



# Blue and Bubbly

## An investigation...



1. Take a straw and blow into the Bromothymol Blue solution (a.k.a. BTB). Keep blowing until you see a color change.

2. Circle the variable below that you predict causes the change:

“When I blow into the BTB, I think it changes color because of the \_\_\_\_\_.”

Heat in my breath

Nitrogen in my breath

Agitation of the bubbles

Air pressure change

Carbon dioxide in my breath

Water in my breath

Oxygen in my breath

Stench of my last meal

Acid from my stomach

Other\_\_\_\_\_

3. Design an experiment to test your prediction. Explain/illustrate your plan here:



**What kind of BTB should I buy?**

.04% aqueous BTB solution (comes in 500 mL or 1L bottles)

**Where can I buy it?**

Carolina Science Supplies: [www.carolina.com](http://www.carolina.com)

Fisher Science Supplies: [www.fishersci.com](http://www.fishersci.com)

**How much can I dilute it?**

You can dilute it at a ratio of approximately 1:4, BTB solution:water. If you dilute much more than that, the color change becomes less visible.

**How can I scaffold the experimental design portion of this lesson?**

If your students are not ready to design an experiment from scratch, consider offering them more structure. For example:

**3. Design an experiment to test your prediction:**

I want to determine if \_\_\_\_\_ is the variable that causes the color change in BTB.

First I will try \_\_\_\_\_.

If the color changes, that means\_\_\_\_\_.

If the color doesn't change, that means\_\_\_\_\_.

Then I will try\_\_\_\_\_.

If the color changes, that means\_\_\_\_\_.

If the color doesn't change, that means\_\_\_\_\_.

**Data Table:**

What I did	What I observed	This evidence makes me think...