

Name: _____

Date: _____

Period: _____

Cellular Respiration Demo

Week # _____

I remember from last class that cellular respiration is _____

The equation for cellular respiration is _____

Directions: Read and annotate the paragraph below. Then answer each section.

Since carbon dioxide is one of the products of cellular respiration, the rate at which an organism completes cellular respiration can be measured based on how much carbon dioxide is produced. A simple way to determine the amount of carbon dioxide that is produced is by using the indicator, bromothymol blue, or BTB for short. BTB is normally a deep blue color in the presence of oxygen. However, when there is carbon dioxide present, BTB turns from blue to green and then yellow-green. Today we will use BTB to determine how exercise affects cellular respiration.

Testable Question: _____

Hypothesis: If a person exercises, then the rate of cellular respiration will _____ because _____.

Materials: - Test subject - 2 beakers with BTB - Straw - Timer

Procedure:

1. Determine the individual who is the test subject.
2. Time how long it takes the test subject to blow into a straw normally until the BTB turns a bright green color. Record this data.
3. Have the test subject exercise by doing jumping jacks as fast as he/she can for 30 seconds.
4. Time how long it takes the test subject to blow into a straw normally until the BTB turns a bright green color (the same color as before). Record this data.

Directions: Fill in your group's data for Table 1. Then fill in Table 2 with the data from all other groups.

Table 1. Group data

	Color Change Time (sec)
At rest	
After exercise	

Table 2. Class data

	Color Change Time (sec)												
	1	2	3	4	5	6	7	8	9	10	11	12	Avg
At rest													
After exercise													

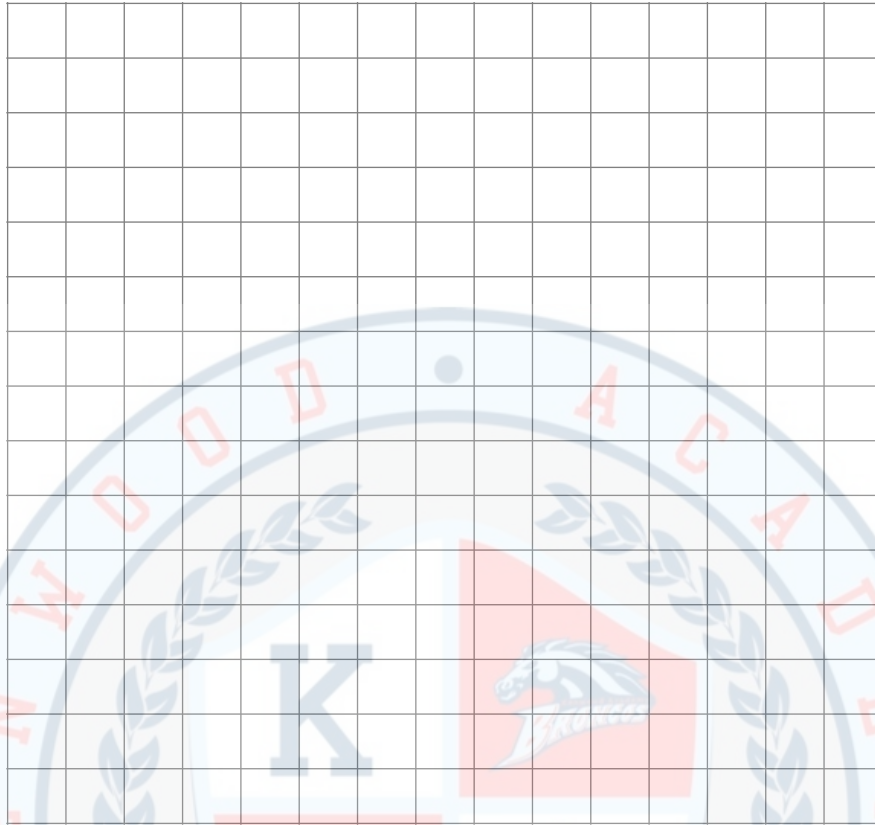
Name: _____

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Directions: Create a graph using the Average column of Table 2. Make sure your graph TALKS!

Based on the data table, I should make a _____ graph because _____



Directions: Use the data in Table 2 to answer the following questions.

Analysis:

1. What is the average difference in color change time at rest compared to after exercise? _____
2. Why is there a difference in color change times at rest compared to after exercise? _____
3. BTB is an indicator for carbon dioxide. How does BTB help determine the rate of cellular respiration? _____
4. Did the average test subject's rate of cellular respiration increase as a result of exercise? Why do you think this happened? _____