

Dear 8th Grade Science Teacher:

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

Eighth 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.

Eighth 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

8th Grade Science At-a-Glance

Earth Systems, Structures and Processes: Hydrosphere	Quarters				Evolution and Earth History	Quarters			
<p>8.E.1.1 Explain the structure of the hydrosphere including:</p> <ul style="list-style-type: none"> • Water distribution on earth • Local river basin and water availability 	X	X	3	X	<p>8.L.4.1 Summarize the use of evidence drawn from geology, fossils and comparative anatomy to form the basis for biological classification systems and the theory of evolution.</p>	X	X	X	4
<p>8.E.1.2 Summarize evidence the Earth’s oceans are a reservoir of nutrients, minerals, dissolved gases, and life forms:</p> <ul style="list-style-type: none"> • Estuaries • Marine ecosystems • Upwelling • Behavior of gases in the marine environment • Value and sustainability • Deep ocean technology and understandings gained 	X	X	3	X	<p>8.L.4.2 Explain the relationship between genetic variation and an organism’s ability to adapt to its environment.</p>	X	X	X	4
<p>8.E.1.3 Predict the safety and portability of water supplies in North Carolina based on physical and biological factors, including:</p> <ul style="list-style-type: none"> • Temperature • Dissolved oxygen • pH • Nitrates and Phosphates • Turbidity • Bio-indicators 	X	X	3	X	<p>8.E.2.1 Infer the age of Earth and relative age of rocks and fossils from index fossils and ordering of rock layers (relative dating and radioactive dating).</p>	X	X	X	X
<p>8.E.1.4 Conclude that the good health of humans requires:</p> <ul style="list-style-type: none"> • Monitoring the hydrosphere • Water quality standards • Methods of water treatment • Maintaining safe water quality • Stewardship 	X	X	3	X	<p>8.E.2.2 Explain the use of fossils, ice cores, composition of sedimentary rocks, faults, and igneous rock formations found in rock layers as evidence of the history of the Earth and its changing life forms.</p>	X	X	X	4
Biotechnology	Quarters								
<p>8.L.2.1 Summarize aspects of biotechnology including:</p> <ul style="list-style-type: none"> • Specific genetic information available • Careers • Economic benefits to North Carolina • Ethical issues • Implications for agriculture 	X	X	3	X					

Structures and Functions of Living Organisms: Molecular Biology	Quarters				Ecosystems	Quarters			
8.L.1.1 Summarize the basic characteristics of viruses, bacteria, fungi and parasites relating to the spread, treatment and prevention of disease.	X	2	X	X	8.L.3.1 Explain how factors such as food, water, shelter and space affect populations in an ecosystem.	X	2	X	X
8.L.1.2 Explain the difference between epidemic and pandemic as it relates to the spread, treatment and prevention of disease.	X	2	X	X	8.L.3.2 Summarize the relationships among producers, consumers and decomposers including the positive and negative consequences of such interactions including: <ul style="list-style-type: none"> • Coexistence and cooperation • Competition (predator/prey) • Parasitism • mutualism 	X	2	X	X
8.L.5.1 Summarize the basic characteristics of viruses, bacteria, fungi and parasites relating to the spread, treatment and prevention of disease.		2	X	X	8.L.3.3 Explain how the flow of energy within food webs is interconnected with the cycling of matter (including water, nitrogen, carbon dioxide and oxygen)	X	2	X	X
8.L.5.2 Explain the difference between epidemic and pandemic as it relates to the spread, treatment and prevention of disease.		2	X	X					
MATTER: Properties and Change	Quarters				ENERGY: Conservation and Transfer	Quarters			
8.P.1.1 Classify matter as elements, compounds, or mixtures based on how the atoms are packed together in arrangements.	1	X	X	X	8.P.2.1 Explain the environmental consequences of the various methods of obtaining, transforming, and distributing energy. 8.P.2.2 Explain the implications of the depletion of renewable and nonrenewable energy resources and the importance of conservation.	1	X	X	4
8.P.1.2 Explain how the physical properties of elements and their reactivity have been used to produce the current model of the Periodic Table of Elements.	1	X	X	X					
8.P.1.3 Compare physical changes such as size, shape and state to chemical changes that are a result of a chemical reaction to include changes in temperature, color, formation of a gas or precipitate.	1	X	X	X					
8.P.1.4 Explain how the idea of atoms and a balanced chemical equation support the law of conservation of mass.	1	X	X	X					
<p>Note: The science and engineering practices listed below are to be integrated in daily lesson activities as often as possible.</p> <p>Science and Engineering Practices: Asking questions and defining problems</p> <ol style="list-style-type: none"> 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 									

