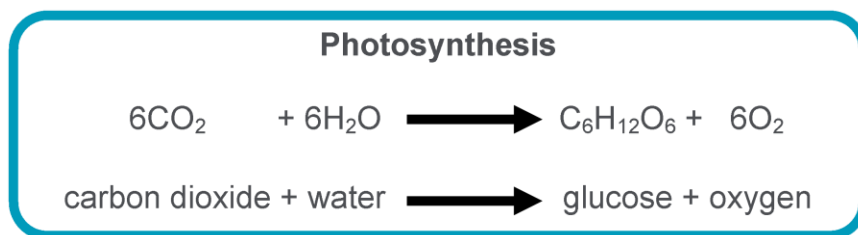
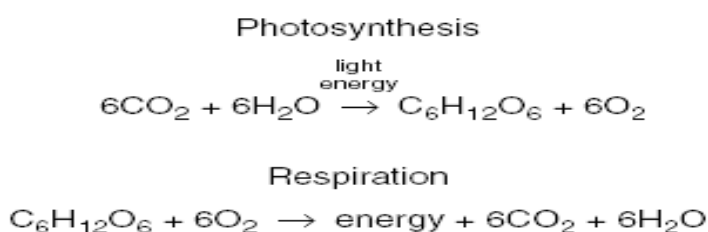


Cell Energy KeyTerms Standards 3.1, 3.2, and 3.3

1. **ATP: (Adenosine Triphosphate)** energy storing molecule in cells composed of adenine, a ribose sugar, and three phosphate groups; energy is stored in the molecule's chemical bonds and can be used quickly and easily by the cell
2. **ADP: (Adenosine Diphosphate)** molecule formed from the breaking off of a phosphate group from ATP; results in a large release of energy that is used for biological reactions
3. **Autotroph:** organism that produces its own nutrients from inorganic substances or from the environment instead of consuming other organisms.
4. **Heterotroph:** organism that obtains organic food molecules by eating other organisms or their byproducts and that cannot synthesize organic compounds from inorganic materials
5. **Photosynthesis:** process by which autotrophs, such as algae and plants, trap energy from sunlight with chlorophyll and use this energy to convert carbon dioxide and water into simple sugars and oxygen.
6. **Light-dependent reactions:** phase of photosynthesis wither light energy is converted to chemical energy in the form of ATP; results in the splitting of water and the release of oxygen.
7. **Dark reaction:** aka light independent reaction aka Calvin Cycle: phase of photosynthesis where energy from light dependent reactions is used to produce glucose and additional ATP molecules
8. **NADPH:(Nicotinamide adenine dinucleotide phosphate)** energy storing molecule produced to be used in the light-independent reations.
9. **Photosynthesis equation:**



10. Respiration equation:



11. **Glucose:** $C_6H_{12}O_6$, - a monosaccharide, energy source for organisms, produced by photosynthesis
12. **Sun:** source of energy for living systems
13. **Aerobic respiration:** chemical reactions that require the presence of oxygen
14. **Anaerobic respiration:** chemical reactions that do not require the presence of oxygen
15. **Glycolysis:** in cellular respiration, a series of anaerobic chemical reactions in the cytoplasm that break down glucose into pyruvic acid (pyruvate); forms a net profit of two ATP molecules
16. **Krebs Cycle:** another name for Citric Acid Cycle
17. **Citric Acid Cycle:** aka Krebs Cycle; in cellular respiration, a series of chemical reactions that break down glucose and produce ATP; energizes electron carriers that pass the energized electrons on to the electron transport chain.
18. **Electron Transport Chain:** a series of proteins embedded in the inner membranes of mitochondria and chloroplasts, through which electrons pass in a process that causes protons to build up on one side of the membrane (as electrons are passed from molecule to molecule, energy is released) Produces up to 36 ATP!!!!
19. **Fermentation:** aka alcoholic fermentation
20. **Lactic acid fermentation:** series of anaerobic chemical reactions in which pyruvic acid uses NADH to form lactic acid and NAD^+ , which is then used in glycolysis; supplies energy when oxygen for aerobic respiration is scarce
21. **Alcoholic fermentation:** anaerobic process where cells convert pyruvic acid into carbon dioxide and ethyl alcohol; carried out by many bacteria and fungi such as yeasts
22. **Pyruvic acid:** the 3-carbon compound that is produced during glycolysis and needed for both the aerobic and anaerobic pathways of cellular respiration that follow glycolysis
23. **Chlorophyll:** light-absorbing pigment in plants and some protists that is required for photosynthesis; absorbs most wavelengths of light except green (which it reflects)
24. **Chloroplast:** organelle found in plant and algae cells where photosynthesis occurs (carbohydrate production)
25. **Thylakoid membrane:** found in chloroplasts, one of a stacked, flattened, pigment-containing membranes in which light-dependent reactions occur
26. **Stroma:** found in chloroplasts, the solution that surrounds the thylakoid
27. **$NADP^+$:** (nicotinamide adenine dinucleotide phosphate)-electron carrier molecule; when carrying excited electrons it becomes NADPH
28. **Mitochondria:** in eukaryotic cells, the cell organelle that is surrounded by two membranes and that is the site of cellular respiration, which produces ATP