

Circulatory/Transport Questions

1. Identify at least four functions of the animal transport (circulatory) system

2. Describe the difference between an open and closed circulatory system?

3. Some species don't require a separate circulatory system. Explain why. Be sure to include use S/V ratios in your response.

4. **Matching:** Match each of the following organisms with the appropriate circulatory system

- a. no specialized system
- b. open system
- c. closed system

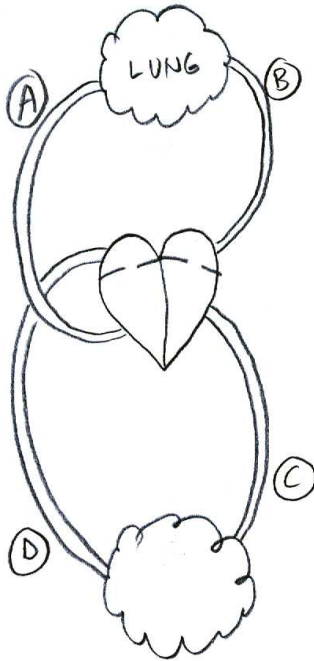
- _____ bird
- _____ flatworm
- _____ hydra
- _____ insect
- _____ mammal
- _____ mollusk
- _____ worm

5. **Evolution:** Study the circulatory systems of a fish, amphibian, and mammal. Then, answer the following questions True or False.

	There has been an evolutionary increase in the number of atria
	There has been an evolutionary decrease in the number of ventricles
	Fish have a more evolutionary advanced circulatory system than birds because they have two complete pulmonary circuits
	There has been an evolutionary trend toward mixing of oxygenated and deoxygenated blood in the circulatory system
	there has been an evolutionary trend toward improved exchange of respiratory gases
	There has been an evolutionary trend toward the pulmonary and systemic circuits operating at the same pressure

6. Now, correct any false statements

7. **"Bird Dude"** (reminds me of 'Big Bird'):



A. Label the diagram at the left using the following terms:

- atrium, left
- atrium, right
- circuit, pulmonary
- circuit, systemic
- Pulmonary veins
- Pulmonary arteries
- Ventricle, left
- Ventricle, right
- Systemic capillaries

B. Draw arrows representing the flow of blood
 C. Indicate which side of the heart is the right & left.
 D. Shade in venous blood (low oxygen)

E. Matching. Below are three sets of partial pressures for oxygen and carbon dioxide. Match each with the appropriate letter/location on Bird Dude.

Set 1: $PO_2 = <40$ mm Hg
 $PCO_2 = >45$ mm Hg

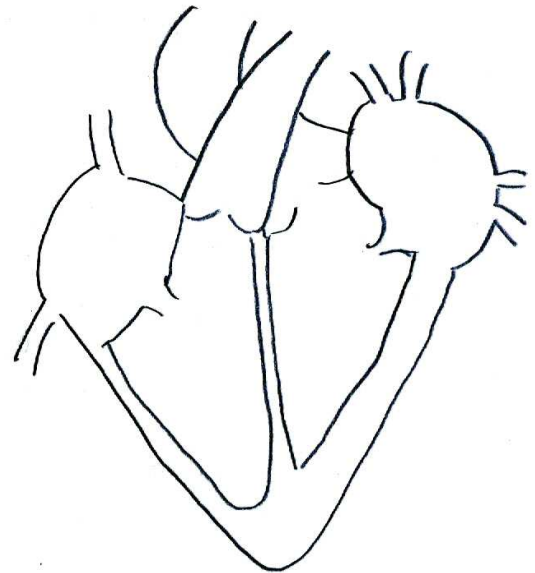
Set 2: $PO_2 = 104$ mm Hg
 $PCO_2 = 40$ mm Hg

F. The following set of partial pressures ($PO_2 = 160$ mm Hg; $PCO_2 = 0.3$ mm Hg) is most likely to be found:

- a. in blood departing from the lung
- b. in blood departing the systemic capillaries
- c. in blood in the left atrium
- d. in blood in the left ventricle
- e. in blood in the right ventricle
- f. in the air entering the lung
- g. in the air exiting the lung

8. Do atria or ventricles have thicker walls? Explain.

9. Which ventricle, right or left, has a thicker wall? Explain.



10. **Grasshopper Dude:** On the diagram (looks like a grasshopper to me, eh?):

- Draw in the location of the SA (sinoatrial node)
- Draw in the location of the AV (atrioventricular node)
- Label the following structures: aorta, left & right atrium, left & right ventricle, inferior vena cava, superior vena cava, pulmonary artery, pulmonary vein, semilunar valves, atrioventricular valves.