



North Carolina Essential Standards Draft 3.0
Earth/Environmental Science

Earth in the Universe

	Essential Standard	Clarifying Objectives	
EEn.1.1	Understand the Earth's role as a body in space.	EEn.1.1.1	Explain the Earth's motion through space, including precession, nutation, the barycenter, and its path about the galaxy.
		EEn.1.1.2	Explain how the Earth's rotation and revolution about the Sun affect its shape and is related to seasons and tides.
		EEn.1.1.3	Explain how the sun produces energy which is transferred to the Earth by radiation.
		EEn.1.1.4	Explain how incoming solar energy makes life possible on Earth.

Earth: Systems, Structures and Processes

	Essential Standard	Clarifying Objectives	
EEn.2.1	Explain how processes and forces affect the lithosphere.	EEn.2.1.1	Explain how the rock cycle, plate tectonics, volcanoes, and earthquakes impact the lithosphere.
		EEn.2.1.2	Explain the major events in the geologic history of North Carolina and the southeastern United States.
		EEn.2.1.3	Predict the locations of volcanoes, earthquakes, and faults based on information contained in a variety of maps.
		EEn.2.1.4	Explain how natural actions such as weathering, erosion (wind, water and gravity), and soil formation affect Earth's surface.
		EEn.2.1.5	Explain how the forces of uplift and erosion combine to create various landforms.
		EEn.2.1.6	Explain the probability of and preparation for geohazards such as landslides, avalanches, earthquakes and volcanoes in a particular area based on available data.
EEn.2.2	Explain how human influences impact the lithosphere.	EEn.2.2.1	Summarize the consequences of human activities on the lithosphere (such as mining, deforestation, agriculture, overgrazing, urbanization, and land use) past and present.
		EEn.2.2.2	Compare the various methods humans use to acquire traditional energy sources (such as peat, coal, oil, natural gas, nuclear fission, and wood).
EEn.2.3	Explain how water is an agent of energy transfer.	EEn.2.3.1	Explain water as an energy agent (currents and heat transfer).
		EEn.2.3.2	Explain how ground water and surface water interact.

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EEn.2.4	Evaluate how humans use water.	EEn.2.4.1	Evaluate human influences on freshwater availability (wells, aquifer depletion, dams and dam removal, agricultural, and recreation).
		EEn.2.4.2	Evaluate human influences on water quality (ground and surface water pollution, wetland and estuary degradation, and salt water intrusion).
EEn.2.5	Understand the structure of and processes within our atmosphere.	EEn.2.5.1	Summarize the structure and composition of our atmosphere.
		EEn.2.5.2	Explain how cyclonic storms form based on the interaction of air masses.
		EEn.2.5.3	Explain the common types of weather which affect people and the safety precautions which should be taken for each (heat waves, thunderstorms, tornadoes, lightning, hurricanes, blizzards, and ice storms).
		EEn.2.5.4	Predict the weather using available weather maps and data (including surface, upper atmospheric winds, and satellite imagery).
		EEn.2.5.5	Explain how acid rain is formed.
EEn.2.6	Analyze patterns of global climate change over time.	EEn.2.6.1	Differentiate between weather and climate.
		EEn.2.6.2	Explain changes in global climate due to natural processes (El Nino/La Nina, volcanic eruptions, sunspots, shifts in Earth's orbit, and carbon dioxide fluctuations).
		EEn.2.6.3	Analyze the impacts that human activities have on global climate change (such as burning hydrocarbons, greenhouse effect, and deforestation).
		EEn.2.6.4	Attribute changes in Earth systems to global climate change (temperature change, changes in pH of ocean, sea level changes, etc.).
EEn.2.7	Understand how the lithosphere, hydrosphere, and atmosphere individually and collectively affect the biosphere.	EEn.2.7.1	Explain how biomes across NC are controlled by altitude and other environmental factors.
		EEn.2.7.2	Compare impacts of biotic and abiotic factors on biodiversity.
		EEn.2.7.3	Explain why biodiversity is important to the biosphere.
		EEn.2.7.4	Explain how human activities impact the biosphere (habitat alteration, introduction of invasive species, population, pollution, and overharvesting).
EEn.2.8	Evaluate human behaviors in terms of how likely they are to ensure the ability to live sustainably on Earth.	EEn.2.8.1	Evaluate alternative energy technologies for use in North Carolina (solar, wind, biofuels, nuclear fusion, fuel cells).
		EEn.2.8.2	Critique conventional and sustainable agriculture and aquaculture practices in terms of their environmental impacts.
		EEn.2.8.3	Explain the effects of uncontrolled population growth on the Earth's resources.
		EEn.2.8.4	Evaluate the concept of "reduce, reuse, recycle" in terms of impact on natural resources.