Comparing Photosynthesis and Cellular Respiration

Observing Photosynthesis: Plants are living organisms that must carry out photosynthesis for survival. They must complete this process in order to convert carbon dioxide, water and sunlight into glucose (sugar) for nourishment. You will observe this by completing the experiment below:

-Fill a test tube and a separate beaker with water.
-Obtain a sprig of elodea and crush some of the leaves. Place the sprig into the test tube.
-Add 3-4 grams (about 1/2 teaspoon) of baking soda ($NaHCO_3$). Baking soda naturally reacts with water, producing CO_2. How do you think this will impact the rate of photosynthesis? _____

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-Make sure the test tube is completely filled with water, seal with your thumb, invert and place into the beaker (this should prevent any air from entering the test tube).
-Place under a lamp and observe.

1. What do you expect to happen? _____
2. Why? _____
3. How does the baking soda impact the rate of photosynthesis? _____

_____

4. Why did this happen? _____
5. What gas is released from this process?_____

Observing Cellular Respiration: Yeast are living organisms that carry out cellular respiration. They are often used to make breads and drinks because of the reaction that occurs when they convert sugar into energy. You will observe this by completing the experiment below:

-Fill a test tube with 5 mL apple or grape juice
-Add about 1/8 of a packet of active dry yeast to the test tube
-Seal with your thumb and shake well
-Place a balloon on the opening of the test tube and allow to sit overnight

6. What do you expect to happen? _____
7. Why? _____
8. On day 2, what did you observe? _____

_____

9. Why did this happen? _____
10. What gas is released from this process?_____

Use the diagram below to compare and contrast photosynthesis and respiration: