



Plant Explorers:







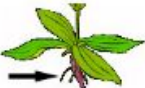

Session One

Writing Prompt

“Write a journal entry describing your day yesterday from the time you woke up until the time you went to bed. Include what you did, ate, saw, etc.”

What are we doing today?

1. Learning about plants and photosynthesis (how plants make food)
2. Examining what happens when a plant doesn't have access to sunlight
3. Learning some new vocabulary words and play word games
4. Doing a demonstration with aquatic plants
5. Writing some more!
6. Sharing our writing and what we learned

 flower	contains the reproductive parts of the plant
 flower	produces seeds
 stem	holds the plant up
 stem	carries water and nutrients from the roots to the leaves
 leaves	contain a substance called chlorophyll
 leaves	produce food for the plant
 roots	hold the plant in the ground
 roots	absorb water and nutrients from the soil

What are the parts of a plant?

What do plants need to survive?

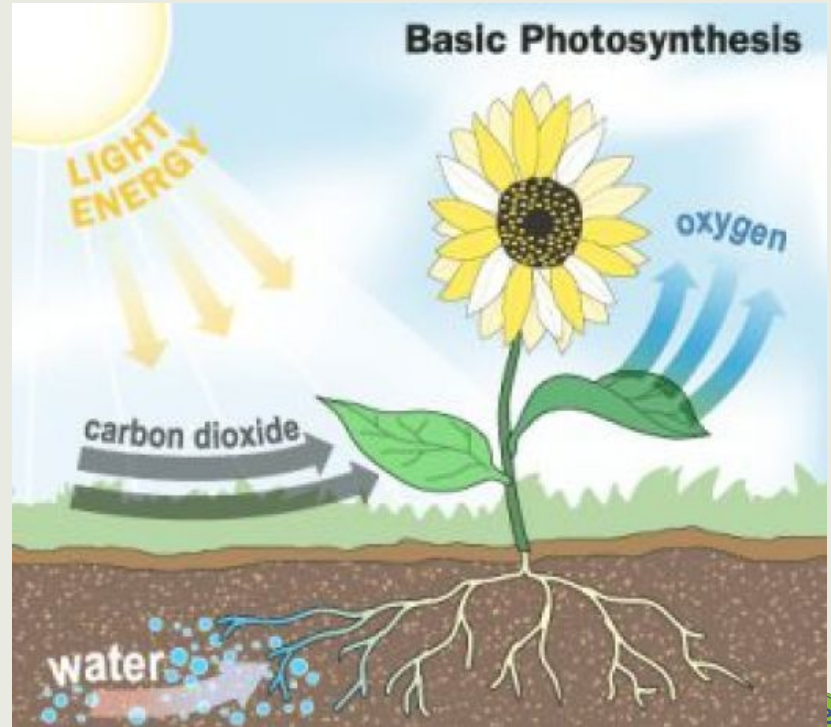
Sunlight

Water

Soil

How do those things help plants eat? A process called....

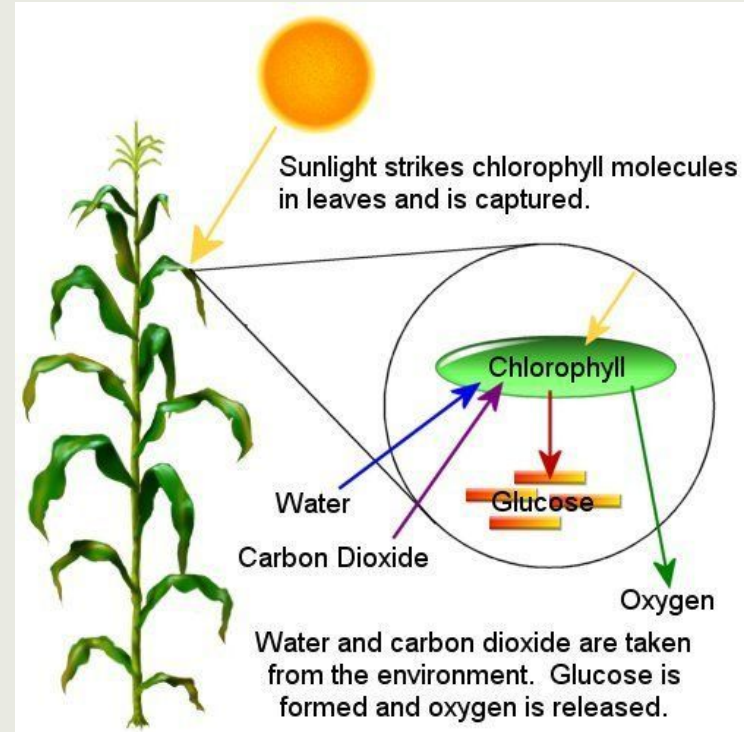
PHOTOSYNTHESIS!



A Closer Look

The main photosynthetic part of a plant is called “chlorophyll” -- it’s what makes leaves green!

The chlorophyll take in the water, light, and carbon dioxide and produce glucose (sugar) and oxygen. Sugar is the plant’s breakfast, lunch, and dinner. Doesn’t that sound nice...



What happens when a plant is not given
all those things?

Word Games

Take this time to complete your wordsearch and crossword puzzle!

Think about the new words you've learned and ones you were already familiar with before coming to 826 today. Have you learned anything new about those already-familiar words?

Demonstration Time!

We are going to do a whole-group demonstration to see photosynthesis in action.
We are going to set up everything we need together and then check back on the progress of the experiment tomorrow!

As we do the demonstration, keep track of all the steps.

Considering what we've learned, what do you predict will happen?

Writing Activity Time!

How would your daily life be different if you could make your own food, like a plant does? Re-write your journal entry, starting from what you would do when you woke up and end with yourself going to sleep.”

- Think about all the food you ate yesterday and how much of your day surrounded what you ate. What would you do with all that free time?
- How would your friends and family react? Would they photosynthesize too, or are you the only one who can?
- How is this like a superpower?
- Would you miss eating? What would you miss the most, if anything?

Share-Outs & Teach-Backs

What do plants need to survive?

What is that process of making their own food called?
(photosynthesis)

Why was the part of the leaf that we uncovered a different color than the rest of the plant?



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Session Two

Local Plant Life

Today, we are going to explore the different types of plants that live around us.

From small flowers and shrubs to large trees, we'll take note of what's around us using our "Census Collection Data Sheet" and the attached plant guide.

When we're out exploring, use the guide to look for certain plants. Count how many of each plant you see, and take note of where you see them!

Field Trip De-Brief

Looking at your data, which plants were most plentiful in the area? Which plants couldn't you find?

Let's make a histogram of the plants you saw during our exploration of local plant life!

Why do you think there were more of some plants than others?

Egeria Densa Report

Let's see what happened to the water in the test tube!

On your handout, explain your observations of the test tube.
Why did this change occur, and how?

Bonus question: why do you think people put plants into their fish tanks?



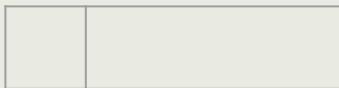
Plant Explorers:

Session Three

Chromatography Investigation

1. Obtain chromatography paper strips, pencil, ruler, penny, and plastic cup

2. Make a pencil line 1 cm in from one narrow end like this:



3. Place a piece of the leaf over this line and use the edge of the penny to rub across the leaf along the pencil line drawn on the strip so that the pencil line is now covered with pigments from the leaf

4. Pour enough solvent in the cup to completely cover the bottom of the test tube to a depth of less than 1.0 cm.

5. Carefully place the chromatography strip in the test tube so that the bottom of the strip is in the solvent yet the solvent level is below the pencil line

6. Hold or clip the strip in place and allow the solvent to move up the chromatography strip.

7. When the solvent level gets close to the top of the strip, remove the strip from the solvent to stop the movement, and make a light pencil mark at the solvent top. It may also help to use a pencil to mark the separated bands on the strip in case the colors fade as the paper dries.

8. Let the strip dry.

9. Record the data and observations from this experiment. Record the color (be descriptive!) of each pigment and compare the distance each travelled.

What is the Deal with Pigments, Then?

Plants make an amazing variety of pigment molecules, far more than animals, because they are creatures of light.

Plants produce pigments to advertise rewards for animals which pollinate flowers and disperse seeds.

There are three types of pigments present in the leaves of plants, and their retention or production determines the colors of leaves before they fall from.

What Are the Three Pigments?

Chlorophylls: We know about these! They absorb blue and red, reflecting a green color

Anthocyanins: These ones absorb light in the blue-green wavelengths, and are thus responsible for the pink-red colors of most flower petals, of most red fruits (like apples) and almost all red leaves during the autumn

Carotenoids: These pigments primarily absorb in the blue wavelengths, allowing the longer wavelengths to be scattered and producing the yellow color. In autumn foliage, the carotenoids are left over in the chloroplasts and revealed from the loss of chlorophyll

Writing Activity Time!

Using what you've learned about plants and the ones you encountered on the field trip, what type of plant would you want to be, and why?

Consider: Would you be a loner, like a stand-alone tree? Or a part of a group, like a rosebush? What would a day in the life of that plant look like? What would you think? What would you hear? What would you do?"



Plant Explorers:

Session Four

Research Time!

Research your plants and fill out the plant information sheet with all of the interesting facts you're learning!

Watercolor Time!

Use the worksheet to determine your plant's personality and backstory. Then, answer the following prompt:

Write a journal entry about your plant going to school.

Consider: How would it dress? How would it act? Would it be a cool kid? Would it be a rebel? What would it do from the time it got to school in the morning until the time it left? Consider how it would interact with teachers, classmates, principals, etc.

THANKS FOR EXPLORING,
PLANT EXPLORERS!