

Name _____ Date of Data Collection _____

Class Period _____ Lab Days/Period _____ Teacher _____

Compiling Class Data to “Define” Homeostasis

Background: When you visit your physician either for an injury or just a standard checkup one of the very first things your doctor will do is record your vital signs. These vital signs are used to provide a baseline for your doctor that will allow him/her to compare you to the “average”. If you are out of the normal variation (too high or too low) for any of the vital signs, it may indicate that you are ill. To clearly define the homeostatic “limits” of the human body it is important to determine and observe the upper and lower limits of vital signs in the average student.

Purpose: The purpose of this laboratory experience is:

- to practice recording the vital signs of several individuals in the class,
- to average the vital signs of the entire class and compare the average to currently accepted parameters;
- to record and analyze real-time data;
- to further understand what homeostasis means.

Under no means is the equipment we are using, or the data we are collecting, intended to be used as a replacement for continued care from a licensed physician or healthcare professional. Furthermore under no circumstances should this investigation be used to diagnose, treat, or predict

Materials: The following materials are needed to complete this laboratory experience:

Sphygmomanometer	Timer/stopwatch
Pen or pencil	Date sheets
Blood Oximetry Meter	Thermometer (Ear scan or forehead tape)
Class Data Chart (1 per class, provided by teacher)	

Procedure: The following procedure is utilized to perform this experience:

1. After being properly instructed by your instructor, record (or help others record) their vital signs as accurately as possible. Complete “Table #1” for your own personal data.
2. Include your data on the large “Class Average Data” Chart by NUMBER, not name. Make certain to copy down all data from the chart and record it in this laboratory paper.
3. Compare your average vital sign to the “Normal” range and determine if you are below, at, or above average. Record your answer in Table 2.
4. With the assistance of your teacher compile the data from ALL students that complete the activity. Graph the data on the graphs provided.
5. Using the data and relying upon your graphical analysis, determine what the “homeostatic norm” is for your class.

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Data: The following data was recorded during this activity:

Table #1

Vital Statistic Data for _____ Student # _____
(Student Name)

Vital Sign	Units	Trial 1	Trial 2	Trial 3	Your Average (T1+T2+T3) / 3	Parameter	High/Avg/Low?
Blood Pressure	mmHg (done by teacher)					120/80	
Pulse Rate	BPM (beats per minute)					60-72 bpm	
Respiratory Rate	IPM (inhales per minute)					14-20/min.	
Temperature	Degrees (°C/°F)					37°C (98.6° F)	
Blood Oxygen Saturation	%					98%+	

Your Height (cm): _____

Your Weight (kg): _____

Tear this data strip off and give it to your teacher with NO IDENTIFYING INFORMATION!

ID #	M/F	Age	Height (cm)	Weight (kg)	Average Blood Pressure	Average Pulse Rate	Average Respiratory Rate	Average Temperature	Average Oxygen Saturation

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Table #2

Class Average Data: Class Period _____

Student #	M/F	Age (yrs)	Height (cm)	Weight (kg)	Average Blood Pressure	Average Pulse Rate	Average Resp. Rate	Average Temp. (degrees C)	Oxygen Sat. (%)
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									

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Analysis Questions: Answer the following questions related to this activity.

1. Which of YOUR vital statistics are within the acceptable parameters listed? Which ones were higher than normal? ...lower than normal?

2. For all of your vital statistics, what could you do to bring them into the “normal range”?

3. Which of the CLASS vital statistics are within the acceptable parameters listed? Which ones were higher than normal? ...lower than normal?

4. Why is it important to maintain a homeostasis within normal parameters? What does it mean if your “numbers” are well above or well below the acceptable range?

5. How do you think you would compare to students in a neighboring school district? ...a different state? ...a different country? Why?

6. List 5 things you could change about your lifestyle that might be able to bring you into the normal parameters?
 - a.
 - b.
 - c.
 - d.
 - e.

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