

Education in Action’s “Water Rocks” Discover Texas Field Trips 5th Grade Science Curriculum by Strand

Education in Action’s “Water Rocks” program takes student scientists to the Cameron Park Zoo to explore the Brazos River Country Exhibit with a focus on the water cycle, wetland ecosystems and environmental conservation. They travel to the Waco Mammoth Site next to explore sedimentary rocks and fossils. Participants continue their day at the Inner Space Cavern in Georgetown, where they actively experience the physical properties of the Earth’s crust including minerals, rocks and soils. Program is aligned with 5th grade science TEKS and covers the following:

Subsection 112.16. Science, Grade 5

(a) Introduction.

(2) Recurring themes are pervasive in sciences, mathematics, and technology. These ideas transcend disciplinary boundaries and include patterns, cycles, systems, models, and change and constancy.

(3) The study of elementary science includes planning and safely implementing classroom and outdoor investigations using scientific process, including inquiry methods, analyzing information, making informed decisions, and using tools to collect and record information, while addressing the major concepts and vocabulary, in the context of physical, earth, and life sciences.

(4) In Grade 5, investigations are used to learn about the natural world. Students should understand that certain types of questions can be answered by investigations and methods, models. And conclusions built from these investigations change as new observations are made. Models of objects and events are tools for understanding the natural world and can show how systems work. They have limitations and based on new discoveries are constantly being modified to more closely reflect the natural world.

(B) Within the natural environment, students learn how changes occur on Earth’s surface and that predictable patterns occur in the sky. Students learn that the natural world consists of resources, including nonrenewable, renewable, and alternative energy sources.

(C) Within the living environment, students learn that structure and function of organisms can improve the survival of members of a species. Students learn to differentiate between inherited traits and learned behaviors. Students learn that life cycles occur in animals and plants and that the carbon dioxide-oxygen cycle occurs naturally to support the living environment.

Name of Activity	TEKS Knowledge and Skills
<ul style="list-style-type: none"> • All 	<p>(b) (1) Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and environmentally appropriate and ethical practices. The student is expected to:</p> <p style="padding-left: 20px;">(B) make informed choices in the conservation, disposal, and recycling of materials.</p> <p>(b) (2) Scientific investigation and reasoning. The student uses scientific methods during laboratory and outdoor investigations. The student is expected to:</p> <p style="padding-left: 20px;">(B) ask well-defined questions, formulate testable hypotheses, and select and use appropriate equipment and</p>

	<p>technology;</p> <p>(C) collect information by observing and measuring;</p> <p>(D) analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence;</p> <p>(E) demonstrate that repeated investigations may increase the reliability of results.</p>
<ul style="list-style-type: none"> • Wetlands Clean Water Activity 	<p>(b) (3) Scientific investigation and reasoning. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:</p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student.</p>
<ul style="list-style-type: none"> • Rock Cycle • Mammoth Site • Water Cycle 	<p>(b) (5) Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:</p> <p>(A) classify matter based on physical properties, including mass, magnetism, physical state, relative density, solubility in water, and the ability to conduct or insulate thermal energy or electric energy;</p> <p>(C) demonstrate that some mixtures maintain physical properties of their ingredients such as iron filling and sand.</p> <p>(b) (7) Earth and space. The student knows Earth's surface is constantly changing and consists of useful resources. The student is expected to:</p> <p>(A) explore the process that led to the formation of sedimentary rocks and fossil fuels;</p> <p>(B) recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, and ice;</p> <p>(D) identify fossils as evidence of past living organisms and the nature of the environments at the time using models.</p> <p>(b) (8) Earth and space. The student knows Earth's surface is constantly changing and consists of useful resources. The student is expected to:</p> <p>(B) explain how the Sun and the ocean interact in the water cycle.</p>
<ul style="list-style-type: none"> • Cameron Park Zoo 	<p>(b) (9) Organisms and environments. The student knows that there are relationships, systems, and cycles within environments. The student is expected to:</p>

<ul style="list-style-type: none">• Mammoth Site	<p>(A) observe the way organisms live and survive in their ecosystem by interacting with the living and non-living elements;</p> <p>(B) describe how the flow of energy derived from the Sun, used by producers to create their own food, is transferred through a food chain and food web to consumers and decomposers; and</p> <p>(C) predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways;</p> <p>(D) identify the significance of the carbon dioxide-oxygen cycle to the survival of plants and animals.</p> <p>(b) (10) Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:</p> <p>(A) compare the structures and functions of different species that help them live and survive such as hooves on prairie animals or webbed feet in aquatic animals;</p> <p>(B) differentiate between inherited traits of plants and animals such as spines on a cactus or shape of a beak and learned behaviors such as an animal learning tricks or a child riding a bicycle.</p>
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