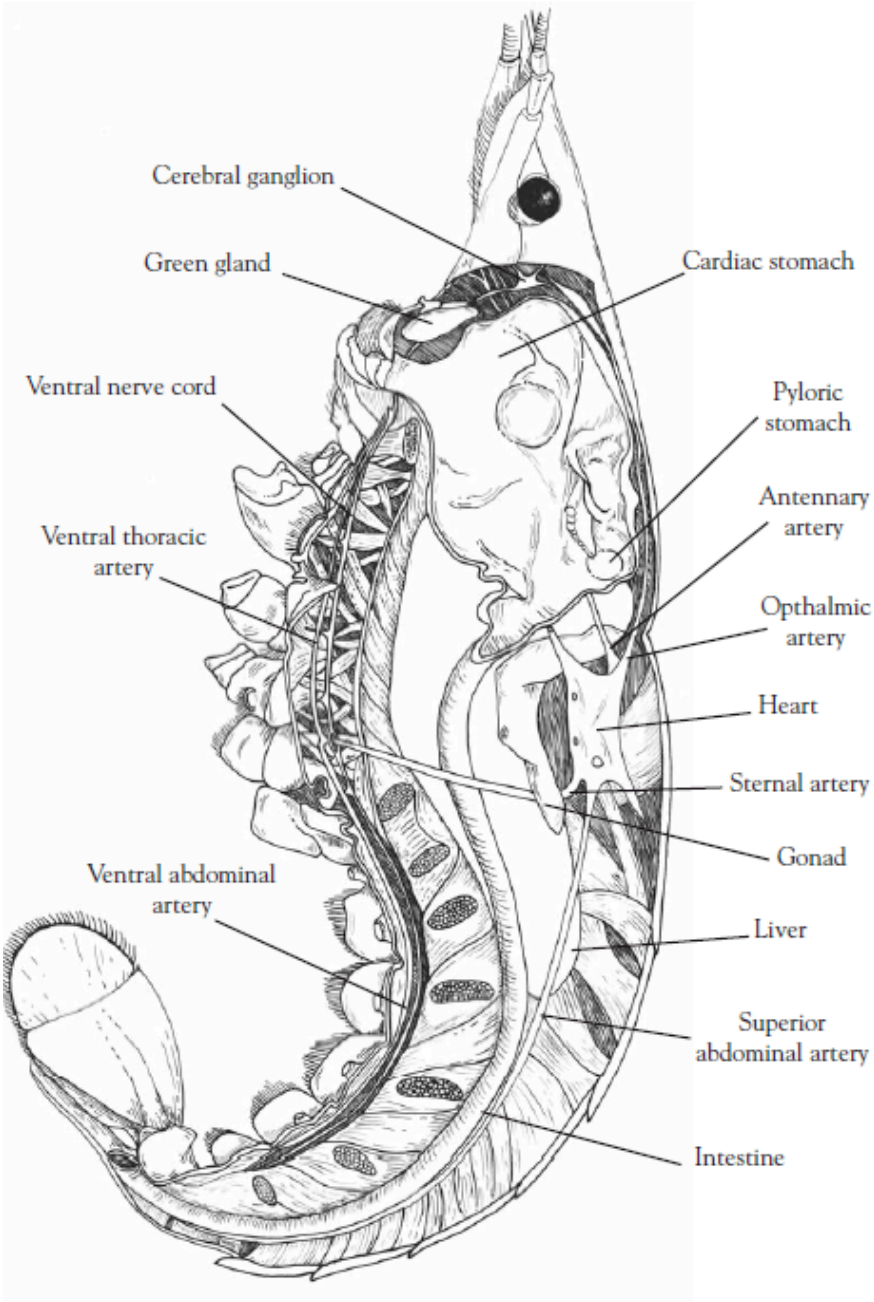
Crayfish Dissection Guide

The crayfish has an open circulatory system, with the hemolymph contained in walled vessels for only part of its circuit through the body. The hemolymph mostly resides in tissue spaces called sinuses. These sinuses are continuous with the main body cavity or hemocoel. The heart lies in the pericardial sinus where hemolymph enters the heart through 3 pairs of valved slits called ostia. Muscular movements by the animal during locomotion help bring the hemolymph back to the heart. Thin-walled arteries carry blood from the heart to various parts of the body. From the arteries, hemolymph flows back into the sinuses, where it bathes the cells of various tissues. The sinuses empty in to the large sterna sinus, in the floor of the thorax. From there, hemolymph undergoes oxygenation as it passes through the gills.



Procedure

1. Place crayfish on the working surface, dorsal side up. Remove all of the crayfish's walking legs by grasping the legs at their base with forceps, bending them sharply side-to-side, and lifting up.

2. Bend the tail down and make an incision along the joint between the posterior abdominal segments with a scalpel. Cut through the **exoskeleton only.** Avoid damaging the soft inner tissues.

3. Make a second incision with scissors to remove the dorsal exoskeleton. Lift the exoskeleton with forceps while cutting it loose from the soft tissues.

4. Remove the carapace completely to expose the brachial chamber, a space between the body wall and the carapace that contains the gills. Remove any remaining gills.

5. Remove the left ventral wall of the cephalothorax (fused head and thorax) by making an incision from the ventral posterior of the cephalothorax to just anterior of the mouth. Cut deeply enough to expose the ventral thoracic artery, which runs along the ventral midline.

6. Identify the structures of the crayfish circulatory system. Remember that the vascular structures of the crayfish received colored latex injections. It will be necessary to remove a portion of the liver, some muscles, and latex (which leaks from the heart) to see the heart and the sternal artery.