Dear 6th Grade Science Teacher:

The goal of the North Carolina Science Standard Course of Study (NC SCoS) is to achieve scientific literacy. The Sixth Grade Science Pacing Guide includes **Essential Standards and Clarifying Objectives** from *life, physical and earth sciences*. These standards engage students in developing problem-solving and critical thinking skills that empower them to participate in an increasingly scientific and technological world.

Sixth Graders Value Science Best When...

- Science is taught *daily* (60 to 90 minutes).
- Learning opportunities develop understandings and skills for problem-solving in real-world scientific and technological concepts.
- The collaborative scientific contributions of individuals from all ethnic origins are recognized and valued.
- Math and reading skills are infused into science.
- *Inquiry skills* and positive attitudes are modeled by the teacher and others involved in the education process.
- A *variety of presentation modes* are used to accommodate different learning styles; students are given opportunities to interact and share ideas and collaborate with their peers.

Sixth Graders Learn Science Best When…

- ✓ Involved in 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.

Suggested Instructional Model: (I Do; We Do; You Do)

- **I Do: Engage** --Introduce science concept and connect to student's' prior knowledge; revealing any misconceptions.
- **We Do: Explore** --Provide an opportunity for observations and questioning prior to teacher's explaining of concepts.
- **I Do**: **Explain/Elaborate** -- Provide a clear, concise description of new concept; include labels & essential vocabulary; integrate video clip. Demonstrate the concept and/or process using visual models, technology, and text
- **We Do: Evaluate** --Assess Hands-on/Minds-on practice through guided practice
- **You Do: Evaluate—**Determine students' overall understanding of concepts and their progress made towards learning the science objectives.

Charting a New Course!
Halifax County Schools
2018-2019 Curriculum & Instruction Support Team

Halifax County Schools: Science Essential Standards Pacing Guide					Revised: June 30, 2018				
6th Grade Science At-a-Glance									
Physical Science	**Quarters**				**Physical Science**	**Quarters**			
6.P.1.1 Compare the properties of waves to the wavelike property of energy in earthquakes, light and sound.	X	4	X	X	6.P.3.1 Illustrate the transfer of heat energy from warmer objects to cooler ones using examples of conduction, radiation and convection and the effects that may result	X	X	3	X
6.P.1.2 Explain the relationship among visible light, the electromagnetic spectrum, and sight	X	4	X	X	6.P.3.2 Explain the effects of electromagnetic waves on various materials to include absorption, scattering, and change in temperature.	X	X	3	X
6.P.1.3 Explain the relationship among the rate of vibration, the medium through which vibrations travel, sound and hearing.	X	4	X	X	6.P.3.3 Explain the suitability of materials for use in technological design based on a response to heat (to include conduction, expansion, and contraction) and electrical energy (conductors and insulators).	X	X	3	X
Chemistry	**Quarters**				**Lithosphere, Cycling, Soil, Rocks**	**Quarters**			
6.P.2.1 Recognize that all matter is made up of atoms and atoms of the same element are all alike, but are different from the atoms of other elements.	X	2	X	X	6.E.2.1 Summarize the structure of the earth, including the layers, the mantle and core based on the relative position, composition and density.	X	X	3	X
6.P.2.2 Explain the effect of heat on the motion of atoms through a description of what happens to particles during a change in phase.	X	2	X	X	6.E.2.2 Explain how crustal plates and ocean basins are formed, move and interact using earthquakes, heat flow and volcanoes to reflect forces within the earth.	X	X	3	X
6.P.2.3 Compare the physical properties of pure substances that are independent of the amount of matter present including density, boiling point, melting point and solubility to properties that are dependent on the amount of matter present to include volume, mass and weight.	X	2	X	X	6.E.2.3 Explain how the formation of soil is related to the parent rock type and the environment in which it develops.	X	X	4	X
					6.E.2.4 Conclude that the good health of humans requires: monitoring the lithosphere, maintaining soil quality and stewardship.	X	X	4	X

Environment, Life Science	Quarters				Environment, Life Science	Quarters			
6.L.1.1 Summarize the basic structures and functions of flowering plants required for survival, reproduction and defense	1	X	X	X	6.L.2.1 Summarize how energy derived from the sun is used by plants to produce sugars (photosynthesis) and is transferred within a food chain or food web (terrestrial and aquatic) from producers to consumers to decomposers.	2	X	X	X
6.L.1.2 Explain the significance of the processes of photosynthesis, respiration and transpiration to the survival of green plants and other organisms.	1	X	X	X	6.L.2.2 Explain how plants respond to external stimuli (including dormancy and forms of tropism) to enhance survival in an environment.	2	X	X	X
					6.L.2.3 Summarize how the abiotic factors (such as temperature, water, sunlight, and soil quality) of biomes (freshwater, marine, forest, grasslands, desert, Tundra) affect the ability of organisms to grow, survive and/or create their own food through photosynthesis.	2	X	X	X
Space, Technology	**Quarters**				**Note:** The science and engineering practices listed below are to be integrated in daily lesson activities as often as possible. **Science and Engineering Practices:** 1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating and communicating information				
6.E.1.1 Explain how the relative motion and relative position of the sun, Earth and moon affect the seasons, tides, phases of the moon, and eclipses.	1	X	X	X					
6.E.1.2 Explain why Earth sustains life while other planets do not based on their properties (including types of surface, atmosphere and gravitational force) and location to the Sun.	1	X	X	X					
6.E.1.3 Summarize space exploration and the understandings gained from them.	1	X	X	X					