



## Chapter 22 The Circulatory and Respiratory Systems

### The Circulatory and Respiratory Systems Lab

#### Lab 22 Answers

*Note to Teacher: Answers appear in italics.*

#### Questions & Conclusions

**1.) The Independent Variable in the lab is** *the five minutes of exercise.*

**2.) The Dependent Variables are** *the heart rate and blood pressure readings.*

**3.) What is the relationship of blood pressure readings to heart rate readings? Be specific.**

*Normal blood pressure at rest is 120/80 and resting heart rate readings normally range from 60 to 100 beats depending on degree of fitness. Usually the lower the blood pressure reading to 120/80 and the lower the heart rate, the more fit the individual is.*

*There is no good correlation between heart rate and blood pressure.*

*Measuring heart rate does not indicate high or low blood pressure. For people with high blood pressure, there's no substitute for measuring blood pressure.*

*A rising heart rate does not cause your blood pressure to increase at the same rate.*

*Even though your heart is beating more times a minute, healthy blood vessels dilate (get larger) to allow more blood to flow through more easily. When you exercise, your heart speeds up so the blood can reach your muscles. It may be possible for your heart rate to double safely, while your blood pressure may respond by only increasing a small amount.*

**4.) Discuss Cardio-Pulmonary Circulation. Be specific. You use an illustration to give your answer.**

*The veins bring waste- rich blood, low in oxygen (deoxygenated) back to the heart, entering the right atrium throughout two large veins called vena cava.*

*Superior vena cava*

*Drains the head and upper part of body*

*Inferior vena cava*

*Drains lower part of body*

*The right atrium fills with the waste-rich blood and then contracts, pushing the blood through a one-way tricuspid valve into the right ventricle.*

*The right ventricle fills and then contracts, pushing the deoxygenated blood into the pulmonary artery which leads to the lungs.*

*In the lung capillaries, the exchange of carbon dioxide and oxygen takes place.*

*The pulmonary vein carries oxygenated blood back to the heart.*

*The fresh, oxygen-rich blood enters the pulmonary veins and then returns to the heart, re-entering through the left atrium.*

*The oxygen-rich blood then passes through a one-way valve (mitral) into the left*

*ventricle where it will exit the heart through the main artery, called the aorta. The left ventricle's contraction forces the blood into the aorta and the blood begins its journey throughout the body.*

*The one-way valves are important for preventing any backward flow of blood. The circulatory system is a network of one-way streets.*

*Some Heart Defects*

*Blood can flow the wrong way, the blood gases (oxygen and carbon dioxide) might mix, causing a serious threat to your body.*

*You can use a stethoscope to hear pulmonary circulation.*

*The two sounds you hear, "lub" and "dub" are the ventricles contracting and the valves closing.*

*Refer to page eight of the Power Point Slides for the Circulatory & Respiratory Systems for an illustration of Cardio-Pulmonary Circulation.*

**5.) Discuss Coronary Circulation. Be specific.**

*While the circulatory system is busy providing oxygen and nourishment to every cell of the body, let's not forget that the heart, which works hardest of all, needs nourishment, too.*

*Coronary circulation refers to the movement of blood through the tissues of the heart.*

*Blood from the aorta passes through a right coronary artery and left coronary artery*

*Initially Left Main Coronary then splits into*

*Circumflex • Left side of the heart*

*Left Anterior Descending (LAD)*