BIO 26 PAL Worksheet
Week 13 (#1): The Digestive System – Accessory Organs

Last week, you drew a simple digestive system to explore form and function of the main organs involved in food digestion and absorption. This week, we are taking a closer look at the three accessory organs associated with the digestive system.

1. Create a diagram of the digestive system **region** where accessory organs connect with the digestive system (omit all digestive system structures not connected to the accessory organs).
   a) Next, draw simple shapes representing the three accessory organs of the digestive system. Place the shapes in their approximate location and label the structures/organs.
   b) What is each organ contributing to the function of the digestive system? Add bullet points of some basic functions next to each structure/organ.
   c) Add the main ducts to your diagram and label them.
   d) Indicate the flow of their secretions using arrows. Hint: secretions are not always flowing in one direction.

2. Last week's worksheet ended with an investigation into the hormonal control of digestion. Accessory organs and their secretions are crucial in this process.
   a) Start by determining which digestive system organ is responsible for most of the chemical digestion and absorption?
   b) Which two hormones are released by the organ you identified under a)?
   c) Use arrows to indicate the effect of these hormones on the accessory organs. Be specific when explaining effects on pancreatic secretions.
   d) Which macronutrients from your favorite bite last week are digested with the help of pancreatic secretions?
   e) How is the pancreatic secretion of bicarbonate protecting the small intestines?

3. It is said that the cells of the liver are served by a <u>dual blood supply</u>. On your whiteboard, draw a simple liver and add a few liver cells inside the organ to illustrate their location and blood supply.
   a) Using the colors red and blue, draw the two sources of blood liver cells receive. Label each on your drawing.
   b) Which source delivers oxygenated blood, which source delivers unoxygenated blood?
   c) What is the purpose of sending unoxygenated blood to the liver (hint: what does this blood mostly carry instead, and why is it going to the liver before anywhere else?)