

Fundamental life processes depend on the physical structure and the chemical activities of the cell.

- The cellular processes of photosynthesis and respiration involve transformation of matter and energy.
- Describe significant similarities and differences in the basic structure of plant and animal cells.
- Usable energy is captured from sunlight by chloroplasts and is stored through the synthesis of sugar from carbon dioxide.
- The role of the mitochondria is to make stored chemical---bond energy available to cells by completing the breakdown of glucose to carbon dioxide.

Key Vocabulary	Assignments	Due Date
Acetyl CoA ADP Aerobic Cellular Respiration ATP Calvin cycle Carbon dioxide Chlorophyll Electron Transport Fermentation Glucose Glycolysis Hydrogen Krebs Cycle Light reactions Mitochondria NAD+ NADH NADP+ NADPH Oxygen Photosynthesis Photosystem I, II Pigments Yeast	<p>Chapter 6: Photosynthesis</p> <p>#1 - Read pages 111 to 116</p> <p>A. What is the role of the chloroplast in photosynthesis?</p> <p>B. What is the function of the various kinds of plant pigments in photosynthesis?</p> <p>C. Explain how the light reactions would be affected if there were no concentration gradient of protons across the thylakoid membrane.</p> <p>#2 - Read pages 117-120</p> <p>D. What is the role of the chloroplast in the Calvin cycle?</p> <p>E. How many turns of the Calvin Cycle are needed to produce a molecule of PGAL? How many molecules of ATP and NADPH are used in the process?</p> <p>F. What makes a C₄ plant unique?</p> <p>G. How are the light reactions different from the Calvin Cycle?</p> <p>Chapter 7: Cellular Respiration</p> <p>#3 - Read pages 127-131</p> <p>A. What are the major events of cellular respiration?</p> <p>B. For each six-carbon molecule that begins glycolysis, how many ATP molecules are used and how many ATP molecules are produced?</p> <p>C. Under what conditions will a cell perform fermentation?</p> <p>#4 - Read pages 133-138</p> <p>A. How is the synthesis of ATP in the electron transport chain of mitochondria similar to the synthesis of ATP in chloroplasts?</p> <p>B. What role does oxygen play in aerobic respiration?</p> <p>C. What molecule does oxygen become a part of as a result of aerobic respiration?</p> <p>D. In what part of the mitochondrion does the Krebs cycle take place? Electron transport?</p>	

Unit 5: Photosynthesis & Cellular Respiration

Photosynthesis		Cellular Respiration	
Photosynthesis is the process by which autotrophic organisms use light energy to make sugar and oxygen gas from carbon dioxide and water	Autotrophs	Heterotrophs	Cellular respiration is a series of reactions that break down organic molecules into carbon dioxide, water and ATP (energy).
Chlorophyll	Chloroplast	Mitochondria	Energy
			Energy is the ability to do work
Light Reactions		Glycolysis	
Dark Reactions - The Calvin Cycle		Krebs Cycle	
ATP	NADPH	Electron Transport System	
Light	Why do plants look green?	Anaerobic Respiration	
		Anaerobic respiration works in the absence of oxygen	Fermentation