Lenoir County Public School
Curriculum and Pacing Guide 2006-2007

Subject Science Grade Level 8 2nd 9 weeks

COMPETENCY GOAL 5: The learner will conduct investigations and utilize appropriate technologies and information systems to build understanding of evidence of evolution in organisms and landforms.				
Days 17	**Objective**	**Vocabulary**	**Essential Questions and Tasks:**	**Resources**
5 days	5.01 Interpret ways in which rocks, fossils, and ice cores record Earth's geologic history and the evolution of life including: • Geologic Time Scale. • Index Fossils. • Law of Superposition. • Unconformity. • Evidence for climate change. • Extinction of species. • Catastrophic events. **Benchmarks:** • Students will be able to describe how fossils can be used to determine the history of changes. • Students will describe the events that occurred that marked the divisions in the geologic time scale.	Evolution Geologic Time Scale Era Epoch Period Fossils Types of fossils Index fossil Law of Superposition Absolute dating (age) Relative dating (age) Radioactive decay Extinction (causes of) Unconformities Climatic changes (causes of) Catastrophic events (examples of)	• How is the Earth's geologic history recorded? • Construct a geologic scale. • How can fossils and geological features be used to interpret the relative age of rocks and other fossils? • What evidence is there that the Earth's climate has changed over time? • What causes an unconformity? What causes a nonconformity? • How is the principle of superposition used to explain the history of the Earth? • How do paleontologists determine how catastrophic events and climatic changes led to the extinction of certain species over time?	Unit A & B 1.1 Unit B p. 2-5 *Life By Degrees* (extinction) Unit Project p.B5 Species Over Time Timelines in Science p76-79 ***Support Documents*** p. 4 **w/Labs** and activities p. 14-51 http://www.ucmp.berkeley.edu/education/explorations/tours/fossil/index.html great powerpoint on fossils www.classzone.com Unit A Chapter 2
3 days	5.02 Correlate evolutionary theories and processes: • Biological. • Geological. • Technological. **Benchmarks:** • Students will be able to relate how uniformitarianism helped develop geological evolutionary theories. • Students will describe natural	Theory Charles Darwin Origin of Species Natural Selection Homologous structures Vestigial structures Embryology Uniformitarianism	• What role do certainties and uncertainties play in creating evolutionary theories? • How has biological and geological evidence led to the development of different theories of change over time? • What evidence do we have that life on Earth has evolved over time? • Evaluate the role of technology in verifying the validity of various evolutionary theories.	Unit B Chapter 1.2; 1.3 ***Support Documents*** p.4-6 **w/Labs** and activities p.52-88 (use also w/ 5.03) Scientific American Frontiers video *"Noah's Snowball"* segment www.emints.org/ethemes/resources/S00001170.shtml

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	selection as a result of changes in the environment.			
2 days	5.03 Examine evidence that the geologic evolution has had significant global impact including: • Distribution of living things. • Major geological events. • Mechanical and chemical weathering. **Benchmarks:** • Students will be able to explain how various mountain ranges on Earth were formed. • Students will understand how seashell fossils can be found in the middle of continents.	Plate tectonics Continental Drift Alfred Wegener Lithosphere Asthenosphere Core Mantle Convergent boundaries Divergent boundaries Transform boundaries Seafloor spreading Earthquakes Volcanic eruptions Mountain building	• How has geologic evolution affected living things? • What effect has geological events had on the Earth's landforms? • What causes mechanical weathering? chemical weathering? Give some examples. • What evidences support the theory of continental drift? • Construct a chart that illustrates the various eras in geologic history and the major significant events found in each.	Unit A Chapter 1 Lab p.A20 Convection Currents ***Support Documents*** p.6-9 **w/Labs** and activities p. 52-88 www.classzone.com Unit A good visualizations Sign in to Teacher Resources to get virtual labs www.scilinks.com MDL052 various sites illustrate tectonics, earthquakes, etc. http://kids.earth.nasa.gov/archive/pangaea/index.html quizzes
3 days	5.04 Analyze satellite imagery as a method to monitor Earth from space: • Spectral analysis. • Reflectance curves **Benchmarks:** • Students will understand importance of the global positioning system. • Students will be able to list ways that monitoring the	Satellite imagery Spectral analysis Electromagnetic wave Reflectance curves Pixels Remote sensing GPS- Global Positioning Systems	• How can Earth's atmosphere, continents, and oceans be monitored from space? • How is satellite imagery enhanced by using spectral reflectance curves? • What do scientists use the information obtained via spectral analysis? • Assess how satellite images could be used in studying NC flooding caused by Hurricane Floyd.	**NC Handbook** p. 2-7 ***Support Documents*** p.9-12 **w/Labs** and activities 89-94 http://www.noaa.gov/satellites.html http://imagers.gsfc.nasa.gov/teachersite/index.html Site addresses electromagnetic waves, spectral analysis and satellite imagery www.sciencenetlinks.com/lessons.cfm?Grade=6-8&BenchmarkID=3&DocID=294 Eyes in the Sky (use w/5.05)

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	Earth's atmosphere will be advantageous to the people living there.			www.terraserver-usa.com See Woodington Middle School http://www.harcourtschool.com/articles/video_updates/west_nile_space/broadband.html Tracking a disease by satellite Could also be used with 7.03
2 days	5.05 Use maps, ground truthing and remote sensing to make predictions regarding: • Changes over time. • Land use. • Urban sprawl. • Resource management **Benchmarks:** • Students will understand that predictions can be made by monitoring Earth from space • Students will be able to create and read a topographic map. • Students will understand the need to apply good management of resources. .	Ground truthing Urban sprawl Resource management Latitude Longitude Contour lines Topographic map Renewable resource Nonrenewable resource	• How do scientists use remote sensing to detect changes over time? • How can scientists use remote sensing and ground truthing to predict how resources can best be managed? • How does population growth influence land use, urban sprawl and resource use? • Predict how selected areas on the globe will change based on maps, ground truthing and remote sensing.	Unit A 3 ***Support Documents*** p13 **w/Labs** and activities http://www.noaa.gov/index.html www.sciencenetlinks.com/lessons.cfm?Grade=6-8&BenchmarkID=3&DocID=294 Does our Future have a Future? http://imagers.gsfc.nasa.gov/teachersite/index.html same as 5.04 http://glencoe.mcgraw-hill.com/sites/0078617898/student_view0/unit1/chapter2/concept_animations.html# US Topography www.classzone.com What is Energy?
2 days Review, Project and Assessment				