

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

- Most of the chemical activities of the cell are catalyzed by enzymes that function only in a narrow range of temperature and acidity conditions.
- Describe how atoms combine to form new substances by transferring electrons (ionic bonding) or sharing electrons (covalent bonding).

Key Vocabulary	Assignments	Due Date
Atom Atomic Mass Atomic Number Bond Carbohydrate Carbon Compound Covalent bond Electron Element Enzyme Glucose Hydrogen Inorganic compound Ionic bond Lipids Matter Monomer Neutron Nitrogen Nucleic acids Organic compound Oxygen Photosynthesis Polymer Protein Proton	<p>#1 - Read pages 87 to 89 (Introduction & 4.1 & 4.2)</p> <ol style="list-style-type: none"> Draw and label a diagram of the atom that includes the following parts: nucleus, proton, neutron, electron, negative charge, neutral charge, positive charge. When atoms combine to form molecules what do the reactions (or bonds) depend on? <p>#2 - Read pages 96 to 100 (4.8 - 4.11)</p> <ol style="list-style-type: none"> Create a one page outline of the section. Make sure to include all of the bold words. <p>#3 - Read pages 103 to 105 (4.14 - 4.15)</p> <ol style="list-style-type: none"> What are the four ways that plants use the sugars from photosynthesis? Describe the carbon cycle diagram on page 105 in words. How do consumers, producers, and decomposers connect to the carbon cycle? <p>Optional Assignment: (5 points)</p> <ol style="list-style-type: none"> Find five polymers that you encounter in your daily life. Lookup the chemical structure of the polymer and draw its chemical structure. 	

Matter and Molecules

Atoms are made of subatomic particles			The Periodic Table
Protons	Neutrons	Electrons	The modern periodic table was invented by a Russian scientist. The elements are arranged in columns called groups based upon chemical properties due in part to the number of outer electrons. Atoms in group 1 will have 1 outer e-. Elements in group 8 have 8 outer electrons.
	Have no charge found in nucleus		
Atomic Number	Electron Orbitals	Octet Rule	
	Path where e- are found. First orbital holds two e- and the second and third orbital each hold 8		
Covalent Bond	Ionic Bond	Hydrogen Bond	
	A bond where one atom gains and the other loses electrons Example: Na-Cl	Created when H forms a second bond with another atom. Most often found in water (a polar molecule)	
Element	Atom	Compound	
Elements you need to know			
Hydrogen	Helium	Carbon	Oxygen
Has 1 Proton and 1 electron will form a single covalent bond			
Sodium	Chlorine	Nitrogen	Organic Molecules

Enzymes, pH and Carbon

To release chemical energy to perform work cells must have a way to break and form chemical bonds.			The Carbon Cycle
Enzymes	Activation Energy	Catalyst	Carbon from the atmosphere in the form of the gas _____ is taken in by green _____ and algae. They convert the carbon into _____ like glucose. The sugars are eaten by _____ who convert the sugars into energy. Animals breathe CO ₂ back into the atmosphere. Animal waste and their dead bodies are recycled by _____ and _____. _____ are responsible for giving off most of the carbon dioxide that reenters the atmosphere.
Substrate	Active Site	Product	
	Three dimensional space that has the right shape to fit and bond to the substrate(s)		
pH	How can the environment impact enzymes?		
pH is used to indicate the acidity of a solution. pH has values that usually range from 0 to 14			
Acid	Neutral	Base	
Carbon Cycle			
Decomposers	Green Plants	Animals	
Fossil Fuels	Greenhouse Effect	Carbon Sink	
			Word bank: animals, bacteria, CO ₂ , decomposers, fungi, plants, sugars