

New standards are to be introduced, and are subject to benchmark testing and SOL field testing in 2011-2012. Old standards are to be taught to mastery in 2011-2012. Full implementation of new standards in 2012-2013.

Amherst County Public Schools Grade 5 Science Pacing Guide Revised 2010	
Nine Weeks 1	
5.1 a, e, f Duration: Throughout the instruction of SOL 5.7 as appropriate	The student will <u>demonstrate an understanding of scientific reasoning, logic and the nature of science by planning</u> and conducting investigation in which a) items such as rocks, minerals, and organisms are identified using <u>various</u> classification keys; e) <u>independent and dependent variables are identified;</u> Old g) <u>manipulated and responding variables are identified.</u> f) <u>constants in an experimental situation are identified.</u> Old h) <u>an understanding of the nature of science is developed and reinforced.</u> *Use content from SOL 5.7
5.7 Duration: 8 weeks	The student will investigate and understand how the Earth's surface is constantly changing. Key concepts include a) identification of rock types; b) the rock cycle and <u>how transformations between rocks occur;</u> c) Earth history and fossil evidence; d) the basic structure of the Earth's interior; e) changes in the Earth's crust due to plate tectonics (earthquakes and volcanoes); f) weathering, erosion, and <u>deposition;</u> and g) human impact.
Nine Weeks 2	
5.1 g, h, j, k Duration: Throughout the instruction of SOL 5.4 as appropriate	<u>The student will demonstrate an understanding of scientific reasoning, logic and the nature of science by planning</u> and conducting investigation in which g) data are collected, recorded, <u>analyzed</u> and <u>communicated</u> using proper graphical representations; h) predictions are made using patterns from <u>data collected</u> , and simple graphical data are generated; j) <u>models are constructed to clarify explanations, demonstrate relationships, and solve needs; and</u> k) <u>current applications are used to reinforce science concepts.</u> *Use content from SOL 5.4
5.4 Duration: 4 weeks	The student will investigate and understand that matter is anything that has mass, takes up space, and occurs as a solid, liquid, or gas. Key concepts include a) <u>distinguishing properties of each phase of matter;</u> b) atoms and elements; c) the effect of <u>temperature</u> on the states of matter (the effect of heat on the states of matter);

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	d) molecules and compounds; and e) mixtures including solutions.
5.6 Duration: 4 weeks	The student will investigate and understand characteristics of the ocean environment. Key concepts include a) geological characteristics; b) physical characteristics; and c) <u>ecological</u> biological characteristics.
Nine Weeks 3	
5.1 b, c, g, j, k Duration: Throughout the Instruction using 3 rd 9 weeks content as appropriate	<p><u>The student will demonstrate an understanding of scientific reasoning, logic and the nature of science by planning</u> and conducting investigation in which</p> <ul style="list-style-type: none"> b) estimates and <u>accurate measurements</u> of length, mass, volume, and <u>temperature</u> are made in metric units using proper tools; c) <u>estimates and accurate measurements of elapsed time are made using proper tools;</u> g) data are collected, recorded, <u>analyzed</u> and <u>communicated</u> using proper graphic representations and using metric measurements; j) <u>models are constructed to clarify explanations, demonstrate relationships, and solve needs; and</u> k) <u>current applications are used to reinforce science concepts.</u> <p>*Use content from SOL 5.2</p>
5.2 Duration: 20 days	The student will investigate and understand how sound is <u>created</u> and transmitted and how it is used. Key concepts include a) <u>compression waves;</u> b) vibration, <u>compression</u> , wavelength, frequency, amplitude; c) the ability of different media (solids, liquids, and gases) to transmit sound; and d) uses and applications of sound waves. <u>Old d) voice, sonar, animal sounds, and musical instruments</u>
5.3 Duration: 20 days	The student will investigate and understand basic characteristics of visible light and how it behaves. Key concepts include a) <u>transverse waves;</u> b) the visible spectrum and light waves; c) opaque, transparent, and translucent; d) reflections of light from reflective surfaces (mirrors); and e) refraction of light through water and prisms. <u>Old e) historical contributions in understanding light.</u>

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Nine Weeks 4	
<p>5.1 a, d, i</p> <p>Duration: Throughout the instruction of SOL 5.5 as appropriate</p>	<p><u>The student will demonstrate an understanding of scientific reasoning, logic and the nature of science by planning</u> and conducting investigation in which</p> <ul style="list-style-type: none"> a) items such as rocks, minerals, and organisms are identified using <u>various</u> classification keys; d) <u>hypotheses are formed from testable questions;</u> i) <u>inferences are made and conclusions are drawn.</u> <p><u>Old h) an understanding of the nature of science is developed and reinforced.</u></p> <p>*Use content from SOL 5.5</p>
<p>5.5</p> <p>Duration: 20 days</p>	<p>The student will investigate and understand that organisms are made of <u>one or more cells</u> and have distinguishing characteristics <u>that play a vital role in the organism's ability to survive and thrive in its environment.</u> Key concepts include</p> <ul style="list-style-type: none"> a) basic cell structures and functions; b) <u>classification of organisms using physical characteristics, body structures, and behavior of the organisms; and</u> c) <u>traits of organisms that allow them to survive in their environment</u> <p><u>Old b) kingdoms of living things</u></p> <p><u>Old c) vascular and nonvascular plants</u></p> <p><u>Old d) vertebrates and invertebrates</u></p>