

Purpose:

The purpose of this experiment was to see how exercise affects how people breathe, and then to use that knowledge to see how long it takes for BTB to change from blue to green to yellow.

Background knowledge:

We already knew that BTB was an indicator, also that people breathe more when they exercise. Therefore, people exhale CO₂ because it is a waste product of cellular respiration so when they exercise more their body gets rid of more CO₂.

Hypothesis:

The hypothesis was that when you exercise more your body inhales and exhales more CO₂. The color will change faster the more you exercise. This is our hypothesis because when you exercise more you breathe more and when you breathe more you inhale more CO₂.

Materials:

- Test tube
- 2 hole stopper
- Straw
- Distilled water
- Bromothymol blue [(BTB) which is an indicator for hot tubs and other things]
- Stop watch
- Eye dropper

Procedures:

- 1.) Get 1 test tube, 2 hole stopper, stop watch, and straw.
- 2.) Then, pour in 30 milliliters of distilled water into the test tube.
- 3.) Then, with the eye dropper, drop in 6 drops of BTB.
- 4.) Then, put on the two hole stopper and shake with your finger over the holes.
- 5.) Put the straw into one of the holes and blow gently.
- 6.) Record how long it takes for the color to change from blue to green to yellow by using the stopwatch for time.
- 7.) Empty the tube.
- 8.) Run in place for 30 seconds.
- 9.) After 15 seconds have past run to the counter and repeat steps 2-7.
- 10.) Each time increase the time you spend running by 30 seconds leaving at least 15 seconds to prepare the project once more.

Data:

Time	Time To Turn Green	Time To Turn Yellow
0 seconds	2 seconds	7 seconds
30 seconds	1 second	4 seconds
1 minute	5 seconds	7 seconds
1minute 30 seconds	6 seconds	8 seconds
2 minutes	7 seconds	10 seconds

Conclusion:

The hypothesis was wrong. The color took longer to turn yellow and green rather than faster. In other words, the longer you exercise, the longer it takes for the BTB to change color. This experiment had many unplanned variables including: A bad jogger and contamination of the materials. All in all, the hypothesis was wrong.