

	<u>N.C. Essential Standards</u>	<u>Earthquakes</u>	<u>And Seismology</u>
4.E.2.3 (Grade/ Subject/ Essential Standard/Clarifyi ng Objective	K-8 Earth Science (E) 9-12 Earth/Environmental Science (EEen) K-8 Life Science (L) 9-12 Physics (Phy)		K-8 Physical Science (P) 9-12 Physical Science (PSc)
<u>Topic</u>	<u>Essential Standard</u>	<u>Clarifying Obj.</u>	
SCIENCE			
Earth History			
4.E.2	Understand the use of fossils and changes in the surface of the earth as evidence of the history of Earth and its changing life forms.	4.E.2.3	Give 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.
Forces and Motion	<u>Essential Standard</u>	<u>Clarifying Obj.</u>	
6.p.1	Understand the properties of waves and the wavelike property of energy in earthquakes, light and sound waves.	6.P.1.1	Compare the properties of waves to the wavelike property of energy in earthquakes, light and sound.
Earth Systems, Structures and Processes	<u>Essential Standard</u>	<u>Clarifying Obj.</u>	
6.E.2	Understand the structure of the earth and how interactions of constructive and destructive forces have resulted in changes in the surface of the Earth over time and the effects of the lithosphere on humans	6.E.2.1 6.E.2.2	1.Summarize the structure of the earth, including the layers, the mantle and core based on the relative position, composition and density. 2.Explain how crustal plates and ocean basins are formed, move and interact using earthquakes, heat flow and volcanoes to reflect forces within the earth. 4.Conclude that the good health of humans requires: monitoring the lithosphere, maintaining soil quality and stewardship.
Energy: Conservation and Transfer	<u>Essential Standard</u>	<u>Clarifying Obj.</u>	

7.P.2	Understand forms of energy, energy transfer and transformation and conservation in mechanical systems.	7.P.2.1 7.P.2.2	1. Explain how kinetic and potential energy contribute to the mechanical energy of an object. 2. Explain how energy can be transformed from one form to another (specifically potential energy and kinetic energy) using a model or diagram of a moving object (roller coaster, pendulum, or cars on ramps as examples).
Earth History	<i>Essential Standard</i>	<i>Clarifying Obj.</i>	
8.E.2	Understand the history of Earth and its life forms based on evidence of change recorded in fossil records and landforms .	8.E.2.2	Explain the use of fossils, ice cores, composition of sedimentary rocks, faults , and igneous rock formations found in rock layers as evidence of the history of the Earth and its changing life forms.
Earth Systems, Structures and Processes	<i>Essential Standard</i>	<i>Clarifying Obj.</i>	
EEn.2.1	Explain how processes and forces affect the lithosphere.	EEn.2.1.1 EEn.2.1.2 EEn.2.1.4	1.Explain how the rock cycle, plate tectonics, volcanoes, and earthquakes impact the lithosphere. 2.Predict the locations of volcanoes, earthquakes, and faults based on information contained in a variety of maps. 4.Explain the probability of and preparation for geohazards such as landslides, avalanches, earthquakes and volcanoes in a particular area based on available data.
Energy: Conservation and Transfer	<i>Essential Standard</i>	<i>Clarifying Obj.</i>	
PSc.3.2	Understand the nature of waves.	PSc.3.2.1 PSc.3.2.2 PSc.3.2.3 PSc.3.2.4	1.Explain the relationships among wave frequency, wave period, wave velocity and wavelength through calculation and investigation. 2.Compare waves (mechanical, electromagnetic, and surface) using their characteristics. 3.Classify waves as transverse or

			compressional (longitudinal). 4.Illustratethe wave interactions of reflection, refraction, diffraction, and interference.
Energy: Conservation and Transfer	<i>Essential Standard</i>	<i>Clarifying Obj.</i>	
Phy.2.2	Analyze the behavior of waves.	Phy.2.2.1 Phy.2.2.2	1.Analyze how energy is transmitted through waves, using the fundamental characteristics of waves: wavelength, period, frequency, amplitude, and wave velocity. 2.Analyze wave behaviors in terms of transmission, reflection, refraction and interference.
<u>SOCIAL STUDIES</u>			
Geography and Environmental Literacy	<i>Essential Standard</i>	<i>Clarifying Obj.</i>	
1.G.2	Understand how humans and the environment interact within the local community	1.G.2.3	Explain how the environment impacts where people live (urban, rural, weather, transportation, etc.).
3.G.1	Understand the earth's patterns by using the 5 themes of geography: (location, place, human-environment interaction , movement and regions)	3.G.1.3	Exemplify how people adapt to, change and protect the environment to meet their needs.
5.G.1	Understand how human activity has and continues to shape the United States.	5.G.1.1	Explain the impact of the physical environment on early settlements in the New World.
7.G.1	Understand how geography, demographic trends, and environmental conditions shape modern societies and regions.	7.G.1.1 7.G.1.3	1.Explain how environmental conditions and human response to those conditions influence modern societies and regions(e.g. natural barriers, scarcity of resources and factors that influence settlement) 3.Explain how natural disasters (e.g. flooding, earthquakes,

			monsoons and tsunamis), preservation efforts and human modification of the environment (e.g. recycling, planting trees, deforestation, pollution, irrigation systems and climate change) affect modern societies and regions.
8.G.1	Understand the geographic factors that influenced North Carolina and the United States.	8.G.1.1	Explain how location and place have presented opportunities and challenges for the movement of people, goods, and ideas in North Carolina and the United States.