6th Grade Science Nine Week Curriculum Guide

Developed Summer 2009

Standard 1: Cells- Not Addressed at this Grade Level

			Time Frame: 1st 9 weeks		
Academic Vocabulary: (Link to new list available fall '09 from Tn DOE)					
Grade Level Expectations (GLEs)	**Sample Essential Questions**	**Resources (TE-teacher's edition) Glencoe series comes with great resources on disk (teacherworks, and interactive chalkboard) and web-Glencoe.com Science Safety Information**	Common Experiences	Checks for Understanding (for Inquiry, Technology and Engineering see state standards)	Integrations/ Connections (for Inquiry, Technology and Engineering see state standards) *Used continually throughout the curriculum
GLE 0607.2.1 Examine the roles of consumers, producers, and decomposers in a biological community.	**Which organism is the most important in an ecosystem, the consumer, the producer, or the decomposer? Why?**	**TE: 2, 4-5, 40, 54-55, 58, 63-67, 91-95 *Inq. 1, 2 TE: 1, 8, 10, 13 and TN pg. 16 MATH-Standard 1, Mathematical Process, TE: TN31 GAME/QUIZ- Jefferson County Schools, Science, Living Things** **Brainpop- "Ecosystems", "Food Chains"(decomposers)**	Research an ecosystem to find an example of a food chain, and food web, along with biotic and abiotic factors. Use the information to illustrate the food chain, and food web. Use captions/sentences to explain the relationship between producers, consumers, decomposers, biotic and abiotic factors	**0607.2.1** Compare and contrast the different methods used by organisms to obtain nutrition in a biological community.	*GLE 0607.Inq.1 Design and conduct open-ended scientific investigations. *GLE 0607.Inq.2 Use appropriate tools and techniques to gather, organize, analyze, and interpret data. *LA-**GLE 0601.6.1** Comprehend and summarize the main ideas and supporting details of informational text.

		Discovery Streaming-Video Segment, "Niches", grade 6-8, 2 min.			*MATH-Standard 1-Mathematical Processes GLE 1-8
GLE 0607.2.2 Describe how matter and energy are transferred through an ecosystem.	**Where does the sugar made by the plant go when the plant is eaten by an animal?**	**TE: 2, 40, 42, 44, 46, 48-49, 54-55, 63, 66-68, 70, 72, 78-80, 83-85, 87-89, 91-95, 122-123, 381, 406, 408-409, 416, 431-432 Inq.4, TE-TN16 Discovery Streaming-Video, "The World of Plants: Plants and People, 12 min.**	Study the energy pyramid of an ecosystem. Describe a local ecosystem and how energy is transferred.	**0607.2.2** Create a graphic organizer that illustrates how biotic and abiotic elements of an environment interact	*GLE 0607.Inq.4 Recognize possible sources of bias and error, alternative explanations, and questions for further exploration.
GLE 0607.2.3 Draw conclusions from data about interactions between the biotic and abiotic elements of a particular environment.	**What is one abiotic and biotic factor that influences you on a daily basis? How?**	**2, 40, 42, 45, 46, 48-51, 53-54, 57-61, 63, 66-68, 70, 72, 74-80, 84-85, 87, 91-95, 121-123, 294, 296, 302, 352, 358-361, 376, 378-379, 381-382, 394, 399, 406 T/E.3-TN18 T/E.4-pg. 2, 6, 26, 30-31 United Streaming-Video Segment, "Fire in the Forest: It's role in an ecosystem (with lesson plan)**		**0607.2.3** Use a food web or energy pyramid to demonstrate the interdependence of organisms within a specific biome	*GLE 0607.T/E.3 Compare the intended benefits with the unintended consequences of a new technology. *GLE 0607.T/E.4 Describe and explain adaptive and assistive bioengineered products. *Plant the Seed* Initiative Activity-research how abiotic factors affect a farmer's daily routine.

GLE 0607.2.4 Analyze the environments and the interdependence among organisms found in the world's major biomes.	**How are specific organisms dependent on survival in a particular environment?**	**TE 2, 40, 42-43, 45-47, 54, 58, 60-61, 68, 84-85, 96-99, 101-104, 108-111, 113, 115, 117-119, 352, 358-361, 378-379. 382, 394, 399 http://www.thewildclassroom.com/home/nav/worldbiomes.html http://www.kidsknowit.com/interactive-educational-movies/free-online-movies.php?movie=Biomes**		**0607.2.4** Create poster presentations to illustrate differences among the world's major biomes.	

Grade 6, Standard 3: Flow of Matter and Energy – Standard Not Addressed at this Grade Level
Grade 6, Standard 4: Heredity – Standard Not Addressed at this Grade Level
Grade 6, Standard 5: Biodiversity and Change – Standard Not Addressed at this Grade Level

Title: Standard 6 The Universe				Time Frame: 2nd 9 weeks, weeks 1-6	
Academic Vocabulary: (Link to new list available fall '09 from Tn DOE)					
Grade Level Expectations (GLEs)	Sample Essential Questions	Resources (TE-teacher's edition)	Common Experiences	Checks for Understanding (Inquiry, Technology and Engineering-see state standards)	Integrations/ Connections Including Inquiry, Technology and Engineering (T/E) *Used continually throughout the curriculum.
GLE 0607.6.1 Analyze information about the major components of the universe.	Is space travel/exploration worth the time and expense? Why? Why do we continue to study space and the universe?	128, 130-135, 138-139, 140-141, 144, 146-149, 150-151, 153, 155-157, 160-163, 164-166, 168-169, 171-173, 177, 179-180, 182-183, 185, 189-198, 200-202, 204-208, 210, 212-213, 216, 219-221, 223, 226-230, 231, 234-240, 242-247, 251, 255, 266, 278, 280, 294, 296, 299, 303, 305, 308 T/E.1-TE: TN18		**0607.6.1** Use data to draw conclusions about the major components of the universe.	*GLE 0607.T/E.1 Explore how technology responds to social, political, and economic needs. *LA-**GLE 0601.7.1** Analyze media for their ability to inform, persuade, and entertain. *LA- **GLE 0601.7.4** Apply and adapt the principles of written composition to create coherent media productions.
GLE 0607.6.2 Describe the relative distance of objects in the solar system from earth.	How do we know that some planets are farther away than others?	128, 132, 134, 139, 141, 148, 228, 230, 232-234, 246, 248, 252-253	Make a model of the solar system using medium chosen by individual teacher.	**0607.6.2** Construct a model of the solar system showing accurate positional relationships and relative distances.	***LA-GLE 0601.8.1** Read and comprehend a variety of works from various forms of literature.

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.	How does the position of the earth relate the length of a day?	TE 128, 164, 166-167, 172, 180 Resources internet4classrooms great link.		**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.	
GLE 0607.6.4 Describe the different stages in the lunar cycle.	What patterns in the heavens/sky were observed by ancient people?	173-175, 189-193	Students should illustrate a set of moon phases with correct labeling.Students should sequence diagrams/illustrations of the lunar cycle.	**0607.6.4** Explain why the positions of the earth, moon, and sun were used to develop calendars and clocks.	*MATH-GLE 0606.2.3 Understand and use ratios, rates and percents.
GLE 0607.6.5 Produce a model to demonstrate how the moon produces tides.	What is the cause of high tide and low tide and how does it work?	382, 394, 397, 400, 406, 409	Students should use manipulatives (paper, clay, balls) to show positions of earth, moon, and sun.	**0607.6.5** Illustrate the positions of the earth, moon, and sun during specific tidal conditions.	
GLE 0607.6.6 Illustrate the relationship between the seasons and the earth-sun system.	Why do we have the four seasons?	128, 164, 166, 169, 171, 186-187, 189-193, 352, 362, 372, 378-380		SPI 0607.6.6 Use a diagram that shows the positions of the earth and sun to explain the four seasons.	*Plant the Seed* Initiative Activity-research ancient cultures' ideas about the earth, sun, and moon (present ideas in some form-poster, power point, paragraph)
GLE 0607.6.7 Describe the causes of lunar and solar eclipses.	How is the position of the sun, moon, and Earth different for solar and lunar eclipses?	128, 164, 172-173, 175, 180-181, 189-193	Students should use manipulatives (paper, clay, balls) to show positions of earth, moon, and sun.	SPI 0607.6.7 Explain the difference between a solar and a lunar eclipse.	

Grade 6, Standard 7-The Earth (not addressed at this level)

Title: Standard 8-The Atmosphere				Time Frame: 2nd 9 weeks,weeks 7-9	
Academic Vocabulary: (Link to new list available fall '09 from Tn DOE)					
Grade Level Expectations (GLEs)	Sample Essential Questions	Resources (TE-Teacher's Edition)	Common Experiences	Checks for Understanding-for Inquiry, Technology and Engineering, see state standards	Integrations/ Connections including Inquiry, and Technology and Engineering (T/E) *Used continually throughout the curriculum.
GLE 0607.8.1 Design and conduct an investigation to determine how the sun drives atmospheric convection.	What makes the wind blow?	2, 68, 78-79, 265, 294, 305, 308-313, 318-319, 321-322, 349		0607.8.1 Recognize how convection currents in the atmosphere produce wind.	
GLE 0607.8.2 Describe how the sun's energy produces the wind.	How does the sun make it possible for us to feel a breeze?	2, 68, 78-79, 94-95, 294, 296, 305, 307, 309-311, 313-315, 318-321, 349, 351-352, 354, 362-365, 369, 378-379, 382-383, 388, 404, 420	Illustrate or write a paragraph explaining how the sun's energy produces the wind-group or individual.	0607.8.2 Design an experiment to investigate differences in the amount of the sun's energy absorbed by a variety of surface materials.	Writing Connection
GLE 0607.8.3 Investigate the relationship between currents and oceanic temperature differences.	How could an ocean current affect the temperature of the ocean in that area?	352, 354, 362, 364-365, 382-383, 388-393, 406-408		0607.8.3 Design an experiment to demonstrate how ocean currents are associated with the sun's energy. 0607.8.4 Analyze ocean temperature data to demonstrate how these conditions affect the weather in	*Plant the Seed* Initiative Activity-Illustrate a poster describing the major currents of the world-EAC (East Australian Current), etc.

				nearby land masses. 0607.8.5 Interpret data found on ocean current maps.	
GLE 0607.8.4 Analyze meteorological data to predict weather conditions.	If the weather is warm, clouds are moving in and the barometric pressure is falling rapidly, what type of weather will most likely occur in the next hour?	2, 68, 70, 75-76, 263, 266, 278, 284, 294, 309, 319, 322, 324-325, 328-329, 331-335, 338-345, 348-354, 352, 353, 357, 362, 374-375, 381-382, 388, 393, 409	Collect weather data.	0607.8.6 Use data from instruments such as a barometer, thermometer, psychrometer, and anemometer to describe local weather conditions.	*MATH- GLE 0606.2.4 Understand and convert between fraction, decimal, and percent forms of rational numbers.

Grade 6, Standard 9-Matter (not addressed at this level)

Title: Standard 10-Energy				Time Frame: 3rd 9 weeks, weeks 1-6	
Academic Vocabulary: (Link to new list available fall '09 from Tn DOE)					
Grade Level Expectations (GLEs)	Essential Questions	Resources	Common Experiences	Checks for Understanding (Inquiry, Technology and Engineering-see state standards)	Integrations/ Connections *Used continually throughout the curriculum
GLE 0607.10.1 Compare and contrast the three forms of potential energy.	Did you know there are three forms of potential energy? Name and give an example of each.	416-419, 422-424 T/E.2-TE: pg. 410-411, TN18	Create a graphic organizer/card sort using examples of kinetic and potential energy-3 forms.	0607.10.1 Compare potential and kinetic energy.	*GLE 0607.T/E.2 Know that the engineering design process involves an ongoing series of events that incorporate design constraints, model building, testing, evaluating, modifying, and retesting.
GLE 0607.10.2 Analyze various types of energy transformations.	When a candle burns, what types of energy is it transformed into? (light, heat)	416, 418, 420, 422-424, 427-429-430, 434, 440-441, 443-447 Discovery Streaming-Roller Coaster Physics, gr. 6-8, (6:45)		0607.10.2 Create a poster that illustrates different forms of potential energy. 0607.10.3 Design a model that demonstrates a specific energy transformation.	*MATH-GLE 0606.3.2 Interpret and represent algebraic relationships with variables in expressions, simple equations and inequalities.
GLE 0607.10.3 Explain the principles underlying the Law of Conservation of Energy.	Can you put in the missing words? Matter cannot be _____ or _____.	264, 416, 418, 420, 423-424, 429-431, 435, 439-441, 443-448, 457, 460 Discovery Streaming-Video Segment, "The Law of Conservation of Energy" (4:35) gr. 6-8		0607.10.4 Explain why a variety of energy transformations illustrate the Law of Conservation of Energy.	MATH-GLE 0606.3.4 Use expressions, equations and formulas to solve problems.

Grade 6, Standard 11-Motion (not addressed at this level)

Title: Standard 12-Forces in Nature				Time Frame:3rd 9 weeks, weeks 7-9	
Academic Vocabulary: (Link to new list available fall '09 from Tn DOE)					
Grade Level Expectations (GLEs)	Essential Questions	Resources	Common Experiences	Checks for Understanding (Inquiry, Technology and Engineering-see state standards)	Integrations/ Connections *Used continually throughout the curriculum
GLE 0607.12.1 Describe how simple circuits are associated with the transfer of electrical energy.	Can you explain where the electricity comes from that allows you to operate your computer/video game/heat in your house?	448-451, 453, 456-457, 459, 461-462, 464-471, 473-477	Make a model to illustrate a circuit or create a poster to illustrate electricity passing through a simple circuit to produce either, heat, light, or sound.	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.	
GLE 0607.12.2 Explain how simple electrical circuits can be used to determine which materials conduct electricity.	Can electricity pass through everything? What are some things you think it will/won't pass through. How could you be sure?	448, 450, 454-459, 461-464, 473-477	Graphic Organizer or activity to differentiate between insulators and conductors.	0607.12.3 Compare and contrast the characteristics of objects and materials that conduct electricity with those that are electrical insulators.	*Plant the Seed* Initiative Activity-gurest speaker VEC or parent electrician

Title: Preview for 7th grade curriculum Simple machines and Isaac Newton's Laws of Motion				Time Frame: Last 9 weeks after TCAP testing and state curriculum has been taught	
Academic Vocabulary: (Link to new list available fall '09 from Tn DOE)					
Grade Level Expectations (GLEs)	Essential Questions	Resources (TE-teacher's edition)	Common Experiences	Checks for Understanding (for Inquiry, Technology and Engineering see state standards)	Integrations/ Connections (for Inquiry, Technology and Engineering see state standards)
GLE 0707.11.1 Identify six types of simple machines.	How do you use simple machines in your everyday life? Describe three you have used today.	See 7th grade teacher for content of this standard. Have students illustrate or design a model of a simple machine. (This could be a group project and then presented to class) Discovery streaming video clip (2:19) "The Six Simple Machines" Websites for content and student learning: Internet4classrooms.com grade level help 7th grade Section simple machines 0707.11.1 # 13 http://www.kathimitchell.com/simpmach.html		**0707.11.1** Compare the six types of simple machines.	**GLE 0701.2.5** ELA Speaking and oral presentation **GLE 0701.2.7** ELA Group work **GLE 0706.1.1** Math – language, symbols, reasoning. **Latin and Greek Roots** – mech/ machine Cycl/ cycle -bicycle
GLE 0707.11.4 Investigate how Newton's laws of motion explain an object's movement.		See 7th grade teacher for content of this standard. Have students design a graphic organizer, create a cartoon or demonstrate		**0707.11.4** Recognize how a net force impacts an object's motion.	**GLE 0701.2.**ELA Listening skills solving problems **GLE 0706.1.2** Math – problem solving

		through motion Newton's laws of motion. Lab TE pg 430 Building a Roller Coaster – adapt to fit motion laws. Discovery streaming video clip (6:23) "Laws of Motion" Has pre and post viewing question. Websites for content and student learning: Jefferson County Schools-Dynamic Curriculum 7th Grade Standard 11 Describing motion in words and Newton's Laws in Motion			*Plant the Seed* Initiative Activity- invite a mechanic to speak on how friction affects engine parts and how it can be reduced to make parts last longer.