

Content/Academic Language								
FLDOE	activation energy amino acid atom	attraction carbohydrate chemical change compound	concentration conservation of mass** disaccharide** energy	enzyme fatty acid heat lipid	mass matter molecule monosaccharide	pH phospholipid** physical change polysaccharide**	potential energy rate of reaction solubility solute solution	solvent steroid** temperature triglyceride van der Waals force
Other	adhesion capillary action	cohesion denature	expansion glycerol	hormone membrane	monomer nucleic acid	polarity polymer	protein properties	specific heat substrate

Topic 1: Biological Molecules		
SC.912.L.18.1 Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules (parent benchmark on Biology 1 EOC assessment).	Moderate	<ul style="list-style-type: none"> ● recognize that carbohydrates are made of monosaccharides (glucose & other simple sugars) ● describe the functions of a carbohydrate: <ul style="list-style-type: none"> ○ short term energy use/storage ○ structure for a plant cell wall ● recognize that proteins are made of amino acids describe the functions of a protein: <ul style="list-style-type: none"> ○ enzymes speed up reactions ○ hormones send chemical messages throughout the body ○ structure for hair, nails, and skin ● recognize that lipids are made of fatty acids & glycerol <ul style="list-style-type: none"> ○ describe the functions of a lipid: <ul style="list-style-type: none"> ○ long term energy storage ○ membrane structure ○ Insulation ● recognize that nucleic acids are made of nucleotides ● describe the functions of a nucleic acid: <ul style="list-style-type: none"> ○ storing genetic information ○ protein synthesis ● recognize that Carbon easily bonds with other atoms to form various large complex molecules
SC.912.L.18.11 Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, & their effect on enzyme activity	Moderate	<ul style="list-style-type: none"> ● explain how enzymes speed up the rate of biochemical reactions by lowering the reaction's activation energy ● describe how changes in concentration, pH, and temperature could affect enzyme activity

**SC.912.P.8.7 Interpret formula representations of molecules and compounds in terms of composition and structure (not assessed on Biology 1 EOC assessment).	Moderate	<ul style="list-style-type: none"> ● write chemical formulas for simple covalent, ionic, and molecular compounds
**SC.912.L.18.2 Describe the important structural characteristics of monosaccharides, disaccharides, and polysaccharides and explain the functions of carbohydrates in living things (not assessed on Biology 1 EOC assessment).	Moderate	<ul style="list-style-type: none"> ● describe the structural components that make up carbohydrates ● explain the functions of carbohydrates in living things
**SC.912.L.18.3 Describe the structures of fatty acids, triglycerides, phospholipids, and steroids. Explain the functions of lipids in living organisms. Identify some reactions that fatty acids undergo. Relate the structure and function of cell membranes (not assessed on Biology 1 EOC assessment).	Moderate	<ul style="list-style-type: none"> ● describe the structural components that make up lipids ● explain why lipids are essential for life ● identify reactions fatty acids undergo ● relate the structure of a cell membrane to its function
**SC.912.L.18.4 Describe the structures of proteins & amino acids. Explain the functions of proteins in living organisms. Identify some reactions that amino acids undergo. Relate the structure and function of enzymes (not assessed on Biology 1 EOC assessment).	Moderate	<ul style="list-style-type: none"> ● describe the structural components that make up proteins ● explain why proteins are essential for life ● identify reactions amino acids undergo ● relate the structure of enzymes to their functions
**SC.912.P.10.1 Differentiate among the various forms of energy and recognize that they can be transformed from one form to others (not assessed on Biology 1 EOC assessment).	Moderate	<ul style="list-style-type: none"> ● explain how bonds break & form during chemical reactions ● describe how the law of conservation of energy applies to chemical reactions in living organisms
SC.912.N.1.4 Identify sources of information and assess their reliability according to the strict standards of scientific investigation (parent benchmark on Biology 1 EOC assessment).	High	<ul style="list-style-type: none"> ● read, interpret and examine credibility and validity of scientific claims in different sources of information, such as scientific articles, advertisements, or media stories ● examine the credibility and validity of scientific claims made in fad diets ● explain the standards of science (controlled variables, sufficient sample size, replication of results, empirical and measurable evidence, and the concept of falsification)

Topic 2: Properties of Water

SC.912.L.18.12 Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent (parent benchmark on Biology 1 EOC assessment).	Moderate	<ul style="list-style-type: none"> ● identify the unique properties of water: <ul style="list-style-type: none"> ○ polarity (i.e., it dissolves other polar molecules sugar & salt) ○ hydrogen bonding results in water's cohesive nature & high specific heat ○ cohesive behavior (i.e., it's able to move from the roots to the leaves of plants) ○ ability to moderate temperature (i.e., the body can maintain homeostasis during a fever) ○ expansion upon freezing (i.e., the density of water decreases as it freezes, allowing marine life to live under the ice) ○ versatility as a solvent (i.e., organic compounds can be easily dissolved and transported throughout the body) ● discuss how water's unique properties make it essential for life on Earth
SC.912.N.1.1 Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, & earth/space science, & do the following: pose questions about the natural world, conduct systematic observations, examine books & other sources of information to see what is already known, review what is known	High	<ul style="list-style-type: none"> ● identify test variables, outcome variables, and controlled variables ● design and/or evaluate a scientific investigation using evidence of scientific thinking and/or problem solving ● collect, organize, and analyze data ● predict outcomes based on prior knowledge, observations, and/or research

