Dear 7th Grade Science Teacher:

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

Seventh 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.

Seventh 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 20, 2018				
7th Grade Science At-a-Glance									
Forces and Motion	**Quarters**				**Energy: Conservation and Transfer**	**Quarters**			
7.P.1.1 Explain how the motion of an object can be described by its position, direction of motion, and speed with respect to some other object.	1	**X**	**X**	**X**	7.P.2.1 Explain how kinetic and potential energy contribute to the mechanical energy of an object.	1	**X**	**X**	**X**
7.P.1.2 Explain the effects of balanced and unbalanced forces acting on an object (including friction, gravity and magnets).	1	**X**	**X**	**X**	7.P.2.2 Explain how energy can be transformed from one form to another (specifically potential energy and kinetic energy) using a model or diagram of a moving object (roller coaster, pendulum, or cars on ramps as examples).	1	**X**	**X**	**X**
7.P.1.3 Illustrate the motion of an object using a graph to show a change in position over a period of time.	1	**X**	**X**	**X**	7.P.2.3 Recognize that energy can be transferred from one system to another when two objects push or pull on each other over a distance (work) and electrical circuits require a complete loop through which an electrical current can pass.	X	**2**	**X**	**X**
7.P.1.4 Interpret distance versus time graphs for constant speed and variable motion.	1	**X**	**X**	**X**	7.P.2.4 Explain how simple machines such as inclined planes, pulleys, levers and wheel and axels are used to create mechanical advantage and increase efficiency.	X	**2**	**X**	**X**
Earth Systems, Structures and Processes	**Quarters**				**Earth Systems, Structures and Processes**	**Quarters**			
7.E.1.1: Compare the composition, properties and structure of Earth's atmosphere to include: mixtures of gases and differences in temperature and pressure within layers.	X	2	**X**	**X**	**7.E.1.4:** Predict weather conditions and patterns based on information obtained from: -Weather data collected from direct observations and measurement (wind speed and direction, air temperature, humidity and air pressure) -Weather maps, satellites and radar -Cloud shapes and types and associated elevation	**X**	**2**	X	X

Earth Systems, Structures and Processes (cont'd)	Quarters				Earth Systems, Structures and Processes	Quarters			
7.E.1.2: Explain how the cycling of water in and out of the atmosphere and atmospheric conditions relate to the weather patterns on Earth.	**X**	2	**X**	**X**	**7.E.1.5:** Explain the influence of convection, global winds and the jet stream on weather and climatic conditions	**X**	X	**3**	**X**
7.E.1.3: Explain the relationship between the movement of air masses, high and low pressure systems and frontal boundaries to storms (including thunderstorms, hurricanes and tornadoes) and other weather conditions that may result. 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**	**7.E.1.6:** Conclude that the good health of humans requires: monitoring the atmosphere, maintaining air quality and stewardship.	**X**	X	**3**	**X**
Structure and Function of Living Organisms	**Quarters**				**Evolution and Genetics**	**Quarters**			
7.L.1.1 Compare the structures and life functions of single-celled organisms that carry out all of the basic functions of life including: • Euglena • Amoeba • Paramecium • Volvox	**X**	**X**	3	**X**	**7.L.2.1** Explain why offspring that result from sexual reproduction (fertilization and meiosis) have greater variation than offspring that result from asexual reproduction (budding and mitosis).	**X**	**X**	**X**	4
7.L.1.2 Compare the structures and functions of plant and animal cells, including major organelles (cell membrane, cell wall, nucleus, chloroplasts, mitochondria, and vacuoles).	**X**	**X**	3	**X**	**7.L.2.2** Infer patterns of heredity using information from Punnett squares and pedigree analysis.	**X**	**X**	**X**	4
7.L.1.3 Summarize the hierarchical organization of multi-cellular organisms from cells to tissues to organs to systems to organisms.	**X**	**X**	X	**4**	**7.L.2.3** Explain the impact of the environment and lifestyle choices on biological inheritance (to include common genetic diseases) and survival.	**X**	**X**	**X**	4
7.L.1.4 Summarize the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, and excretion) and ways that these systems interact with each other to sustain life.	**X**	**X**	X	**4**					
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									