6th Grade Science Pacing Guide 2012-2013

The inquiry and engineering embedded standards will be implemented throughout the course of the school year; however they have been placed with chapters in which the content is specifically addressed.
***Results must be reported to Principal**

GLE	Check for Understanding	SPI	Resources	Dates Covered
Inquiry/Tech				
GLE 0607.Inq.6.1 Design and conduct open-ended scientific investigations.	**0607.Inq.6.1** Design and conduct an open-ended scientific investigation to answer a question that includes a control and appropriate variables.	**0607.Inq.1** Design a simple experimental procedure with an identified control and appropriate variables. **How would you design an experiment to answer the question: Which fertilizer affects the plant height? Include a control group, independent variable, and dependent variable as well as other controlled variables.**	Ch. 1-text "The Nature of Science and Technology" -Ch. 1 Coach Book (Lessons 1-6) Glencoe Online Internet4Classrooms **-Lab Activity:** "Which surface affects height?" *Remember to include adaptive/assistive vocabulary. *Science Fair project is optional.	Weeks 1-2 *Common Assessment: Inq. 1 and 2
GLE 0607.Inq.6.2 Use appropriate tools and techniques to gather, organize, analyze, and interpret data	**0607.Inq.6.2** Identify tools and techniques needed to gather, organize, analyze, and interpret data collect from a moderately complex scientific investigation.	**0607.Inq.2** Select tools and procedures needed to conduct a moderately complex experiment. **1. Which tool would you choose that scientists often use in experimentation and how would you explain its use? 2. Can you explain what 2 tools could be used as alternatives of each other. 3. What facts can you gather in studying the planet Mars and which tools could be used?**		
GLE 0607.Inq.3	**0607.Inq.3** Use evidence from a	**SPI 0607.Inq.3** Interpret and	**TENNESSEE VOCABULARY:**	Weeks 3-4

Synthesize information to determine cause and effect relationships	dataset to determine cause and effect relationships that explain a phenomenon.	translate data in a table, graph, or diagram. **How can you explain which type of graph, table, or diagram could be used to predict data?**	Adaptive engineered technologies Assistive engineered technologies Bias Cause and effect Control Criteria Design constraint Protocol Prototype Variable	
GLE 0607.Inq.4 Recognize possible sources of bias and error, alternative explanations, and questions for further exploration.	**0607.Inq.4** Review an experimental design to determine possible sources of bias or error, state alternative explanations, and identify questions for further investigations.	**SPI 0607.Inq.4** Draw a conclusion that establishes a cause and effect relationship supported by evidence. **Can you summarize a cause/effect relationship using a scientific process?**		
GLE 0607.Inq.5 Communicate scientific understanding using descriptions, explanations	**0607.Inq.5** Design a method to explain the results of an investigation using descriptions, explanations, or models.	**SPI 0607.Inq.5** Identify a faulty interpretation of data that is due to bias or experimental error. **Your science fair project produces unexpected results that do not support your hypothesis. When you review your experiment, you discover that you measured a chemical incorrectly. Explain what should you do?**		Weeks 3-4 * Common Assessment: Inq. 3,4,5 Weeks 5-6
GLE 0607.T/E.1 Explore how technology responds to social, political, and economic needs.	**0607.T/E.1** Use appropriate tools to test for strength, hardness, and flexibility of materials.	**SPI 0607.T/E.1** Identify the tools and procedures needed to test the design features of a prototype. **How can you Compare and contrast the Scientific Method and the Engineering Design Process?**		
GLE 0607.T/E.2 Know that the engineering design process involves an ongoing series of events that incorporate	**0607.T/E.2** Apply the engineering design process to construct a prototype that meets certain specifications.	**SPI 0607.T/E.2** Evaluate a protocol to determine if the engineering design process was successfully applied.		

design constraints, model building, testing, evaluating, modifying, and retesting.		**What criteria would be used to determine if the Engineering Design Process was successful?**		
GLE 0607.T/E.3 Compare the intended benefits with the unintended consequences of a new technology.	**0607.T/E.3** Explore how the unintended consequences of new technologies can impact society.	**SPI 0607.T/E.3** Distinguish between the intended benefits and the unintended consequences of a new technology. **How can you determine the intended benefits and unintended consequences of the development of alternative fuels?**		Weeks 5-6
GLE 0607.T/E.4 Describe and explain adaptive and assistive bioengineered products.	**0607.T/E.4** Research bioengineering technologies that advance health and contribute to improvements in our daily lives. **0607.T/E.5** Develop an adaptive design and test its effectiveness.	**SPI 0607.T/E.4** Differentiate between adaptive and assistive engineered products (e.g., food, biofuels, medicines, integrated pest management). **1. How can you classify assistive bioengineered products vs. adaptive bioengineered products.** **2. Can you give examples of each.**		Weeks 5-6 *Common Assessment: T/E. 1-4
Life Science				
GLE 0607.2.1 Examine the roles of consumers, producers, and decomposers in a biological community.	**0607.2.1** Compare and contrast the different methods used by organisms to obtain nutrition in a biological community.	**SPI 0607.2.1** Classify organisms as producers, consumers, scavengers, or decomposers according to their role in a food chain or food web. **1. How are producers connected to consumers? 2. How are consumers connected to scavengers or decomposers?** **3. Can you draw a diagram of a typical food chain/food web?**	Ch. 2 –text "Interactions of Life" -Ch. 3 (omit 3-2)-text "The Nonliving Environment" -Ch. 4 (omit 4-1)-text "Ecosystems" -Ch. 12-2 –text "Climate Types" -Coach booklet lessons 7 and 8 Glencoe Online **-Lab Activity: "Owl Pellets"**	Weeks 7-8 Weeks 7-8 *Common Assessment: 2.1, 2.2

GLE 0607.2.2 Describe how matter and energy are transferred through an ecosystem.	**0607.2.2** Create a graphic organizer that illustrates how biotic and abiotic elements of an environment interact.	**SPI 0607.2.2** Interpret how materials and energy are transferred through an ecosystem. **Can you determine the value of producers in a food chain/food web in distributing the sun's energy?**		
GLE 0607.2.3 Draw conclusions from data about interactions between the biotic and abiotic elements of a particular environment.	**0607.2.3** Use a food web or energy pyramid to demonstrate the interdependence of organisms within a specific biome.	**SPI 0607.2.3** Identify the biotic and abiotic elements of the major biomes. **(Should not take more than two days)** **1. How can you compare and contrast the biotic factors and abiotic factors in an environment?** **2. Can you give examples of biotic factors and abiotic factors?**	**TENNESSEE VOCABULARY:** Abiotic Biome Biosphere Biotic Cause and effect Climate Change Scavengers	Weeks 9-10 (The majority of time should be spent on 2.4) *Common Assessment: 2.3, 2.4
GLE 0607.2.4 Analyze the environments and the interdependence among organisms found in the world's major biomes.	**0607.2.4** Create poster presentations to illustrate differences among the world's major biomes.	**SPI 0607.2.4** Identify the environmental conditions and interdependencies among organisms found in the major biomes. **Can you choose 2 biomes and identify their environmental conditions and interdependencies?**		
				Benchmark #1 End of 1st 9 Weeks

Earth and Space				
GLE 0607.6.1 Analyze information about the major components of the universe.	**0607.6.1** Use data to draw conclusions about the major components of the universe.	**SPI 0607.6.1** Use data to draw conclusions about the major components of the universe. **1. Can you compare and contrast 2 major components of the universe? 2. In a chart, can you define and illustrate each of the major components of the universe?**	Ch. 6 (omit 6-3) text "The Sun-Earth-Moon System -Ch. 7 text "The Solar System" -Ch. 8 (omit section 2, 3, 4) text "Stars and Galaxies" -Ch. 9 (omit section 1, 2) text "Views of Earth" -Coach 9, 10, 11, 12, 13, 14 & 16 Glencoe Online **Lab Activity: "Oreo Moon Phases"**	Weeks 11-13 *Common Assessment: 6.1, 6.2
GLE 0607.6.2 Describe the relative distance of objects in the solar system from earth.	**0607.6.2** Construct a model of the solar system showing accurate positional relationships and relative distances.	**SPI 0607.6.2** Explain how the relative distance of objects from the earth affects how they appear. **Can you explain how a person on Earth may think a smaller object in space is larger than a bigger object in space?**		
GLE 0607.6.3 Explain how the positional relationships among the earth, moon, and sun control the length of the day, lunar cycle, and year.	**0607.6.3** Investigate how the earth, sun, and moon are responsible for a day, lunar cycle, and year.	**SPI 0607.6.3** Distinguish among a day, lunar cycle, and year based on the movements of the earth, sun, and moon. **(Needs to be introduced will be a continued standard throughout the next few weeks.)** **How can you distinguish between a day, lunar cycle, and year based on the movements of the earth, sun, and moon?**	**TENNESSEE VOCABULARY:** Asteroid Cause and effect Tides	Weeks 14-15
GLE 0607.6.6 Illustrate the relationship between the seasons and the earth-sun	**0607.6.6** Diagram the relationship of the earth and sun that accounts for the seasons.	**SPI 0607.6.6** Use a diagram that shows the positions of the earth and sun to explain the four seasons.		Weeks 15-18 *Common Assessment: 6.3, and 6.6

system.		**Can you diagram the positions of the earth and sun to explain the four seasons?**		
GLE 0607.6.4 Describe the different stages in the lunar cycle.	**0607.6.4** Explain why the positions of the earth, moon, and sun were used to develop calendars and clocks.	**SPI 0607.6.4** Explain the different phases of the moon using a model of the earth, moon, and sun. **Can you explain the different moon phases by illustrating the earth, moon, and sun?**		Weeks 19-20
GLE 0607.6.7 Describe the causes of lunar and solar eclipses.	**0607.6.7** Model the positions of the earth, moon, and sun during solar and lunar eclipses.	**SPI 0607.6.7** Explain the difference between a solar and a lunar eclipse.**Can you explain the difference between a solar and lunar eclipse?**		Weeks 19-20
GLE 0607.6.5 Produce a model to demonstrate how the moon produces tides.	**0607.6.5** Illustrate the positions of the earth, moon, and sun during specific tidal conditions.	**SPI 0607.6.5** Predict the types of tides that occur when the earth and moon occupy various positions. **How can you predict the type of tides that occur when the earth and moon occupy various positions?**		Weeks 19-20 *Common Assessment: 6.4, 6.7, 6.5
The Atmosphere			Ch. 10 (omit section 1) text "Atmosphere" -Ch. 11 text "Weather" -Ch. 13 text "Ocean Motion" -Coach 15, 17, 18 Glencoe Online **Lab Activity: "Frozen ice-cubes"**	Weeks 21-22
GLE 0607.8.1 Design and conduct an investigation to determine how the sun drives atmospheric convection.	**0607.8.1** Recognize how convection currents in the atmosphere produce wind.	**SPI 0607.8.1** Analyze data to identify events associated with heat convection in the atmosphere. **Can you describe what events are associated with heat convection in the atmosphere?**		
GLE 0607.8.2 Describe how the sun's energy produces the wind.	**0607.8.2** Design an experiment to investigate differences in the amount of the	**SPI 0607.8.2** Recognize the connection between the sun's energy and the wind.	**TENNESSEE VOCABULARY:** Atmospheric Convection Climate Change	Weeks 21-22

	sun's energy absorbed by a variety of surface materials.	**How can you describe the connection between the sun's energy and the wind?**	Hygrometer Meteorological data Ocean Current Psychrometer Tides	Weeks 21-22 *Common Assessment: 8.1, 8.2, 8.3 Weeks 23-24
GLE 0607.8.3 Investigate the relationship between currents and oceanic temperature differences.	**0607.8.3** Design an experiment to demonstrate how ocean currents are associated with the sun's energy.	**SPI 0607.8.3** Describe how temperature differences in the ocean account for currents. **1. How can you describe how temperature differences in the ocean account for currents? 2. What is the main cause of surface ocean currents? 3. What causes deep ocean currents?**		
GLE 0607.8.4 Analyze meteorological data to predict weather conditions	**0607.8.4** Analyze ocean temperature data to demonstrate how these conditions affect the weather in nearby land masses	**SPI 0607.8.4** Interpret meteorological data to make predictions about the weather. **1. How can you predict the weather based on the air pressure?** **2. How can you interpret what meteorological data you can use to make predictions about the weather?**		
				Benchmark #2 End of 2nd 9 Weeks
Energy			Ch. 14 (omit 14-3) text "Energy and Energy Resources" Glencoe Online **Tennessee Vocabulary:** Chemical potential energy Elastic potential energy Energy transformation Gravitational potential energy	Weeks 25-26 Common Assessment: 10.1, 10.2, 10.3, 10.4
GLE 0607.10.1 Compare and contrast the three forms of potential energy.	**0607.10.1** Compare potential and kinetic energy.	**SPI 0607.10.1** Distinguish among gravitational potential energy, elastic potential energy, and chemical potential energy. **How can you distinguish among gravitational potential energy, elastic potential energy, and chemical potential energy?**		

GLE 0607.10.2 Analyze various types of energy transformations.	**0607.10.2** Create a poster that illustrates different forms of potential energy.	**SPI 0607.10.2** Interpret the relationship between potential and kinetic energy. **How can you interpret the relationship between potential and kinetic energy?**		
GLE 0607.10.3 Explain the principles underlying the Law of Conservation of Energy.	**0607.10.3** Design a model that demonstrates a specific energy transformation. **0607.10.4** Explain why a variety of energy transformations illustrate the Law of Conservation of Energy.	**SPI 0607.10.3** Recognize that energy can be transformed from one type to another. **How can you infer that energy can be transformed from one type to another?** **SPI 0607.10.4** Explain the Law of Conservation of Energy using data from a variety of energy transformations. **How can you explain the Law of Conservation of Energy using data from a variety of energy transformations?**		
Forces in Nature			-Ch. 15 text "Electricity" -Coach 19-20 Glencoe Online **Lab Activity:** **"Balloons" (static electricity)** **"Van de Graaf Generator"** **"Rubber band airplanes"**	Weeks 27-28
GLE 0607.12.1 Describe how simple circuits are associated with the transfer of electrical energy.	**0607.12.1** Prepare a poster that illustrates how electricity passes though a simple circuit to produce heat, light, or sound. **0607.12.2** Determine a material's electrical conductivity by testing it with a simple battery/bulb circuit.	**SPI 0607.12.1** Identify how simple circuits are associated with the transfer of electrical energy when heat, light, sound, and chemical changes are produced. **How can you identify how simple circuits are associated with the transfer of electrical energy when heat, light, sound, and chemical changes are produced?**		

GLE 0607.12.2 Explain how simple electrical circuits can be used to determine which materials conduct electricity.	**0607.12.3** Compare and contrast the characteristics of objects and materials that conduct electricity with those that are electrical insulators.	**SPI 0607.12.2** Identify materials that can conduct electricity. **1. Can you identify materials that can conduct electricity? 2. How can you compare and contrast conductors and insulators?**	**Tennessee Vocabulary** Simple Circuits Conductivity Electrical conductor	Weeks 27-28 Common Assessment: 12.1, 12.2
				Benchmark 3 End of 3rd Nine Weeks