

Systems	Properties, Patterns, and Models	Consistency and Change
<b>9 – The student knows metabolic processes and energy transfers that occur in living organisms.</b>	<b>4 – The student knows that cells are the basics structures of all living things and have specialized parts that perform specific functions, and that viruses are different from cells and have different properties and functions.</b>	<b>6 – The student knows the structures and functions of nucleic acids in the mechanisms of genetics.</b>
<p>9A – Compare the structures and functions of different types of biomolecules such as carbohydrates, lipids, proteins, and nucleic acids.</p> <p>9B – Compare the energy flow in photosynthesis to the energy flow in cellular respiration.</p> <p>9C – Investigate and identify the effects of enzymes on food molecules.</p> <p>9D – Analyze the flow of matter and energy through different trophic levels and between organisms and the physical environment.</p>	<p>4A – Identify the parts of prokaryotic and eukaryotic cells.</p> <p>4B – Investigate and identify cellular processes including homeostasis, permeability, energy productions, transportation of molecules, disposal of wastes, function of cellular parts, and synthesis of new molecules.</p> <p>4C – Compare the structures and functions of viruses to cells and describe the role of viruses in causing diseases and conditions such as acquired immune deficiency syndrome, common colds, smallpox, influenza, and warts.</p> <p>4.D – Identify and describe the role of bacteria in maintaining health such as in digestion and in causing diseases such as streptococcus infections and diphtheria.</p>	<p>6A – Describe components of deoxyribonucleic acid (DNA), and illustrate how information specifying the traits of an organism is carried in DNA.</p> <p>6B – Explain replication, transcription, and translation using models of DNA and ribonucleic acid (RNA).</p> <p>6C – Identify and illustrate how changes in DNA cause mutations and evaluate the significance of these changes.</p> <p>6D – Compare genetic variations observed in plants and animals.</p> <p>6E – Compare the processes of mitosis and meiosis and their significance to sexual and asexual reproduction.</p>
<b>10 – The student knows that, all levels of nature, living systems are found within other living systems, each with its own boundary and limits.</b>		
<p>10A – interpret the functions of systems in organisms.</p> <p>10B – Compare the interrelationships of organ systems to each other and to the body as a whole.</p> <p>10C – Analyze and identify characteristics of plant systems and subsystems.</p>		
<b>11 – The student knows that organisms maintain homeostasis.</b>		
<p>11A – Identify and describe the relationships between internal feedback mechanisms in the maintenance of homeostasis.</p> <p>11B – Investigate and identify how organisms respond to external stimuli.</p> <p>11C – Analyze the importance of nutrition, environmental conditions, and physical exercise on health.</p> <p>11D – Summarize the role of microorganisms in maintaining and disrupting equilibrium including diseases in plants and animals and decay in an ecosystem.</p>		
	<b>5 – The student knows how an organism grows and how specialized cells, tissues, and organs develop.</b>	<b>7 – The student knows the theory of biological evolution.</b>
	<p>5A – Compare cells from different parts of plants and animals including roots, stems, leaves, epithelia, muscles, and bones to show specialization of structure and function.</p> <p>5B – Identify cell differentiation in the development of organisms.</p> <p>5C – Sequence the levels of organization in multicellular organisms to relate the parts to each other and to the whole.</p>	<p>7A – Identify evidence of change in species using fossils, DNA sequences. Anatomical similarities, physiological similarities, and embryology.</p> <p>7B – Illustrate the results of natural selection in speciation, diversity, phylogeny, adaptation, behavior, and extinction.</p>
<b>12- The student knows that interdependence and interactions occur within an ecosystem.</b>	<b>13 – The student knows the significance of plants in the environment.</b>	<b>8 – The student knows applications of taxonomy and can identify its limitations.</b>
<p>12A – Analyze the flow of energy through various cycles including the carbon, oxygen, nitrogen, and water cycles.</p> <p>12B – Interpret interactions among organisms exhibiting predation, parasitism, commensalism, and mutualism.</p> <p>12C – Compare variations, tolerances, and adaptations of plants and animals in different biomes.</p> <p>12D – Identify and illustrate that long-term survival of species is dependent on a resource base that may be limited.</p> <p>12E – Investigate and explain the interactions in an ecosystem including food chains, food webs, and food pyramids.</p>	<p>13A – The student knows the significance of plants in the environment.</p> <p>13B – Survey and identify methods of reproduction, growth, and development of various types of plants.</p>	<p>8A – The student knows applications of taxonomy and can identify its limitations.</p> <p>8B – Analyze relationships among organisms and develop a model of hierarchical classification system based on similarities and differences using taxonomic nomenclature.</p> <p>8C – Identify characteristics of kingdoms including monerans, protists, fungi, plants, and animals.</p>