

## Middlesex County Schools Curriculum Pacing Guide

Grade/Course 7<sup>th</sup> grade Life Science

School Year \_\_\_\_\_

2011-2012

Time Frame	Unit/SOLs	SOL #	Strand
2 wks (ongoing)	<b>Scientific Method</b> 1a) data are organized into tables showing repeated trials and means; 1b) variables are defined 1c) metric units are used; 1d) models are constructed to illustrate and explain phenomenon; 1e) sources of experimental error are identified; 1f) dependent variables. Independent variables, and constants are defined; 1g) variables are controlled to test hypotheses, and trials are repeated; 1h) continuous line graphs are constructed, interpreted, and used to make predictions 1i) interpretations from a set of data are evaluated, and defined, and; 1j) an understanding of the nature of science is developed and reinforced	LS.1	Plan and conduct investigations
2 wks	<b>Cell Theory, Cellular Functions, and Cell Reproduction</b> 2a) Cell structures and organelles (cell membrane, cell wall, cytoplasm, vacuole, mitochondria, endoplasmic reticulum, nucleus, and chloroplast); 2b) similarities and differences between plant and animal cells; 2c) development of cell theory, and; 2d) cell division (mitosis and meiosis)	LS.2	Cells
1.5 wk	<b>Cellular Organization</b> 3a) cells tissues, organs, and organ systems 3b) life functions and processes of cells, tissues, organs, and systems (respiration, removal of wastes, growth, reproduction, digestion, and cellular transport)	LS.3	Patterns of Cellular Organization
2 wks	<b>Genetics</b> 13a) the role of DNA; 13b) the function of genes and chromosomes 13c) genotypes and phenotypes; 13d) factors affecting the expression of traits; 13e) characteristics that cannot be inherited 13f) genetic engineering and its applications; 13g) historical contributions and significance of discoveries related to genetics	LS.13	Reproduce and transmission of genetic materials

1 wk	<p style="text-align: center;"><b>Classification of Organisms</b></p> <p>5a) the distinguishing characteristics of kingdoms of organisms;  5b) the distinguishing characteristics of plant and animal phyla; and  5c) the characteristics of species</p>	LS. 5	How organisms are classified
1 wk	<p style="text-align: center;"><b>Plants</b></p> <p>4a) Plant needs (light, water gases and nutrients);  4c) factors that influence life processes (of plants)</p> <p>5a) energy transfer between sunlight and chlorophyll  5b) transformation of water and carbon dioxide into sugar ad oxygen; and  5c) photosynthesis as the foundation of virtually all food webs.</p> <p>11a) phototropism, hibernation, and dormancy</p>	LS.4  LS.6  LS.11	Plant needs and life processes  Photosynthesis  Phototropism and dormancy
2 wks	<p style="text-align: center;"><b>Energy Flow</b></p> <p>7a) the carbon, oxygen, and nitrogen cycles;  7b) interactions resulting in a flow of energy and matter throughout the system;  7c) complex relationships with terrestrial, freshwater, and marine ecosystems; and  7d) energy flow in food webs and energy pyramids</p> <p>9a)the relationship among producers, consumers, and decomposers in food webs;</p>	LS.7  LS.9	Ecosystems  Community Interactions
2 wks	<p style="text-align: center;"><b>Populations and Communities</b></p> <p>4b) animal needs (food, water, gases shelter, space)</p> <p>8a) competition, cooperation, social hierarchy, territorial imperative; and  8b) influence of behavior on a population</p> <p>9b) the relationship between predators and prey;  9c) competition and cooperation;  9d) symbiotic relationships; and  9e) niches</p> <p>11a) phototropism, hibernation, and dormancy;  11b) factors that increase or decrease a population size; and  11c) eutrophication, climate changes, and catastrophic disturbances</p>	LS.4  LS.8  LS.9  LS.11	Animal needs  Population interactions  Community Interactions  Factors that affect population size
1.5 wks	<p style="text-align: center;"><b>Ecosystems</b></p> <p>10a) differences between ecosystems and biomes;  10b) characteristics of land, marine, and freshwater ecosystems,; and  10c) adaptations that enable organisms to survive within a specific ecosystem</p>	LS.10	Ecosystems and Biomes

	12a) food production and harvest 12b) change in habitat size, quality, or structure; 12c) change in species competition 12d) population disturbances and factors that threaten or enhance species survival; and 12e) environmental issues (water supply, air quality, energy production, and waste management)	LS.12	Ecosystem dynamics and human activity
2 wks	<p style="text-align: center;"><b>Biological Evolution</b></p> 14a) The relationships of mutation, adaptation, natural selection, and extinction; 14b) evidence of evolution of different species in the fossil record; and 14c) how environmental influenced, as well as genetic variation, can lead to diversity of organisms	LS.14	How organisms change over time
Last week	<p style="text-align: center;"><b>Benchmark Review</b></p>	ALL SOL's	