Helping New Hampshire Schools Meet New Challenges

Almost 500 years ago, Machiavelli wrote, “whosoever desires constant success must change his conduct with the times.” The U.S. Department of Education seems to be echoing this sentiment with its recent regulations pushing for highly qualified teachers and higher levels of student achievement.

This issue of Project WEB seeks to introduce you to the changes facing New Hampshire schools, as well as how Project Learning Tree, Project WET and Project WILD are working to address the needs of teachers in the Granite State. As professional development providers, we are here to help! From revised workshops, to extended institutes, to factual information, this newsletter is full of resources and opportunities to help New Hampshire teachers achieve and maintain their highly qualified status.

Professional Development: Keeping Up With Changing Needs

Open any newspaper and you’re bound to find an article highlighting the reauthorization of the Elementary and Secondary Education Act, more commonly known as “No Child Left Behind (NCLB).” Hot topics in today’s education community include revised content standards, testing every child in grade 3-8 and a debate over what adequate yearly progress really means. This article explores some of the recent changes and requirements set out for educators in New Hampshire, specifically the revision of student standards and what that means for professional development of educators statewide.

What’s New?

In preparation for the new statewide science assessment, the existing N.H. State Science Framework is being revised. A committee, made up of teachers, informal educators and parents, is working to update the frameworks and hopes for acceptance and approval in the early fall of 2005.

The current N.H. Science Framework was approved in January of 1996, before the National Science Education Standards were published. It included six strands: Inquiry; Science Technology & Society; Physical Science; Life Science; Earth Space Science; and Unifying Themes. The proposed frameworks include revisions of the Earth Science, Life Science, and Physical Science strands to include topics from the Inquiry and Science Technology & Society Strands, as well as adding a new strand: Science Skills. The Science Skills strand seeks to ensure that students can:

- Make observations,
- Ask questions and seek answers,
- Predict outcomes,
- Design scientific investigations,
- Collect, record, analyze and apply data,
- Communicate and report outcomes,
- and more.

Rather than teaching a specific content topic, the science skills strand seeks to ensure that all students leave school with investigative skills that will carry over from year to year, discipline to discipline. The skills documents will help teachers – at all grade levels – focus on connecting science skill development across disciplinary lines.

CHANGING NEEDS continued on page 4
The New Hampshire Education and Environment Team (NHEET) presents “Curriculum Connections through Schoolyard Investigations” a five-day professional development institute for educators of grades K-8, that incorporates the newly proposed science frameworks.

The institute will be held on August 15-19, 2005, at Barry Conservation Camp in Berlin, N.H.

Come experience New Hampshire’s rich natural landscape, while developing professional skills that will keep you on the highly qualified teacher track. Have the opportunity to design an interdisciplinary schoolyard or community investigation tailored to your school and curriculum. Enjoy campfires, a wildlife safari and a night walk — evening activities that offer invaluable networking opportunities.

Using New Hampshire’s natural landscape as a laboratory, participants will:

- Learn earth, physical and life science content through a study of the state’s natural resources and landscape;
- Engage in a variety of learning experiences, including hands-on, scientific fieldwork, lectures, discussion groups and journaling;
- Explore techniques and develop skills to teach content to K-8 students through problem-solving, schoolyard investigations;
- Design an interdisciplinary investigation suited to the scope and sequence of each participating school’s curriculum, incorporating the new science frameworks.
- Be eligible for free, follow-up workshops during the 2005-06 school year.

Barry Conservation Camp is located in the White Mountain National Forest. This is a residential program; lodging is available in rustic cabins or on-site tenting. A new dining hall, kitchen and restrooms provide clean, modern facilities, including hot showers.

All meals, lodging, instruction, manuals and other materials for projects WET, WILD, Learning Tree, HOM.E and the GLOBE Program are included in the $150 registration fee. Discounts are available for school teams of four or more and for curriculum coordinators. Optional graduate credit is available from Plymouth State University (4 credits for $500).

To register, or for more information, contact: Jessica Brock, Project WET, N.H. Department of Environmental Services, PO Box 95, Concord, NH 03302-0095;

(603) 271-4071, jbrock@des.state.nh.us

Registration deadline is July 22. Register early to ensure your school’s spot!

Institute participants learn about the wildlife found in their region.

EARTH as a System for Educators

Natural Resources 780/880
(4 credits)
FALL SEMESTER 2005
University of New Hampshire, Durham
Class: Wednesday 6:10 – 9:00pm
Lab: Five Saturdays 8:00am – 1:00pm

Explore the concept of Earth as a System. This course will include study of ecosystems, habitats, biomes, biodiversity, water and air quality, weather, climate, watersheds, remote sensing, the flow of matter and energy through the universe, water and nutrient cycles, wildlife identification and monitoring, interdependence and changes over time.

Interested? Contact Jennifer Bourgeault at (603) 862-4178 or email jen.bourgeault@unh.edu.
Spotlight on... Educational Support Centers

Making a difference for the teachers and students of New Hampshire

Did you know that there are at least seven educational support centers around the state that provide high-quality professional development opportunities for teachers? Six of those make up the Local Educational Support Center Network, formed two years ago by the N.H. Department of Education, with funding made available by an Enhancing Education through Technology federal grant. The intent of the network is to provide high-quality professional development designed to improve teacher effectiveness by increasing their content knowledge, teaching skill and use of classroom technology. The increased availability and quality of training and other available resources, are expected to show a positive correlation to student achievement. In addition to the numerous, quality workshops designed to target the professional development needs of the region each center serves, the support centers offer meeting space, educational books and videos for loan and distance-learning capability.

The Local Educational Support Center Network includes the following centers:

- Greater Manchester Professional Development Center (GMPDC) in Manchester, providing support for school districts in south central New Hampshire;
- Seacoast Professional Development Center (SCPD C) in Exeter, serving the seacoast region;
- Southwest New Hampshire Education Support Center (SWnhESC) in Keene, supporting teachers in southwestern New Hampshire;
- Sugar River Center in Claremont (a satellite of SWnhESC), serving the west central region;
- Capital Area Center for Educational Support in Penacook, providing support to districts in the Concord and lakes regions;
- North Country Education Support Center (NCES) in Gorham, also part of the network, has been providing support to North Country teachers since 1969.

For information about individual network learning centers, visit www.nheon.org/centers

Another education center, not connected to the network, is the Southeastern Regional Education Service Center (SERESC) in Bedford, which has been around since 1974. In addition to offering high-quality professional development opportunities for teachers, SERESC offers a multi-media, videoconferencing and meeting facility that is available for meetings, workshops and conferences. To learn more, visit www.SERESC.net.

Looking for Something to Do?

Check PLT, WET and WILD Appendices

Have you been looking for that activity from the guide(s) that incorporates language arts, math, or another subject? Maybe you have been looking for an activity that involves students conducting an experiment. Have you reviewed the indexes in the back of the PLT, WET, and WILD guides? All three guides have an alphabetical listing of activities, an index by topics and an index by skills/subject areas/teaching methods. PLT and WET also have indexes for the time required, suggested grade level and setting. Check out those indexes today!

Teachers incorporate activities from the PLT, WET and WILD guides while mapping their curriculum for the coming year.

Recommended Resources


New Hampshire is also working closely with Vermont and Rhode Island to develop the Tri-State Science Assessment, to be piloted in the spring of 2007. This assessment will look at the achievement of students in science, helping districts and schools to track and improve their programs. This assessment is being developed to address the requirements from NCLB that require states to test students once in each of three grade bands. The Tri-State Science Assessment will be a spring test and will occur at the end of grades 4, 8 and 11. Hopefully, a performance component will be included.

Higher Bar for Professional Development

As the Association for Supervision and Curriculum Development (ASCD) reports, “state policymakers have begun to more specifically define the curricular goals for education systems, and to use high-stakes assessment policies to leverage change by holding students and educators accountable for attaining these goals... Within this environment of increased teacher and student expectations, teacher professional development is frequently cited as a key strategy in improving student learning.” (ASCD 2004)

Sources seem to agree that professional development is necessary to help teachers stay current on the changes facing their classrooms. But, what comprises good professional development? The U.S. Department of Education describes professional development as:

- Improving and increasing teachers' knowledge of the academic subjects they teach, and enabling teachers to become highly qualified;
- Giving teachers and principals the knowledge and skills to provide students with the opportunity to meet challenging State academic content standards;
- Being high quality, sustained, intensive, and classroom-focused in order to have a positive and lasting impact on classroom instruction and the teacher's performance in the classroom; not 1-day or short-term workshops or conferences;
- Advancing teacher understanding of effective instructional strategies that are... strategies for improving student academic achievement or substantially increasing the knowledge and teaching skills of teachers;
- Being aligned with and directly related to State academic content standards, student academic achievement standards and assessments;
- As a whole, being regularly evaluated for their impact on increased teacher effectiveness and improved student academic achievement, with the findings of the evaluations used to improve the quality of professional development; and
- Providing follow-up training to teachers... to ensure that the knowledge and skills learned by the teachers are implemented in the classroom.

A workshop participant reflects on her experience

As you can see from this definition, professional development has evolved from stand-alone sessions to emphasizing experiences that focus on long-term coherent plans.

In 2003, the National Partnership for Excellence and Accountability in Teaching (NPEAT) published a study that examined the effectiveness of a variety of professional development experiences. Specifically, NPEAT indicates that effective professional development, among other features, “is primarily school-based and built into the work of teachers,” “is continuous and ongoing, involving follow-up and support for further learning,” “focuses on what students are to learn,” and “provides opportunities to gain an understanding of the theory underlying the knowledge and skills being learned.” (ASCD 2003)

In addition, “a fundamental lesson learned in the past decade of school reform efforts is that far more time is required for professional development and cooperative work than is now available.” (Cook & Fine. 1997)

Meeting Tough New Standards

With the emphasis on increasing student knowledge and skills, professional development has shifted to emphasize the application of content and content-specific teaching skills, rather than stand-alone knowledge and skills.

Districts are placing less emphasis on “pull-out” training and “one-shot deals,” preferring instead that teachers and staff participate in a continued connection of professional development to classroom teacher practice. The No Child Left Behind Act and other federal K-12 grant programs call on educational practitioners to use “scientifically based research” to guide their decisions about which interventions to implement.

This is where programs such as Project Learning Tree, Project WET and Project WILD excel. These programs supply teachers with content-specific information and skills that directly support the state framework. They offer extended opportunities (such as the summer institute described on page 2), in addition to traditional activities. Staff connect teachers with additional materials and natural resource professionals throughout the state to help extend student learning. Trainings offer planning time for learning how to integrate new knowledge and skills into the classroom, as well as how to create bridges to other disciplines.

Today's teachers face a broad range of new requirements, from the implementation of streamlined professional development plans to the revision of student learning standards and creation of new science assessments. Regardless of where they live or what their experience may be, for every educator, the very nature of professional development in New Hampshire and across the country has changed. Fortunately, established programs like Project Learning Tree, Project WET and Project WILD are already in place and ready to help you meet these tough new standards.
The No Child Left Behind Act includes a set of mandates for the quality of professional development provided to teachers. Project Learning Tree, Project WET and Project WILD have adapted our workshop structure to better help teachers meet their professional development needs, helping them to more effectively integrate our materials into their curriculum. The new workshop design consists of three sessions, rather than one single session. This change provides more structured reflection and planning time. The coordinators have begun piloting the new design and will include participant reviews of the new sessions in a future WEB issue.

Have no fear, our traditional workshops will still continue to be offered. PLT, WET and WILD are very interested in determining the enhancements or modifications that can be made to the traditional one-day workshops to help meet professional development requirements. If you have any comments or suggestions on the workshops, please contact any of the project coordinators at the addresses listed on the back of this newsletter.

Follow-up workshops provide opportunities to extend the professional development experience.

**Activities Related to Articles in This Issue**

**Project Learning Tree suggests:**
Whether it’s a 100-room palace or a small hut made of branches, all human shelters serve the same basic purpose. In Tipi Talk, students will use observation, inference and synthesizing skills to discover how homes can give clues about the lives of people who live in them.

A plant is a biological system. Its processes and components enable it to grow and reproduce. Have Seeds Will Travel introduces students to one aspect of a plant’s reproductive system - its seeds - through sorting, classifying and modeling. Preparing an Environmental Exchange Box will give your students a chance to learn more about their own region and the things that are special about it. Then, when they receive an exchange box from another region, they can compare environments, people and much more.

**Project WET suggests:**
In AfterMath, students calculate the economic loss that results because of flooding and other related weather events or both individually and as a community. As an extension, you can have your students research actual events and report on them. Students can also examine flood and/or weather patterns and gather observations.

Students will roleplay a water molecule’s special ability to hold onto other water molecules in the activity Hangin’ Together. To obtain further assessment, teachers can have students develop a paper, draw a picture or perform a play about what life would be like without hydrogen bonding.

Did you ever want to be a water drop? Here’s your chance! In the activity the Incredible Journey, students will become water molecules as they go through the water cycle. An extension to this activity is for students to investigate how water becomes polluted and how it is cleaned as it moves through the water cycle.

**Project WILD suggests:**
Students sharpen their evaluation skills in Adaptation Artistry, an activity in which they design and create imaginary birds and write reports that include descriptions of the birds’ adaptations.

In Deer Dilemma, high school students conduct a board of commissioners meeting to hear the concerns of constituents regarding the ever-increasing deer population in and around a local park. Students use their problem-solving skills, as they make decisions concerning the issue.

Students practice their analyzing skills as they dissect real owl pellets, reconstruct prey skeletons and hypothesize food sources of the prey in the activity, Owl Pellets.
Electronic Naturalist
The Electronic Naturalist is a new online education program providing a weekly environmental education unit. Each unit has artwork, text, activities, additional websites, plus online access to a professional naturalist. Two reading levels are available for grades K-3 (Quick Read) and 4-8 (Full Read).
www.enaturalist.org

Watershed Ecology Summer Institute for Teachers and Youth Educators
July 25-29 and August 1-5, 2005, at Bow High School, Bow, N.H.
This 10-day class is offered through the College of Life Long Learning at U.N.H., and is taught by staff from New Hampshire Fish and Game, UNH Cooperative Extension and the Audubon Society of New Hampshire. The class uses watersheds as a framework for studying wetlands, rivers, streams, lakes, ponds and estuaries. In addition to strong background information, the course includes plenty of curriculum materials and activities for the classroom. Ideal for science educators, youth leaders and community leaders. College credit and tuition assistance available. For more information, call Fish and Game Aquatic Education at (603) 271-3212.

Walk in the Forest
Walk in the Forest is a half-day workshop intended to provide teachers an opportunity to learn about trees, forests, the environment, and how professionals and tree farmers care for New Hampshire's forests and natural resources. This teacher training event will provide you with the information and resources you need for taking students outdoors to explore local forests, helping to develop their appreciation and respect for nature. Workshops are being offered in Concord on Tuesday, July 19. Cost is $10 per person. For more information, contact Beth at (603) 226-0160 or info@nhplt.org.

Energy & Society
PLT’s Energy & Society program kit provides formal and nonformal educators with tools and activities to help students in grades PreK-8 learn about their relationship with energy and investigate the environmental issues related to energy's role in society. In addition to hands-on activities, Energy & Society integrates music and dance to enhance the study of energy issues. This workshop is scheduled for Thursday, June 23, from 2-4p.m. at PSN H Energy Park in Manchester, N.H. Cost is $25 per person. For more information, contact Beth at (603) 226-0160 or info@nhplt.org.

PLT in the White Mountain National Forest
- August 2, 2005: Grade K-4 Educators
- August 3, 2005: Grade 5-8 Educators
- August 4, 2005: Grade 9-12 Educators
These workshops will introduce educators to the White Mountain National Forest, using PLT and a new Forest Service curriculum as tools to explore the Forest Discovery Trail.
Cost is $35 per person. For more information, contact Beth at (603) 226-0160 or info@nhplt.org.

Use Risk to Study Physical and General Science
The Project Learning Tree Focus on Risk module provides secondary educators with a series of activities to help students learn the rationale for and the mechanics of risk assessment, risk management, and risk communication. The module focuses on developing skills in problem solving, decision-making, and the methods of inquiry and tools used by risk assessors. Disciplines addressed include chemistry, civics, ecology, environmental science, geography, health, language arts, math, physics and social studies. The workshop is scheduled for Thursday, October 20, from 3:30 - 6:30 p.m. in Concord. Cost is $35 per person. For more information, contact Beth Lesure at (603) 226-0160 or info@nhplt.org.

Great American Secchi Dip
The Dip-In is a chance for lay people to take a water clarity measurement from a local lake, using a secchi dish. The dip-in goes from June 25 to July 17. Disks can be borrowed from the N.H. Department of Environmental Services or most local colleges or universities. For more information visit www.dipin.kent.edu or contact Andrea Lamoreaux at (603) 271-2658.

Make a Splash with Project WET
More than 30,000 students throughout the country, including students in New Hampshire, will celebrate water during the sixth annual Make a Splash with Project WET Day, September 23. This year’s New Hampshire Festival is being held in the Upper Connecticut Mascoma River Watershed. Schools in the area surrounding Lake Sunapee will be invited to attend. For more information, contact Jessica Brock (603) 271-4071 or jbrock@des.state.nh.us. Also contact us if your school or district is interested in being considered as a site for this annual event in 2006.

2005 New England EE Conference in Massachusetts
Reserve the weekend of October 14-16 for the 39th annual New England Environmental Education Alliance conference in Sandwich, MA. This year’s conference is titled, Raising our Net Impact: The Next Generation of Environmental Education. The event offers numerous EE-focused workshops and networking opportunities. Visit www.neeea.org this summer for registration materials.

New Hampshire Ecosystem Connections
This five-day professional development opportunity for science teachers will be held on June 27-29 and July 27-28, at the Fish and Game Headquarters in Concord. The work of the institute will be organized around three major strands: 1) Biodiversity of the Granite State, 2) Natural Cycles and 3) A Systems Approach to the Environment. This workshop is designed for middle school science teachers working on Individual Professional Development or Highly Qualified Teacher Plans, elementary teachers seeking science content, or high school general science or general biology teachers. For more information, contact Robin Knight at SERESC at (603) 206-6816 or rknite@seresc.net.

For back issues of the Project WET Newsletter visit:
www.wildlife.state.nh.us/Environmental/education/ historic.htm
A Are you ready to meet the challenges of curriculum mandates - and make more interesting, hands-on learning happen in your classroom - while meeting the new frameworks? Project H O M E is available to help you in this constantly changing environment. Consider scheduling a “Project H O M E: Homes for Wildlife” workshop for your school community or for your whole district. This program supports the tenets and requirements of the N o Child Left Behind mandate, as well as the new proposed state science frameworks, because it is interdisciplinary, inquiry-based and engages the community in a school-based project.

Framework for a Habitat Project

The new, proposed science frameworks - due out in the fall of 2005 - emphasize more environmental content and reinforce a vital skill set. What skills may you expect your students to develop as they develop a schoolyard habitat?

“M aking O bservations and M easurements” calls for Grade 4 students to “describe, draw, count and/or measure using available tools,” which they could do with the site inventory materials in the H omes for Wildlife manual. Using the inventory task cards, students investigate the schoolyard site. With field guides and track cards, students collect data on Animal Signs; with rulers, clipboards, paper and pencil, they conduct an Earthworm Analysis; with collecting buckets, they gather samples of distinctive Surface Rocks to analyze in the classroom. All students can further develop these skills while using the outcomes of their scientific investigations. Kelly School students, in Newburyport, Mass., installed a blind for observing birds in their new shade garden.

“C ollecting and R ecording R elevant I nformation,” such as soil types, wet and dry areas of the schoolyard, slope, and drainage patterns.

Students in Grade 8 working with “A sking Q uestions and S eeking A nswers” could “identify questions to investigate arising from practical problems and issues” as they assess traffic and parking at their school site. Is there too much space for parking, or not enough? How is the impact of runoff on nearby streams or wetlands? Does traffic threaten local wildlife? Are there alternative approaches to parking lot surface materials, transportation options, or other considerations?

Within “A ccessing and U sing R elevant I nformation,” students at the end of second grade will be expected to “find and use a variety of sources of information and ideas.” A wealth of secondary materials supports schoolyard study, from field guides, to online map websites, to “how-to” landscaping manuals, to C D - R O M S for site design, to books and periodicals about specific wildlife species. Second graders could also “make predictions to explain what they think will happen” when they install a variety of bird feeder designs with different kinds of seed, and set in different locations, then track the activity and success of each relative to the local bird population.

All grades can engage in variations on this skill while meeting the standards for

ACTION GRANTS

When you get a project all designed with your students, and tied into your curriculum, you could apply for a “Homes for Wildlife Action Grant.” Funded by the Conservation License Plate, through the Nongame and Endangered Wildlife Program of the N.H. Fish and Game Department, this grant program provides $300-$600 grants to help initiate habitat projects. It will cover the cost of materials for projects that, 1) directly benefit wildlife, 2) involve students in planning and implementation, 3) make connections with your curriculum, and 4) are sustainable for the long term. Grant deadlines are November 15 and February 15. Contact: Marilyn Wyzga, Project HOME coordinator, at (603) 271-3211 or mwynga@wildlife.state.nh.us.

“D esigning S cientific I nvestigations.” They would further “A nalyze and I nterpret the R esults of S cientific I nvestigations,” perhaps in fourth grade, by “classifying according to several attributes and creating a chart or diagram that shows the method of classification.” Specifically, the H omes for Wildlife manual leads you and your students through the process of developing a key, using common objects like fruits; this can be extended to developing and/or using a plant
Seventh graders at Kingswood Middle School designed a scientific investigation, installing and monitoring 100 bluebird nest boxes, key to help identify Most Common Plants on your schoolyard. Extending this further, sixth graders might “interpret patterns and trends in data” when they assess the dominant vegetation types on the school grounds, where they tend to occur relative to soil types, and what the wildlife activity patterns are in the vicinity.

When they are ready to “Apply and Use the Outcomes of Scientific Investigations,” all grades would evaluate the results of several seasons worth of data collection and mapping, and decide how to enhance their schoolyard to make it more vital habitat for wildlife while continuing to give themselves a place to study. For instance, students might plant a pollinator garden outside their classroom window; or create a bird feeding area with shrubs, trees and vines and a bird blind for quiet observation; or seed a meadow around the perimeter of a ball field, providing a buffer and grassland wildlife habitat.

### Integrating Science Skills with Other Subjects

The new science frameworks will also include skill areas in “Communicating and Reporting the Outcomes of Scientific Investigations” and “Cooperating in Scientific Investigations.” Both provide incentive and opportunity to involve multiple classes or grades, or even the entire school, in the process of assessing and enhancing the schoolyard as wildlife habitat and outdoor study area, with each grade or subject area contributing on a developmentally appropriate or content appropriate level. For instance, seventh graders might “Incorporate Technology and Engineering” by producing maps using GIS (Geographic Information Systems) technology available on the Internet. This would provide a composite map for third grade language arts students to record their sound poetry on, for fifth grade math students to record their vegetative cover estimates on, or for first graders to record their color associations on, and on and on. The technology and engineering skills within this framework also support the design and construction of habitat components such as species-specific nest boxes, site-appropriate composting units, and appropriately scaled water features with circulating pumps.

### Real Life Applications

Still sounds challenging? All of these examples are REAL. The curriculum connections mentioned and the projects described have been implemented by New Hampshire schools in the development of their habitat areas over the past 12 years. Build on their experience. If you are interested in contacting a school that has participated in “Project HOME: Homes for Wildlife,” please contact Marilyn Wyzga, Project HOME coordinator, at (603) 271-3211 or mwyzga@wildlife.state.nh.us for a list.

### Coordinator Information

Mary Goodyear  
Project WILD  
N.H. Fish and Game Dept.  
RR1, Box 241  
Whitefield, NH 03598  
(603) 846-5108  
mgoody@ncia.net  
www.wildlife.state.nh.us

Jessica Brock  
Project WET  
N.H. Department of Environmental Services  
29 Hazen Drive  
Concord, NH 03301  
(603) 271-4071  
wet@des.state.nh.us  
www.des.nh.gov/wet

Esther Cowles  
Project Learning Tree  
54 Portsmouth Street  
Concord, NH 03301  
(800) 677-1499  
info@nhplt.org  
www.nhplt.org