

STATION 1: ASTHMA

***Theory:** Asthma attacks are the body's reaction to foreign substances. They are caused by overreaction of bronchi and bronchioles to various environmental or physiological stimuli resulting in airway inflammation. A person undergoing an asthma attack feels as if they are breathing through a small straw.*

1. Measure resting heart rate in beats /min. (Count your heartbeat for 15 seconds, and multiply by 4).
2. Measure your resting respiratory rate. (Time how long it takes to take 4 breaths – in & out)
3. Hypothesize what you think will happen to your heart rate and respiratory rate during this experiment.
4. Breathe only through the straw for 30 seconds (plug your nose).
5. Record pulse rate & respiratory rate – continue to breathe through straw while taking measurements.

STATION 2: PERSPIRATION

***Theory:** Perspiration is a saline solution that is emitted through the pores of the skin. The net result of this physiological response is to help regulate body temperature. The solution originates in the sweat glands located under the skin throughout the body. Perspiration can also be triggered by emotions including fear, excitement or anxiety.*

1. Rub a small amount of rubbing alcohol on the back of your hand using the cotton swab.
2. Record how the liquid feels on your skin.
3. Record the room temperature using the thermometer.
4. Place the thermometer into the rubbing alcohol but not touching the container or its sides for 1 minute then record the temperature (keeping the thermometer in the alcohol).
5. Remove the thermometer out of the alcohol and record what happens.

STATION 3: EXERCISE

Theory: Exercise causes many homeostatic factors to kick in, in an effort to maintain internal homeostasis. Measuring and observing certain parameters can determine how exercise affects some of these homeostatic factors:

- Change in skin colour on arms & face - flushness
- Perspiration level
- External body temperature
- Heart Rate
- Breathing Rate

1. One member from the group will be the subject, the others will record data during the exercise period.
2. Record the resting observations and values of your subject for each of the parameters:
 - a. Record normal perspiration level (0 = none, 10 = dripping)
 - b. Record body temperature using the thermometer
 - c. Record heart rate by counting the subject's pulse for 15 sec and multiplying by 4.
 - d. Determine the breathing rate by counting the number of breaths taken in 15 seconds.
3. Have subject begin to skip, run up & down stairs OR do jumping jacks at maximum intensity.
4. Take subjects readings using the same techniques outlined above at 2, 4, and 6 minute time markers. **Minimize time stopped** to make measurements.
5. Take 1 additional reading 1 minute after exercise is finished.