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## HOW TO USE THIS HANDBOOK

The purpose of this handbook is to assist educators who are reviewing and revising their curricula, in response to New Hampshire's movement to standards-based education. The primary audience is classroom teachers, curriculum specialists, and curriculum committees.

The handbook is divided into two sections:

- **PART I lists each PLT activity in the five *Secondary Modules* followed by the standards from the NH curriculum frameworks with which it is aligned.**

Use Part I if you have a particular PLT activity in mind and want to know how it correlates with the state curriculum standards. Or, to find an appropriate activity to meet your needs, consult that secondary module which most closely matches your topic.

There you will find several potential activities to supplement your unit. To determine which state standards correlate with these activities, look under the name of the module, and then find the number and name of each activity in this handbook. Select an activity based on your objectives for your unit and the degree to which the activity correlates with appropriate standards.

For each PLT activity (indicated by activity number and name under each of the five secondary modules), the related subject areas are listed as headers in cases where correlations are found, in the order of science, social studies, mathematics, and English language arts. Beneath each subject area header, bulleted standards are listed, preceded by a phrase common to all the standards, such as "students will," or "students will demonstrate." Each standard is followed in parentheses by the number assigned to the standard and, in *italics*, by the organizing strand or theme within which it falls.

- **PART II lists individual state curriculum standards from the four frameworks, followed by the PLT activities within each module that meet the individual standards.**

Use Part II if you have a particular curriculum standard in mind and want an activity that meets this standard. Then read about the activities in the appropriate PLT module(s) to determine the one most suitable for your situation.

For each of the four curriculum frameworks (science, social studies, mathematics, and English language arts), individual curriculum standards are listed, preceded by their respective numbers and, in parentheses and *italics*, organizing strands. Following each standard, the PLT activities aligned with that standard are identified by module, number, and name.

## INTRODUCTION

### Background

As we move into a new millennium, public education is undergoing fundamental reform. In every discipline, new research reports recommend strategies for improving how our schools educate our students. Some reports suggest minor changes, while others recommend a major overhaul. One reform movement affecting change nationwide involves standards-based education.

“Standards” refer to specific knowledge, understandings, and skills that every student should know and be able to demonstrate upon graduation from a public high school in the United States; standards attempt to identify the most important ideas and skills in each subject area, to best prepare students for life.

In New Hampshire, the state Department of Education is implementing standards-based education through curriculum frameworks for science, social studies, mathematics, and English language arts. Although not mandated, the frameworks set forth high education standards to help educators develop effective K-12 curricula. Throughout the state, school districts are revising their current curricula and evaluating the effectiveness of their classroom materials to address the standards.

This handbook is a practical application of New Hampshire's curriculum frameworks to a single curriculum program, Project Learning Tree. It allows educators to determine at a glance (1) those state curriculum standards with which each PLT activity is aligned and (2) those PLT activities which are aligned with each state standard. With this information, educators can easily identify appropriate PLT activities for their lesson plans and address selected state standards more completely.

### National Reform Efforts

Educational reform, including standards-based education, grew out of “America 2000,” an educational initiative conceived during the Bush Administration and translated into legislation signed by President Bill Clinton in March, 1994 (“Goals 2000: Educate America Act”). Among the goals of this act are student competency in core subjects (science, social studies, mathematics, and English language arts) and preparation to compete in a global economy.

Two seminal documents driving educational reform include the National Commission on Excellence in Education's (NCEE) report, *A Nation at Risk: The Imperative for Educational Reform* (1983) and *Educating Americans for the 21<sup>st</sup> Century* (National Science Board, 1986).

To achieve the goals set forth in the America 2000 initiative, the National Committee on Science Education Standards, under the auspices of the National Research Council, developed and published *National Science Education Standards* (1996). This project sets national standards for science education programs, content, assessment, and other areas of educational endeavor.

Another effort to improve science education is the American Association for the Advancement of Science's Project 2061. The goal of this project is to ensure that by the time Haley's Comet makes its next appearance in the year 2061, all U.S. citizens will possess the understandings needed for life in the 21<sup>st</sup> century. This project focuses on integration among the science disciplines and connections of science with other curriculum areas (humanities and the social sciences).

Two landmark reform documents in mathematics education affecting current directions for change are *Curriculum and Evaluation Standards for School Mathematics* (National Council of Teachers of Mathematics, 1989) and *Everybody Counts* (Mathematical Sciences Education Board, 1989). These documents offer guiding principles and visions about possible directions for change in mathematics teaching and learning for all children.

Defining outcomes or goals in the area of English language arts is the National Council of Teachers of English (NCTE) and the International Reading Association's (IRA) *Standards for the English Language Arts* (1996). The standards contained in this document grew out of current research about how students learn language and offer a coherent vision for improvement of English language arts teaching and learning.

Several documents guide reform efforts in the social studies, with the *Curriculum Standards for Social Studies* (National Council for the Social Studies, 1994) addressing comprehensive student performance expectations and overall curriculum design. This document defines what students should be learning in the early grades, middle grades, and high school.

The individual discipline standards that contribute to social studies (geography, history, economics, and civics and government) provide focused and enhanced content detail. For history, these include *National History Standards for K-4: Reaching Out in Time and Space*; *National Standards for United States History, Grades 5-12*; and *National Standards for World History, Grades 5-12* (all published by the National Center for History in the Schools, with no dates indicated). *Geography for Life: National Geography Standards* (Geography Education Standards Project, 1994) specifies the essential subject matter, skills, and perspectives that all students should have in order to attain high levels of competency in geography.

### **New Hampshire Curriculum Frameworks**

Many states are responding to these national reform initiatives. The New Hampshire Department of Education (DOE) has developed curriculum frameworks ("standards") for science, social studies, mathematics, and English language arts. Each curriculum framework serves as (1) the basis for the development of assessment instruments to be administered, statewide, at the end of grades three, six, and ten; and as (2) a guide for making local decisions about curriculum development and delivery.

The frameworks contain both curriculum and proficiency standards. In general, the *curriculum* standards are end-of-grade twelve standards, whereas the *proficiency* standards establish specific expectations for the assessment of cumulative learning at the end of grades three, six and ten.

To date, the following NH curriculum frameworks have been developed, and form the basis of this correlation:

- *K-12 Science Curriculum Framework (2/95)*, with 25 curriculum standards;
- *Social Studies Curriculum Framework (8/95)*, with 18 curriculum standards;
- *Mathematics Curriculum Framework (2/95)*, with 17 broad goals;
- *English Language Arts Curriculum Framework (6/95)*, with 7 curriculum standards.

### **Project Learning Tree (PLT)**

Project Learning Tree is an award-winning environmental education program designed by teachers, for teachers and other educators working with students in grades preK through 12. PLT uses the forest as a “window” into the natural and built environments, helping students gain an awareness and knowledge of the world around them, as well as their place in it. It encompasses the total environment B land, air, and water B and is local, national, and global in scope.

PLT is an abundant source of interdisciplinary lessons. The activities work well to introduce unifying themes and then probe specific content areas. The *PreK-8 Activity Guide* addresses the disciplines of science, social studies, language arts, mathematics, visual arts, the performing arts, and physical education. PLT's secondary modules cover social studies, geography, biology, environmental studies, ecology, chemistry, economics, history, language arts, mathematics, physics, and art.

Each PLT activity contains a range of information helpful to teachers. The overview provides a two or three sentence description of the activity. The sidebar lists information important to incorporating the activity into a classroom unit. It identifies appropriate grade levels, related disciplines, core concepts, thinking skills, content objectives, materials needed, and time considerations. The background provides greater understanding and perspective for doing the activity. “Getting ready” describes how to prepare for the activity. “Doing the activity” offers step-by-step instructions for leading the activity. Some activities also provide variations and enrichment suggestions. The end-notes identify references used in developing the activity, related activities to expand upon the activity, and suggestions for assessment opportunities.

The following Project Learning Tree secondary environmental education modules form the basis of this correlation, and are presented in this order in the handbook:

- *Introductory Handbook for the Secondary Modules (1995)*
- *Exploring Environmental Issues: Focus on Forests (1996, 2<sup>nd</sup> edition)*
- *The Changing Forest: Forest Ecology (1996)*
- *Exploring Environmental Issues: Municipal Solid Waste (1997)*
- *Exploring Environmental Issues: Focus on Risk (February 1998, draft)*

A handbook correlating Project Learning Tree's *PreK-8 Environmental Education Activity Guide* is also available.

## METHODOLOGY

New Hampshire’s curriculum frameworks contain both curriculum and proficiency standards. In general, the *curriculum* standards are end-of-grade twelve standards, whereas the *proficiency* standards establish specific expectations for the assessment of cumulative learning at the end of grades three, six and ten.

For each curriculum standard, the associated proficiency standards were consulted to help inform the degree of correlation of the broader curriculum standard with each PLT activity; a match of at least one proficiency standard was required to indicate a correlation.

- For the *K-12 Science Curriculum Framework*, proficiency standards were consulted for grades 6, 8, and 10, using both the framework and the *K-6 and 8-10 Science Addenda*.
- The *K-12 Social Studies Curriculum Framework* provides proficiency standards for end-of-grades 6 and 10 only.
- For the *K-12 Mathematics Curriculum Framework*, proficiency standards were consulted for grades 6, 8, and 10, using both the framework and the *4-6 and 7-12 Mathematics Addenda*. (In this framework, the K-12 Broad Goals are correlated, rather than the “curriculum standards,” which correspond to proficiency standards in the other frameworks.)
- The *K-12 English Language Arts Curriculum Framework* provides proficiency standards for end-of-grades 6 and 10.

Two elements of each PLT activity helped to focus the correlation process.

- The subject identifier in the sidebar determined which disciplines (science, social studies, mathematics, or English language arts) would be addressed.
- The description of activity objectives in the sidebar informed which curriculum and proficiency standards were related to the activity.

Note: Any attempt to correlate universal curriculum standards and a single curriculum program involves subjectivity. Two important steps were taken to limit bias. First, the author applied this rigorous methodology to determine correlation. Second, drafts were peer-reviewed by PLT-trained elementary, middle, and high school teachers and state Department of Education personnel. Reviewers most common finding was that PLT activities lend themselves to modification, and in so doing, would meet many more standards than indicated. NHPLT chose, however, to correlate based on a strict interpretation of the activities, as they are written.