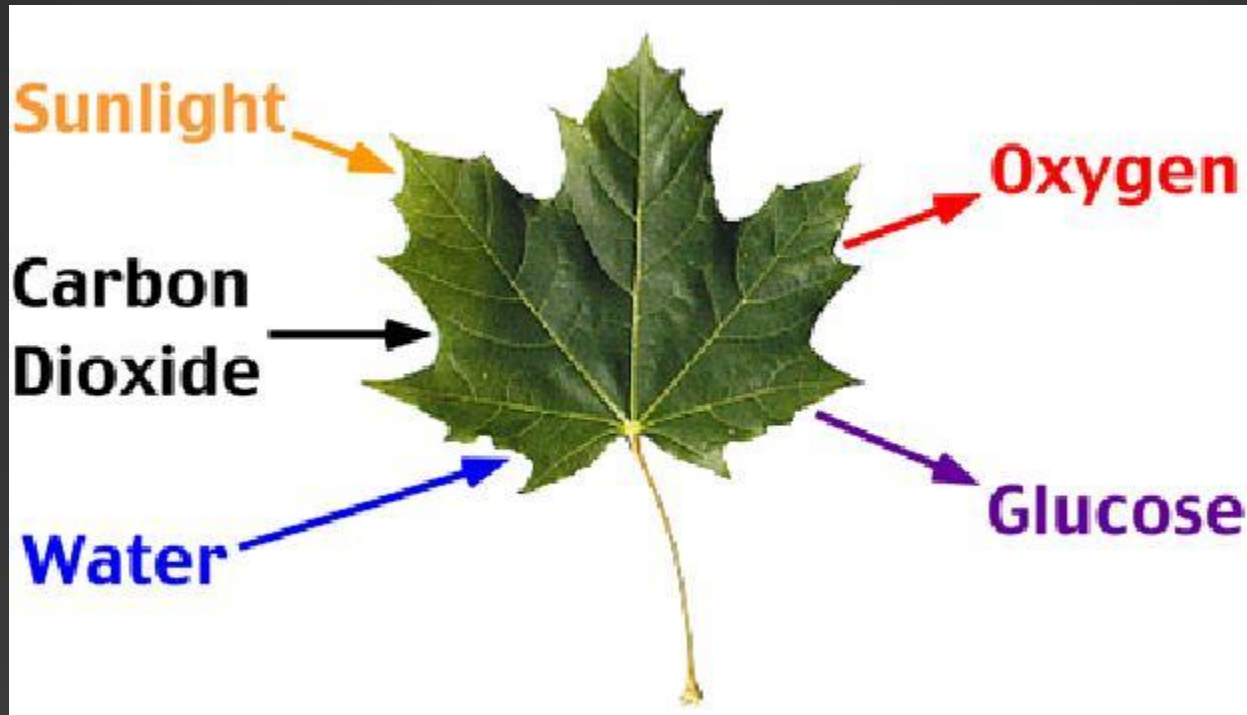


# PHOTOSYNTHESIS AND CELLULAR RESPIRATION

EQ: How do the processes of photosynthesis and cellular respiration create and release energy?

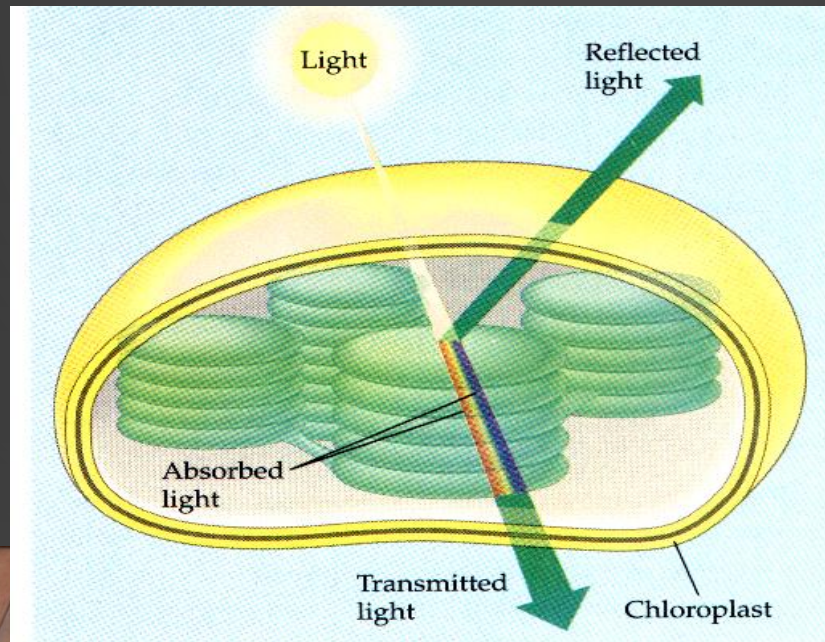
# What is photosynthesis?

- Photosynthesis is the process by which the energy of sunlight is converted into the energy of glucose



# Where does photosynthesis happen?

- Photosynthesis occurs in the chloroplasts of plants
- Chlorophyll is the pigment inside the chloroplast that absorbs light for photosynthesis
- Pigments absorb some wavelengths of light and reflect others—the color our eyes see is the color that the pigment reflects
  - This is why plants are green!

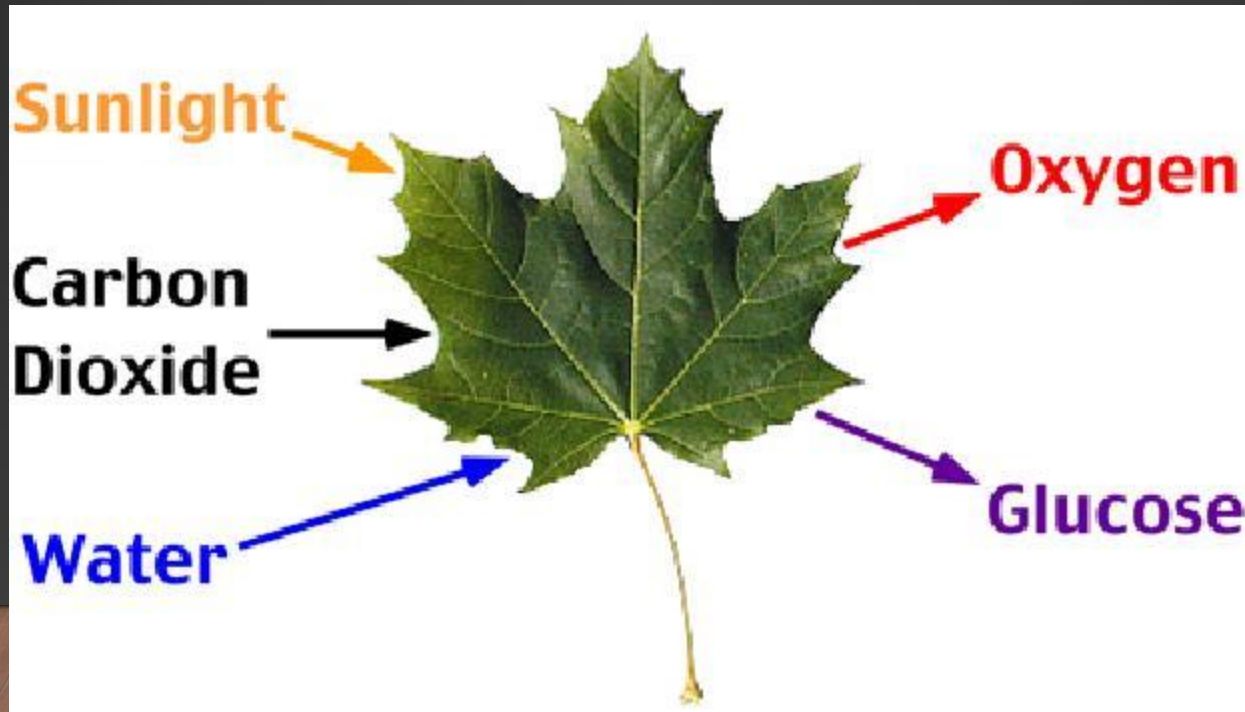


# General formula for photosynthesis:



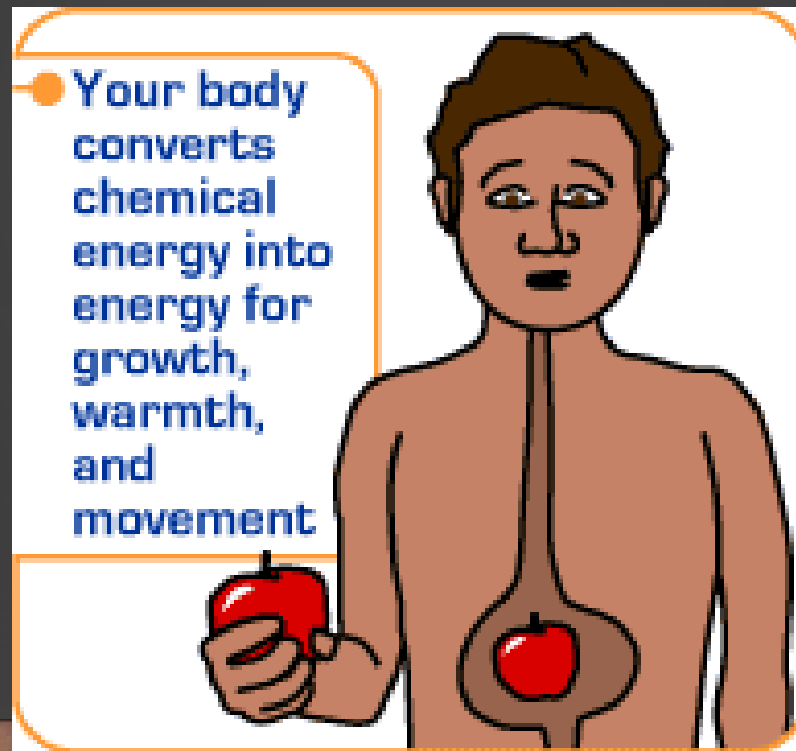
carbon dioxide + water + light  
(Reactants or inputs)

glucose + oxygen  
(Products or outputs)



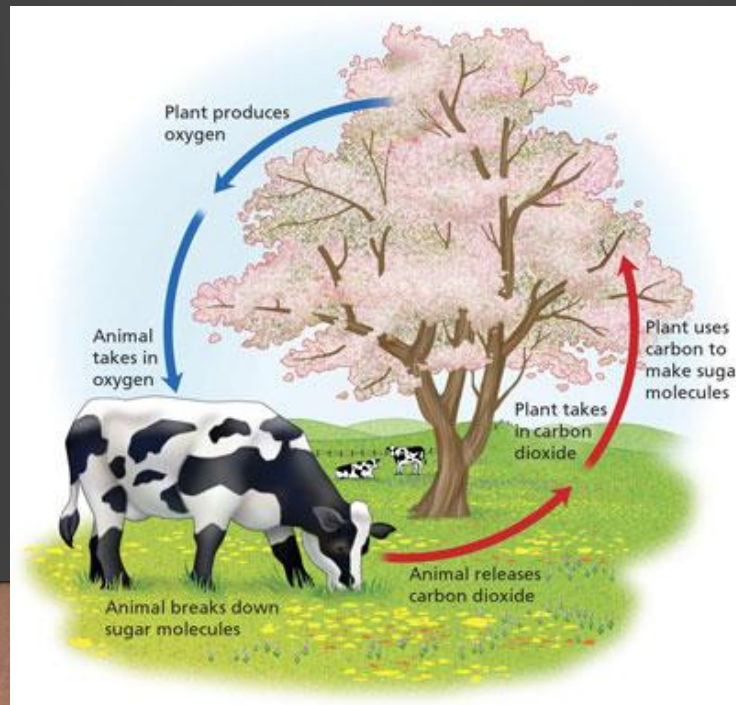
# What is Cellular Respiration?

- Cellular respiration is the process by which the energy of glucose is released in the cell to be used for life processes (movement, breathing, blood circulation, etc...)



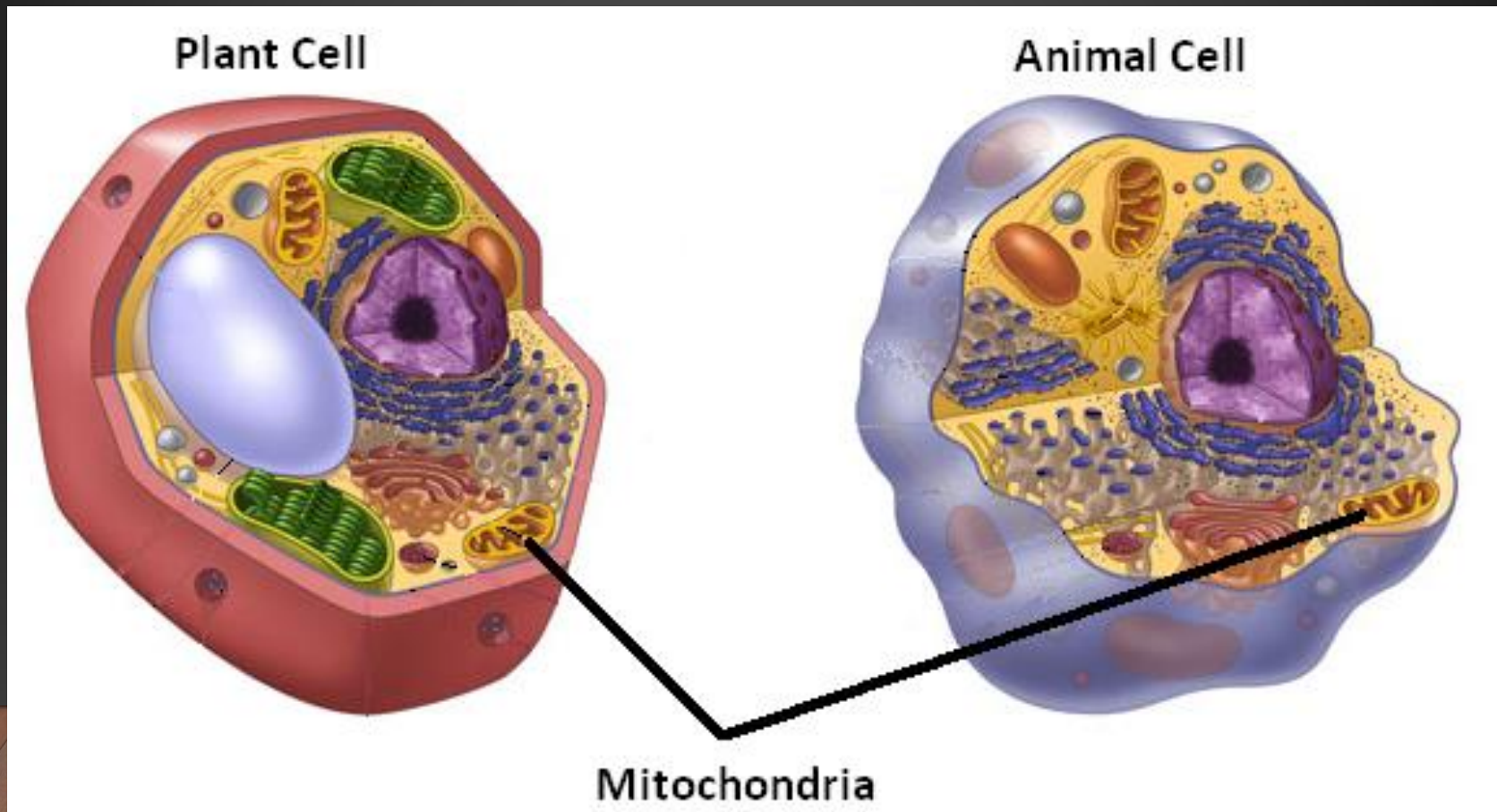
# Why do we need cellular respiration?

- Cells require a constant source of energy for life processes but keep only a small amount of ATP on hand.
- Cells can regenerate ATP as needed by using the energy stored in foods like glucose.
- The energy stored in glucose by photosynthesis is released by cellular respiration and repackaged into the energy of ATP.



# Where does cellular respiration happen?

- Respiration occurs in the mitochondria of ALL cells and can take place either with or without oxygen present.



# What is the equation for cellular respiration?

- General formula for aerobic (cellular) respiration:



glucose + oxygen  $\longrightarrow$  carbon dioxide + water + energy