

Name \_\_\_\_\_

## Lab: Photosynthesis/ Cellular Respiration

**Introduction:** Plants take in and give off gases as they use photosynthesis to make food. What gas do they give off? What do they take in? In this activity, you will test photosynthesis with an indicator chemical that turns yellow/green in  $CO_2$ . It is called Bromthymol Blue and is blue in a solution that does not contain  $CO_2$  and will remain blue in the presence of  $O_2$ .

**Materials:** pond plant, 3 test tubes with caps, 2 large beakers, test tubes rack, straw, Bromthymol Blue, foil

**Procedure:**

1. Get a large beaker with 60 ml of Bromthymol blue solution. Blow bubbles in it with the straw until it changes to a green color. Pour 20 mL of this solution into each of the three test tubes.
2. Put a plant piece in test tube 1 and put the cap on. Put a plant piece in test tube 2 and put the cap on. Cover test tube 2 with foil to keep the light out. Put a cap on test tube 3 with NO plant inside.
3. Place Test tube 2 (with the foil) in a large beaker in your lab cupboard.
4. Set test tubes #1 and #3 in the test tube rack. Label the test tube rack with your names on a piece of tape. Take your test tube rack outside and put it in the sun.
5. You will leave your test tubes there until the end class.

## Video: Plants

1. Without plants, there would be no \_\_\_\_\_ on Earth.
2. Plants make all the \_\_\_\_\_ we breath and all the \_\_\_\_\_ we eat.
3. What gas is formed when we burn sugar?
4. What is the male part of a flower called?
5. Why do apple trees make apples?
6. Why do cacti have spines?
7. Name a plant that does not have or need roots?
8. Plants use light from the \_\_\_\_\_, water from the \_\_\_\_\_ and nutrients from the \_\_\_\_\_ to make their own food.
9. Name two plants that have to eat meat to get their nutrients.
10. The \_\_\_\_\_ pigment comes from Xanthophyll and \_\_\_\_\_ pigment comes from Carotene.

## End of CLASS.....

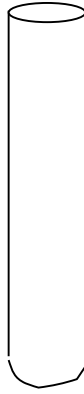
Collect all 3 test tubes. Compare all 3 test tubes. **Draw your results and show the COLORS.**

**Clean up:** Put the plants in the container at the front of the lab. Put the Bromothymol Blue solution down the sink and rinse well. Clean up your lab station.

**Data:**



Test tube 1  
With plant in light



Test tube 2  
With plant in dark



Test tube 3  
Without plant

## **Analysis:**

1. What gas in your breath made the Bromothymol Blue turn green?
2. What process in your body produces this gas?
3. Which test tube helped the plant turn the color back to blue best?
4. Why?
5. What process in the plant turns the Bromothymol blue back to blue?
6. What is the formula for photosynthesis?
7. Which part of it did you test today?