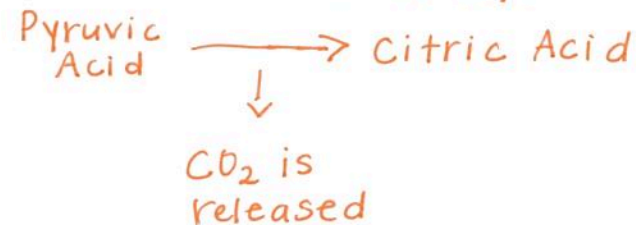


Name: Answer Key Date: _____ Hour: _____

- Most but not all autotrophs use photosynthesis. What is photosynthesis? series of chemical reactions during which plants convert light energy to chemical energy stored in the bonds of glucose
- Write the chemical equation for photosynthesis.
 $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
- Photosynthesis can be broken down into what two main processes? Light Reactions and Calvin cycle
- Define the following:
 - Pigments: a substance that gives another substance or a mixture its color
 - Chlorophyll a: green pigment found in all cells that carry out photosynthesis
 - Chlorophyll b: red, orange, yellow, brown accessory pigments that assist in capturing light energy
 - Accessory pigment: a pigment that absorbs light energy and transfers it to chlorophyll in photosynthesis
- Where does the light reaction take place? Thylakoid inside chloroplasts
- What are the clusters pigments in the Thylakoid membrane called? chlorophyll
- What connects the two photosystems? Electron transport chain
- Which photosystem occurs first? Photosystem II
- What are the products of the light-dependent portion of photosynthesis that are necessary for the next step in photosynthesis? $\text{ADP} \rightarrow \text{ATP}$ and $\text{NADP}^+ \rightarrow \text{NADPH}$
- What product of the light reaction is lost to the atmosphere and not used in the next step? Oxygen
- The light-independent part of photosynthesis is otherwise known as what? Calvin cycle
- What is the name of the next step of photosynthesis? Calvin cycle
- Where does it take place? stroma (fluid surrounds thylakoid)
- What must be taken in from the atmosphere during this part of photosynthesis? CO_2
- What are the products of the Calvin Cycle? $\text{C}_6\text{H}_{12}\text{O}_6$ (glucose)
- What is chemiosmosis? Movement of protons down

their concentration gradient across a membrane that is coupled to synthesis of ATP

- How does the enzyme ATP synthase help make ATP? creates ATP by adding a phosphate to ADP
- Where are stomata located and what are their functions? many openings in a leaf that enable gas exchange
- What is the process that is responsible for breaking down food molecules to release stored energy? cellular Respiration
- What are the 2 products of glycolysis? Pyruvic Acid, 2 ATP
- How many net ATP are generated during glycolysis? 2
- What happens when you break down organic compounds in the absence of oxygen? Fermentation
- What are the 3 major steps in cellular respiration? Glycolysis \rightarrow Krebs cycle \rightarrow Electron Transport chain
- What are the 2 main differences between glycolysis and cellular respiration? (think about which needs oxygen and the location of each process) Glycolysis does not require O_2 and occurs in the cytoplasm
- What 4 things are formed during Krebs Cycle? CO_2 , 2 ATP, NADH, FADH_2
- What is the end product of the very last major step of cellular respiration? 34 ATP
- Name the major step of cellular respiration in which the most energy is made? ETC
- What is the total net gain of ATP at the end of cellular respiration from one molecule of glucose? 38 ATP = 2 (glycolysis) + 2 (Krebs cycle) + 34 (ETC)
- Electrons are donated to the electron transport chain by what 2 ion carrier in cellular respiration? NADH and FADH_2
- What organelle does cellular respiration happen in? Mitochondria
- Which step of cellular respiration is citric acid formed? Krebs cycle



Cellular Respiration Equation:

