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| |  | | --- | | https://peer.tamu.edu/curriculum_modules/Water_Quality/images/teach.jpg |  |  |  | | --- | --- | | **TEKS for Middle School Science**  **6-8 Middle School TEKS**  **AS-Aquatic Science TEKS**  **B-Biology TEKS**  **C-Chemistry TEKS**  **ES-Environmental Systems TEKS**  **NOTE: Some of the wording of the process TEKS 1-4 have been condensed to include multiple subjects** | **How the TEKS are Integrated into the Lesson** | | **6.2A, 7.2A, 8.2A, B.2E, AS.2E**, **C.2E**, **ES.2E** Plan and implement comparative and descriptive investigations by making observations, asking well defined questions, and using appropriate equipment and technology | During the **Activity,** students will implement a descriptive investigation. | | **6.2C, 7.2C, 8.2C, B.2F. AS.2F, ES.2G, C.2F** Collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers | During the **Activity,** students will record data in a data table. | | **6.2E, 7.2E, 8.2E, B.2G, C.2H** Analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends | In the **Real-Life Applications**, students will analyze and evaluate data. During the **Activity,** students will analyze data. | | **AS.2H, ES.2I** Organize, analyze evaluate, build models, make inferences, and predict trends from data. | In the **Real-Life Applications**, students will analyze and evaluate data. In the **Activity**, students will build models and analyze data. | | **AS.2J, ES.2K, AS.2J** Communicate valid conclusions using essential vocabulary and multiple modes of expression such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports. | During the **Activity**, students will communicate conclusions using various forms of reports. | | **6.3A, 7.3A, 8.3A** **C.3A**, **ES.3A, AS.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. | In the **Activity,** students will investigate scientific evidence and draw a conclusion about a water-related environmental phenomenon. | | **ES.4E** Measure concentration of solute, solvent, and solubility of dissolved substances such as dissolved oxygen, chlorides, and nitrites, and describe their impact on an ecosystem. | In the **Lesson Presentation** and **Activity**, students will understand how dissolved oxygen is measured and used to determine water quality. |  | | **ES.5B** Identify source, use, **quality**, management, and conservation of water. | In the **Lesson Presentation** and **Activity**, the students will analyze water quality. | | **7.8C** Model the effects of human activity on ground water and surface water in a watershed | In the **Lesson Presentation** and the **Real-life Application**, the students will see how dissolved oxygen in water is affected by human activity. In the **Activity**, the students will read graphs that model the conditions of an environmental phenomenon. | | **ES.9B** Investigate the types of air, soil, and water pollution such as chlorofluorocarbons, carbon dioxide, pH, pesticide runoff, thermal variations, metallic ions, heavy metals, and nuclear waste. | In the **Lesson Presentation**, the agents of water pollution will be explored. | | **ES.9C** Examine the concentrations of air, soil, and water pollutants using appropriate units. | In the **Lesson Presentation**, the concentration of dissolved oxygen will be discussed, including the use of correct units. |  |  |  | | --- | --- | | **Next Generation Science Standards**  **Disciplinary Core Ideas** | **How the NGSS are Integrated** **into the Lesson** | | **MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.**  Examples of the design process include examining human environmental impacts, assessing the kinds of solutions that are feasible and designing and evaluating solutions that could reduce that impact. Examples of human impacts can include water usage, land usage, and pollution of the air, water or land. | Water quality testing is a method used for monitoring and minimizing human impact on the environment. Measuring dissolved oxygen in water are a key skill used in water quality testing. The **Lesson Presentation** presents the methods for measuring dissolved oxygen concentration. | |