Life: Photosynthesis

#	TERM	DEFINITION
1	Photosynthesis	The process by which plants use sunlight to make their own food.
2	Chlorophyll	A green chemical in the chloroplast of a leaf that traps the sun's energy during photosynthesis.
3	Glucose	A sugar plants make during photosynthesis and use as food energy.
4	Producers	An organism such as a plant that makes or produces its own food.
5	Consumers	An organism such as an animal that must eat or consume food from another organism.
6	Transpiration	The evaporation of water from plants into the atmosphere in which water moves from the roots of a plant, up the stem, and out small pores in the leaf called stoma.
7	Xylem	The part of a plant's stem where water and minerals travel up to the leaves, and is located in the center of the stem.

Fast Facts about Plants:

Use the word bank below to complete the paragraph.

Roots	Sun	Breaks	Opposite	Reactants	Photosynthesis
Water	Food	Energy	Products	Respiration	Carbon Dioxide

Plants take in Carbon Dioxide and ___water, and use the energy from the Sun_____ to make ___food_____. This is called photosynthesis. Food is stored in the ____roots_____ until the plant is ready to use it. At this time a process known as __respiration____ occurs which ___breaks_____ down the food to release ____energy___. Respiration is the ____opposite_____ of photosynthesis because the __products____(results) and the ___reactants_____(ingredients) are switched.

Fast Facts about People:

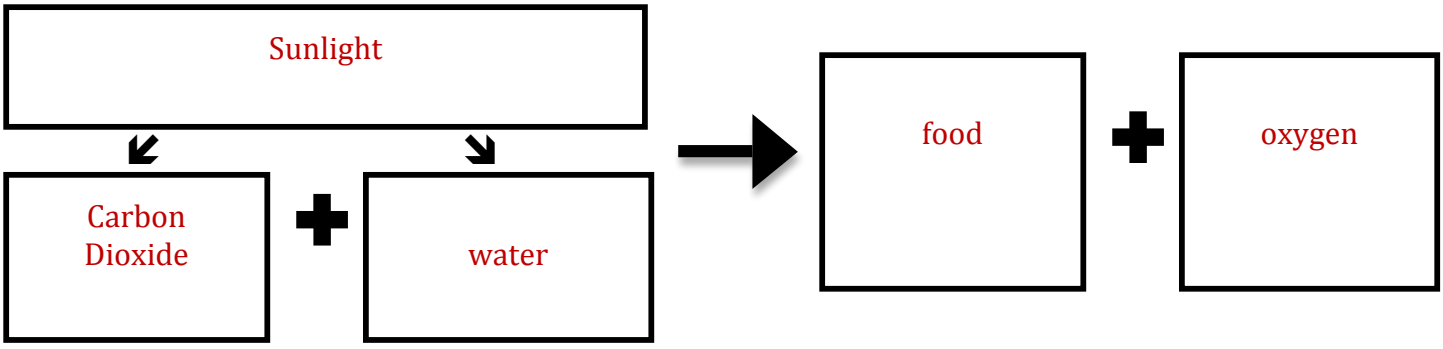
Use the word bank below to complete the paragraph.

Mitochondria	Opposite	Carbon Dioxide	Respiration	Eat	Chlorophyll

People do not have __chlorophyll___, so they have to __eat____ food. To use the food for energy, we need to breathe in __oxygen_____ (that plants give off). This process is called __respiration___. All this takes place in the __mitochondria___, a cell organelle, where food is broken down & energy is released.

We then give off __carbon dioxide__, a gas that plants need for photosynthesis. Plants and people are PARTNERS in energy!

Process of Photosynthesis



Formula for Photosynthesis

Makes food to create stored energy

(Sun's Energy +) $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$

6 C + 18 O + 12 H = 6 C + 18 O + 12 H

Process of Respiration

Breaks down Food to release energy

$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$ (+ energy)

6 C + 18 O + 12 H = 6 C + 18 O + 12 H

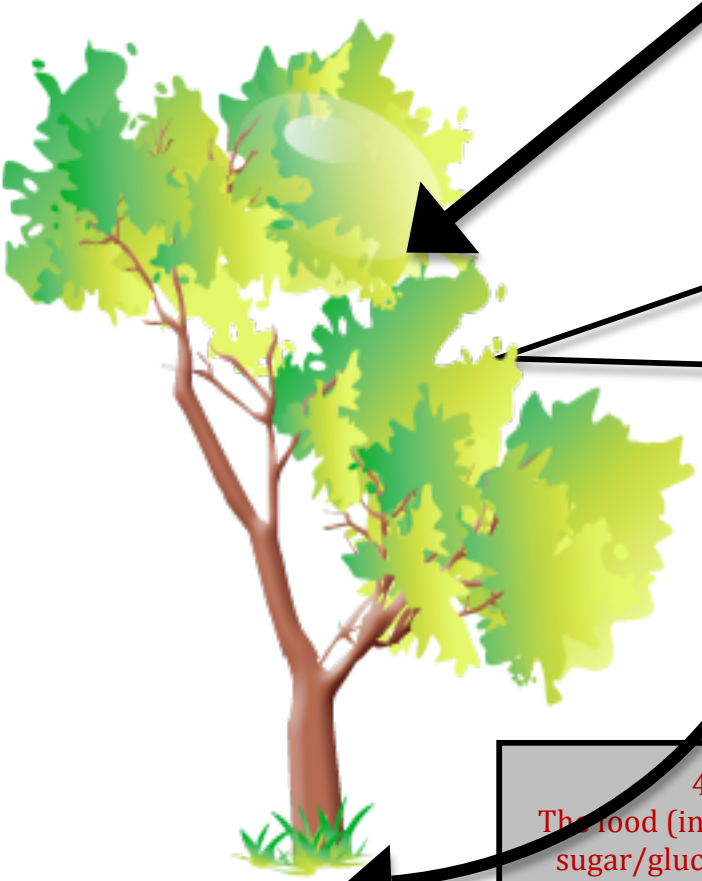
Categorize each description as either an animal characteristic or a plant characteristic. Fill in **A for Animals, P for Plants; or B for Both**

___A__1. Breathe in oxygen
___P__2. Takes in Carbon Dioxide
___P__3. Use the sun's energy to make own food
___A__4. Eats food for energy
___B__5. Needs energy to live
___P__6. Gives off oxygen
___A__7. Gives off Carbon Dioxide
___P__8. Absorbs water from the environment
___A__9. Consumes water from the environment
___P__10. Has Chlorophyll
___B__11. Stores Glucose to use later during respiration to release energy
___B__12. Breaks down Glucose for energy

Photosynthesis Diagram

1
The Sun's energy is trapped in the leaves of the plant & used to power the process of photosynthesis. Tiny organelles (structures) called chloroplasts make a green chemical called chlorophyll that convert the radiant energy from the sun into chemical energy known as glucose.

2
A gas called carbon dioxide (CO_2) from the atmosphere enters the leaf through tiny pores (openings) called stoma, (singular = stomata) & is used in photosynthesis.



6
Water exits the leaf & evaporates into the atmosphere as water vapor in a process called transpiration.

5
Oxygen (O_2) created during photosynthesis is released into the atmosphere and used by consumers during respiration

4
The food (in the form of sugar/glucose) made during photosynthesis is stored in the roots for later use

3
Water & minerals from the soil are absorbed by the plant's roots, travel up the xylem to the leaves, and is used in photosynthesis.