

Biology Power Standards by Quarter (5/13/09)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Goal 1 Inquiry	<p>Interpret, display, analyze and draw conclusions from the results of a scientific investigation.</p> <p>Emphasis on:</p> <ol style="list-style-type: none"> 1. Laboratory skills 2. Formulating hypotheses 3. Collecting and organizing data 4. Identifying variables 5. Demonstrating graphing skills 	<p>Interpret, display, analyze and draw conclusions from the results of a scientific investigation.</p> <p>Emphasis on:</p> <ol style="list-style-type: none"> 1. Laboratory skills 2. Formulating hypotheses 3. Collecting and organizing data 4. Identifying variables 5. Demonstrating graphing skills 	<p>Interpret, display, analyze and draw conclusions from the results of a scientific investigation.</p> <p>Emphasis on:</p> <ol style="list-style-type: none"> 1. Laboratory skills 2. Interpreting data from a graph 3. Interpreting data from a table 4. Formulating conclusions 	<p>Interpret, display, analyze and draw conclusions from the results of a scientific investigation.</p> <p>Emphasis:</p> <ol style="list-style-type: none"> 1. Laboratory skills 2. Writing a formal lab report
Goal 2 Content	<p>Unit: Introduction to Biology 6. Describe the unifying themes of biology and characteristics of life</p> <p>Unit: Ecology 7. Identify characteristics of biomes and ecosystems. 8. Analyze interactions of organisms including food webs, food chains, competition, predation and food availability. 9. Identify that fluctuations in population size are determined by the relative rates of birth, immigration, emigration and death. 10. Describe the causes of ecosystem disruptions: changes in climate and human activity</p>	<p>Unit: Cell Biology 6. Identify the similarities and differences between plant and animal cells and prokaryotes and eukaryotes. 7. Describe how the semi-permeable membranes regulate the flow of substances in and out of the cell body. 8. Explain the relationship between photosynthesis and cellular respiration (i.e. ATP, gas exchange). 9. Explain the structure and function of DNA and RNA and distinguish between them. 10. Describe protein synthesis and the role of proteins. 11. Identify the structure and function of a chromosome.</p>	<p>Unit: Genetics and Reproduction 5. Compare and contrast mitosis and meiosis 6. Identify and be able to apply the following concepts: trait, alleles, dominant and recessive alleles, gametes, genotype and phenotype, homozygous, heterozygous, 7. Construct and analyze a Punnett square to determine genotypic and phenotypic ratios of offspring.</p> <p>Unit: Change over Time 8. Define species and explain the evolution of species by natural selection. 9. Describe how reproductive or geographic isolation can lead to speciation. 10. Examine evidence for evolution.</p>	<p>Classification 3. Identify the major categories of biological classification (kingdom, phylum, class, order, family, genus and species) and recognize patterns within taxonomy. 4. Use a dichotomous key to identify organisms.</p> <p>Unit: Human Body 5. Describe the <u>basic</u> structure/function and interrelationships between the human body systems:</p> <ol style="list-style-type: none"> a. Skeletal b. Muscular c. Nervous d. Digestive e. Circulatory f. Respiratory g. Immune h. Excretory i. Endocrine
Goal 3 Connections	11. Demonstrate lab safety procedures and accepted practices of science	12. Identify important contributions, both historical and current, that have been made by individuals and groups from various cultures to our understanding of life science.	11. Describe how occupations use the scientific and technological information based on biology concepts.	6. Examine biological issues in light of scientific and technological knowledge and relate them to ethical issues.