

A HANDBOOK LINKING  
PROJECT LEARNING TREE'S  
SECONDARY MODULES  
TO NH FRAMEWORKS FOR  
SCIENCE LITERACY (K-12)



New Hampshire Project Learning Tree

March 1998

Revised September 2006

This handbook is a project of New Hampshire Project Learning Tree, a private non-profit organization committed to the environmental education of our youth. The handbook is dedicated to the hundreds of school teachers and administrators who are responding to the state's move to standards-based education. Yours is not an easy job; we hope this handbook helps to lighten the load.

We would like to hear from our readers about how you have used the handbook and whether you find it accurate and clear. You can reach NH Project Learning Tree at

54 Portsmouth St., Concord, NH 03301

Phone: 603-226-0160 or 800-677-1499.

Fax: 603-228-0423.

Email: [info@nhplt.org](mailto:info@nhplt.org).

Website: <http://www.nhplt.org>

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## **METHODOLOGY**

### **2006 Correlation Revision (Science)**

NH's curriculum standards have undergone substantial change in response to the federal No Child Left Behind Act. The former state standards were written for the end of grades three, six and ten. To meet new formalized assessment requirements, the NH Frameworks for Science Literacy (K-12), approved in June 2006, address content and skills, and are divided into grade spans for K-2, 3-4, 5-6, 7-8, 9-11 (basic literacy) and 11-12 (advanced literacy).

The NH Frameworks for Science Literacy (K-12) contain the following components:

- **Domain**: There are four domains within the science curriculum frameworks: Earth Space Science (ESS), Life Science (LS), Physical Science (PS), and Science Process Skills (SPS).
- **Strand**: There are five strands, or enduring knowledge statements, in LS and four each in domains of PS and ESS. Strands are the SAME for each grade span although not all components may be seen in each grade span. (Example: LS1 – All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species.))
- **Stem**: These are the categories of ideas. Stems are common throughout all grade spans. (Example: 1. Classification)
- **Grade-span Expectations (Proficiencies)**: These are what all students should know and be able to do within a specific grade range. The ranges include: K-2, 3-4, 5-6, 7-8, 9-11 (basic literacy level) 11-12 (advanced level).

For each strand, the associated proficiencies were consulted to help inform the degree of correlation of the broader strand with each activity; a match of at least one proficiency was required to indicate a correlation. Three elements of each activity will help focus the correlation process.

- The subject identifier in the sidebar determined whether the activity was correlated to the science frameworks; if science is not listed the activity was not be addressed.
- The grade levels noted in the sidebar determined which grade span proficiencies were examined.
- The description of activity objectives in the sidebar informed which curriculum and proficiency standard(s) are 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. 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.

## HOW TO USE THIS HANDBOOK

The purpose of this handbook is to assist educators who are reviewing and revising their science curricula. The primary audience is classroom teachers, curriculum specialists, and curriculum committees. The handbook is divided into three sections, as follows

- **PART I lists each PLT activity in the *Secondary Modules* followed by the standards from the NH Frameworks for Science Literacy (K-12) 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, use PLT's "Topic Index" to select several potential activities to supplement your unit. To determine which state standards correlate with these activities, 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. Each PLT activity is indicated by activity number and name and is followed by the strand and stem for each framework that is correlated to that activity.

- **PART II lists individual state curriculum standards from the NH Frameworks for Science Literacy (K-12), followed by the PLT activities that meet the individual standards.**

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

All science domains (i.e. Life Science), strands (i.e. All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species) and stems (i.e. 1- Classification) are listed. Following each standard, the PLT activities aligned with that standard are identified by number and name.

- **Part III is a chart that lists each PLT activity in the *PreK-8 Activity Guide* and *Energy & Society Kit* and the standards from the NH Frameworks for Science Literacy (K-12) with which each activity is aligned.**


Note: Throughout this handbook, the domains are abbreviated as follows:

ESS – Earth Space Science  
LS – Life Science  
PS – Physical Science  
SPS – Science Process Skills

# **Charts Correlating PLT Secondary Modules with NH Frameworks for Science Literacy (K-12)**

















## **Earth Space Science\***

	ESS1							ESS2				ESS3			ESS4			
<b>Exploring Environmental Issues: Focus on Forest</b>	1	2	3	4	5	6	7	1	2	3	4	1	2	3	1	2	3	4
1: What's a Forest to You?																		
2: Case Study: Old-Growth Forests																		
3: Tough Choices																		
4: Who Owns America's Forests?																		
5: Balancing America's Forests																		
6: Squirrels vs. Scopes																		
7: Words to Live By																		
8: Take Action!																		
	ESS1							ESS2				ESS3			ESS4			
<b>The Changing Forest: Forest Ecology</b>	1	2	3	4	5	6	7	1	2	3	4	1	2	3	1	2	3	4
1: Adopt-A-Forest																		
2: Cast of Thousands																		
3: The Nature of Plants																		
4: Home Sweet Home																		
5: Saga of the Gypsy Moth																		
6: Story of Succession																		
7: Understanding Fire																		
8: Fire Management																		
	ESS1							ESS2				ESS3			ESS4			
<b>Exploring Environmental Issues: Municipal Solid Waste</b>	1	2	3	4	5	6	7	1	2	3	4	1	2	3	1	2	3	4
1: Introduction to MSW: The Waste Stream																		
2: Source Reduction																		
3: Recycling and Economics																		
4: Composting																		
5: Waste-to-Energy																		
6: Landfills																		
7: Where Does Your Garbage Go?																		
8: Take Action: Success Stories and Personal Choices																		

	ESS1							ESS2				ESS3			ESS4			
<b>Exploring Environmental Issues: Places We Live</b>	1	2	3	4	5	6	7	1	2	3	4	1	2	3	1	2	3	4
1: Personal Places																		
2: Community Character																		
3: Mapping Your Community Through Time																		
4: Neighborhood Design																		
5: Green Space																		
6: Vision for the Future, A																		
7: Far-Reaching Decisions																		
8: Regional Community Issues: The Ogallala Aquifer																		
	ESS1							ESS2				ESS3			ESS4			
<b>Exploring Environmental Issues: Focus on Risk</b>	1	2	3	4	5	6	7	1	2	3	4	1	2	3	1	2	3	4
1: What is Risk?																		
2: Things Aren't Always What They Seem																		
3: Chances Are...Understanding Probability and Risk																		
4: Risk Assessment: Tools of the Trade																		
5: Communicating Risk																		
6: Weighing the Options: A Look at Tradeoffs																		
7: Decision Making: Ecological Risk, Wildfires, and Natural Hazards																		
Special Topic: Electromagnetic Fields																		
Special Topic: Chlorine																		
Special Topic: Plastics, Risk/Benefit Analysis, and Environmental Legislation																		
8: Taking Action: Reducing Risk in Your School or Community																		



## Life Science\*

	LS1			LS2			LS3			LS4			LS5			
<b>Exploring Environmental Issues: Focus on Forests</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	4
1: What's a Forest to You?																
2: Case Study: Old-Growth Forests																
3: Tough Choices																
4: Who Owns America's Forests?																
5: Balancing America's Forests																
6: Squirrels vs. Scopes																
7: Words to Live By																
8: Take Action!																
	LS1			LS2			LS3			LS4			LS5			
<b>The Changing Forest: Forest Ecology</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	4
1: Adopt-A-Forest																
2: Cast of Thousands																
3: The Nature of Plants																
4: Home Sweet Home																
5: Saga of the Gypsy Moth																
6: Story of Succession																
7: Understanding Fire																
8: Fire Management																
	LS1			LS2			LS3			LS4			LS5			
<b>Exploring Environmental Issues: Municipal Solid Waste</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	4
1: Introduction to MSW: The Waste Stream																
2: Source Reduction																
3: Recycling and Economics																
4: Composting																
5: Waste-to-Energy																
6: Landfills																
7: Where Does Your Garbage Go?																
8: Take Action: Success Stories and Personal Choices																

	LS1			LS2			LS3			LS4			LS5			
<b>Exploring Environmental Issues: Places We Live</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	4
1: Personal Places																
2: Community Character																
3: Mapping Your Community Through Time							✿						✿		✿	✿
4: Neighborhood Design																
5: Green Space													✿			
6: Vision for the Future, A							✿									
7: Far-Reaching Decisions							✿									
8: Regional Community Issues: The Ogallala Aquifer							✿									
	LS1			LS2			LS3			LS4			LS5			
<b>Exploring Environmental Issues: Focus on Risk</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	4
1: What is Risk?																
2: Things Aren't Always What They Seem																
3: Chances Are...Understanding Probability and Risk				✿			✿									
4: Risk Assessment: Tools of the Trade													✿		✿	✿
5: Communicating Risk															✿	✿
6: Weighing the Options: A Look at Tradeoffs				✿			✿									
7: Decision Making: Ecological Risk, Wildfires, and Natural Hazards				✿			✿									
Special Topic: Electromagnetic Fields				✿			✿							✿		
Special Topic: Chlorine																
Special Topic: Plastics, Risk/Benefit Analysis, and Environmental Legislation							✿							✿		
8: Taking Action: Reducing Risk in Your School or Community							✿									

## Physical Science\*

	PS1		PS2			PS3		PS4			
<b>Exploring Environmental Issues: Focus on Forests</b>	1	2	1	2	3	1	2	1	2	3	4
1: What's a Forest to You?											
2: Case Study: Old-Growth Forests											
3: Tough Choices											
4: Who Owns America's Forests?											
5: Balancing America's Forests											
6: Squirrels vs. Scopes											
7: Words to Live By											
8: Take Action!											
	PS1		PS2			PS3		PS4			
<b>The Changing Forest: Forest Ecology</b>	1	2	1	2	3	1	2	1	2	3	4
1: Adopt-A-Forest											
2: Cast of Thousands											
3: The Nature of Plants											
4: Home Sweet Home											
5: Saga of the Gypsy Moth											
6: Story of Succession											
7: Understanding Fire											
8: Fire Management											
	PS1		PS2			PS3		PS4			
<b>Exploring Environmental Issues: Municipal Solid Waste</b>	1	2	1	2	3	1	2	1	2	3	4
1: Introduction to MSW: The Waste Stream											
2: Source Reduction											
3: Recycling and Economics											
4: Composting											
5: Waste-to-Energy											
6: Landfills											
7: Where Does Your Garbage Go?											
8: Take Action: Success Stories and Personal Choices											

	PS1		PS2			PS3		PS4			
<b>Exploring Environmental Issues: Places We Live</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
1: Personal Places											
2: Community Character											
3: Mapping Your Community Through Time											
4: Neighborhood Design											
5: Green Space											
6: Vision for the Future, A											
7: Far-Reaching Decisions											
8: Regional Community Issues: The Ogallala Aquifer											
	PS1		PS2			PS3		PS4			
<b>Exploring Environmental Issues: Focus on Risk</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
1: What is Risk?											
2: Things Aren't Always What They Seem											
3: Chances Are...Understanding Probability and Risk											
4: Risk Assessment: Tools of the Trade											
5: Communicating Risk											
6: Weighing the Options: A Look at Tradeoffs											
7: Decision Making: Ecological Risk, Wildfires, and Natural Hazards											
Special Topic: Electromagnetic Fields											
Special Topic: Chlorine											
Special Topic: Plastics, Risk/Benefit Analysis, and Environmental Legislation											
8: Taking Action: Reducing Risk in Your School or Community											

## Science Process Skills\*

	SPS1					SPS2					SPS3			SPS4								
<b>Exploring Environmental Issues: Focus on Forests</b>	1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	4	5	6	7	8	9
1: What's a Forest to You?																						
2: Case Study: Old-Growth Forests																						
3: Tough Choices																						
4: Who Owns America's Forests?																						
5: Balancing America's Forests																						
6: Squirrels vs. Scopes																						
7: Words to Live By																						
8: Take Action!																						

	SPS1					SPS2					SPS3			SPS4								
<b>The Changing Forest: Forest Ecology</b>	1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	4	5	6	7	8	9
1: Adopt-A-Forest																						
2: Cast of Thousands																						
3: The Nature of Plants																						
4: Home Sweet Home																						
5: Saga of the Gypsy Moth																						
6: Story of Succession																						
7: Understanding Fire																						
8: Fire Management																						

	SPS1					SPS2					SPS3			SPS4								
<b>Exploring Environmental Issues: Municipal Solid Waste</b>	1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	4	5	6	7	8	9
1: Introduction to MSW: The Waste Stream																						
2: Source Reduction																						
3: Recycling and Economics																						
4: Composting																						
5: Waste-to-Energy																						
6: Landfills																						
7: Where Does Your Garbage Go?																						
8: Take Action: Success Stories and Personal Choices																						

	SPS1					SPS2					SPS3			SPS4								
<b>Exploring Environmental Issues: Places We Live</b>	1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	4	5	6	7	8	9
1: Personal Places																						
2: Community Character																						
3: Mapping Your Community Through Time																						
4: Neighborhood Design																						
5: Green Space																						
6: Vision for the Future, A																						
7: Far-Reaching Decisions																						
8: Regional Community Issues: The Ogallala Aquifer																						

	SPS1					SPS2					SPS3			SPS4							
<b>Exploring Environmental Issues: Focus on Risk</b>																					
1: What is Risk?											✿	✿									
2: Things Aren't Always What They Seem											✿		✿					✿			
3: Chances Are...Understanding Probability and Risk			✿			✿									✿	✿					
4: Risk Assessment: Tools of the Trade								✿			✿		✿		✿	✿		✿			
5: Communicating Risk											✿		✿	✿			✿	✿		✿	
6: Weighing the Options: A Look at Tradeoffs											✿		✿	✿	✿			✿			
7: Decision Making: Ecological Risk, Wildfires, and Natural Hazards											✿	✿	✿		✿	✿					
Special Topic: Electromagnetic Fields											✿	✿	✿	✿	✿			✿			
Special Topic: Chlorine											✿	✿	✿	✿	✿			✿			
Special Topic: Plastics, Risk/Benefit Analysis, and Environmental Legislation											✿	✿	✿	✿	✿			✿			
8: Taking Action: Reducing Risk in Your School or Community											✿	✿	✿	✿	✿	✿		✿		✿	

### **Earth Space Science**

**ESS1** - The Earth and Earth materials, as we know them today, have developed over long periods of time, through constant change processes.

**ESS2** - The Earth is part of a solar system, made up of distinct parts, which have temporal and spatial interrelationships.

**ESS3** - The origin and evolution of galaxies and the universe demonstrate fundamental principles of physical science across vast distances and time.

**ESS4** - The growth of scientific knowledge in Earth Space Science has been advanced through the development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.

### **Life Science**

**LS1** – All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).

**LS2** – Energy flows and matter recycles through an ecosystem.

**LS3** – Groups of organisms show evidence of change over time (e.g. evolution, natural selection, structures, behaviors, and biochemistry).

**LS4** – Humans are similar to other species in many ways, and yet are unique among Earth's life

**LS5** – The growth of scientific knowledge in Life Science has been advanced through development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.

### **Physical Science**

**PS1** – All living and nonliving things are composed of matter having characteristic properties that distinguish one substance from another (independent of size/amount of substance).

**PS2** – Energy is necessary for change to occur in matter. Energy can be stored, transferred and transformed, but cannot be destroyed.

**PS3** – The motion of an object is affected by force.

**PS4** – The growth of scientific knowledge in Physical Science has been advanced through development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.

### **Science Process Skills**

**SPS1** – Scientific Inquiry and Critical Thinking Skills

**SPS2** – Unifying Concepts of Science

**SPS3** – Personal, Social, and Technological Perspectives

**SPS4** – Science Skills for Information, Communication and Media Literacy

The complete text for the NH Frameworks for Science Literacy is available online at <http://www.ed.state.nh.us>.