Name_____

Paper Chromatography: Photosynthesis

Introduction

When you look at a leaf, the green pigment (color) chlorophyll is usually the only pigment that appears to be present. Actually, chlorophyll is only one of many types of pigments present in the leaf and one of several that are involved in the process of photosynthesis. Once removed from the leaf, the photosynthetic pigments can be separated from one another and identified using a process called chromatography. Chromatography means, "to write with color." Plants contain chlorophyll, a green pigment, as well as carotenoids, pigments that range in color from red to orange to yellow.

The chemical equation for respiration is:

Carbon dioxide (CO_2) + Water (H_2O) + Energy → Sugar/Food/Glucose ($C_6H_{12}O_6$) + Oxygen (O_2)

In your notebook record: Title: Photosynthesis Lab

Hypothesis (What do you think will happen? What will you see?):

Steps (don't have to recopy – see board)

Observation: Draw a picture and write a description of your strip at time 0 min. Another picture of your strip at time 20 min. Write a description of your final observation.

Conclusion (What colors came out on your strip? What is the purpose of these pigments? Why do you think leaves turn colors in the fall? Are those pigments -yellow, red, orange- always in leaves?):

Respiration

Problem: To observe how organisms use sugar to create energy.

Background Information:

Respiration is the process by which cells take in oxygen and release carbon dioxide and energy. It is the step-by-step breakdown of high-energy glucose molecules to release energy. It takes place day and night in all living cells. All cells carry out the process of cellular respiration in order to meet their energy needs.

Energy, produced from glucose by cellular respiration, is required for the survival of all living things. The organelle where cellular respiration takes place in the cell is the mitochondrion. The mitochondrion is the organelle that makes energy from food for the cell's activities. When living things respire they produce heat energy.

The chemical equation for respiration is:

Sugar/Food/Glucose ($C_6H_{12}O_6$) + Oxygen (O_2) → Carbon dioxide (CO_2) + Water (H_2O) + Energy

In your notebook record: Title: Respiration Lab

Hypothesis (What do you think will happen? What will you see?):

Observation: Draw a picture and write a description of the balloon at time 0 min. Another picture of the balloon at time _____ min. Write a description of your final observation.

Conclusion (What product is filling up the balloon?):