Phone: 417.374.7431
Fax: 417.374.7442
service@gosciencecrazy.com
1747 North Deffer Drive
Nixa, Missouri 65714

Blood Pressure Kit
#1882

Warning:

- **Not a toy; use only in a laboratory or educational setting.**
- **Contains latex.**
- **Choking hazard - small parts.**
- **California Proposition 65 Warning: This product can expose you to chemicals including chromium and lead, which are known to the State of California to cause cancer, birth defects, or other reproductive harm. For more information go to www.P65Warnings.ca.gov.**

Introduction

This kit comes with two main components, an **aneroid sphygmometer** and a **stethoscope.** With these two components you will be able to measure **blood pressure**, or the force exerted by your blood on the walls of your blood vessels. This vital sign is an essential indicator of heart and cardiovascular health. Kits like these are used by doctors, nurses, and people in their own homes every day all around the world in order to quickly gauge health and to track trends in the cardiovascular system. Most people have likely seen a sphygmometer in use before during any regular doctor's appointment.

An **aneroid sphygmometer** is made up of three main parts: the **cuff,** the **bulb,** and the **gauge.** The **cuff** is the part of the sphygmometer that is wrapped around the bicep and inflated to cut of blood flow to the forearm. The **bulb** is used to inflate the cuff and to control when it will deflate. Lastly, the **gauge** displays a pressure reading as the cuff deflates. It gives readings in **millimeters of mercury,** or **mmHg.**

A stethoscope consists of two main parts: the **chestpiece** and the **earpieces.** The **chestpiece** is the circular piece on one end of the tube. On it is a round, plastic **diaphragm,** which is placed against your (or someone else's) skin to pick up the sounds of the cardiovascular system. The **earpieces** are used to listen to the noises picked up by the diaphragm.

Blood pressure readings are given in two parts: the **systolic blood pressure** and the **diastolic blood pressure. Systolic blood pressure** represents the pressure exerted on your artery walls as your heart pumps blood. Diastolic blood pressure represents the pressure exerted by your blood while your heart rests between beats. Blood pressure readings are displayed as a fraction, like so:

$$\frac{\text{Systolic Blood Pressure}}{\text{Diastolic Blood Pressure}}\ \text{mmHg}$$

Placing the Cuff

Before taking your blood pressure, you must properly place the cuff around your arm. Improper placement of the cuff will return poor, unreliable results, if any. Use the following instructions to successfully place the cuff of your sphygmometer:

1. Select the arm you will be placing the cuff on. **Right-handed** people should place the cuff around their **left bicep,** and **left-handed** people should place the cuff around their **right bicep.**

2. Rest your arm with your elbow level with your heart and keep your hand open with your palm facing upwards. If sitting, resting your elbow on a table will work. If lying down, your arm will be at your side.

3. Wrap the cuff around your bicep, roughly an inch above the crease in your elbow. The tubing should be facing towards your wrist. After locating your artery in the crease in your elbow, place the tubing over the artery. There are markings on the cuff indicating how to correctly orient the cuff depending on which arm you are taking your pressure on.

4. Tighten the cuff around your arm using the velcro. Make sure that it fits snugly around your arm. To do this, pull the loose end of the cuff through the metal loop around the cuff. When tight, wrap it back around on itself so that you can use the velcro to keep it in place.

How to Inflate and Read

Once placed, you will inflate the cuff and take your reading. This may take a little practice, but in time you will be able to do this easily by following the steps below:

1. Find the pulse of the artery in the crease of your elbow and place the diaphragm of your stethoscope over it. You can locate this artery with your fingertip. Once the stethoscope's diaphragm is in place, put the earpieces into your ears.

2. Hold the gauge in your left hand or clip it onto the cuff.

3. Grip the bulb in your right hand and, using the rotating knob on it, close the airflow valve. **(Note:** Do **not** overtighten.**)**

4. Repeatedly squeeze the bulb to inflate the cuff, listening to your pulse as you do so. Keep inflating the cuff until the gauge reads 180mmHg, or 30mmHg above when you stop hearing your pulse. The cuff should be restricting all blood flow from your bicep to your forearm. Only leave your cuff fully inflated as long as necessary.

5. Turn the knob on your bulb slowly until the cuff begins to deflate. Look at your gauge as it deflates. The knob on your bulb should be adjusted so the needle on the pressure gauge drops by one or two tic-marks every second (*i.e.* 2-4mmHg per heartbeat).

6. Listen carefully to your stethoscope as the cuff deflates. As soon as you begin to hear the thump of your heartbeat, take note of the reading on your gauge. This value is your **systolic blood pressure.** You will also notice the needle begin to "bounce" after you have found the systolic pressure.

7. Listen for the thumping pulse noise to transition to a swishing noise. When you hear the thumping pulse noise change, take note of the reading on you gauge. This value is your **diastolic blood pressure.** Write your blood pressure readings like a fraction followed by "mmHg." A healthy reading is around **120/80mmHg or lower.**

Tips

- Do not place the cuff over clothing.
- Try to relax before taking your blood pressure. Blood pressure readings can be skewed by exercise or physical activity before taking the reading.
- This may take some practice to get used to. You will likely have to get a feel for the sounds you are supposed to listen for.
- These instructions are written for taking readings on yourself. They can easily be used to take a reading on someone else as well.