**Analysis:**

1. What is the name of the pumping organs of an earthworm?

5 pairs of aortic arches. "hearts"

1. In the earthworm, trace the parts of the digestive tract through which food passes.

Food goes in mouth, past the pharynx, down the esophagus, through the crop and gizzard, into the intestines, out the anus

1. Which of the parts of the earthworm’s body that you saw are included in the excretory system?

The nephridia dispose of metabolic wastes, such as ammonia, while the anus disposes of any solid wastes.

1. Among the earthworm’s structural adaptations are its setae. How do you think the earthworm’s setae make it well adapted to its habitat?

Since they are found on all sides of the worm, they help it burrow by pushing on all sides of the dirt. They also help the worm to detect its environment.

1. How is the earthworm’s digestive system adapted for extracting relatively small amounts of food from large amounts of ingested soil?

The crop and gizzard help to grind up the dirt to increase surface area to extract any food/nutrients from the dirt. All of this then travels through the looooong intestine, where food is absorbed and the remaining dirt is excreted out of the anus along with any other body wastes.

1. What did each germ layer develop into in the earthworm?

The ectoderm formed into the skin of the worm, its septa, and its nervous system. The mesoderm formed the muscle tissue lining the outside of the         stomach and the inside of the skin. The endoderm forms all the other         organ systems, including the digestive and circulatory systems.

1. What is the function of the nephridium? How does it complete this function?

The nephridia are used to remove metabolic wastes (similar to urine), such as ammonia, from the body of the worm. Body fluids enter the nephridium through the nephridiopore, a membrane attached to the intestine. Once inside the nephridium, any usable water and other liquids are sent back into the body, while wastes are excreted out through tubes along the worm's skin.

1. How is the sandworm similar and different to the earthworm?

Similar - Both belong to the phylum Annelida. Have identical digestive and circulatory systems, excluding the mouth. Body segments divided by septa. Dispose of wastes using nephridia and anus.

          Different - Sandworm (class Polychaeta) has crude appendages (evolved setae) --parapodia --used for swimming. Around mouth of sandworm are pincers used to trap and kill prey.  Sandworm lives in water and breathes through crude ***gills***, while earthworm (class oligochaete) lives on land and ***breathes through skin (diffusion)***. Earthworms are decomposers.

1. How is the leech designed to live as an ectoparasite? What are the similarities and differences between the leech and the earthworm?

The leech has two different suckers; a ***head sucker and a posterior sucker***. It uses the larger, posterior sucker to ***latch onto the skin*** of its prey. It                then uses its smaller, head sucker to burrow into the skin and ***suck the blood of its prey*** for food and nutrients. Releases chemicals to numb the victim so you don't notice it.   
           Similarities - Both belong to the phylum Annelida. Have identical digestive and circulatory systems, excluding the mouth. Body segments divided by septa. Dispose of wastes using nephridia and anus

           Differences - Leaches ***are parasitic***, while earthworms ***are free-living***. Leeches consume ***blood*** as food, while earthworms absorb nutrients from ***food in dirt***. Leech lives in water. Leech has ***two suckers***.