

Name _____

Test Date _____ Per. _____

Biology: Chapter 8 and 9- Photosynthesis and Respiration

Things to Know

40 Multiple Choice Questions

Vocabulary to know:

Aerobic Respiration	Chlorophyll	Mitochondria
Anerobic Respiration	Fermentation	NADPH
ATP (adenine triphosphate)	Glycolysis	Stroma
Autotrophs	Heterotrophs	Thylakoid membranes
Calvin Cycle	Hydrolysis	
Cellular Respiration	Lactic acid	

Concepts to understand:

- I. ATP (Adenine TriPhosphate)
 - a. Understand how Energy is released from ATP
 - b. Know the components of an ATP Molecule
 - c. Understand the difference between ADP and ATP
- II. Photosynthesis EQUATION: _____
 - a. Early discoveries
 1. Jan van Helmont~ Mass of tree is mostly water not soil
 2. Joseph Priestley~ using a candle and a mint plant under a jar, found out plants release oxygen
 3. Jan Ingenhousz~ found out plants need sunlight to produce oxygen
 - b. Light Reactions
 1. Hydrolysis ~sunlight used to split water molecule
 2. Oxygen released
 3. Hydrogen ions kept for later as NADPH
 4. Take place in the thylakoid membranes of the chloroplast
 - c. Light Independent reactions (Calvin cycle)
 1. CO₂ brought in and added to saved hydrogen
 2. C and O (from carbon dioxide) + H (From the NADPH) = C₆H₁₂O₆ Glucose is made
 3. Take place in the stroma of the chloroplast
 - d. Chlorophyll
 1. Green Pigment that absorbs the suns energy
 2. Absorbs red and blue portions of white light
 3. Reflects (because it doesn't use) Green
- III. Cellular Respiration EQUATION _____

Also called aerobic ("with oxygen") respiration

 - a. Step 1 Glycolysis
 1. Splits Glucose into two Pyruvic acid molecules
 2. Occurs in the cytoplasm
 3. Creates 2 ATP

- 4. So fast, it can create thousands of ATP in milliseconds
 - b. Step 2 Krebs Cycle and Step 3 Electron Transport
 - 1. Occur in the mitochondria
 - 2. Occur ONLY when oxygen is present
 - 3. Total process (steps 1-3) gain 36ATP from 1 glucose molecule
- IV. Fermentation also called "Anaerobic Respiration"
- a. Occurs when there's no oxygen available
 - b. Occurs entirely in the cytoplasm
 - 1. Alcohol fermentation used by yeasts for baking and brewing
 - 2. Lactic acid fermentation
 - a. makes our muscles sore after a work out,
 - b. also the process used to make pickles, yogurt, sour cream

Diagrams to be familiar with (finish labeling if necessary):

