Oklahoma End-of-Instruction
Biology I Content Standards

Standard Type	Code	Standard Strand	Standard Objective Skill
Content	1.1	The Cell	Cells are composed of a variety of structures, such as the nucleus, cell membrane, cell wall, cytoplasm, ribosomes, mitochondria, and chloroplasts.
	1.1a	The Cell	The cell/plasma membrane functions (i.e., active transport, diffusion, osmosis, and surface area to volume ratio) to maintain homeostasis.
	1.1b	The Cell	Differentiate between hypotonic, hypertonic, and isotonic conditions.
	1.1c	The Cell	Compare and contrast prokaryotic and eukaryotic cells.
	1.2	The Cell	In multicellular organisms, cells have levels of organization (i.e., cells, tissues, organs, organ systems, and organisms)
	1.3	The Cell	Specialized cells enable organisms to monitor what is going on in the world around them (e.g., detect light, sound, specific chemicals, gravity, plant tropism, sense organs, homeostasis, etc.).
	2.1	The Molecular Basis of Heredity	Cells function according to the information contained in the master code of DNA (i.e., cell cycle, DNA to DNA, and DNA to RNA). Transfer RNA and protein synthesis will be taught in life science courses with rigor greater than Biology I.
	2.2	The Molecular Basis of Heredity	A sorting and recombination of genes in reproduction results in a great variety of possible gene combinations from the offspring of any two parents (i.e., Punnett squares and pedigrees). Students will understand the following concepts in a single trait cross: alleles, dominant trait, recessive trait, phenotype, genotype, homozygous, and heterozygous.
	3.1	Biological Diversity	Different species might look dissimilar, but the unity among organisms becomes apparent from an analysis of internal structures, the similarity of their chemical processes, and the evidence of common ancestry (e.g., homologous and analogous structures).
	3.2	Biological Diversity	Characteristics of populations change through the mechanism of natural selection. These biological adaptations, including changes in structures, behaviors, and/or physiology, may enhance or limit survival and reproductive success within a particular environment.
	3.3	Biological Diversity	Responses to external stimuli can result from interactions with the organism's own species and others, as well as environmental changes; these responses can be either innate or learned. Broad patterns of behavior exhibited by animals have changed over time to ensure reproductive success.
	4.1	The Interdependence of Organisms	Organisms both cooperate and compete in ecosystems (i.e., parasitism and symbiosis).
	4.2	The Interdependence of Organisms	Living organisms have the capacity to produce populations of infinite size, but environments and resources limit population size (i.e., carrying capacity and limiting factors).
	5.1	Matter/Energy/Organization in Living Systems	The complexity and organization of organisms accommodate the need for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain the organism (i.e., photosynthesis and cellular respiration).
	5.2	Matter/Energy/Organization in Living Systems	As matter and energy flow through different levels of organization of living systems and between living systems and the physical environment, chemical elements are recombined in different ways by different structures. Matter and energy are conserved in each change (i.e., water cycle, carbon cycle, nitrogen cycle, food webs, and energy pyramids).
	5.3	Matter/Energy/Organization in Living Systems	Matter on the earth cycles among the living and nonliving components of the biosphere.