| Key Topics | Learning Objectives | Learning Materials (LO Alignment) | Optional/Supplemental Materials |
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| **KT 1: Hydrology**<br><br>*HS-LS2-5, HS-ESS2-5, HS-ESS2-6.* | LO 1.1: Compose a detailed water cycle diagram.<br>LO 1.2: Identify the global distribution of water (saltwater, freshwater, ice, et cetera).<br>LO 1.3: Explain how aquifers relate to local and global water supplies.<br>LO 1.4: Identify different types of water bodies based on how they are formed and where they are found.<br>LO 1.5: Delineate a watershed using a topographic map.<br>LO 1.6: Determine the order of a stream and describe what the order indicates.<br>LO 1.7: Differentiate between types of wetlands by their characteristics and common species found in each. | USGS Water Science School, The Water Cycle (LO 1.1)<br>USGS Water Science School, How Much Water is There on Earth? (LO 1.2)<br>USGS Water Science School: Aquifers and Groundwater (LO 1.3)<br>USGS Water Science School: Surface Water Topics (LO 1.4)<br>USEPA Classification and Types of Wetlands (LO 1.7)<br>Geology.com New Mexico Lakes, Rivers and Water Resources (LO 1.4)<br>EPA Rivers & Streams (LO 1.4)<br>Watershed Delineation (LO 1.5-1.6)<br>EPA Wetland Types (LO 1.7) | |
| **KT 2: Aquatic Life and Biology**<br><br>*HS-LS1-2, HS-LS1-7, HS-LS2-5, HS-LS2-6, HS-LS4-1* | LO 2.1: Identify fish and macroinvertebrate species according to their taxonomic class.<br>LO 2.2: Recognize the uses of various anatomical structures found in aquatic organisms.<br>LO 2.3: Describe the life cycles and behaviors of aquatic organisms.<br>LO 2.4: Describe the role of cyanobacteria in aquatic ecosystems and their role in algal blooms<br>LO 2.5: Describe the flow of energy within an aquatic food web.<br>LO 2.6: Calculate a biotic index and determine water quality for freshwater systems<br>LO 2.7: Identify potential threats to aquatic ecosystems, such as pollution, biomagnification of toxins, erosion, development, invasive species, excess nutrients, thermal shock, et cetera. | A Fisheye View of the Tree of Life (LO 2.2)<br>Animal Factsheet: Fishes (LO 2.2)<br>Back to Basics: Who Eats Whom in Fresh Water (LO 2.5)<br>Chapter 4: Aquatic Animals (LO 2.3)<br>The Different Types of Anatomical Systems and Basic Functions of Each System of Organs of Fish (LO 2.2)<br>Fish Life Cycle (LO 2.3)<br>Georgia Adopt a Stream Manual (LO 2.6-2.7)<br>The Life Cycle of Amphibians (LO 2.3)<br>Macroinvertebrate Identification (LO 2.1)<br>Native New Mexico Fish Posters (LO 2.1)<br>Watershed Academy Introduction to Watershed Ecology (LO 2.3-2.7)<br>What Are ANS? (LO 2.7)<br>What is Eutrophication? (LO 2.4)<br>WV Save Our Streams' Benthic Macroinvertebrate Field Guide (LO 2.1) | FFA Wildlife Identification Slideshow (LO 2.1) |
| **KT 3: Water Chemistry**<br><br>*HS-LS2-3, HS-LS2-5, HS-LS4-6, HS-ESS2-6* | LO 3.1: Explain the role of aquatic ecosystems in biogeochemical cycles, such as the carbon, nitrogen, and phosphorus cycles.<br>LO 3.2: Identify causes of hypoxia and anoxia in aquatic systems, how these conditions impact the functioning of the ecosystem, and best management practices for prevention and treatment.<br>LO 3.3: Interpret results of water quality monitoring measures (such as dissolved oxygen, turbidity, E. coli counts, pH, nutrient levels, et cetera). | Biogeochemical Cycles (LO 3.1)<br>Georgia Adopt a Stream Manual (LO 3.3)<br>Hypoxia and Anoxia (LO 3.2) | |
| **KT 4: Water Policy and Scientific Literature**<br><br>*HS-LS2-7, HS-LS4-6, HS-ESS3-4* | LO 4.1: Identify biotic and abiotic factors that impact water quality.<br>LO 4.2: Explain how human activities upstream can impact downstream water quality<br>LO 4.3: Outline the various impacts humans have had on New Mexico's aquatic ecosystems historically.<br>LO 4.4: Interpret the results of peer-reviewed scientific papers on aquatic ecology.<br>LO 4.5: Identify how State and Federal legislation protects water resources.<br>LO 4.6: Identify key stakeholders, agencies, and organizations that oversee water resource protection and management in New Mexico.<br>LO 4.7: Recommend best management practices for improving water quality and enhancing aquatic habitat, such as riparian buffers. | Effects of Human Activities on the Interaction of Ground and Surface (LO 4.2)<br>History: The Politics of Water (LO 4.3)<br>How to Read and Understand a Scientific Paper (LO 4.4)<br>A Living Water Ecosystem Part 4 (LO 4.1)<br>Riparian-Zone Restoration (LO 4.7)<br>Water Resources & Management (LO 4.5)<br>Water Quality Regulation (LO 4.6) | |