

Polar Science Project Aerobic Studies Experiment

1 Resting State

1. Sit quietly for at least five minutes. Breathe naturally, move as little as possible, and remain in a relaxed state.
2. At the end of the five minute interval, take your pulse rate¹ by counting the number of pulses in fifteen (15) seconds and multiply this number by four (4) to get the number of beats per minute (bpm).
3. Next, hold your breath as long as you can, up to a *maximum* of fifteen (**15**) seconds. *Do not* hold your breath for more than 15 seconds, otherwise your results will bias the overall data set collected from the rest of your class and may invalidate the experiment.
4. Enter your results into the table below.

1.1 Dataset 1

My pulse rate was _____ bpm. Holding my breath for 15 seconds was ...

- very difficult
- difficult
- somewhat difficult
- somewhat easy
- easy
- very easy

2 Active State

1. This phase of the experiment requires you to exercise vigorously for two minutes. Running on the spot as fast as you can or hand and arms stride jumping for two minutes, or some similar activity suggested by your teacher.
2. Immediately following the two minutes of activity determine your pulse rate. Do this as soon as possible and as quickly as possible.
3. Next, hold your breath as long as you can, up to a *maximum* of fifteen (**15**) seconds. *Do not* hold your breath for more than 15 seconds, otherwise your results will bias the overall data set collected from the rest of your class and may invalidate the experiment.
4. Enter your results into the table below.

2.1 Dataset 2

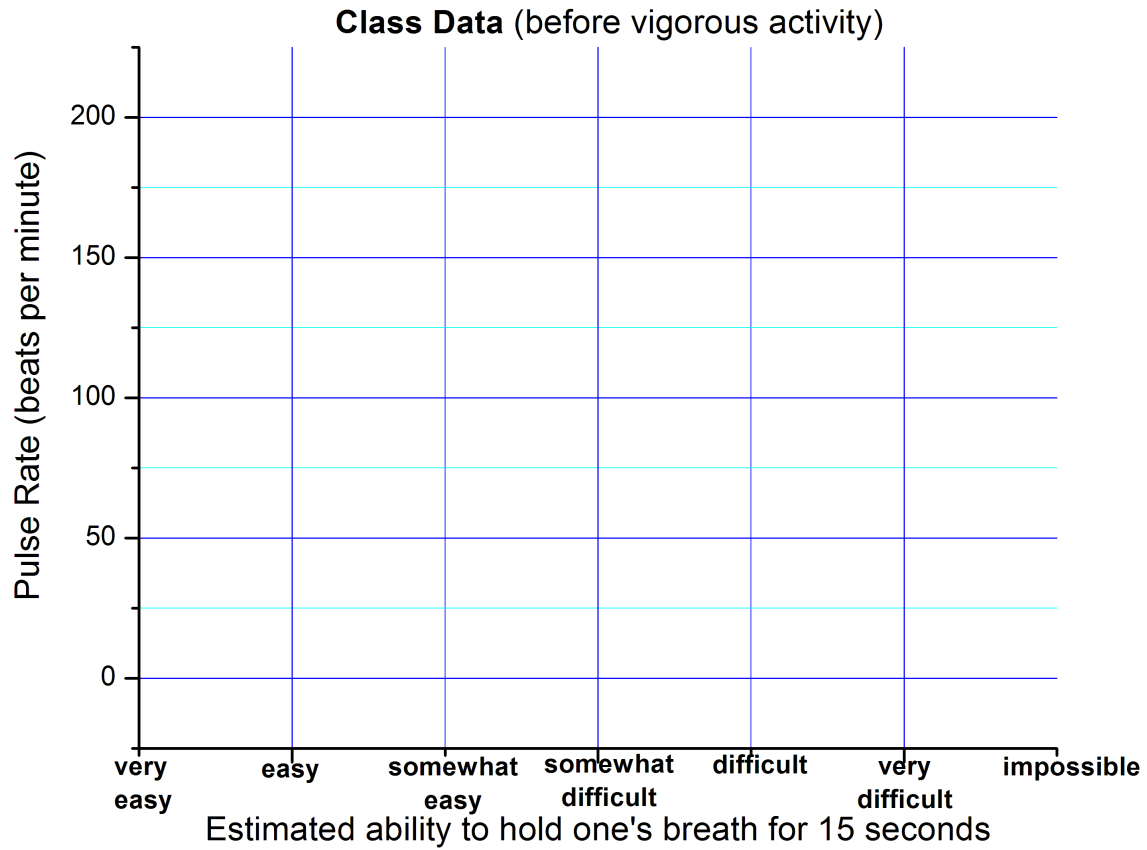
My pulse rate was _____ bpm. Compared to the previous attempt, holding my breath for 15 seconds seemed ...

- much more difficult
- more difficult
- slightly more difficult
- slightly easier
- easier
- much easier

¹Sometimes it is easier to have someone else take your pulse, either by feeling your pulse on the underside of your wrist or under your jawbone at the side of your neck. It might be a good idea to practice this prior to doing this experiment.

Data Analysis

Figure 1: Plot the collected results of the class on the graph provided below. Note that all data will lie on one of the six vertical lines



Data Analysis

Figure 2: Plot the collected results of the class on the graph provided below. Note that all data will lie on one of the six vertical lines

