

Itawamba County School District
Biology
2012-2013 Pacing Guide Block Schedule

SATP2 Biology Assessment by Strand		
Strand/Competency	# of Objectives	# of Items
Strand: Inquiry Comp 1: Inquiry	7	7
Strand: Physical Science Comp 2: Biochemical Basis of Life	7	7
Strand: Life Science Comp 3: Living Organisms and Their Environment	3	11
Comp 4: Biological Organization	4	14
Comp 5: Heredity	4	14
Comp 6: Diversity and Biological Change	5	7
Total Number of Scored Items		60
Number of Field Test Items		10
TOTAL TEST		70

Unit	Days	Comp./ Obj	Major Topics/Concepts
Introduction	1 Day		Introduction to the Course
Introduction to Biological Inquiry	5 Days (additional embedded instruction to continue throughout the course)	1a 1b 1c 1d 1e 1f 1g	Safety rules Safety symbols Lab equipment Microscope parts and functions Scientific method Experimental design (controlled experiment) Independent vs. dependent variables Graphing
Chemistry	5 Days	2a 2b 2c 2d 2e	Atoms Chemical bonds Properties of water Organic compounds Chemical reactions pH scale Acids and bases Enzymes
Cell Structure and Function	5 Days	4a	Prokaryotic vs. eukaryotic cells Organelle structure and function Cell membrane and transport of materials Mobility (e.g. cilia, flagella, pseudopodia)

Unit	Days	Comp/ Obj	Major Topics/Concepts
Photosynthesis and Cellular Respiration	4 Days	2f 2g	ATP structure and function Photosynthesis reactants and products and their roles Requirements and products for light-dependent and light-independent reactions Respiration reactants and products and their roles Products and energy differences between anaerobic and aerobic respiration
Cell Division and Growth	6 Days	4b	Distinguish between types of cell reproduction Cell cycle events Mitosis (contrast plant and animal cell division) Binary fission (e.g. budding, vegetative propagation) Significance of meiosis in sexual reproduction Significance of crossing over Compare/contrast mitosis and meiosis Cancer
Genetics	5 days	5b	Mendel's laws Probability Monohybrid crosses Punnett squares for complete and incomplete dominance, codominance, sex-linked and multiple alleles Outcome percentages for genotypes and phenotypes for all crosses
DNA and RNA	5 Days	5a 5d	Central dogma of molecular biology Genes and gene regulation DNA structure DNA replication RNA structure Transcription Translation Types of RNA mRNA codon chart Characteristics and implications of chromosomal and gene mutations Significance of nondisjunction, deletion, substitutions, translocation and frame shift mutations in animals
October 2 - 5		1 st Cumulative Benchmark (covering all content through day 36)	
Genetic Engineering and the Human Genome	6 Days	5c 5d	Examine inheritance patterns using genetic engineering technology (e.g. pedigrees, karyotypes, gel electrophoresis) Occurrence and significance of genetic disorders such as sickle cell anemia, Tay-Sachs disorder, cystic fibrosis, hemophilia, Downs Syndrome, color blindness

Unit	Days	Comp/ Obj	Major Topics/Concepts
Biological Evolution	6 Days	6b 6c 6d 6e	<p>Critique data used by scientists to develop understanding of evolutionary processes and patterns (e.g. Redi, Needham, Spallanzani, Pasteur)</p> <p>Differentiate among chemical evolution, organic evolution and evolutionary steps to aerobic heterotrophs and photosynthetic autotrophs</p> <p>Summarize contributions of Darwin, Malthus, Wallace, Lamarck, and Lyell to the development of the theory of evolution</p> <p>Role of natural selection</p> <p>Mechanisms of speciation (e.g. mutations, adaptations, geographic isolation)</p> <p>Applications of speciation (e.g. pesticide and antibiotic resistance)</p>
Classification	5 Days	4c 6a	<p>Classification based on evolutionary relationships (cladograms)</p> <p>Characteristics of six kingdoms</p> <p>Taxonomy</p> <p>Binomial nomenclature</p> <p>Body symmetry</p> <p>Sexual vs. asexual reproductive methods</p> <p>Organizational levels of organisms (e.g. cells, tissues, organs, systems, types of tissues)</p>
Plants	5 days	4d	<p>Plant structures and cellular functions related to survival (roots, stems, leaves, flowers)</p> <p>Vascular vs. nonvascular</p> <p>Specialized tissues (xylem, phloem)</p> <p>Reproduction</p> <p>Hormones</p>
Ecology	12 Days	3a 3b 3c	<p>Plant and animal species, climate and adaptations of organisms in the major biomes.</p> <p>Biotic vs. abiotic factors in ecosystems</p> <p>Energy flow (e.g. energy pyramids, producers, herbivores, carnivores, decomposers)</p> <p>Beneficial bacteria</p> <p>Cooperation</p> <p>Predation</p> <p>Parasitism</p> <p>Commensalism</p> <p>Symbiosis</p> <p>Mutualism</p> <p>Significance of natural events and human activities on major ecosystems (e.g. succession, population growth, technology, resource use, biodiversity, sustainable use)</p>
December 2 - 5	End of Term Cumulative Benchmark		
December 10 – 14	SATP 2 Test		