

Name: _____ Date: _____ Pd. _____

Photosynthesis WebQuest

- Type in the following link:
<http://www.pbs.org/wgbh/nova/methuselah/photosynthesis.html#>
- Read the introduction entitled "Illuminating Photosynthesis" by Rick Groleau
- Right-click on the button that says, "Launch Interactive" and choose "Open in New Window" option.
- When the new window opens read the introductory poem.
- Click on "**The Cycle**" at the top of the box

1. Click on each of the following items, and explain what happens:

a. The **shade** over the **window**: _____

b. The **container** of **water**: _____

c. The **child**: _____

2. a. What **gas** does the child provide for the plant to use? _____

b. What **gas** does the plant provide for the child to use? _____

c. Will the plant continue to produce this gas if the shade over the window is closed?

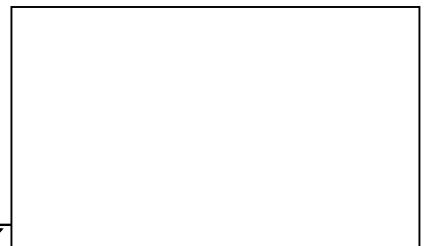
3. According to this animation, what 3 main things does the plant need for **photosynthesis** to occur?

(1) _____ (2) _____ (3) _____

Click on "**The Atomic Shuffle**" at the top of the box.

Read the introductory poem, and click on "**next**"

4. What type of molecule is shown in the leaf? _____



5. Draw one of the molecules to the right, as it is shown in the leaf.

According to the reading, these molecules "do not come from the tap." What two places do they come from?

(1) _____ (2) _____

Click on "**next**" and watch carefully. You may click on "**replay**" to watch this again.

6. a. What is "stripped" from each water molecule?

b. From where does the cell get the energy to do this? _____

c. The stripped molecules form pairs. Where does it go after this?

Click on "**next**"

7. a. What gas enters the leaf? _____

b. This gas enters through "holes" in the leaf. What are they called? _____

Click on "**next**"

8. What molecule is formed **once again**? _____

Click on "**next**"

9. Another molecule is formed ("and boy is it sweet"). What is the chemical formula?

10. What is the name of this molecule? _____

Click on "**next**" and then "**note about this equation**".

11. Write down the simpler version of the chemical equation for photosynthesis.

Click on “**Three Puzzlers**” at the top of the box.

12. Answer each of the following questions, and explain *in your own words*.

a. Can a tree produce enough oxygen to keep a person alive? Explain.

b. Can a plant stay alive without light?

c. Can a plant survive without oxygen? Explain.

II. Overview of the whole process of photosynthesis.

1. Let's review all the raw materials needed for photosynthesis. Go to the following site:
<http://www.scholastic.com/magicschoolbus/games/frizfreshfacts/index.htm>
2. Click on **Launch Friz TV**
3. Click on the "**Factivity**" on the left side of the screen and choose a plant from the options. Record **two** things that Liz (the dinosaur) does to make the plant grow.
 - a.
 - b.
4. What gas causes the plant to sigh?
5. What happens when the sun button is pushed?
6. Click on Liz and explain how Liz and the plant are helping each other.
7. Now click on "The Facts" button and answer the following questions by reading the dialog between Ms. Frizzle and Ms. Chlora.
 - a. What are the plant veins called which transport water?
 - b. What are the openings that allow carbon dioxide into the leaf?
 - c. What is the plant's main nutrition source?
 - d. What waste product of plants benefit humans?

Cellular Respiration:

Part I: Function and equation for respiration:

1. Go to: http://www.phschool.com/science/biology_place/biocoach/cellresp/intro.html
Use the information provided to write a definition of cellular respiration in your own words.
2. Go to: <http://www.biology.iupui.edu/biocourses/N100/2k4ch7respirationnotes.html>
Write the chemical equation for cellular respiration.

What are the reactants?

What are the products?

Where have you seen something like this equation before? Explain.

3. How does the equation for cellular respiration compare with the equation for photosynthesis?

3. Go to: <http://www.biology-pages.info/A/ATP.html>
What is ATP? Why is it an important product of cellular respiration?

Part II: Main Site of Cellular Respiration:

Use the following link: http://www.biology4kids.com/files/cell_mito.html to answer questions 5-7:

5. What is the main site of respiration in the cell?

6. Draw a picture of the respiration site and label major parts on the right.



7. What energy molecules are produced in this respiration organelle?

8. Go to: <http://www.buzzle.com/articles/aerobic-and-anaerobic-respiration.html>. What is the difference between aerobic and anaerobic cellular respiration?

9. Click on the link and scroll down to fermentation. Under the photo, click “Read more.”

- <http://www.ck12.org/book/CK-12-Life-Science-Concepts-For-Middle-School/section/2.16/>

10. What is lactic acid fermentation? Where does it occur?

11. What does a build-up of lactic acid cause?

12. What is alcoholic fermentation?

13. Why would an organism prefer aerobic respiration as opposed to anaerobic respiration (fermentation)?

14. Click on the link and scroll down to fermentation. Under the photo, click “Read more.”

- <http://www.ck12.org/book/CK-12-Life-Science-Concepts-For-Middle-School/section/2.15/>

15. Give three ways that photosynthesis and respiration are dependent on one another.