**Breathing Rate Lab**

NAME:

CLASS:

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**Background:**

Oxygen is essential to life. We use the oxygen we breathe and the food we eat to produce energy. Physical activity increases our need for energy; increasing the use of oxygen and nutrients.

The body can store some of the things it needs to function. However, oxygen cannot be stored for more than a few minutes at a time.

At rest the blood holds about a quart of dissolved oxygen, but it is constantly being used by the cells to produce energy during respiration. The respiratory system must work all of the time to supply enough oxygen to the body.

**Testable Question:**

What is the effect of exercise on our breathing rate?

**Hypothesis: (**If, then, because statement**):**

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**Materials:**

* Timer
* Lab sheet

**Procedure: (see overhead)**

1. Work with a partner. One person will be the participant and the other will be the investigator.
   1. The **investigator is responsible for** starting and stopping the timer (STAY ALERT).
   2. The **participant is responsible for** counting the number of breaths they take during the investigation.
2. The participant will **sit very still for 1 minute**; breathing normally. At a signal from the investigator, the participant will count how many complete breaths (each time the chest rises) they take in one minute. The investigator will watch the timer and start and stop the participant. Record the data in the data table.
3. Repeat the process by **walking in place for one minute**. Record the data in the data table.
4. Repeat the process by **jogging in place for one minute**. Record the data in the data table.
5. Repeat the process by **sitting still for one minute**. Record the data in the data table.
6. **Switch** participant/investigator roles and repeat the experiment.

**Data:**

|  |  |  |
| --- | --- | --- |
| **Task** | **Number of Breaths Per Minute Student 1** | **Number of Breaths Per Minute Student 2** |
| Resting (R) |  |  |
| Walking In Place For One Minute (W) |  |  |
| Jogging In Place For One Minute (J) |  |  |
| After Resting For One Minute (RR) |  |  |

**Data Analysis:**

In the space below, make a bar graph of your data. Remember to put a title and label both your y axis (dependent variable – # of breaths) and x axis (independent variable – specific task).

**Conclusion:**

1. Did you prove or disprove your hypothesis? Explain. (at least 3 complete sentences)
2. What is the relationship between breathing rate and exercise?