

Photosynthesis Leaf Lab

CLASS SET

Answer the following questions in your notebook.

Pre-Lab:

1. What are the reactants (inputs) of photosynthesis?
2. What are the products (outputs) of photosynthesis?
3. What are the two stages of photosynthesis and where in the chloroplast do they occur?
4. What is the relationship between glucose and starch?
5. Which chemical indicator can be used to test for the presence of starch?
 - a. What would a negative test for starch look like?
 - b. What would a positive test for starch look like?
6. What are the primary colors of light?
7. What are the primary colors of pigment? How are they related to the primary colors of light?
8. Why do objects appear as the color they are? For example, why would a strawberry appear red, or a banana yellow?
9. Why do black objects appear black?
10. Why do white objects appear white?
11. What is the primary pigment in plants responsible for photosynthesis?
12. What colors of light does it absorb?
13. Other than the pigment you answered in #11, what are all other plant pigments collectively called?

Data:

1. Use colored pencils to make a full-color, large sketch of your leaf. Also, make a sketch of your construction paper light shield, along with the pattern/design you cut out to allow some light through:

2. Describe your observations of your bleached and tested leaf.

Analysis:

1. Glucose is the product of photosynthesis. However, in this activity, you tested for the presence of starch, a polysaccharide. Why did you test for starch?

2. Why do plants store carbohydrates as a polymer and not as many, many monomers of glucose? (hint: consider the process of osmosis and properties of tonicity, as well as what would happen to a plant if it's chloroplasts were damaged/destroyed)

3. Why are plants, and other photosynthetic organisms, considered autotrophs?

4. What is the relationship between photosynthesis and the production of ATP that an organism's cells use for life's functions?

5. What color(s) of light would not be very useful to plants for carrying out photosynthesis? Explain.

6. What does the pigment chlorophyll do in the photosynthetic process? Be specific.

7. Why do plant's leaves appear to "change" color in the fall?