Dear Earth/Environmental Science Teacher:

Congratulations on your Earth/Environmental Science semester course assignment. The Halifax County Schools Earth/Environmental Science Pacing Guide engages students in inquiry-based instruction. The semester of science *standards are paced in nine weeks within two quarters.* ***Numbers*** *indicate which quarter each standard is to be taught.”* ***X”*** *indicates quarter NOT taught. You will need to cluster standards into units of study.* A well-planned science unit provides opportunities for inquiry, experimentation and use of technological enhancements. When teaching, provide opportunities for students to engage in “hands-on/minds-on” activities that unwrap the knowledge, understanding, and application of concepts. Implementation of a seamless integration of science content, scientific inquiry, experimentation and technological design will reinforce in students the notion that *“what” is known* is inextricably tied to *“how” it is known*. Developing conceptual understanding of science content is essential; therefore, data-driven remediation of standards should take place prior to benchmarks.

Things to Remember:

- Engage first-hand exploration & investigation and inquiry/processing skills are nurtured.
- Instruction builds directly on student’ conceptual background.
- science content is organized on the basis of broad conceptual themes common to all science disciplines.
- Mathematics and communication skills are an integral part of science instruction.
- Learning environment fosters positive attitudes towards self and society, as well as science.

Student engagement in scientific investigation provides background for understanding the nature of scientific inquiry. In addition, the science process skills necessary for inquiry are acquired through active experience. The scientific processing skills support the development of reasoning and problem-solving ability and are the core of scientific methodologies.

Instructional Resources:

(See DPI resource link for access to planning documents.)

Alignment of Instructional Model: (I Do; We Do; You Do)

1. **I Do: Engage** Teacher introduces Biology concept and connect to students’ prior knowledge; acknowledges accuracy of understanding and any misconceptions.
2. **We Do: Explore** Students are provided collaborative opportunities for observations and questioning prior to teacher’s explanation of concepts, functions, systems, and processes.
3. **I Do: Explain/Elaborate** Teacher provides a clear, concise description of new concepts & reasoning; includes anchor charts, video clips, visuals and *models* of functions, systems, and processes.
4. **We Do: Elaborate** Guided Practice with feedback
5. **You Do: Evaluate** Determine students’ understanding of Biology standards through tasks, projects & assessments.

Halifax County Schools: Earth/Environmental Science Essential Standards Semester Pacing Guide (Revised July 31, 2019)		
Earth in the Universe	**Quarters**	
EEn.1.1 Explain the Earth's role as a body in space.	**1**	**2**
EEn.1.1.1 Explain the Earth's motion through space, including precession, nutation, the barycenter, and its path about the galaxy.	**1**	**X**
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	**1**	**X**
EEn.1.1.3 Explain how the sun produces energy which is transferred to the Earth by radiation.	**1**	**X**
EEn.1.1.4 Explain how incoming solar energy makes life possible on Earth.	**1**	**X**
Earth Systems, Structures, and Processes	**Quarters**	
EEn.2.1 Explain how processes and forces affect the lithosphere.	**1**	**2**
EEn.2.1.1 Explain how the rock cycle, plate tectonics, volcanoes, and earthquakes impact the lithosphere.	**1**	**X**
EEn.2.1.2 Predict the locations of volcanoes, earthquakes, and faults based on information contained in a variety of maps.	**1**	**X**
EEn.2.1.3 Explain how natural actions such as weathering, erosion (wind, water and gravity), and soil formation affect Earth's surface.	**1**	**X**
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	**1**	**X**
EEn.2.8.4 Evaluate the concept of "reduce, reuse, recycle" in terms of impact on natural resources.	**1**	**2**
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.	**1**	**X**
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).	**1**	**X**
EEn.2.3 Explain the structure and processes within the hydrosphere.	**1**	**2**
EEn.2.3.1 Explain how water is an energy agent (currents and heat transfer).	**1**	**X**
EEn.2.3.2 Explain how ground water and surface water intract.	**1**	**X**
EEn.2.4 Evaluate how humans use water.	**1**	**2**
EEn.2.4.1 Evaluate human influences on freshwater availability.	**1**	**X**
EEn.2.4.2 Evaluate human influences on water quality in North Carolina's river basins, wetlands and tidal environments.	**1**	**X**
EEn.2.5 Understand the structure of and processes within our atmosphere.	**1**	**2**
EEn.2.5.1 Summarize the structure and composition of our atmosphere.	**X**	**2**
EEn.2.5.2 Explain the formation of typical air masses and the weather systems that result from air mass interactions	**X**	**2**
EEn.2.5.3 Explain how cyclonic storms form based on the interaction of air masses.	**X**	**2**
EEn.2.5.4 Predict the weather using available weather maps and data (including surface, upper atmospheric winds, and satellite imagery)	**X**	**2**
EEn.2.5.5 Explain how human activities affect air quality.	**X**	**2**
EEn.2.6 Analyze patterns of global climate change over time..	**1**	**2**
EEn 2.6.1 Differentiate between weather and climate.	**X**	**2**
EEn.2.6.2 Explain changes in global climate due to natural processes.	**X**	**2**
EEn.2.6.3 Analyze the impacts that human activities have on global climate change (such as burning hydrocarbons, greenhouse effect, and deforestation).	**X**	**2**
EEn.2.6.4 Attribute changes to Earth's systems to global climate change (temperature change, changes in pH of ocean, sea level changes, etc.).	**X**	**2**
EEn.2.7 Explain how the lithosphere, hydrosphere, and atmosphere individually and collectively affect the biosphere.	**1**	**2**
EEn.2.7.1 Explain how abiotic and biotic factors interact to create the various biomes in North Carolina.	**X**	**2**
EEn.2.7.2 Explain why biodiversity is important to the biosphere.	**X**	**2**
EEn.2.7.3 Explain how human activities impact the biosphere.	**X**	**2**
EEn.2.8 Evaluate human behaviors in terms of how likely they are to ensure the ability to live sustainably on Earth.	**1**	**2**
EEn.2.8.1 Evaluate alternative energy technologies for use in North Carolina.	**X**	**2**
EEn.2.8.2 Critique conventional and sustainable agriculture and aquaculture practices in terms of their environmental impacts.	**X**	**2**
EEn.2.8.3 Explain the effects of uncontrolled population growth on the Earth's resources	**X**	**2**
. EEn.2.8.4 Evaluate the concept of "reduce, reuse, recycle" in terms of impact on natural resources.	**X**	**2**