**Pig Systems Summary**

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1. Describe how food is processed as it passes through the pig's digestive system. Explain the function of each organ as it contributes to the digestion of food.

In the mouth, food is chewed and broken down mechanically. Saliva, from the parotid gland, helps to bind and moisten the food while amylase from the gland begins to chemically break the food. Food then moves down the esophagus into the stomach. The stomach chemically and mechanically breaks down the food. The pancreas assists in breaking down the nutrients within the stomach with digestive enzymes. Food enters the small intestine which completes the digestion of food. The liver converts excess glucose into glycogen and breaks down hemoglobin and detoxifies harmful compounds. The liver also produces bile, which is stored in the gallbladder, which helps to break down fat. Finally, the large intestine helps absorbs the nutrients and minerals before the excess waste of food exits the body.

2. Trace the path of blood through the mammalian heart starting with the Right Atrium. Use the following terms: Aortic Arch, Aortic Similunar Valve, Bicuspid (Mitral) Valve, Body, Descending Aorta, Left Atrium, Left Ventricle, Lungs, Inferior Vena Cava, Pulmonary Arteries, Pulmonary Similunar Valve, Pulmonary Veins, Right Atrium, Right Ventricle, Septum, Superior Vena Cava, Tricuspid Valve.

Right atrium -> Tricuspid Valve -> Right Ventricle -> Pulmonary Similunar Valve-> Pulmonary Arteries-> Lungs-> Pulmonary Veins-> Left Atrium-> Bicuspid Valve -> Left Ventricle-> Aortic Similunar Valve-> Aortic Arch-> Descending Aorta-> Body -> Superior Vena Cava & Inferior Vena Cava-> Right Atrium

Sometimes with defects, blood will flow in the wrong direction, such as from the left atrium to the right atrium.

3. Compare and contrast the structures of the male and female urogenital system.

Overall, the male and female urogenital systems are very similar. In a female, urine passes from the urinary bladder, through the urethra, and out the urogenital sinus. The female also has ovaries and a uterus, which aid in reproduction. The urethra in a female is shorter than the urethra in a male, and the male’s urethra carries gametes. The female urogenital system has a vagina while the male urogenital system has a penis.

4. Explain how the kidney's nephron removes waste while retaining the essential components of the blood.

The filter of the nephron is called the glomerulus while the tubule of the nephron transports the filtered fluid. The glomerulus filters out the harmful substances in the body and the tubule adjusts the levels of contents that leave the body in urine.

Link: https://kidshealth.org/en/teens/kidneys.html

5. Describe the relationship between blood sugar levels and the levels of insulin in the blood.

The higher blood sugar levels are, the more insulin the body produces, leading to a higher level of insulin in the blood. The lower blood sugar levels are, the less insulin is in the blood.

Link: https://www.medicalnewstoday.com/articles/316427

6. Describe how various muscle groups work with the skeletal system's bones to enable movements in vertebrates.

Muscles that can contract are attached to joints within the skeletal system. There are also muscles that are on the other side of most bones that attach to the opposite side of the joint that allows for two way movement in the skeletal system. This relationship enables force to be applied to both sides of a joint, which generates power in both directions giving the vertebrates the ability to move with power.