large Intestine**

* What are the three sections of the small intestine and what role does each section play in digestion or absorption?
* What is the pH within the small intestine and how is this pH maintained?
* Where do bile and pancreatic enzymes enter the small intestine?
* How does food move through the intestines?
* What enzymes act inside the small intestine and what are the functions of these enzymes?
* What is the function of the large intestine in relation to digestion?
* What are the three sections of the large intestine and what roles does each play in digestion or absorption?
* How does the large intestine help maintain a water balance in the body?

**4. Pancreas, Liver and Gallbladder**

* What are the size and the location of the pancreas?
* What are the different functions of the pancreas, and how is the pancreas directly related to digestion?
* How does the pancreas connect to the rest of the digestive system?
* What enzymes are produced by the pancreas and what are their functions?
* How is insulin related to the digestive system?
* What is the size of the liver and where is it located?
* How does the liver function in relation to digestion?
* What are other functions of the liver in the body?
* What is the relationship between the liver and the gallbladder?
* What is the function of bile and where does it enter the digestive tract?

Each group will be assigned one of the following bites of food. First, think about the class of molecule this food item represents and then identify the specific enzymes that would break this polymer into monomers. Remember to describe features that help mechanically digest this bite. Depending on your food item, you may need to do some additional research.

* **Bread**
* **Butter**
* **Steak**
* **Celery**
* **Skittles**