WAKE COUNTY PUBLIC SCHOOL SYSTEM

Middle School Programs
Building Healthy Core Learning
8th Grade Science

Evolution of Landforms and Life forms

Unit Outcomes At the end of this unit, your student should be able to:	**Key Vocabulary** Terms to deepen the student's understanding
✓ Determine Earth's history by looking at fossils and rock layers ✓ Conclude that a variety of artifacts are used to determine the geological history of the Earth, as well as how its life forms have changed over time ✓ Define fault as a break in the rocks that make up the Earth's crust that is formed due to the movement of rock on either side of the fault ✓ Determine the relative age of rock layers using the Law of Superposition ✓ Deduce that evidence from geology, fossils and comparative anatomy formed the basis for biological classification systems and the theory of Evolution ✓ Verify that genetic variation occur randomly and can help a species adapt to a changing environment ✓ Conclude that some genetic variations are helpful and others are harmful	✓ Fossils ✓ Index fossils ✓ Rock layers ✓ Relative dating ✓ Radioactive dating ✓ Geological history ✓ Fault ✓ Theory of Evolution ✓ Genetic variations ✓ Mold ✓ Cast ✓ Preserved fossil ✓ Petrified fossil ✓ Carbonized fossil ✓ Trace fossil ✓ Mass extinction ✓ Era ✓ Fossil record ✓ Trilobites ✓ Law of Superposition ✓ Geologist ✓ Ice cores ✓ Tree rings ✓ Plate tectonic theory ✓ Biological classification ✓ Natural selection ✓ Geologic Time Scale
Key Standards Addressed Connections to Common Core/NC Essential Standards	**Where This Unit Fits** Connections to prior and future learning
8.E.2.1 Infer the age of Earth and relative age of rocks and fossils and ordering of rocks layers (relative dating and radioactive dating) 8.E.2.2 Explain the use of fossils, ice cores, composition of sedimentary rocks, faults, and igneous rock formation found in rock layers as evidence of the history of the Earth and its changing life forms 8.L.4.1 Summarize the use of evidence drawn from geology, fossils and comparative anatomy to form the basis for biological classification systems and the theory of evolution 8.L.4.2 Explain the relationship between genetic variation and an organism's ability to adapt to its environment	**Coming into this unit, students should have a strong foundation in:** ✓ Comparing fossils (including molds, casts and preserved parts of plants and animals) to one another and to living organisms ✓ Inferring ideas about Earth's early environments from fossils of plants and animals that lived long ago ✓ Giving examples of how the surface of the earth changes due to slow processes such as erosion and weathering, and rapid processes such as landslides, volcanic eruptions and earthquakes ✓ Explaining how humans can adapt their behavior to live in changing habitats (e.g., recycling wastes, establishing rain gardens, planting trees and shrubs to prevent flooding and erosion) ✓ Explaining how difference among animals of the same population sometimes give individuals an advantage in surviving and reproducing in changing habitats ✓ Giving examples of likenesses that are inherited and some that are not ✓ Explaining how differences among animals of the same population sometimes give individuals an advantage in surviving and reproducing in changing habitats

Evolution of Landforms and Life forms

	This unit builds to the following future skills and concepts: ✓ Explaining the consequences of human activity on the lithosphere (such as mining, deforestation, agriculture, overgrazing, urbanization and land use) past and present ✓ Exemplifying the radioactive decay of unstable nuclei using the concept of half-life ✓ Explaining changes in global climate due to natural processes ✓ Attributing changes in Earth systems to global climate change (temperature change, changes in pH of ocean, sea level changes, etc) ✓ Explaining how fossil, biochemical and anatomical evidence support the theory of evolution ✓ Explaining how natural selection influences the changes in species over time ✓ Explaining the historical development and changing nature of classification systems ✓ Analyzing the classification of organisms according to their evolutionary relationships (including: dichotomous keys and phylogenetic trees)
Additional Resources Materials to support understanding and enrichment	**"Learning Checks"** Questions Parents Can Use to Assess Understanding
✓ CK12.org online textbook: Earth History ✓ CK12.org online textbook: History of Life ✓ Ck12.org online textbook: Food and the Digestive System ✓ Ck12.org online textbook: Theory of Evolution by Natural Selection ✓ Discovery Ed video: Fossils ✓ Discovery Ed video: Rocks ✓ Discovery Ed video: Classification of Organisms ✓ University of California Museum of Paleontology website: information about the Geologic Time Scale http://www.ucmp.berkeley.edu/help/timeform.php ✓ Fossils for kids website: information about fossils o http://www.fossilsforkids.com/ ✓ New Scientist website: information on evolution o http://www.newscientist.com/topic/evolution	✓ How is the age rocks, fossils and Earth determined? ✓ What determines the process and type of fossils that are formed? ✓ How does evidence support that Earth itself and life on it has changed over time? ✓ How has the structure of Earth changed over time? ✓ How have living things changed over time? ✓ How does scientific evidence support the theory of evolution? ✓ How does genetic variation relate to an organism's survival in a changing environment? ✓ Who is Charles Darwin and explain the theory of evolution and natural selection?