Coronary Arteries & Heart Anatomy Worksheet

(Taken from Johnson, Weipz and Savage Lab Book)

In humans the coronary arteries consist of the following:

1. **Left Coronary Artery** — This artery runs under the left atrium and divides into:

    a. **Anterior Interventricular Branch** — follows the anterior interventricular sulcus and supplies the walls of both ventricles.

    b. **Circumflex Branch** — supplies walls of left ventricle and left atrium.

2. **Right Coronary Artery** — This artery runs under the right atrium and divides into:

    a. **Posterior Interventricular Branch** — follows the posterior interventricular sulcus and supplies the walls of both ventricles.

    b. **Marginal Branch** — supplies right ventricle and right atrium.

Bypass surgery is surgery in which a new section of blood vessel is inserted into the coronary circulation to detour blood around (i.e., bypass) a section of coronary artery that has become occluded. The major coronary arteries and their larger subdivisions are the usual vessels bypassed. Bypass surgery may be single, double, triple, etc., depending on the number of vessels occluded.

Try to locate the major coronary arteries described above on the human heart models.

DATA/ANALYSIS SHEET _____

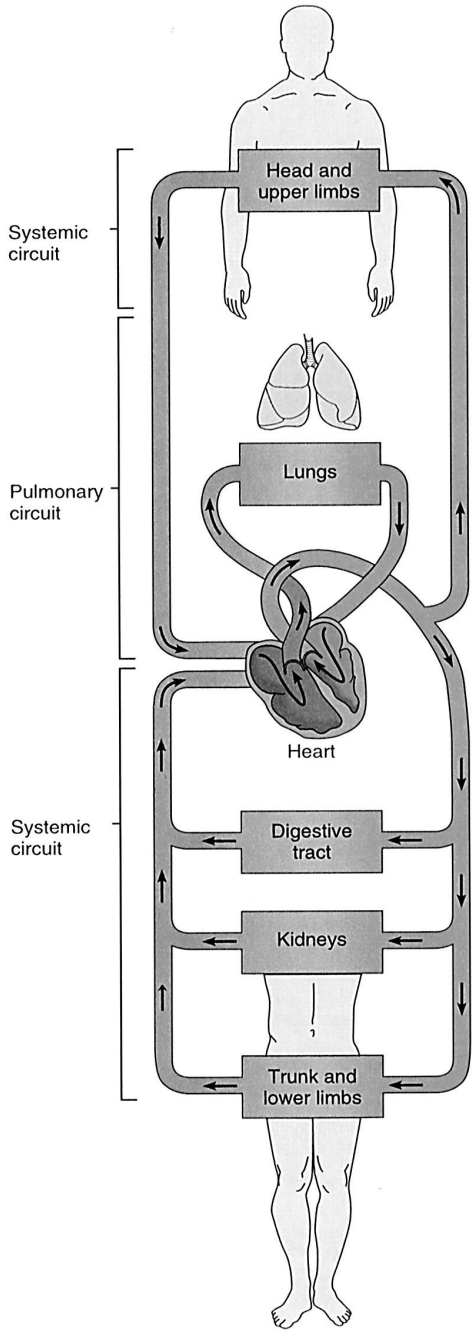
1) Match the terms in Column A with the descriptions in Column B. Place the letter of your choice in the space provided. Use your textbook for a reference source if needed. Check your answers against the key provided or with your instructor.

Column A			Column B
A.	Aorta	____	prevents blood backflow from left ventricle to left atrium
B.	Aortic Semilunar Valve	____	transports blood to left lungs
C.	Bicuspid (mitral) Valve	____	returns venous blood from coronary system to right atrium
D.	Chordae Tendineae	____	major artery leading from left ventricle
E.	Inferior Vena Cava	____	major vein leading into lower right atrium
F.	Left Atrium	____	major vein leading into upper right atrium
G.	Left Pulmonary Artery	____	prevents blood backflow from aorta to left ventricle
H.	Left Ventricle	____	pumps blood to pulmonary artery
I.	Myocardium	____	major artery leading from right ventricle
J.	Coronary Arteries	____	pumps blood to left ventricle
K.	Coronary Sinus	____	major veins leading into left atrium
L.	Papillary Muscles	____	prevents blood backflow from right ventricle to right atrium
M.	Pulmonary Artery (trunk)	____	attach cuspid valve cusps to papillary muscles
N.	Pulmonic Semilunar Valve	____	pumps blood to right ventricle
O.	Pulmonary Veins	____	transport blood from aorta to cardiac muscles
P.	Right Atrium	____	anchor sites for the chordae tendineae
Q.	Right Ventricle	____	pumps blood to aorta
R.	Superior Vena Cava	____	myocardium that separates the two ventricles
S.	Tricuspid Valve	____	prevents blood backflow from pulmonary artery to right ventricle
T.	Ventricular Septum	____	muscle wall of the heart

2) Diagram the structure of the human heart showing the proper arrangement or location of EACH of the following structures: A) right and left atria; B) right and left ventricles; C) superior and inferior vena cavae; D) pulmonary veins; E) pulmonary artery; F) aorta; G) pulmonic and aortic semilunar valves; and, H) bicuspid/mitral and tricuspid valves.

Use arrows to indicate the pathway of blood into, through, and out of the heart you have diagramed.

4) The diagram below illustrates the general flow pattern of blood through the body, including both systemic and pulmonic circuits. See the following page for activities/questions related to the diagram.



The Pulmonary Circuit
Figure 15.40

A) Pulmonary Circulation

1) On the diagram label the following:

   a) pulmonary arteries

   (oxygen rich OR oxygen poor)

   b) pulmonary capillaries
   (gas exchange occurs here)

   c) pulmonary veins

   (oxygen rich OR oxygen poor)

2) Indicate above (by circling your choice) whether pulmonary arteries and pulmonary veins are oxygen rich OR oxygen poor.

3) Which chamber of the heart functions as the receiving chamber for pulmonic blood?

4) Which chamber of the heart functions as the muscular pump for pulmonic circulation?

B) Systemic Circulation

1) On the diagram label the following:

a) systemic arteries

(oxygen rich OR oxygen poor)

b) systemic capillaries
(gas exchange occurs here)

c) systemic veins

(oxygen rich OR oxygen poor)

2) Indicate above (by circling your choice) whether systemic arteries and systemic veins are oxygen rich OR oxygen poor.

3) Which chamber of the heart functions as the receiving chamber for systemic blood?

4) Which chamber of the heart functions as the muscular pump for systemic circulation?