

Biology Pacing Guide

Teachers of Biology must become familiar with and implement the NYS *Process Strands*: The process strands (problem solving, relationships, processes, mechanisms, models and applications of biological concepts). These process strands help students in attaining science literacy, generate explanations, exhibit creative problem solving, and make informed decisions on the living environment and scientific inquiry.

Evolution is the 5th of 7 units within the Biology course. Key Idea 3: Individual organisms and species change over time.

continued	Content Bands & Student Expectations	Performance Indicators - Content Strand	Essential question(s), Textbook connection, Suggested Labs/Activities	Vocabulary
Unit 5 Evolution	<p>Patterns in Evolution The students will be able to describe how adaptive traits lead to evolution or extinction as the environment changes</p> <p>Students will be able to read an evolutionary diagram to trace common ancestry.</p> <p>The History of Life The students will be able to understand a timeline of life origins on Earth.</p> <p>Classification The students will be able to understand to Recognize the five kingdoms.</p>	<p>4:3.1.k 4:3.1.l</p> <p>4:3.1.a 4:3.1.j</p> <p>P.I. 4:1.3 4:1.3.a</p>	<p>Essential Question: How are evolutionary changes like the growth of a bush?</p> <p>Textbook Connection: 11.6 pp. 347,350, diagrams pp. 351 and 380</p> <p>Essential Question: What evidence supports evolution?</p> <p>Textbook Connection: Chapter 12.1, 12.3 p.368, 12.4 , 12.5 p. 376 multi-cellular life</p> <p>Suggested Labs/Activities: NYS Required Lab: Beaks Of Finches p.308 Data Analysis p.315 Predator-Prey Pursuit Lab Binder Unit 4 pp. 11-15 Biochemical Evidence for Evolution pp17-20 Natural Selection in African Swallowtails pp47-50 Microevolution and Antibiotic-Resistant Bacteria</p> <p>Essential Question: How can one-celled organisms function?</p> <p>Textbook Connection: Chapter 19.1, 19.2</p>	<p>Algae Protist</p>

Enduring Understanding: Evolution, the change of species over time, is the central unifying theme of biology. This change over time is well documented by extensive evidence from a wide variety of sources. Students need to know that only changes in the genes of sex cells can become the basis for evolutionary change and that these evolutionary changes may occur in structure, function and behavior over time. Students need to be able to distinguish between evolutionary change and the changes that occur during the lifetime of an individual organism. Biological evolution occurs through natural selection. Natural selection is the result of overproduction of offspring, variations among offspring the struggle for survival, the adaptive value of certain variations, and subsequent survival and increased reproduction of those best adapted to a particular environment. Selection for individuals with a certain trait can result in changing the proportions of that trait in a population. The diversity of life on Earth today is the result of natural selection occurring over a vast amount of geologic time for most organisms, but over a short amount of time in organisms with short reproductive cycles such as pathogens in an antibiotic environment and insects in a pesticide environment.