



## HANDS-ON LAB

# Cellular Respiration and Exercise

Burning fuel through cellular respiration requires oxygen. In this process, bonds break and new bonds form. In this lab, you will use an indicator called bromothymol blue to gather evidence to support a claim about the inputs and outputs of cellular respiration. Bromothymol blue changes color in the presence of an acid.

**PREDICT**

What evidence could there be to support the claim that during cellular respiration, chemical bonds are broken and new bonds are formed?

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**MATERIALS**

- bromothymol blue solution
- cup or beaker (2)
- straw
- timer

**SAFETY**

Do not consume any of the materials used in this lab. Be careful not to breathe in through the straw.

**PROCEDURE**

1. Place the amount of bromothymol blue solution specified by your teacher in a cup or beaker.
2. Get the timer ready. Slowly blow through the straw into the bromothymol blue solution, and record how long it takes for the solution to change from blue to yellow. Be sure not to inhale when the straw is in the solution. Record your data and observations in the Data section.
3. Place the amount of bromothymol blue solution specified by your teacher in a second cup or beaker.
4. Run in place for approximately one minute.
5. Get the timer ready again. Slowly blow through the straw into the bromothymol blue solution, and record how long it takes for the solution to turn yellow. Record your data and observations in the Data section.

**DATA**

Record your data and observations in the space below.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## ANALYZE

The water turned acidic when you blew into it because carbon dioxide in your breath reacted with water to form carbonic acid.

1. How do your findings support the claim that bonds were broken and new bonds were formed to produce the gases you exhaled?

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2. When you exercised, what was different about the time it took the solution to change color? Explain why this happened.

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