Rowan-Salisbury School System

Science Pacing Guide – Grade 7 *(2009-2010)*

Revised June 2009

Suggested Timeframe	Goal	Objectives	Essential Questions	Suggested Sample Activities/Resources
1st Quarter	**(Goal 1)** Scientific Inquiry and Safety **(Goal 2**) Technological Design **(Goal 4**) Conduct investigations and utilize technologies and information systems to build an understanding of the Human Body System. **Goal 1 and Goal 2** must be integrated into content Goal 4.	**Scientific Inquiry and Safety:** **1.01:** Identify and create questions and hypotheses that can be answered through scientific investigations. **1.02:** Develop appropriate experimental procedures for given questions and for student generated questions. **1.03:** Apply safety procedures in the laboratory and in field studies. **1.04:** Analyze variables in scientific investigations. **1.05:** Analyze evidence to explain observations, make inferences and predictions. **1.06:** Use mathematics to gather, organize, and present quantitative data resulting from scientific investigations. **1.07:** Prepare models and/or computer simulations to test hypotheses and evaluate how data fit. **1.08:** Use oral and written language to communicate findings and defend conclusions. **1.09:** Use technology and information systems to do research, gather and analyze data, visualize data and prediction models. **1.10:** Analyze and evaluate information from a scientifically literate viewpoint by reading, hearing, and/or viewing scientific text, articles, and events in the popular press. **Technological Design:** **2.01:** Explore evidence that "technology" has many definitions. **2.02:** Use information systems to identify scientific needs, human needs, or problems that are subject to technological solution and locate resources to obtain and test ideas.	To what extent is safety important to science inquiry? How is scientific inquiry important to our society? In what ways have the technological designs of science changed over time?	DPI 7th Grade Support Document

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1st Quarter		**Science and Technology:** **2.03:** Evaluate technological designs for application of scientific principles, risks and benefits, constraints of design, and consistent testing protocols. **2.04:** Apply tenets of technological design to make informed consumer decisions about products, processes and systems.		DPI 7th Grade Support Document
	(Goal 3) Conduct investigations, use models, simulations, and appropriate technologies and information systems to build understanding of Atmosphere. **Goal 1 and Goal 2** must be integrated into content Goal 3.	**Atmosphere Composition/Properties:** **3.01:** Explain the composition, properties and structure of the atmosphere. **1.03-1.06, 1.10:** Scientific Inquiry **Weather:** **3.05:** Examine evidence that atmospheric properties can be studied to predict atmospheric conditions and weather hazards. **3.06:** Assess the use of technology in studying atmospheric phenomena and weather hazards. **1.04-1.07:** Scientific Inquiry **2.03, 2.04:** Technological design **Air Quality:** **3.02:** Describe properties that can be observed and measured to predict air quality. **3.03:** Conclude that the good health of environments and organisms requires monitoring of air quality, taking steps to maintain healthy air quality and stewardship. **3.04:** Evaluate how humans impact air quality. **2.03-2.04:** Technological designs	Why is the composition of the atmosphere important to the earth? How do atmospheric properties influence weather conditions? How is air quality observed and measured?	http://www.dlese.org (atmosphere data base of websites) http://www.nc-climate.ncsu.edu/ (NC weather focus) http://www.daq.state.nc.us (Division of Air Quality)

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2nd Quarter	**(Goal 4)** Conduct investigations and utilize technologies and information systems to build an understanding of the Human Body System. **Goal 1 and Goal 2** must be integrated into content Goal 4.	**Cells/Levels of Organization:** **4.04:** Evaluate how systems in the human body help regulate the internal environment. **4.05:** Analyze how an imbalance in homeostasis may result from a disruption in any human organism. **4.06:** Describe growth and development of the human organism. **Body Systems:** **4.01-4.08:** Build an understanding of the human body system. **1.03-1.06,1.09:** Scientific Inquiry **2.02-2.04:** Technological design	What are the effects of environmental factors on human development? To what extent are living systems organized into cellular levels? How are the systems of the human body interrelated? What are the levels of organization for living systems?	DPI 7th Grade Support Document

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3rd Quarter	**(Goal 5)** Conduct investigations and utilize technologies and information systems to build an understanding of Heredity and Genetics. **Goal 1 and Goal 2** must be integrated into content Goal 5.	**Genetics:** **5.01:** Explain the significance of genes to inherited characteristics. **5.02:** Explain the significance of reproduction **5.03:** Identify examples and patterns of human genetic traits **5.04:** Analyze the role of probability in the study of heredity. **1.07:** Prepare models and/or computer simulations to test hypotheses and evaluate how data fit. **1.10:** Analyze and evaluate information from a scientifically literate view point by reading, hearing, and/or viewing scientific text, articles, and events in the popular press. **2.01:** Explore evidence that "technology" has many definitions **Dominance (co-dominance, multiple alleles):** **5.03-5.04:** Appropriate technologies and information systems to build an understanding of heredity and genetics. **1.03-1.06, 1.09-1.10:** Scientific Inquiry **2.02-2.03:** Technological design. **Human Genetics:** **5.02-5.05:** Appropriate technologies and information systems to build an understanding of heredity and genetics. **2.02-2.03:** Technological designs.	How are traits passed on from one generation to another? How does gene sorting and recombination produce unique characteristics in offspring? What is the role of each parent in the transfer of genetic traits?	DPI 7th Grade Support Document http://www.biology.arizona.edu/default.html (genetics, toxicology, etc.) http://www.pbs.org/wgbh/nova/genome/heredity.html (genetic code)

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Suggested Timeframe	Goal	Objectives	Essential Questions	Suggested Sample Activities/Resources
3rd/4th Quarter	**(Goal 6)** Conduct investigations and utilize technologies and information systems to build an understanding of Motion and Forces. **Goal 1 and Goal 2** must be integrated into content Goal 6. Review and Culminating Activities	**Simple Machines:** **6.01:** Demonstrates ways that simple machines can change force. **6.02:** Analyze simple machines for mechanical advantage and efficiency. **1.03-1.06:** Scientific Inquiry **2.01, 2.04:** Technological design **Motion Basics:** **6.04:** Analyze that an object's motion is always judged relative to some other object or point. **6.05:** Describe and measure quantities that characterize moving objects and their interactions within a system. **1.06-1.08:** Scientific Inquiry **2.02:** Technological design **Newton's Laws:** **6.03:** Evaluate motion in terms of Newton's Laws. **6.04:** Analyze that an object's motion is always judged relative to some other object or point. **6.05:** Describe and measure quantities that characterize moving objects and their interactions within a system. **6.06:** Investigate and analyze the real world interactions of balanced and unbalanced forces. **1.09-1.10:** Scientific Inquiry **2.02, 2.04:** Technological design	How are simple machines used to make physical labor easier? How do specific forces influence movement within a system? What is the relationship between the Laws of Motion and moving objects? What are the quantities that characterize moving objects?	DPI 7th Grade Support Document www.nasa.gov Link to educators http://www.simplyscience.com/physicalslinks.html (Force and motion topics) http://www.cln.org/themes/force_motion.html (links for force and motion)

Useful Web Portal for 7th Grade Science concepts: http://www.kn.pacbell.com/wired/bluewebn/