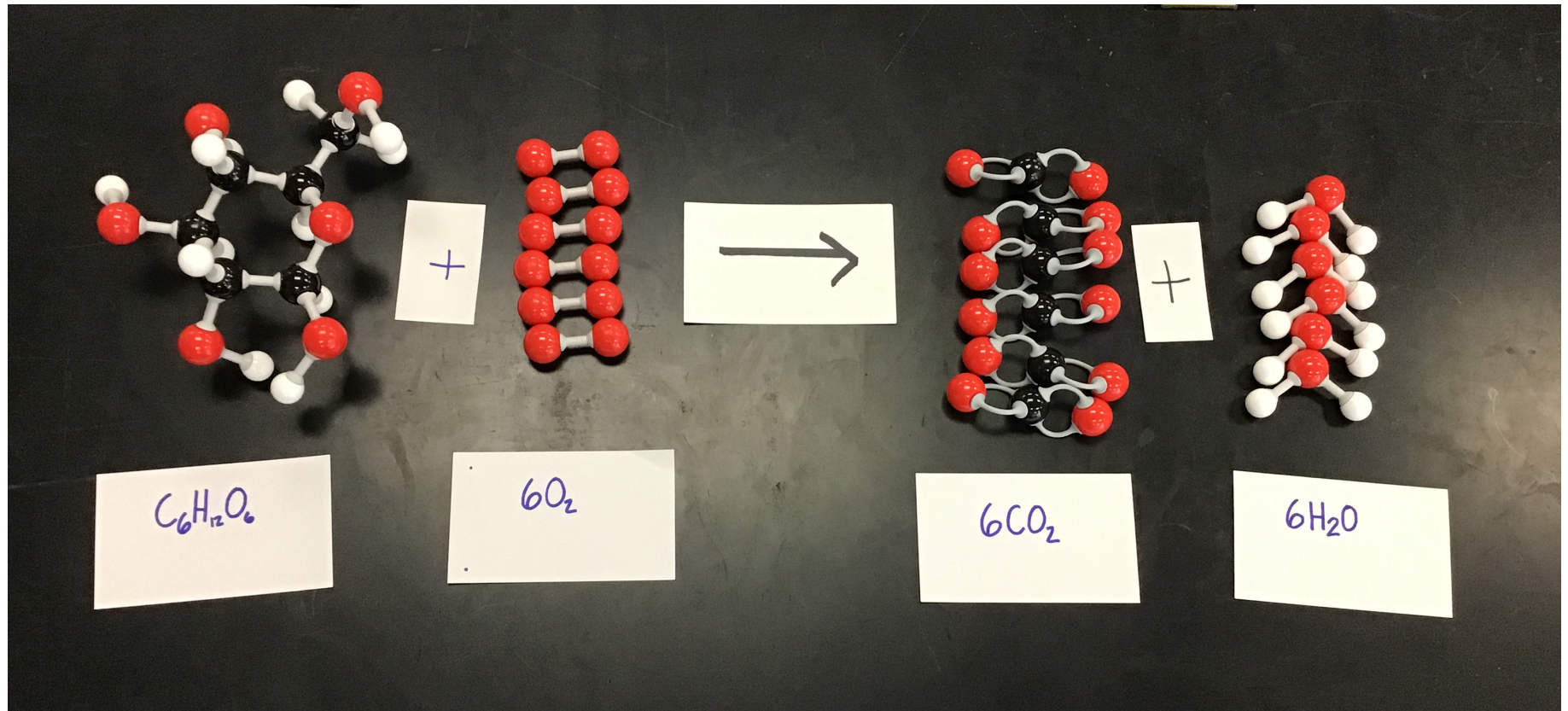


Evidence for Cell Respiration

Balanced Equation for Cell Respiration AND Burning



Cell Respiration Evidence Detectives— Animal Cells

- Look CLOSELY at the next 4 slides and with your table partner try to come up with what the Reactants and Products are for the chemical reaction your 40 trillion cells are doing all the time!
- In particular pay attention to CO_2 , O_2 , Glucose (Sugar)

Cell Respiration Humans

page 12

Summary Table: Impact of Exercise on Body

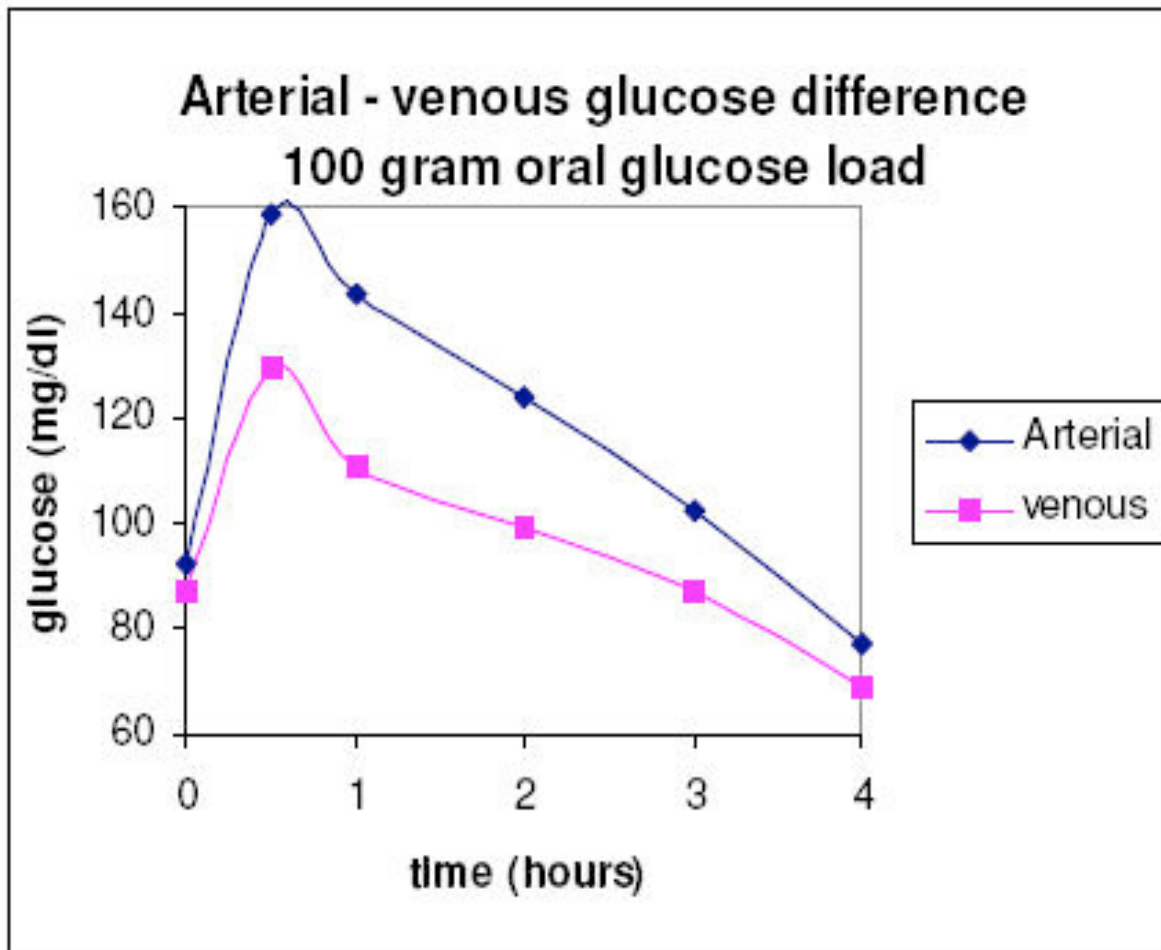
Independent Variable (Cause)	Dependent Variable (Effect)	General Pattern (Effect)	Evidence
Walking	Strides (#)	steps used	
Walking	Energy expended (Calories)	calories	≈ doubled for several people
Jogging	Strides (#)	move steps	
Jogging	Energy expended (Calories)	move calories	
Jogging	CO2 in exhaled air (ppm)	increased after jogging	+204 ppm
Jogging	Heart Rate (beats per minute)	increases	average +36 walking (other groups less) average +69 jogging
Jogging	Skin Temperature (°C)	up and down	7/7 some decrease
Jogging	Breathing Rate (breaths per minute)	increases	past experience

- What molecules did you use (reactant) when walking and running? Hint: what provided energy?
- What does the heart rate and breathing rate indicate about oxygen needed (react) in your cells?
- What molecules did you produce?

Cell Respiration Humans

Ateries go away from heart TO cells

Veins go FROM cells back to heart



- What molecule is being used in cells?

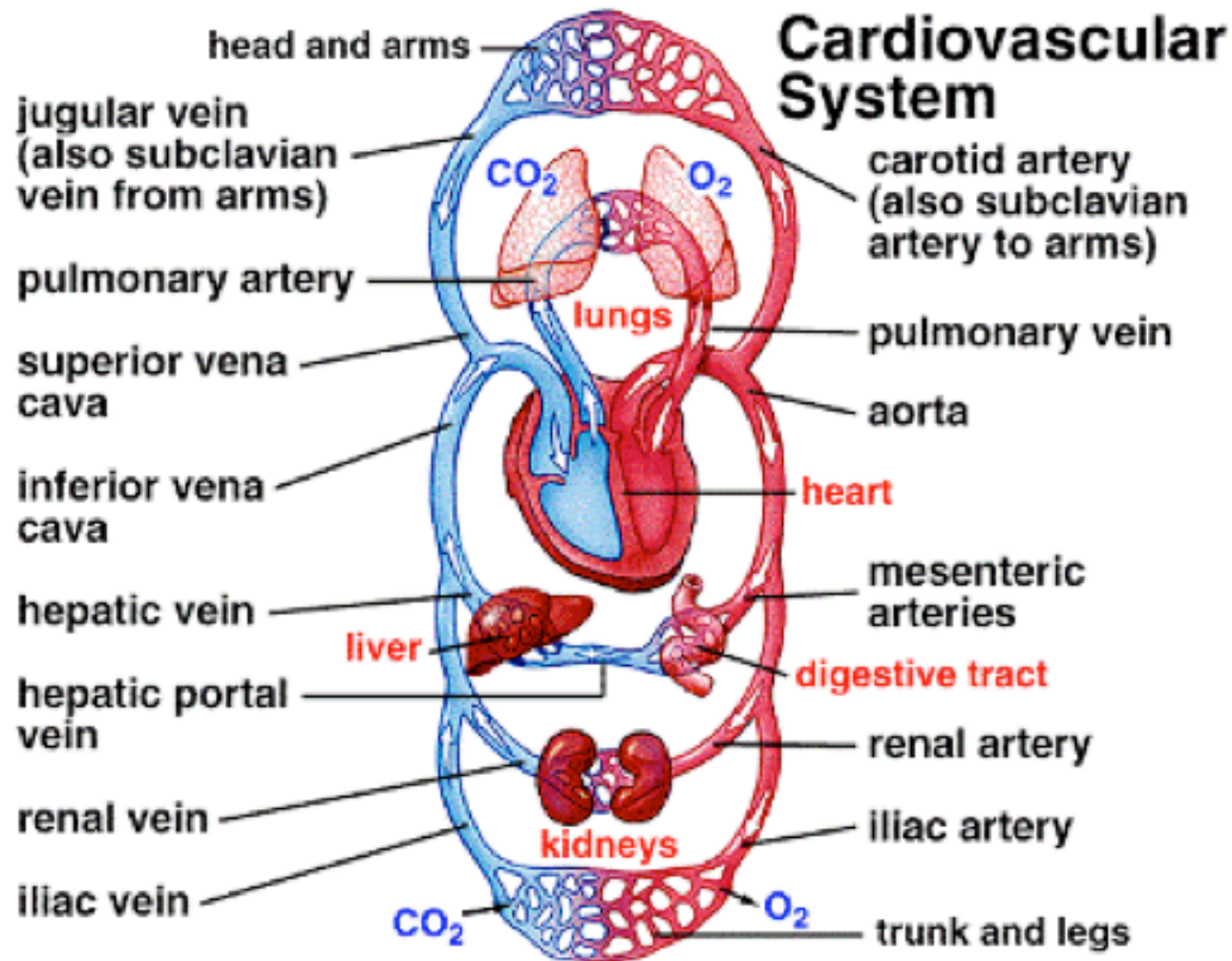
Cell Respiration Humans

- What gas is being used (reactant) in cells?
- What gas is being produced (product) in humans?

Oxygen and Carbon Dioxide Content in Human Bloodstream

Location in bloodstream	Normal Content	
	Oxygen (mL O ₂ /100 mL Blood)	Carbon Dioxide (mL CO ₂ /100 mL Blood)
Blood going to the cells of the body <i>from</i> the lungs	20	48
Blood coming from the cells of the body <i>to</i> the lungs	15	52

Cell Respiration Humans—what gas molecule is used (reacts) in cells? Produced?



**Red = High Oxygen
Low Carbon Dioxide**

**Blue = Low Oxygen
High Carbon Dioxide**

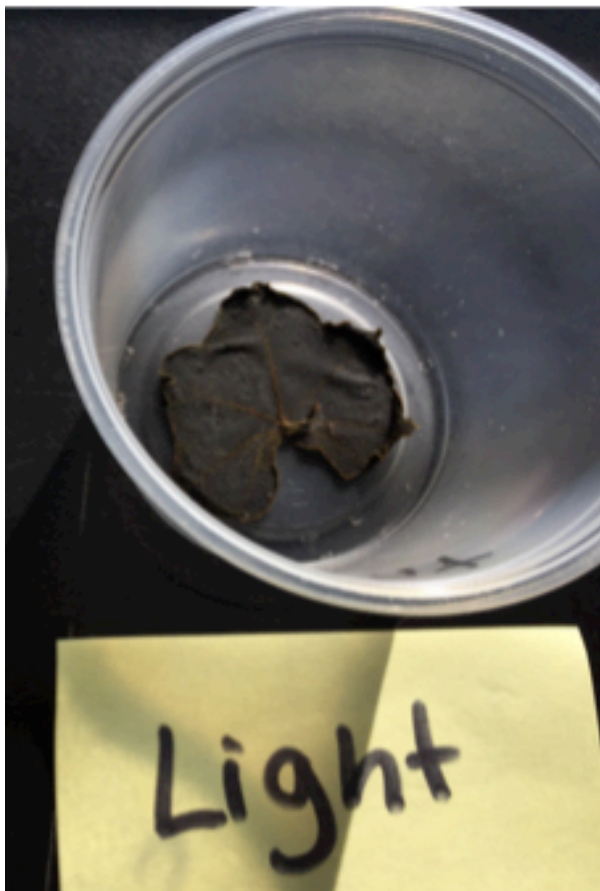
Cell Respiration Evidence Detectives— Plant Cells

- Look CLOSELY at the next 2 slides and with your table partner try to come up with what the Reactants and Products are for the chemical reaction that plants cells do (besides photosynthesis)

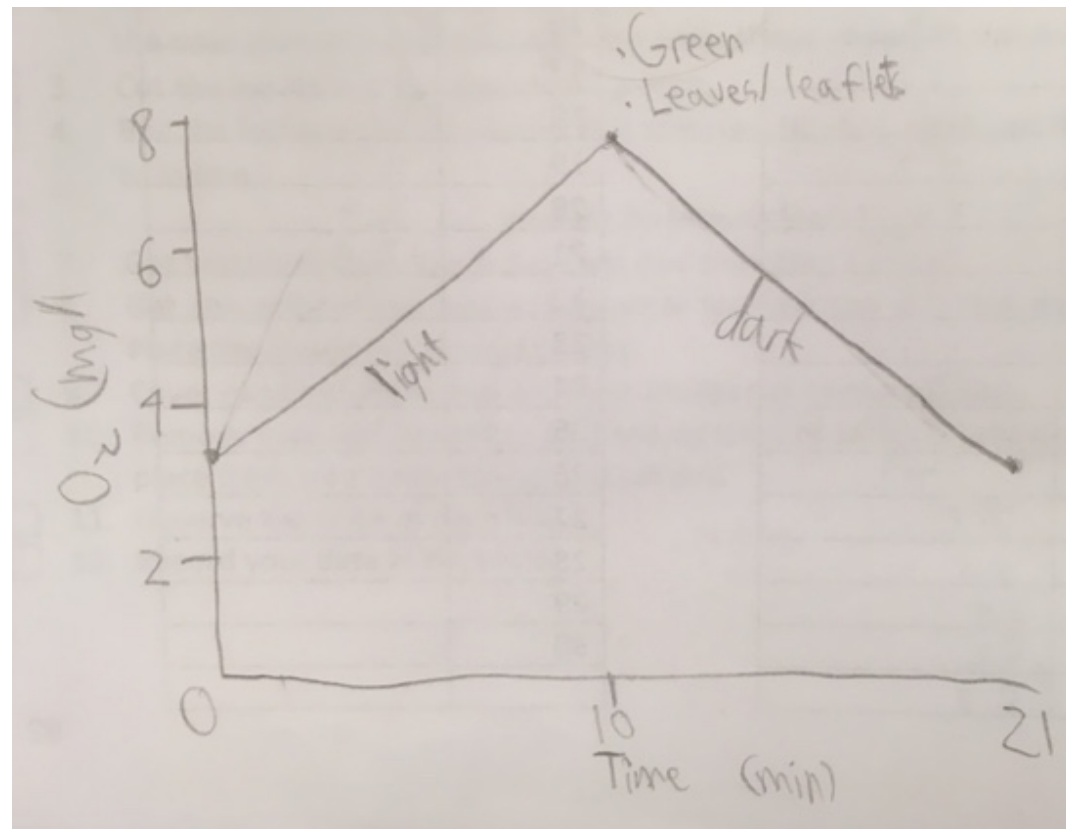


Cell Respiration Reactants Plants

What molecules are found in the leaves?

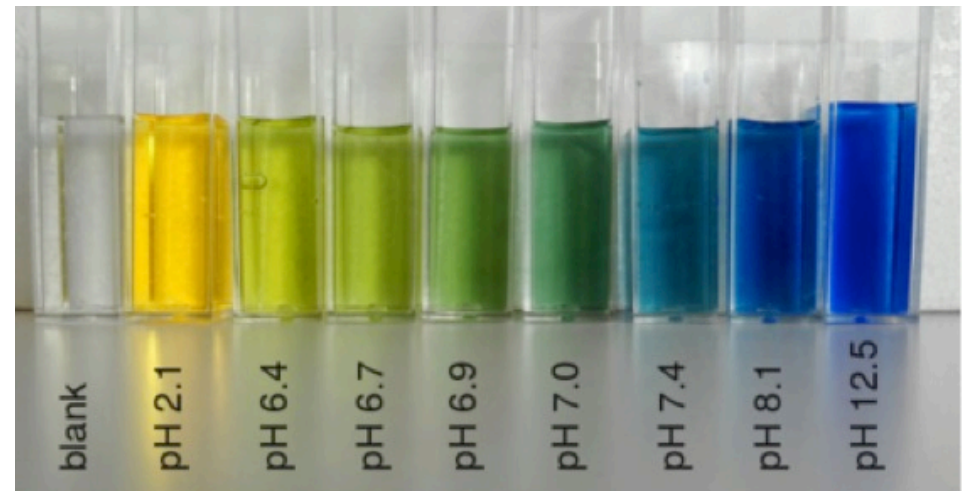
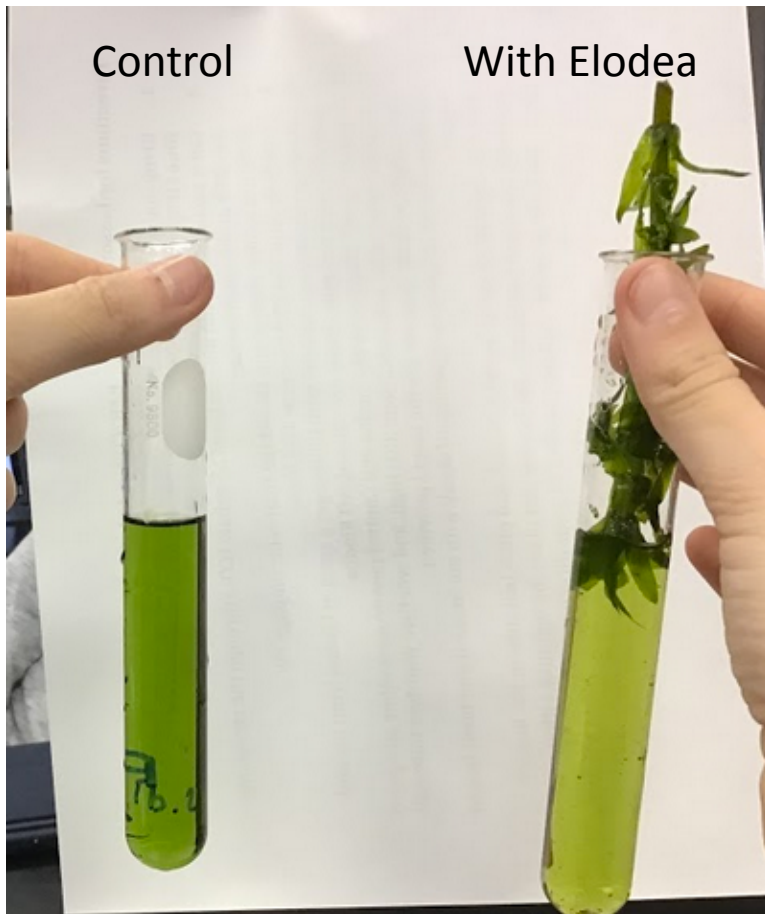


What molecule is the plant removing from the water in the dark?



Cell Respiration Products Plants

- What does the plant produce in the dark?



High CO₂

“Normal” CO₂

Very Little CO

Cell Respiration

- Turn your big white sheet over
- We'll be using the back to capture major ideas related to cell respiration
- We'll start by numbering the boxes

Color Coded Blocks—Not going to draw again, but will color code

- Blue= Hydrogen



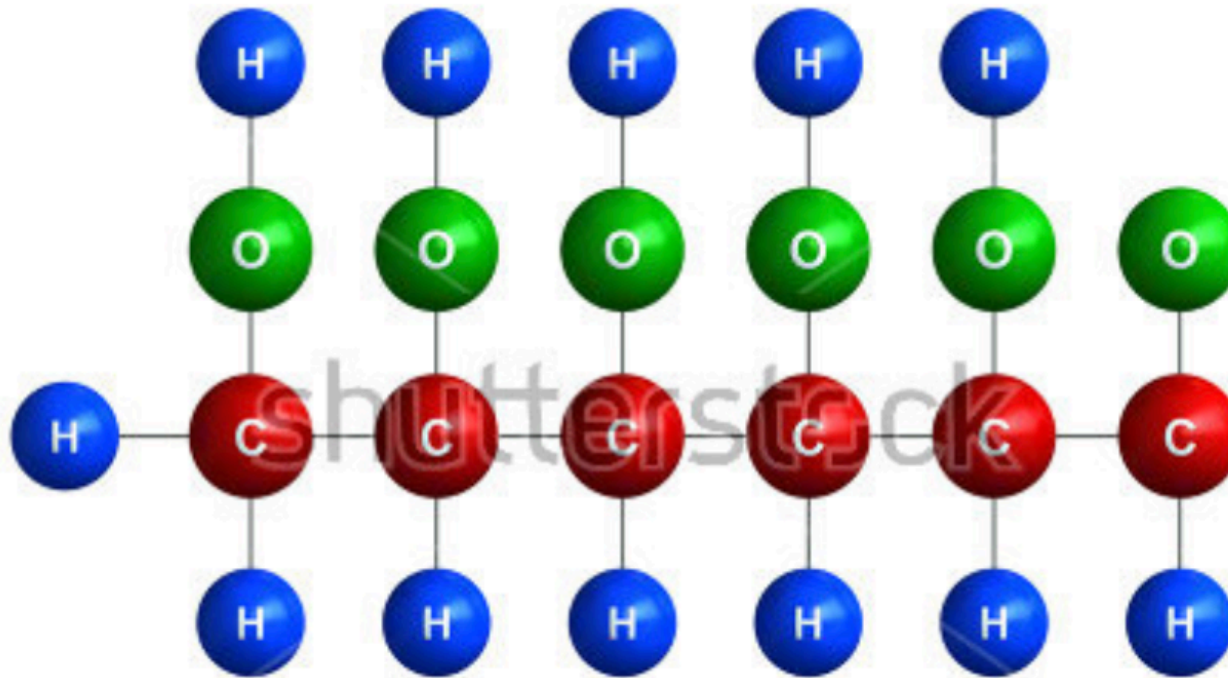
- Green= Oxygen



- Red= Carbon



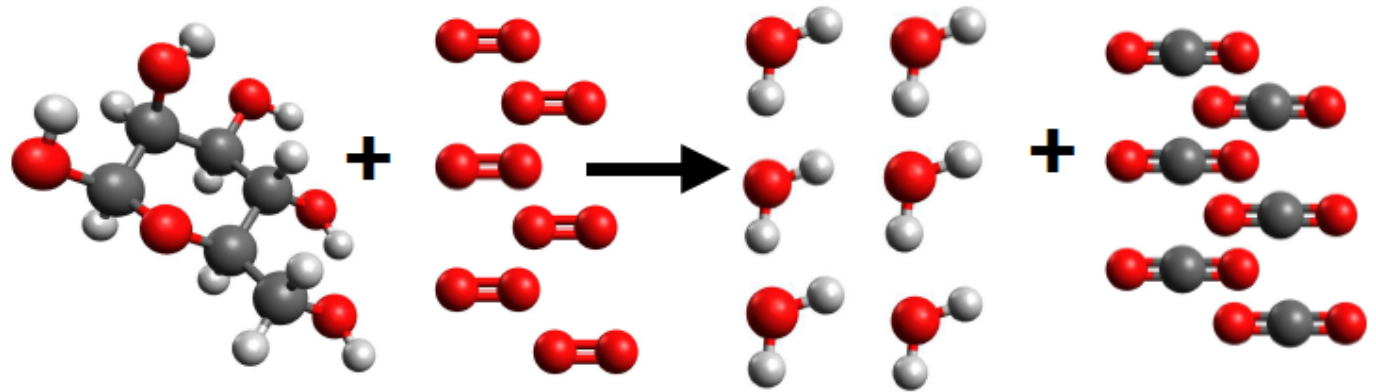
Build a glucose molecule



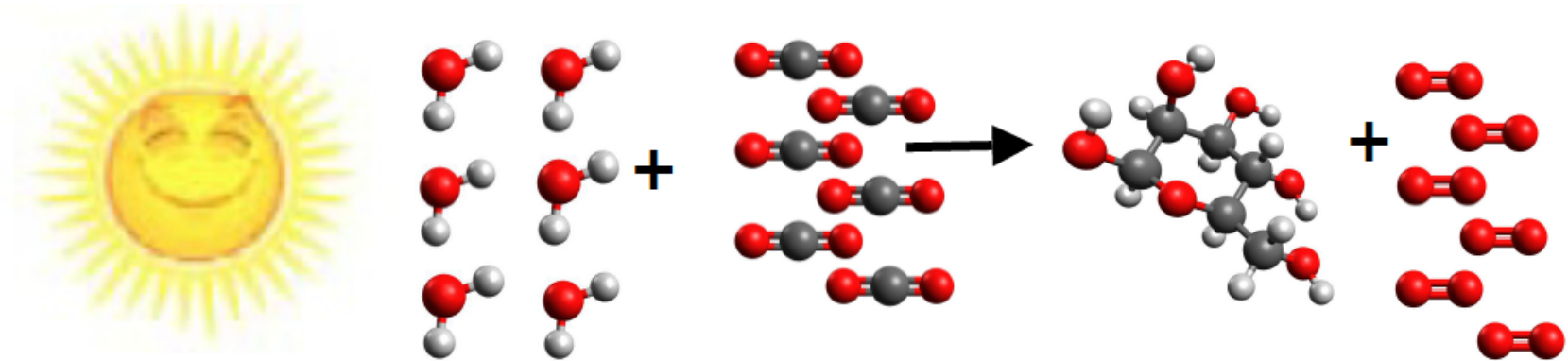
Glucose $C_6H_{12}O_6$



Plants in Dark Evidence?



Plants in Light Evidence?



Do plants do cell respiration in light?

