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| |  | | --- | | https://peer.tamu.edu/curriculum_modules/Water_Quality/images/teach.jpg |  |  |  | | --- | --- | | **TEKS for Middle School Science** | **How the TEKS are Integrated into the Lesson** | | **6.1A, 7.1A, 8.1A** Demonstrate safe practices during laboratory and field investigations as outlined in Texas Education Agency approved safety standards | During the **Activities,** students will be required to use safe practices. | | **6.1B, 7.1B, 8.1B** Practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials | During the **Activities,** students will practice appropriate use and conservation of resources. | | **6.2A, 7.2A, 8.2A** Plan and implement comparative and descriptive investigations by making observations, asking well defined questions, and using appropriate equipment and technology | During the **Activities,** students will implement comparative and descriptive investigations. In the | | **6.2C, 7.2C, 8.2C** Collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers | During the **Activities,** students will collect and record data. | | **6.2E, 7.2E, 8.2E** Analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends | During the **Activities,** students will analyze data | | **6.3A, 7.3A, 8.3A** Analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, so as to encourage critical thinking by the student. | During the **What We Know** section of this unit**,**students will learn scientific explanations including the hypotheses, quoted along with examples, to simplify the scientific concepts. They will be asked to analyze and evaluate those explanations by the use of questions embedded in the unit. | | **6.3D, 7.3D, 8.3D** Relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content | Throughout the unit and in the **Story Time** section, the history of science and contributions of scientists as related to the content is presented. | | **6.4A B; 7.4A, B; 8.4A, B** The student Knows how to use a variety of tools. The student will use preventative safety equipment. | Throughout the **Activities,** students will use laboratory tools and safety equipment as needed. | | **6.7A** Research and discuss the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources | In the **Why it Matters** section, disadvantages of human activities, including industrial pollution, are examined. In the **How We Know** section, the topic of how much oil there is in the world and whether we are running out of oil is discussed. In the **What We Know** section, oil depletion is explored further and examples are given with some suggested solutions. Unleaded gasoline is also discussed as a success story. Gasohol is also explored as a fuel possibility. | | **7.8C** Model the effects of human activity on groundwater and surface water in a watershed | In the **How We Know** section, there is a discussion of fertilizer run-off. In the **What We Know** section, there is a discussion of how humans put chemicals into the water. In that section, there is a segment about over-fertilization and its’ effects on water quality. | | **8.11B** Explore how short- and long-term environmental changes affect organisms and traits in subsequent populations | Throughout the unit, the effects of human-caused environmental changes are discussed. |  |  |  | | --- | --- | | **Next Generation Science Standards**  **Disciplinary Core Ideas** | **How the NGSS are Integrated** **into the Lesson** | | **MS-LS2.A:**  Interdependent Relationships in Ecosystems  ▪ Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors. | Throughout the unit, the dependence of organisms and their environmental interactions with human-caused environmental impacts are discussed. | | **MSLS2.C:** Ecosystem Dynamics, Functioning, and Resilience  ▪ Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations.  ▪ Biodiversity describes the variety of species found in Earth’s terrestrial and oceanic ecosystems. The completeness or integrity of an ecosystem’s biodiversity is often used as a measure of its health. | The focus of this unit is how disruptions of an ecosystem can affect all of the organisms in the ecosystem, including humans. Along with this, biodiversity is emphasized as important in overall ecosystem health. | | **MS-LS4.D:** Biodiversity and Humans  - Changes in biodiversity can influence humans’ resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on—for example, water purification and recycling. | In the **Why it Matters** section, human actions are cited as creating environmental hazards. Throughout the unit, human disruption of ecosystems is explored and the effects that that disruption will have on human life is emphasized. | | **MS-ESS3.C:** Human Impacts on Earth Systems  ▪ Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth’s environments can have different impacts (negative and positive) for different living things. | The focus of this unit is how disruptions of the environment by humans, including destroying natural habitats, can affect and have impacts on all of the organisms on earth, including humans. . In the **Why It Matters** section, there is a discussion of extinction and how extinction could affect humans. The leading causes of habitat destruction by humans is the focus of the **What We Know** section. Case studies showing things that humans can do to protect the environment are discussed in the **What We Know** section. | |