Dear 4th Grade Science Teacher:

The goal of the North Carolina Science Standard Course of Study (NC SCoS) is to achieve scientific literacy. The Fourth 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.

Fourth Graders Value Science Best When...

- Science is taught *daily* (30 to 45 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.

Fourth 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						Revised June 30, 2018			
4th Grade Science At-a-Glance									
Forces and Motion	**Quarters**				**Earth History**	**Quarters**			
4.P.1 Explain how various forces affect the motion of an object.	**1**	**2**	**3**	**4**	**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**	**1**	**2**	**3**	**4**
4.P.1.1 Explain how magnets interact with all things made of iron and with other magnets to produce motion without touching them	1	X	X	X	4.E.2.1 Compare fossils (including molds, casts, and preserved parts of plants and animals) to one another and to living organisms	X	X	X	4
4.P.1.2 Explain how electrically charged objects push or pull on other electrically charged objects and produce motion.	1	X	X	X	4.E.2.2 Infer ideas about Earth's early environments from fossils of plants and animals that lived long ago.	X	X	X	4
Matter: Properties and Change	**Quarters**				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	X	X	X	4
4.P.2 Understand the composition and properties of matter before and after they undergo a change or interaction.	**1**	**2**	**3**	**4**	**Ecosystems**	**Quarters**			
4.P.2.1 Compare the physical properties of samples of matter (strength, hardness, flexibility, ability to conduct heat, ability to conduct electricity, ability to be attracted by magnets, reactions to water and fire).	X	2	X	X	4.L.1 Understand the effects of environmental changes, adaptations and behaviors that enable animals (including humans) to survive in changing habitats.	X	X	3	X
4.P.2.2 Explain how minerals are identified using tests for the physical properties of hardness, color, luster, cleavage and streak.	X	2	X	X	4.L.1.1 Give examples of changes in an organism's environment that are beneficial to it and some that are harmful.	X	X	3	X
4.P.2.3 Classify rocks as metamorphic, sedimentary or igneous based on their composition, how they are formed and the processes that create them	X	2	X	X	4.L.1.2 Explain how animals meet their needs by using behaviors in response to information received from the environment.	X	X	3	X
Energy Conservation and Transfer	**Quarters**				4.L.1.3 Explain how humans can adapt their behavior to live in changing habitats (e.g., recycling wastes, establishing rain gardens, planting trees and shrubs to prevent flooding and erosion).	X	X	3	X
4.P.3 Recognize that energy takes various forms that may be grouped based on their interaction with matter.	**1**	**2**	**3**	**4**	4.L.1.4 Explain how differences among animals of the same population sometimes give individuals an advantage in surviving and reproducing in changing habitats.	X	X	3	X
4.P.3.1 Recognize the basic forms of energy (light, sound, heat, electrical, and magnetic) as the ability to cause motion or create change	X	2	X	X	**Molecular Biology**	**Quarters**			
						1	**2**	**3**	**4**

4.P.3.2 Recognize that light travels in a straight line until it strikes an object or travels from one medium to another, and that light can be reflected, refracted, and absorbed.	X	2	X	X	4.L.2.1 Classify substances as food or non-food items based on their ability to provide energy and materials for survival, growth and repair of the body	X	X	X	4
Earth in the Universe	**Quarters**				4.L.2.2 Explain the role of vitamins, minerals and exercise in maintaining a healthy body.	X	X	X	4
4.E.1 Explain the causes of day and night and phases of the moon. Explain the causes of day and night and phases of the moon.	**1**	**2**	**3**	**4**	4.L.1.4 Explain how differences among animals of the same population sometimes give individuals an advantage in surviving and reproducing in changing habitats.	X	X	X	4
4.E.1.1 Explain the cause of day and night based on the rotation of Earth on its axis.	1	X	X	X					
4.E.1.2 Explain the monthly changes in the appearance of the moon, based on the moon's orbit around the Earth.	1	X	X	X					

Note:

The Science and Engineering Practices listed below are to be integrated in daily lesson activities as often as possible:

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