Environmental Education Services

Suzanne Geisler, M.Ed.
Cell: (937) 750-3430
suziegeisler@earthlink.net

Solid Waste and Water Lessons

Warren County Solid Waste Management District offers a variety of presentations and support services to teachers in Warren County and select school districts. Warren County Solid Waste Management District, Warren County Water and Sewer Department, City of Springboro Water Department and the Western Water Company fund these services.

All services are *free* of charge!

Each lesson provides fundamentals in scientific reasoning for Proficiency Test requirements.

Contact Suzanne today!

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Solid Waste and Water Lessons!

Lesson marked with ** are our most popular choices!

Aqua Charades (pre k-K) The educator will read the book Water Everywhere by Christine Taylor-Butler, students will relate different ways that humans, animals and plants use water. Students will pantomime the water use and the educator will record the uses. Students will differentiate between water usage for health and water usage for recreation. (20 min.)

****Four Pounds of Trash!**(PreK-2)** Students will help fill a container with four pounds of clean trash. A scale will be used for accuracy. Students will discover that each child in the United States produces about four pounds of trash every day. Students will infer how much trash the class makes every day. Reducing, reusing and recycling will be discusses and modeled. (30 min.)

****Worm Exploration** (Pre K-2)** The educator will read the book Bob and Otto by Robert O Bruel. Students will handle and discuss live worms and real compost. Organic and Inorganic materials will be handled and discussed. (30 min.)

How surface water flows (K-2) The educator will read Rain Rain River by Uri Shulevitz, students will work in groups with clay to help build a landform model. They will discover that water travels downhill after observing 'rain' falling on their landform. Flow and runoff will be demonstrated and discussed. (30 min).

****Squish** (grades K-2)** The educator will read the book, Squish by Nancy Luen. Students will relate common household objects as metaphors for the functions of a natural wetland. Students will describe characteristics of wetlands and identify ecological functions of wetlands. Squish will be followed by Wetland Hopscotch: Students will participate in a game of hopscotch to demonstrate how migrating birds use wetlands for food and shelter. Without wetlands some birds would not have enough energy to make their trip. Preservation of wetlands, role of wetlands in flood control and water quality as well as the needs of migrating birds will be discussed. (35 min.)

****Recycling Plastic** (grades 3-8)** Students will participate in the recycling of #6 plastic (polystyrene). Students will be able to describe the physical changes in matter required for the recycling of plastic, glass and metals. Students will be able to explain why recycling plastic is complex. (30 min.)

****Papermaking** (grades K-8)** Students will make a rough recycled paper sheet from a paper pulp mixture. Students will be able to describe physical changes required for the recycling of paper. A table with access to electric and water will be needed. (50 min.)

Use Your Head Protect Your Watershed! (3-8) Using a watershed map of Warren County Ohio, Students describe and identify land use activities within that watershed and identify how land use is associated with pollution. Students will analyze the watershed's water quality and create a graph. Students will locate the watershed closest to their school. (making waves) (40 min.)

****Ghost Map** (5-8)** Using a series of clues, students will apply investigative methods used by the first epidemiologist, Dr. John Snow, to trace the source of Cholera. Students solve a mystery to discover that water contamination can affect the health of a population. (wet) (35min.)

****Composting with worms!** (3-8)** Students will handle worms and learn the importance of decomposers, the difference between organic and inorganic garbage and the nitrogen cycle. Real worms will be used and real compost will be handled. Students will learn the basic anatomy of a worm and understand that a worm cut in half cannot survive! (30 min.)

****The Water Cycle Game** (3-5)** Using dice, students will simulate the movement of water through the water cycle. Students will describe the movement of water within the water cycle and identify states of matter of water as it moves through the water cycle. Students will collect different colored beads at each station to represent their journey. (35 min.)

Trading Resources (3-8) Students will participate in a simulation activity to produce a greeting card. This requires the trading of plentiful and scarce resources. Follow up discussion requires students to make analogies, inferences and read a chart. Renewable and nonrenewable natural resources will be discussed. (35 min.)

Packaging Game (3-8) Students participate in a simulation game in which they will become metal, plastic, glass or paper. A roll of the die will decide if they will be recycled, become litter, or will be landfilled. Students will discover that about 70% of recyclable materials are landfilled, 24% is recycled and 5% becomes litter. (35 min.)

Super Sleuths! (3-8) Students work in cooperative groups to play a mystery game in order to discover which of five recyclable materials their clue represents. Students make inferences, analyze data and organize information in order to solve the mystery. Recycling facts are discussed. (20 min.)

****Recycling Dichotomous Key**** **(3-8)** Students will sort bags of real (clean) trash using a dichotomous key. Renewable and nonrenewable resources, recyclable and not recyclable items, and the natural resources used to make recyclable products will be discussed. (30 min.)

****Links in a Chain**** **(3-8)** Students will participate in a simulation game in order to demonstrate how household hazardous waste can enter an aquatic ecosystem and the consequences of these contaminates. Prevention of non-point source pollution will be discussed. ***The game will be played outside***. (35 min.)

****A Drop in the Bucket**** (4-8) Students will estimate the percentage of *available* potable water on Earth using pennies. The educator will demonstrate the amount of potable water available for use on earth using a 100ml beaker, graduated cylinders and an eyedropper. Students will conclude that water is a limited resource and must be conserved. (20 min.)

****Groundwater Demonstration**** **(4-12)** The Educator will use a groundwater model to demonstrate the movement of water and pollutants through the aquifer. Non-point source pollution, source-point pollution, time of travel, groundwater, aquifers, water tables, water cycle and source water protection and remediation will be discussed and demonstrated. Water **must** be available on site. The educator will need a cart and access to power. (45 min.)

****Macroinvertebrate Mayhem**** **(4-12)** Students play a game of tag to simulate the effects of environmental stressors on macroinvertebrate populations. Students will draw conclusions about how water quality influences diversity of populations of macroinvertebrates and will relate how population diversity provides insight into the health of an ecosystem. (45 min.)

Bees Please! (***weather dependent***) (4-8) The educator will bring an observation hive with live bees on a frame to the school. The best location is a covered outdoor area. Pollinaors and native pollinator habits will be discussed as well as the lifecycle of honey bees (apis mellifera). Beekeeping quipment, posters of honeybees and a smoker will be available as well. The educator can provide an easy up, but will need help to set up the area. A table will need to be provided. (40min).

For more information contact:

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Visit our website!
www.co.warren.oh.us/solidwaste