

The New Hampshire Science Teachers' Association Presents nhsta.net

The New Hampshire Science Teachers' Association
presents

The Lake, The Woods, and the Soil Beneath and Between: Being good Stewards
and Tenants

ESSI 2017 June 28, 29, and 30 on the campus of
Coe Brown Northwood Academy

7:30 am to 1:00 pm

Institute Overview

The New Hampshire Science Teachers' Association is pleased to offer to you the 2017 Elementary Summer Science Institute. Taking place on the 200+ acre CBNA campus, participants will explore the Lake, The Woods, and the Soil Beneath and Between. The experiential workshops are designed to

highlight good stewardship of our lakes, forests, and soil.



Are you looking for unique methods by which to integrate science activities into your classroom?

The 2017 ESSI is a three day event designed to provide field experiences to elementary teachers. What a great way to explore and meet NGSS benchmarks.

Science does not wait for the weather!

The ESSI takes place rain or shine. Good walking shoes, bug spray, and raingear are highly recommended.

Registration and Pricing, and Graduate Credit Opportunity at NHSTA.net You may register for one, two, or all three sessions. The cost of the sessions includes a continental breakfast each day and supplies for the make and take equipment and projects. Participants may also choose to register for 1 graduate credit from Keene State.

2017 ESSI Workshops and Experiences

Day 1: The Lake

Soap and Suds : How Hard is The Water?

Highway and farm runoff can impact our lake rivers and streams. Join chemistry teacher Greg Samuel in an exploration two simple methods of determining water hardness and density. No fancy equipment needed. Participants will construct make and take hydrometers for comparative densities and use simple soap suds to make both quantitative and qualitative water hardness assessments. The use of a control will be highlighted.

Next Generation Science Standards Connections: 5-ESS2-1, 5-PSI-3

Runoff and water clarity : Limiting the Effects of Erosion

What's The Problem With Erosion? Ever wondered how erosion affects water clarity and organisms living in it? Want to know how to reduce the impacts of erosion? Participants will explore erosion and how to reduce the impacts of erosion using materials you can find around your house. Participants will also make and take homemade Secchi tubes to examine water clarity and discuss the impacts on organisms living in water habitats. This workshop would connect to units on Erosion, Earth's Changing Surface, Earth's Sphere's (Biosphere, Hydrosphere, Geosphere, and Atmosphere), and Habitats.

Next Generation Science Standards Connections: 4-ESS2-1, 4-ESS2-1, 2-ESS2-1, 2-ESS1-1, 5-ESS2-1

The Private Eye : What is hiding in the water?

Visually immerse yourself into water samples that you collect from Harvey Lake. Let the world around you fade into the background as you explore the watery world using a jeweler's loop. Carolyn Stiles will introduce you to the Private Eye method of observation and data collection as well as provide information regarding starting your own Private Eye explorations in your classrooms. Participants will leave with their own loop and plenty of ideas for the classroom.

Next Generation Science Standards Connections: 5-ESS2-1, 2-LS4-1

2017 ESSI Workshops and Experiences

Day 2: The Woods

Soil pH beneath the trees : How do the type of trees affect their immediate Environments?

How do our decisions about what we allow to grow affect the environment? Participants will conduct inventories of the types of plants and trees and make correlations to the soil chemistry in that same location. Erin Williams will show participants how to prep classroom safe pH indicators from common flower petals.

Next Generation Science Standards Connections: 5-PS1-3, 5-ESS2-1

Bird Beaks as Levers : Environmental Pressure on the Physics of Adaptation

How do environmental pressures lead to adaptation of beaks? Bird biologist Joel Kutylowski will lead participants through activities designed to explore the physics of beaks as levers and discover how food resources shape beak adaptation.

Next Generation Science Standards Connections: K-LS1-1, 1-LS1-1, 3-LS3-1, 3-LS3-2, 4-LS1-1

Ecosystem in a Bottle

Can you make your own ecosystem in your classroom? Participants will learn to make their own terrarium out of recycled materials. Once at the field sites learn how to collect materials and critters to produce your own piece of the ecosystem. David Zink and Carolyn Stiles will help you make your selection from nature's bounty.

Next Generation Science Standards Connections: K-ESS3-1, 2-LS4-1, 3-LS4-2, 5-LS1-1

2017 ESSI Workshops and Experiences

Day 3: The Soil Beneath and Between

What “Breathes” in the soil?

Cars are not the only sources of carbon dioxide in the atmosphere. Participants will explore techniques of collecting carbon dioxide from soil and use indicators to verify its presence. The use and value of a control in experimentation will be highlighted and participants will learn how to make a control out of classroom safe materials.

Next Generation Science Standards Connections: 5-ESS2-1

Percolation and Porosity : Movement of Water and Pollutants Through the Soil

How does water move through the soil and can pollutants move through the soil with the water? Participants will construct their own make and take percolation/porosity equipment that can be used in the classroom to explore flow rate of water and pollutants through different soil materials. There are many opportunities to connect to landfills, gas station leaks, and septic systems.

Next Generation Science Standards Connections: 5-ESS3-1, 5-ESS2-1

Wigglers, Squigglers, and Creepy Crawlers :The Private Eye Revisited

Who is in there? Bring a bit of math into the science by learning how to incorporate the mathematical idea of a square meter into the survey of living organisms in the soil. This is a great opportunity to explore connections to population density, calculating area, and extrapolation of data based on sampling. This session will connect to the previous Private Eye activity, terrarium, and soil activities.

Next Generation Science Standards Connections: K-ESS2-2, K-ESS3-1, 2-LS4-1, 3-LS2-1, 5-LS2-1, 5-ESS2-1

Each day will conclude with a 1 hour *Buffet of Knowledge*. Participants may network, brainstorm, ask questions of the facilitators, and participate in a specially designed STEAM activity designed to complement the day's theme.