**Circulation**
**What factors affect the likelihood of hypertension?**

NAME: _____
DATE: _____
HOUR: _____

Blood pressure is the force that blood exerts on the walls of the blood vessels. It is one of many indicators of a person´s health. High blood pressure, or hypertension, is a condition in which blood pressure goes up and remains above the normal level for extended periods of time. Hypertension makes the heart work harder and increases the possibilities of stroke and heart disease.

In order to measure a person´s blood pressure, an instrument called a sphygmomanometer is used. This instrument consists of three parts: an inflatable cuff that is wrapped around the upper arm, a rubber bulb and tube that pumps air into the cuff, and a glass tube containing mercury or another chemical used to measure air pressure.

To take a person´s blood pressure, the blood pressure cuff is inflated until the air pressure within the cuff exceeds the blood pressure in the arm artery. This causes the artery to collapse, temporarily shutting down the flow of blood. Then, pressure in the cuff is slowly reduced until air pressure in the cuff becomes less than pressure in the artery, allowing blood to flow through the artery again.

The pressure inside the artery when blood begins to flow is called the systolic pressure. When air pressure in the cuff is reduced further, blood flows more freely. The pressure in blood vessels when blood is allowed to flow freely is called diastolic pressure. Blood pressure measurements are always expressed by two numbers, the systolic pressure over the diastolic pressure. For example, a blood pressure reading of 120/80 indicates that the systolic pressure is 120 mm Hg and the diastolic pressure is 80 mm Hg.

In this Virtual Lab you will use a scientific method to determine what factors affect the likelihood of hypertension. You will measure and compare the blood pressures of people of different ages and genders. You will also examine individual medical history charts that will help you determine additional factors that may increase the likelihood of high blood pressure.

**Objectives:**
·Investigate the effect of age and gender on group blood pressure averages.

·Determine some major risk factors of hypertension.

**Procedure:**
1. In the Journal state a problem about the relationship of age and gender to blood pressure, make a hypothesis, and explain how you will test your hypothesis.

2. Choose the gender of the patients by clicking the arrow at the bottom of the Gender window. Select Female or Male patients to investigate.

3. Choose the age range of the patients by clicking the arrow at the bottom of the Age Range window. Select 11—17, 18—24, 25—34, 35—44, or 45—54-year-old patients to investigate.

4. Click the Measure Blood Pressure button and observe the patients´ blood pressures being taken.