



Every Drop Counts!



H₂O YOUTH EDUCATION

Current teaching lessons are prepared at the K-12 grade level and include subjects on the water cycle, our watershed, water conservation, environmental modeling, water quality, urbanization and stormwater pollution prevention. Some lessons can be catered to specific grade level and TEK's requirements. If you have a specific program or event, please inquire with William Nahas—Education Specialist 214.509.4553 or via email at wnahas@cityofallen.org.

All Grades

Every Drop Counts (Water Conservation)-(All Grades):

This general lesson delves into the concept of water conservation and its importance. Students will understand the importance of Indoor and Outdoor water conservation, strategies to reduce consumption, learn about the local watershed, local climate and drought. Students will learn that Every Drop Counts!

H2O Guesstimate! (All Grades):

This lesson will engage the students regarding just how much water is used in everyday items, with the hopes of developing a conscientious attitude about the true worth of water. Students will “guesstimate” how much water is used for making a piece of paper, a hamburger, blue jeans and more!

1st Grade & Up

Fact or Fiction: Oceans, Rivers and Lakes (Grades 1-2):

In this lesson, students will identify and describe a variety of natural sources of water, including streams, lakes and oceans. A short lecture is provided with a video and fun memory game to conclude. Students will also participate in an interconnected water model demonstration, as well as color and label their own river, lake and ocean template.

Relay 4 Water (Grades 1-6):

Students will illustrate how multiple users of water resources can affect water quality and quantity, as well as examine the complexities of providing water for all users. The lab consists of a hands-on activity where students are timed through rounds to simulate water depletion. They will learn that water is a finite resource and critically think about water use and consumption.

Freddy the Fish (Grades: 1-5):

Students in this hands-on activity will understand how water becomes polluted from everyday activities. Most may not be aware of the various local sources which may impact our natural waterways. Freddy the Fish will be our guide on this journey of stormwater mayhem!

3rd Grade & Up

Jeopardy H2O (Grades: 3-12):

Water Jeopardy is an interactive game based on the popular television show format, which includes questions about the water cycle, water conservation, stormwater, water (general), water quality and more. This game can be catered to grade level and T.E.K.S. requirements. This is a great review in preparation for end of the year testing, or reinforcing any water unit you may cover.

The Incredible Journey (Grades: 3-8):

Students will become water molecules moving through the various stages of the water cycle. Students will journey through stations including groundwater, rivers, lakes, glaciers and clouds. Along their journey, they will design a memory bracelet with beads to recount their Incredible Journey.

Pump Station Field Trip (Grades: 3-12):

Start your water adventure with a presentation about North Texas Municipal Water District's water treatment plant in Wylie and the City of Allen's water distribution system. After the presentation, classes will split into smaller groups to tour the pump station. Field trips are offered on a limited basis.

4th Grade & Up

A Very Impervious Situation: Stormwater EnviroScape (Grades: 4-12):

Whatever we dump (fertilizer, pesticides, dog waste) into the storm drain-discharges into a river, lake or stream without being treated. This EnviroScape model will show just how damaging pollution can be to our surrounding environment. Students will create pollution, and watch it runoff into our local watershed.

Water: From Source, to Tap, and Back! – Drinking & Wastewater EnviroScape (Grades: 4-12):

Have you ever wondered what happens to the water we use? This hands-on EnviroScape demonstration will explain where drinking water (residential, commercial, rural and urban) comes from, and how it is delivered to us. This activity will help conceptualize what happens to the wastewater we have used.



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5th Grade & Up

Biotic Vs. Abiotic (Grades 5-6):

Do you know the difference between Biotic and Abiotic factors? Is water a biotic or abiotic factor? How about algae? This lesson provides a fundamental understanding of the difference between biotic and abiotic factors. Students will enjoy a presentation and trivia game, followed by an interactive worksheet reinforcing the lesson. Students will also have the opportunity to draw their own ecosystem and include their own biotic and abiotic factors.

How Clean Is Your Water? (Grades: 5-12):

Summer time fish kills, High pH, and suspended solids - Something may be wrong with the water quality! This lab will engage students as they begin to understand the interdependency of water quality and surrounding life. Students will sample a local stream and test for pH, Dissolved Oxygen, Temperature and Turbidity.

The Rock Cycle (Grades 5-6):

Students will explore the processes that led to the formation of sedimentary, igneous and metamorphic rocks as well as fossil fuels! Each group of students will experience the rock cycle as they are given their own materials to simulate the different processes required to form sedimentary, igneous, and metamorphic rocks. **Heated water and safety goggles are needed for this lab.

Stream Bank Erosion Trailer (Grades: 5-12):

Weathering, erosion and deposition? Texas A&M AgriLife Extension has created a stream trailer to demonstrate just that. This trailer is a dynamic educational tool that demonstrates erosion patterns, natural vs. man-made erosion control measures, siltation and water quality. This is a hands-on demonstration!

7th Grade & Up

Water Ahead! (Grades 7-8):

In this lesson, students will model the effects of human activity on groundwater and surface water in their local watershed. A lecture and hands-on lesson will be provided. Students will be grouped to create and model their very own watershed! Pollutants will be added to mimic surface water runoff and a permeability and porosity kit (groundwater infiltration) will also be demonstrated.

Texas Streams & Aquifers (Grades: 9-12):

This engaging lesson will review the 18,000 square-mile Trinity River Basin, Lake Lavon's watershed, and a few of the most historic cases in groundwater to date in Texas. Students will learn the interdependency of surface and ground waters, riparian law, rule of capture, and prior appropriation.

Murky Waters-Stormwater Pollution 101 (Grades 11-12):

Have you ever heard of Bacterial, Toxic, Nutrient or Sediment pollution? This lesson teaches the true meaning of polluted water. Students will engage in their own research of the East Fork Trinity River, while learning about the various sources of Point Source, and Non-Point Source pollution. E. coli, Ammonia, phosphates, pharmaceuticals, Eutrophication, bioaccumulation and more are covered in this lesson!

