

## Standard 1

1A	Students know that cells are enclosed within semi permeable membranes that regulate their interaction with their surroundings.
1B	Students know enzymes are proteins that catalyze biochemical reactions without altering the reaction equilibrium and the actives of enzymes depend on the temperature, ionic conditions and the pH of the surroundings.
1C	Students know how prokaryotic cells, eukaryotic cells (including those from plants and animals), and viruses differ in complexity and general structures.
1D	Students know the central dogma of molecular biology outlines the flow of information form transcription of ribonucleic acid (RNA) in the nucleus to translation of proteins on ribosome's in the cytoplasm.
1E	Students know the role of the endoplasmic reticulum and Golgi apparatus in the secretion of proteins.
1F	Students know usable energy is captured from sunlight by chloroplasts and is stores through the synthesis of sugar from carbon dioxide
1G	Students know the role of mitochondria in making stored chemical-bond energy available to cells by completing the breakdown of glucose to carbon dioxide.
1H	Students know most macromolecules (polysaccharides, nucleic acids, proteins, lipids) in cells and organism are synthesized from a small collection of simple precursors
1I	Students know how chemiosmotic gradients in mitochondria and chloroplast store energy for ATP production.
1J	Students know how eukaryotic cells are given shape and internal organization by a cytoskeleton or cell wall or both.