Sec.:_____Name: _____

Experiment: Blood Vessels & Autonomic Control of Heartbeat (B. Science 10-37-1c)

Purpose: To observe three different types of blood vessels and to observe autonomic control of the heartbeat.

Materials: microscope slides of blood vessels (or Tb 104)

Methods:

Part A: Three Types of Blood Vessels

1. Obtain a microscope slide of blood vessels. Draw a sketch of the three types of blood vessels. Label the magnification for each observation.
2. For the artery and vein label the connective tissue, smooth muscle, and the epithelial tissue (one cell thick). For the capillary label the type of tissue it is.
3. Below each type of blood vessel list its function and the type of blood (oxygenated or deoxygenated) that flows through them in the systemic circulatory system.

Part B: Observation of the Autonomic Control of the Heartbeat

1. Have your lab partner obtain your pulse while you are sitting in a chair. Record this in results.
2. What structure in the heart starts the stimulus for the heartbeat?
3. What structure of the heart continues this regular heartbeat?
4. While your partner is taking your pulse try to relax, close your eyes, and think of slowing your heartbeat down. After a couple of minutes of this record your pulse.
5. If your heart rate slowed down, what division of the autonomic nervous system stimulated your pacemaker to slow down?
6. Now get up and run on the spot rigorously for one minute. Immediately after the one minute have your lab partner take your pulse. Record this.
7. If your heart rate went faster, what division of the autonomic nervous system stimulated your pacemaker to speed up?

Results:

Part A: Three Types of Blood Vessels

	_____ X	_____X	____ X
	artery	capillary	vein
functions:	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

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Part B: Observation of the Autonomic Control of the Heartbeat

1. pulse while sitting: _____ 2. structure: _____
3. structure: _____ 4. resting pulse: _____
5. division: _____ 6. exercising pulse: _____
7. division: _____

Results:

1. Why must the arteries have strong tissue and yet have elastic tissue so it can stretch and resume its regular size again?

2. Which type of circulation (pulmonary or systemic) caries blood to your lungs?

3. Why is this (question number 2) type of circulation so important?

4. Circulation that carries blood to all the major organs of the body is called _____

Conclusions:

1. Identify the part or parts of the circulatory system described by each phrase.

a. Serve as passageways for the blood: _____
b. Made of cardiac muscle: _____
c. The upper chambers of the heart: _____
d. Located in the right atrium, this structure begins the heartbeat: _____
e. Carry blood toward the heart: _____
f. Located between the upper and lower chambers of the heart, these structures prevent blood from flowing backward through the heart: _____
g. Lower chambers of the heart: _____
h. Thin - walled blood vessels through which materials diffuse into and out of individual cells: _____
i. Type of blood vessels that carry blood away from the heart: _____

2a. Read Mat. 9:20-22, and Luke 8:43-48. From what was the lady healed from?

2b. What was the symbolic meaning of her just touching the garment of Jesus?

2c. What does this tell you about the power of Jesus?

3a. Read Mark 7:19-23. Instead of sin entering you by means of what you eat and causing you to be sinful, what part of the body is Jesus saying sin comes from?

3b. In Bible times people thought emotions and thought occured in this part (of questions 3a). With our modern understanding of our body what part of the body does sin ideas originate in?