

Matrix #	Matrix Strand	TEKS Knowledge and Skill	Student Expectation	TAKS Obj.	Resources	Time/Pace	Student Work Products	Assessment	Teaching Notes
Rocks and the Rock Cycle									
328	Patterns, Properties, and Models	6.14 The student knows the structures and functions of Earth systems.	A. Summarize the rock cycle. (14A)	Obj. 4: The student will demonstrate an understanding of the structures and properties of matter.	Glencoe Chapter 6 Chapter 6 Fast File SCITOGO Eyewitness Video: Rocks and Minerals UT Bureau of Economic Geology http://www.beg.utexas.edu/pub.html Brainpop.com "Types of Rocks", http://www.brainpop.com	6 days (3 lab days)	Suggested Labs ✘ Famous Rock Groups, p. 2-6 supplement Rock Identification Rock cycle foldable or poster Suggested Projects ✘ Rock Cycle Board Game, p. 7-9 supplement ✘ Expanded rock cycle poster ✘ Texas Rock Identification, p. 10 supplement 5 E Instructional Model FRG- Exploration Engagement	✘ Pre-Test, p. 1 supplement ✘ Post Test, p. 11 supplement Teacher observations Teacher created tests or quizzes. Glencoe assessments Lab reports Vocabulary: Igneous Intrusive Extrusive Sedimentary Metamorphic Foliated Non-foliated Rock Rock cycle Weathering	Possible Timeline Day 1 – Poster/ Foldable/ Sketch Rock Cycle Day 2 – Famous Rock Groups Day 3-5 Rock Cycle Board Game Day 6 – Rock ID
		<p>★ For the Famous Rock Groups, use a food processor to grind the chocolate.</p> <p>★ Begin to collect class sets of newspapers for 5 consecutive days where air masses can be followed.</p> <p>Accountable Talk: Why are cycles (e.g., rock, water, nitrogen) important to nature?</p> <p>★ You can order rock kits from UT BEG for the Rock Identification Lab. Ten samples of Central Texas rocks cost \$1.00. Item #RK0001. Limit of 50 per order. 1-888-839-4365</p>							

✘ Indicates differentiation from the IPG. The APGs are color-coded to explain the type of differentiation used.
GREEN = Extensions using Depth & Complexity, **RED = Substitutions**, **PURPLE = Additions**
 Color-coded APGs are available on the AISD GT website at: <http://www.austinsd.org/academics/curriculum/gt/apg.phtml>


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Water									
224	Systems	* 6.8 The student knows that complex interactions occur between matter and energy.	* B. Explain and illustrate the interactions between matter and energy in the water cycle and in the decay of biomass such as in a compost bin. (8B)	Obj. 3 The student will demonstrate an understanding of the interdependence of organisms and the environment	Glencoe, pp. 288-289 & 458 SCITOGO United Streaming Video(s): Exploring Weather: The Atmosphere in Motion (Water Cycle)	8 days	Suggested Labs & Activities ✘ Water Wonders, p. 12-19 supplement ✘ Hydro Bottle Set-Up, and Marking Guides, p. 20-22 supplement ✘ Hydrologic Cycle, p. 23 supplement ✘ Permeability, p. 24 supplement ✘ Modeling a Recharge Zone, p. 25-28 supplement	Teacher observations Teacher created tests or quizzes. Glencoe assessments Lab reports	✘ Possible Timeline Days 1 & 2 – Water Wonders Day 3 – Hydrology Bottle Set-up, Brain Pop Water Cycle Day 4 – Permeability Day 5 – Modeling a recharge zone Days 6 – 8 Research Project ✘ The Hydro Bottle Set-Up must be completed before Hydrologic Cycle and/or the Groundwater activities.
		* 6.14 The student knows the structures and functions of Earth systems.	* B. Identify relationships between groundwater and surface water in a watershed. (14B) B	Obj. 4: The student will demonstrate an understanding of the structures and properties of matter.	Glencoe Chapter 9, Sections 1 & 2 Chapter 9 Fast File	Aquifer & Recharge Areas I—(AR) Aquifer & Recharge Areas II Pollution in Motion, Ch. 9 Fast File, p. 7	Suggested Projects ✘ Edwards Aquifer Research, p. 29 supplement	Vocabulary: Water cycle Evaporation Condensation Precipitation Transpiration Runoff Vocabulary: Groundwater Aquifer Permeable Porosity Zone of Saturation Water table	


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You can contact the Lower Colorado River Authority (LCRA) or Barton Springs Edward's Aquifer Conservation District for classroom materials, guest speakers, or field trips (282-8441).

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Weather/Atmosphere										
403	Constancy and Change	6.14 The student knows the structures and functions of Earth systems.	C. Describe components of the atmosphere, including oxygen, nitrogen, and water vapor, and identify the role of atmospheric movement in weather change. (14C) L	Obj. 4: The student will demonstrate an understanding of the structures and properties of matter.	Glencoe Chapter 10, Sections 1 and 3 Chapter 10 Fast File SCITOGO United Streaming Video(s): Experiments: Hands On Weather—More Weather Experiments Websites: http://liftoff.msfc.nasa.gov/academy/space/atmosphere.html http://www.windows.ucar.edu/tour/link=/earth/Atmosphere/overview.html http://www.enchantedlearning.com/subjects/astronomy/planets/earth/Atmosphere.shtml	5 days	Suggested Labs and Activities Reading a Weather Map (RW) How Does an Air Mass Affect Weather?—(AM) OR How Does and Air Mass Affect Weather II (AM)(contains at home portions) ✖ Atmospheric Reading, p. 30-31 supplement Modeling Air Masses and Fronts, Ch. 10 Fast File, p. 5 Foldable of atmospheric components Tornado Alley	Teacher observations Teacher created tests or quizzes. Glencoe assessments Lab reports Teacher-student created criteria charts and rubrics for lab reports. Vocabulary: Atmosphere Air mass Front Stationary Occluded		

 Discuss wind power and its relationship to energy.

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Ecology									
224	Systems	6.8 The student knows that complex interactions occur between matter and energy.	B. Explain and illustrate the interactions between matter and energy in the water cycle and in the decay of biomass such as in a compost bin. (8B)	Obj. 3: The student will demonstrate an understanding of the interdependence of organisms and the environment	Glencoe Chapter 15 Chapter 15 Fast File SCITOGO United Streaming Video(s): Ecology: Food Chains and Webs Cycle Series: The Carbon Cycle-The Nitrogen Cycle Biology: The Science of Life: Ecology—Organisms in their Environments The Science of Life: Ecosystems: the role of Abiotic Factors (Includes nitrogen and carbon cycles) Fearsome Frogs	10 days (5 lab days)	Suggested Labs ✘ Decomposers-- (D), p. 32-36 supplement. Oh Deer!— Teacher Instructions Student Data Sheet --(OD) ✘ Field Study- Texas Parks and Wildlife is a good resource for class materials, guest speakers and field trips. www.tpw.state.tx.us/edu ✘ Energy Transfer, p. 38-40 supplement ✘ Energy Pyramid, p. 41-42 supplement Abiotic and Biotic Factors foldable or poster 5 E Instructional Model D—Elaboration OD--Explanation ✘ Possible scientists to research: Jane Goodall Rachel Carson Charles Darwin	Teacher observation Teacher created tests or quizzes. Glencoe assessments Lab Reports ✘ Energy Pre-Test, p. 37 supplement ✘ Energy Post-Test, p. 43 supplement Teacher and student created criteria charts and rubrics for lab reports Vocabulary: Ecology Biomass Biotic factor Abiotic factor Ecosystem Biosphere Population density Limiting factor Food chain Food web Water cycle	✘ Possible Timeline Day 1- Begin Decomposers, give pre-test Days 2 & 3 – Oh Deer! Day 4 – Abiotic/Biotic Poster or Foldable Day 5 – Finish Decomposers Day 6 – Review Food Chain, Brain Pop video Day 7 & 8- Energy Pyramid Activity Days 9 & 10 – Scientist Investigation, Be an Ecologist

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213			C. Describe energy flow in living systems including food chains and food webs. (8C)						
348	Patterns, Properties and Models	Local	Observe and describe habitats within ecosystems. L B T-2						
			 <div style="border: 1px solid black; padding: 5px;"> Suggested interdisciplinary planning: collaborate with social studies teachers to find out which continent they are studying and base your examples, projects, and discussions on that area. For example: habitats in Asia, food chains/webs on the Great Barrier Reef, etc. </div>						
Interventions, Reteaching, Extensions, and Assessments (3 Days)									



Accountable Talk:
 Have students begin by discussing the ecosystems they are most familiar with (home, school) and broaden out to larger ecosystems.



The main concept for the food chains/webs is the fact that ENERGY is transferred between the links; i.e.—radiant to chemical and then transferring that chemical energy among organisms.



Academic Rigor:
 You may want to challenge students to find creative, yet realistic ways to solve some of Austin's ecological problems, such as pollution in Edward's Aquifer, urban expansion, and the endangerment of the Barton Springs salamander.