Day 4 Circulatory System Dissection Guide

1. Locate the heart. It is covered by a thin tissue called the **pericardium**. Remove this membrane to study the heart.

2. Pigs, like all mammals, have four-chambered hearts. The right side of the heart pumps blood to the lungs, while the left side of the heart pumps blood to all other parts of the body. Locate the right and left sides of the heart.

3. Each side of the heart has an upper and a lower chamber. Upper chambers are called **atria** and receive blood, while lower chambers are called **ventricles** and pump blood out of the heart. Locate the right and left atria and ventricle.

4. Notice that the surface of the heart is covered with blood vessels. These are part of the **coronary circulation**, a set of arteries and veins whose only job is to nourish the heart tissue. Blockage in these vessels causes heart attacks.

5. Anterior to the heart, locate another large vein that enters the right atrium. This vein, the **anterior vena cava**, brings blood to the right atrium from the anterior part of the body.

6. Now lift the heart to view its dorsal surface. Observe the **posterior vena cava** that carries blood from the posterior part of the body and empties it into the right atrium.

7. Find the **pulmonary artery** which leaves the right ventricle. After birth, this vessel carries blood to the lungs. However, in a fetus, a shunt called the **ductus arteriosus** allows fetal blood to bypass the lungs and go directly to the aorta, the largest artery of the body.

8. Locate the **pulmonary veins** that enter the left atrium. After birth, these vessels carry oxygenated blood from the lungs to the heart.

9. Identify the **aorta**, a large artery that transports blood from the left ventricle. Many arteries that carry blood throughout the body branch off of the

10. Remove the heart by severing the blood vessels attached to it.

11. Hold the dorsal and ventral surfaces of the heart with your thumb and forefinger and rest the ventricles on your dissecting tray. With a scalpel, cut the heart into dorsal and ventral halves. ***Caution:*** **The scalpel is very sharp. Use it carefully and always cut away from yourself.**

12. Remove any material inside the heart and expose the walls of the atria and the ventricles.

13. Study the internal features of these chambers and note where vessels leave or enter each chamber. Locate the valves between each atrium and ventricle. These structures prevent blood from flowing backward in the heart.

14. Label the fetal pig heart diagram on your day 4 hand-in.

Clean up your materials and work area. Wrap the pig in damp paper towels and put it in a zip-lock plastic bag. Return your lab equipment and pig then thoroughly wash your hands with soap.