

Eighth Grade: Water, People & Pollution



Through the Enviroscape watershed model, local watershed maps, a choice of DVDs and discussion of new state regulations for the Jordan Lake watershed, we will address the following NC competency goals:

Grade 8/Competency Goal 3: The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the hydrosphere.

Objectives

3.02 Explain the structure of the hydrosphere including:

- Local river basin.
- Local water availability.

3.07 Describe how humans affect the quality of water:

- Point and non-point sources of water pollution in North Carolina.
- Possible effects of excess nutrients in North Carolina waters.
- Economic trade-offs.
- Local water issues.

3.08 Recognize that the good health of environments and organisms requires:

- Monitoring of the hydrosphere.
- Water quality standards.
- Methods of water treatment.
- Maintaining safe water quality.
- Stewardship.

High School Level:

The Stormwater Management office serves as a high school intern site. Community Service opportunities include litter collections and stream clean ups, storm drain labeling and street fair assistance.

STORMWATER PATROLS

Patrol members and their sponsoring teacher can *act locally* to help our environment by labeling and monitoring storm drains on their school campuses, by educating others about water quality, and by evaluating their schoolyards for erosion and runoff pollution.

The Stormwater Management Division staff will meet with students, provide supplies to label storm drains, give them a contour map of their school and a Schoolyard Grade Card for evaluating their grounds. Technical assistance is available to schools wanting to remediate erosion or runoff pollution problems.

NEW!

Students and science teachers are invited to partner with the Stormwater Management Division to present a pollution prevention training program for food service staff members and custodians.

Call now to get your school involved!



TOWN OF CHAPEL HILL
Public Works Department
Stormwater Management Division
Call: 919-969-RAIN (969-7246)
www.townofchapelhill.org/stormwater

OUR WATERSHED OUR WATER



CHAPEL HILL - CARRBORO SCHOOLS PROGRAMS

Programs are correlated with the
NC Standard Course of Study

In Chapel Hill and Carrboro, stormwater runoff flows off land and streets into creeks, which lead to Jordan Lake, the Haw River, the Cape Fear River, and finally into the Atlantic Ocean.

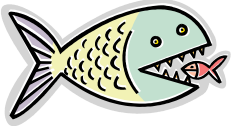
As our town continues to grow, we reduce natural areas that filter and hold water. Impervious surfaces such as roads, parking lots and buildings prevent water from seeping into the ground. Rain and snow melt run off hard surfaces, carrying pollutants. Fertilizer, sediment, pesticides, oils and fluids from cars, litter, leaves and pet wastes wash into creeks and lakes along with stormwater runoff.

There are ways to reduce damage to our water and waterways. Call us to learn more about what a watershed is, what lives in our waterways, and how we, together, can help reduce pollution and erosion to improve the quality of our creeks and sources of drinking water!

Presentation Overview

Programs are flexible and adaptable to your classroom, club, or youth program. Most programs are 45 minutes to an hour. The following programs are chosen to fit the NC Standard Course of Study for the indicated grade levels.

Second Grade: Creek Critters



Students will explore life cycles of amphibians, reptiles, fish and insects that live in local waterways.

Through multi-media websites and hands-on approaches, students will observe actual critters and learn how varying water levels, stormwater runoff and pollution in streams and lakes affect these animals.



Grade 2 /Competency Goal 1: The learner will conduct investigations and build an understanding of animal life cycles.

Objectives

- 1.01 Describe the life cycle of animals including:
- Birth.
 - Developing into an adult.
 - Reproducing.
 - Aging and death.
- 1.02 Observe that insects need food, air and space to grow.
- 1.03 Observe the different stages of an insect life cycle.
- 1.04 Compare and contrast life cycles of other animals such as mealworms, ladybugs, crickets, guppies or frogs.

Fourth Grade: Totally Awesome Stream Dwellers



Larvae of aquatic insects like caddisflies, beetles and mayflies, and stream dwellers such as crayfish and leeches are specially adapted for stream life. Some need very clean water with high oxygen levels. These are called *indicator species*. From their presence or absence, we can rate the health of our streams.

Groups may request stormwater staff to accompany them to a nearby creek for exploration and water quality testing. Stormwater staff will provide a kick net and testing equipment.



Fourth grade classes are highly encouraged to attend the half-day Haw River Assembly's Learning Celebration each fall to meet both science and social studies SCOS goals, plus have a FABULOUS time along the banks of the Haw River! More information: www.hawriver.org

Grade 4 /Competency Goal 1: The learner will make observations and conduct investigations to build an understanding of animal behavior and adaptation.

Objectives

- 1.01 Observe and describe how all living and nonliving things affect the life of a particular animal including:
- Other animals.
 - Plants.
 - Weather.
 - Climate.
- 1.02 Observe and record how animals of the same kind differ in some of their characteristics and discuss possible advantages and disadvantages of this variation.
- 1.03 Observe and discuss how behaviors and body structures help animals survive in a particular habitat.
- 1.04 Explain and discuss how humans and other animals can adapt their behavior to live in changing habitats.
- 1.05 Recognize that humans can understand themselves better by learning about other animals.

Fifth Grade: Watershed Wisdom

Students learn ways to reduce pollution and protect our natural resources while having hands-on fun with the Enviroscope watershed model. By sprinkling food colorants as pollutants on the model's land use areas



followed by "rain showers," students observe drainage patterns, erosion potential, and the effect of stormwater runoff on creeks and lakes. They then apply "best management practices" to see how water quality improves.

Students and teachers may use what they learn through the Enviroscope activity to evaluate their campus for erosion and pollution issues. The class can discuss solutions to these problems, and propose actions to improve their school grounds.



Grade 5/Competency Goal 1: The learner will conduct investigations to build an understanding of the interdependence of plants and animals.

Objectives

- 1.06 Explain and evaluate some ways that humans affect ecosystems.
- Habitat reduction due to development.
 - Pollutants.
 - Increased nutrients.

Competency Goal 2: The learner will make observations and conduct investigations to build an understanding of landforms.

Objectives

- 2.05 Discuss how the flow of water and the slope of the land affect erosion.
- 2.06 Identify and use models, maps, and aerial photographs as ways of representing landforms.
- 2.07 Discuss and analyze how humans influence erosion and deposition in local communities, including school grounds, as a result of:
- Clearing land.
 - Planting vegetation.