



# North Carolina Essential Standards Earth & Environmental Science

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## High School:

### Earth in the Universe

**NCES.EEn.1.1** - Explain the Earth's role as a body in space.

**NCES.EEn.1.1.1** - Explain the Earth's motion through space, including precession, nutation, the barycenter, and its path about the galaxy.

**NCES.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.

**NCES.EEn.1.1.3** - Explain how the sun produces energy which is transferred to the Earth by radiation.

**NCES.EEn.1.1.4** - Explain how incoming solar energy makes life possible on Earth.

### Earth: Systems, Structures, and Processes

**NCES.EEn.2.1** - Explain how processes and forces affect the lithosphere.

**NCES.EEn.2.1.1** - Explain how the rock cycle, plate tectonics, volcanoes, and earthquakes impact the lithosphere.

**NCES.EEn.2.1.2** - Predict the locations of volcanoes, earthquakes, and faults based on information contained in a variety of maps.

**NCES.EEn.2.1.3** - Explain how natural actions such as weathering, erosion (wind, water and gravity), and soil formation affect Earth's surface.

**NCES.EEn.2.1.4** - Explain the probability of and preparation for geohazards such as landslides, avalanches, earthquakes and volcanoes in a particular area based on available data.

**NCES.EEn.2.2** - Understand how human influences impact the lithosphere.

**NCES.EEn.2.2.1** - Explain the consequences of human activities on the lithosphere (such as mining, deforestation, agriculture, overgrazing, urbanization, and land use) past and present.

**NCES.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).

**NCES.EEn.2.3** - Explain the structure and processes within the hydrosphere.

**NCES.EEn.2.3.1** - Explain how water is an energy agent (currents and heat transfer).

**NCES.EEn.2.3.2** - Explain how ground water and surface water interact.

**NCES.EEn.2.4** - Evaluate how humans use water.

**NCES.EEn.2.4.1** - Evaluate human influences on freshwater availability.

**NCES.EEn.2.4.2** - Evaluate human influences on water quality in North Carolina's river basins, wetlands and tidal environments.

**NCES.EEn.2.5** - Understand the structure of and processes within our atmosphere.

**NCES.EEn.2.5.1** - Summarize the structure and composition of our atmosphere.

**NCES.EEn.2.5.2** - Explain the formation of typical air masses and the weather systems that result from air mass interactions.

**NCES.EEn.2.5.3** - Explain how cyclonic storms form based on the interaction of air masses.

**NCES.EEn.2.5.4** - Predict the weather using available weather maps and data (including surface, upper atmospheric winds, and satellite imagery).





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**NCES.EEn.2.5.5** - Explain how human activities affect air quality.

**NCES.EEn.2.6** - Analyze patterns of global climate change over time.

**NCES.EEn.2.6.1** - Differentiate between weather and climate.

**NCES.EEn.2.6.2** - Explain changes in global climate due to natural processes.

**NCES.EEn.2.6.3** - Analyze the impacts that human activities have on global climate change (such as burning hydrocarbons, greenhouse effect, and deforestation).

**NCES.EEn.2.6.4** - Attribute changes in Earth systems to global climate change (temperature change, changes in pH of ocean, sea level changes, etc.).

**NCES.EEn.2.7** - Explain how the lithosphere, hydrosphere, and atmosphere individually and collectively affect the biosphere.

**NCES.EEn.2.7.1** - Explain how abiotic and biotic factors interact to create the various biomes in North Carolina.

**NCES.EEn.2.7.2** - Explain why biodiversity is important to the biosphere.

**NCES.EEn.2.7.3** - Explain how human activities impact the biosphere.

**NCES.EEn.2.8** - Evaluate human behaviors in terms of how likely they are to ensure the ability to live sustainability on Earth.

**NCES.EEn.2.8.1** - Evaluate alternative energy technologies for use in North Carolina.

**NCES.EEn.2.8.2** - Critique conventional and sustainable agriculture and aquaculture practices in terms of their environmental impacts.

**NCES.EEn.2.8.3** - Explain the effects of uncontrolled population growth on the Earth's resources.

**NCES.EEn.2.8.4** - Evaluate the concept of "reduce, reuse, recycle" in terms of impact on natural resources.