

PROJECT LEARNING TREE®
AND THE VERMONT FRAMEWORK OF
STANDARDS

A Guide for Educators
2006



Grades 5-6

This publication is available upon request in large print, Braille, or audio cassette. VT TDD Relay 1-800-253-0191

The Agency of Natural Resources is an equal opportunity agency and offers all persons the benefit of participating in each of its program and competing in all areas of employment regardless of race, color, religion, sex national origin, age, disability, sexual preference, or other non-merit factors.

Conservation Education-Vermont Project Learning Tree
Vermont Department of Forests, Parks, and Recreation
Agency of Natural Resources

www.vtfpr.org/

call 802-241-3651 for information on Project Learning Tree or on the creation of this alignment

2006-VGA-G

Project Learning Tree® and Vermont’s Framework of Standards 5-6

Contents:

PLT and the Vermont Framework of Standards-----4

PLT Connections to Instruction, Literacy and Technology- ----- 5

PLT Alignment with Vermont’s Vital Results: Sustainability-----6

-

PLT Alignment with Vermont’s Vital Results: Continuity and Change-----7

PLT Alignment with Vermont’s Vital Results: Understanding Place-----8

Fields of Knowledge Alignments

PLT Alignment with Vermont’s Fields of Knowledge: History and Social
Studies GE’s-----9

PLT Alignment with Vermont’s Fields of Knowledge: Inquiry (from Science GE’s)
-----11

PLT Alignment with Vermont’s Fields of Knowledge: Life Science GE’s-----14

PLT Alignment with Vermont’s Fields of Knowledge
Universe, Earth and Environment GE’s-----15

PLT Alignment with Vermont’s Fields of Knowledge: Natural Resources and Agriculture-----16

Project Learning Tree[®] and the Vermont Framework of Standards

What It Is- Project Learning Tree[®] (PLT) is a multi-disciplinary environmental education curriculum resource with nearly 100 activities tailored to grade levels and learning objectives. The program's activity guide is based on a conceptual framework. The main guide contains activities appropriate for grades Prek-8 with activities arranged thematically. PLT materials are used in every US state, Canada, Mexico, Japan, the Philippines, and several European countries.

Secondary level modules appropriate for grades 6-12 are available on specific topics. These include: forest ecology, environmental issues, municipal solid waste, environmental risk, and placed-based (community) issues related to natural resources. In addition, PLT has a multi-media kit on "Energy and Society" appropriate for elementary students, and a community service piece entitled "Greenworks!" that is connected to a grants program for schools.

PLT materials are distributed in Vermont by the Department of Forests, Parks, and Recreation. Educators can attend 6-hour workshops that provide them with the activity guide or shorter workshops for the modules and kits. The workshops offer other valuable resources such as posters, booklets and Vermont-specific materials in addition to PLT.

Framework Correlations- Vermont Project Learning Tree has developed correlations with the Project Learning Tree Prek-8 Activity Guide and the Project Learning Tree Secondary materials to help educators who wish to use the materials to address these new standards. PLT aligns Particularly well with Fields of Study elements in Social Studies & History, and Science. But it has strong correlations in Vital Results Standards for Sustainability (3.9) and Continuity and Change (4.5), and Understanding Place (4.6). The activities link to other Vital Results standards as well. For example, each activity includes a literacy connection and suggestions for activities for technology applications. (See next page.)

New Natural Resources and Agriculture Standards-In September of 2005, the Vermont State Board of Education adopted new wording for 7.16, a Standard in the Design and Technology portion of the Vermont Framework of Standards and Learning Opportunities. This standard was added to the Science Framework, with the understanding that Grade

Expectations will be developed for them in the future. The alignment in this document will be revised to conform to the Grade Expectations when they are completed and will be broken out into several documents to reflect grade levels. Until then, the correlations will cover the three basic grade ranges used in the main Framework document.

Assessment and Learning Opportunities- Each activity includes suggestions for assessment of student work on that activity and ideas for extensions and/or enrichment.

For more information about PLT and its mission, log onto www.plt.org

To schedule a PLT workshop in your community, or get more information about trees and forests in Vermont, call 802-241-365

PLT Connections to Instruction, Literacy and Technology All Grade Levels

Differentiated Instruction

PLT Activities apply Best Practices for instruction through differentiation techniques that are listed in the front of each activity for ease in use. These include:

- Highlighting key vocabulary.
- Creating links to prior knowledge.
- Using paired/cooperative learning.
- Providing nonlinguistic representations.
- Using realia and hands-on learning.
- Making curricular and personal connections.
- Developing oral, reading, and writing skills.
- Incorporating higher order thinking opportunities.

Literacy/Reading

Each activity listed in the Guides include suggested “Reading Connections.” These are fiction and nonfiction books that include:

Folktales, myths/legends, poetry, chants/songs, maps and charts, and content –based books and articles that relate to culturally-diverse topics and include global connections.

Some PLT activities include “read-aloud” sections. There are opportunities for writing, role playing and vocabulary building. The Guide contains an excellent glossary with a variety of words essential for building environmental literacy skills.

PLT offers teachers a reading list on-line at www.plt.org that is correlated to the activities in the guide. PLT’s web site makes some of these materials available for on-line purchase, giving educators an easy way to acquire the materials.

Technology

PLT recognizes the importance of technology at the same time it advocates strongly for outdoor student experiences learning in the natural world. The activity planning sections point out appropriate technology opportunities in applicable activities. One appendix in the guide is devoted to technology tips including ethical considerations when using web-based research.

**Project Learning Tree® Alignment With Vermont’s Framework of Standards
Vital Results**

Sustainability

3.9 Students make decisions that demonstrate understanding of natural and human communities, the ecological, economic, political, or social systems within them, and awareness of how their personal and collective actions affect the sustainability of these interrelated systems. This is evident when students:

Prek-4	5-8
3.9.a. Identify items that they consume on a daily basis and analyze the resources used in producing, transporting, using, and disposing of these items, including the origins of the resources;	3.9.aa. Conduct a life-cycle analysis (e.g., production, distribution, consumption, disposal) for both synthetic and natural products (e.g., toothbrush, maple syrup, automobile), including the effects of these life-cycles on the sustainability of a natural and human community;
3.9.b. Distinguish between personal wants and needs and identify how marketing and advertising inform their consumption patterns;	3.9.bb. Collect data in order to investigate and analyze how personal consumption patterns affect the sustainability of natural and human communities (e.g., buying local and imported apples in Vermont);
3.9.c. Identify and practice ways to repair, re-use, recycle, and (e.g., use both sides of paper), and design and implement a	3.9.cc. Identify and practice ways to repair, re-use, recycle (e.g., collect and distribute leftover household paint), and design and implement a plan to monitor

plan to monitor personal resource consumption; 3.9.d. Explore local natural and human communities (e.g., vernal pools, farms, mines, cities), identify the systems within them, and what is required for these communities to be sustained.	community resource consumption (e.g., survey community water, electric, and/or fuel use); 3.9.dd. Demonstrate understanding that natural and human communities are part of larger systems (e.g., farms as part of the regional watershed and food systems for cities, a mine as part of the regional economy) and that the interrelationships between all systems.
--	---

**PLT Activities that correlated with 3.9:
Prek_8 Guide:**

(Topic Area= Renewable, Recyclable, choosing products)

Grades Pre-4. 14. *Renewable or Not?*, 15. *A Few of My Favorite Things*, 69. *Forest for the Trees*, 82. *Resource-Go-Round*, 89. *Trees for Many Reasons*.

Grades 5-8 (see above as well as the following) 37. *Reduce, Reuse, Recycle*, 39. *Energy sleuths*, 52. *A Look at Aluminum* 69. *Forest for the Trees*, 83. *A Peek At Packaging*, 84. *The Global Climate*, 85. *In the Driver’s Seat*, 92. *a Look at Lifestyles*, 93. *Paper Civilizations*

Note: For the portion of this standard that deals with systems, **PLT Activities 41-60** deal with “**Environmental, technological, and social systems that are interconnected and interacting.**” All of these activities are appropriate for discussing the systems in this standard. Among recommended PLT activities by grade level are:

Grades PreK-4. 41. *How Plants Grow*, 42. *Sunlight and Shades of Green*, 43. *Have Seeds, Will Travel*, 44. *Water Wonders*, 45. *Web of Life*, 48. *Field, Forest, and Stream*, 53. *On the Move*, 54. *I’d Like to Visit a Place Where--*, 55. *Planning the Ideal Community*,

Grades 5-8 (See above as well as the following) 29. *Rain Reasons*, 35. *Loving It Too Much*, 38. *Every Drop Counts*, 39. *Energy Sleuths*, 50. *400-Acre Wood*, 53. *On the Move*, 55. *Planning the Ideal Community*, 56. *We Can Work It Out*, 57. *Democracy in Action*, 73. *Waste Watchers*, 80. *Noting Succeeds Like Succession*

PLT Secondary Modules

Grades 6-12 *Exploring Environmental Issues in the Places We Live* explores local systems, development and planning for sustainable communities. *Exploring Environmental Issues in Municipal Solid Waste* gives a perspective on the economics, infrastructure and alternatives in our waste systems. In the module *Exploring Environmental Issues: Focus on Forests*, Activity #3. *Tough Choices*, and #5 *Balancing America’s Forests* discuss human use of forest resources and the ways we deal with them as citizens and professional resource managers.

Continuity and Change

4.5 Students understand continuity and change. This is evident when students:

Prek-4	5-8
4.5.a. Demonstrate understanding that change results from new knowledge and events; and	<i>Evidence b applies, plus-</i>
4.5.b. Demonstrate understanding of the patterns of change (steady, cyclic, irregular)	4.5.aa. Demonstrate an understanding that perceptions of change are based on personal experiences, historical and social conditions, and the

and constancy.

implications of the change for the future.

PLT Activities that correlated with 4.5:

Prek-8 Guide:

(*Patterns of Change* is an entire thematic section within this guide . Every activity in that section relates well to the standard The following are storylines and sample activities that relate particularly well to the standard by grade level.)

Trees and forest ecosystems change over time Grades Pre-4. 76. *Tree Cookies*, 77. *Trees in Trouble*, 78. *Signs of Fall*, 79. *Tree Lifecycle*, 81. *Living With Fire*, 95. *Did You Notice?*

Grades 5-8 (see above as well as the following) 80. *Nothing Succeeds like Succession*, 81. *Living With Fire*.

Humans may change their attitudes and behaviors with regard to natural resources and the environment. Grades Pre-4-82- Resource-Go-Round

Grades 5-8- (see above as well as the following) 83. *A Peek at Packaging*, 84. *Global Climate*, 85. *In the Driver's Seat*, 86. *Our Changing World.*,

Human attitudes and behaviors have changed over time with regard to the environment. Grades Pre-4- 40. *Then and Now*, 87. *Earth Manners*, 88. *Life on the Edge*, 89. *Trees for Many Reasons*, 90. *Native Ways*

Grades 5-8- (see above as well as the following) 91. *In the Good Old Days*, 92. *A Look at Lifestyles*,

Changes in resource use and the environment can be analyzed from a historical perspective. Grades Pre-4-95. *Did You Notice?*

Grades 5-8- (see above as well as the following) 93. *Paper Civilizations*, 94. *By the Rivers of Babylon*, 96. *Improve Your Place*

PLT Secondary Modules

Grades 6-12 *Exploring Environmental Issues in the Places We Live* explores local systems, development and planning for sustainable communities Activity # 6 is *A Vision for Your Community* which discusses community change and planning for it.

Exploring Environmental Issues Focus on Environmental Risk predicting changes in the context of risk to humans and the environment is explored through various assessment techniques. In the module ***Exploring Environmental Issues: Focus on Forests***, Activity #3. *Tough Choices*, and #5 *Balancing America's Forests* discuss human use of forest resources and the ways we deal with them.

Exploring Environmental Issues: Forest Ecology, change is explored through natural and introduced ecologic processes, including fires, invasive species, and forest succession.

Grades PreK-4. 41. *How Plants Grow*, 42. *Sunlight and Shades of Green*, 43. *Have Seeds, Will Travel*, 44. *Water Wonders*, 45. *Web of Life*, 48. *Field, Forest, and Stream*, 53. *On the Move*, 54. *I'd Like to Visit a Place Where--*, 55. *Planning the Ideal Community*,

Grades 5-8 (PreK—4 plus the following) 50. *400-Acre Wood*, 56. *We Can Work It Out*, 57. *Democracy in Action*.

PLT Secondary Modules Correlations to 4.5

Grades 6-12 *Exploring Environmental Issues in the Places We Live* explores local systems, development and planning for sustainable communities. ***Exploring Environmental Issues in Municipal Solid Waste*** gives a perspective on the economics, infrastructure and alternatives in our waste systems. In the module ***Exploring Environmental Issues: Focus on Forests***, Activity #3. Tough Choices, and #5 Balancing America’s Forests discuss human use of forest resources and the ways we deal with them as citizens and professional resource managers.

Understanding Place

4.6 Students demonstrate understanding of the relationship between their local environment and community heritage and how each shapes their lives. This is evident when students:

Prek-4	5-8
4.6.a. Demonstrate knowledge and history of local environments, (e.g., soils, forests, watersheds) and how their community relies on its environment to meet its needs (e.g., nutritional, recreational, economic, emotional well being);	4.6.aa. Apply knowledge of local environment through active participation in local environmental projects (e.g., work with local planning board to analyze existing agricultural land use from a variety of perspectives);
4.6.b. Describe the role of agriculture, forestry, and industry on the development of their local community over time;	4.6.bb. Explore the interrelationship between the local environment and the local community culture (e.g., settlement patterns, tourism, hunting, agriculture);
4.6.c. Demonstrate knowledge of past and present community heritage (e.g., traditions, livelihoods, customs, stories, changing demographics, land use) and recognize ways in which this heritage influences their lives.	4.6.cc. Explore and participate in sustaining or building on unique and valued elements of past and present community heritage (e.g., survey community to improve access to town meeting);

PLT Activities that correlated with 4.6:

Prek-8 Guide:

Grades PreK-4. 1. *Shape of Things*, 2. *Get in Touch with Trees*, 3. *Peppermint Beetle*, 4. *Sounds Around*, 5. *Poet-Tree*, 20. *Environmental Exchange Box*, 21. *Adopt a Tree*, 32., *A Forest of Many Uses*, 43. *Who Works in this Forest?*, 45. *Web of Life*, 46. *Schoolyard Safari*, 53. *On the Move*, 54. *I’d Like to Visit a Place Where---*. 55. *Planning the Ideal Community*, 69. *Forest For the Trees*, 74. *People, Places, Things*, 87. *Earth Manners*

Grades 5-8 (PreK-4 as well as the following 33. *Forest Consequences*, 50. *400 Acre Wood*, 56. *We Can Work It Out* 71. *Watch on Wetlands*,

PLT Secondary Modules Correlations to 4.6

Grades 6-12 *Exploring Environmental Issues in the Places We Live* explores local systems, development and planning for sustainable communities using place-based activities to encourage students to think about their communities. In the module ***Exploring Environmental Issues: Forest Ecology***, explores local and national forest ecology issues and conditions using local forests as the laboratory.

Fields of Knowledge

PLT Alignment with GE’s for Social Science & History

Inquiry

H&SS5-6:1	Students initiate an inquiry
H&SS5-6:2	Students develop a hypothesis, thesis, or research statement
H&SS5-6:3	Students design research
H&SS5-6:4	Students conduct research
H&SS5-6:5	Students develop reasonable explanations that support the research statement
H&SS5-6:6	Students make connections to research
H&SS5-6:7	Students communicate their findings

PLT Activities - , 10. Charting Diversity, 11. Can It Be Real? 20.Environmental Exchange Box, 22. Trees as Habitats, 25. Birds and Worms , 35. Loving It Too Much, 37. Reduce, Reuse, Recycle,38. Every Drop Count, 39. Energy Sleuths 40. Then and Now, 41. How Plants Grow, 45. Web of Life, 47. Are Vacant Lots Vacant? 48. Field, Forest, Stream, 55. Planning the Ideal Community,56. We Can Work It Out, 57.Democracy in Action, 58. There Ought To Be A Law,59. The Power of Print, 82. Resource-Go-Round, 84. The Global Climate 85. In the Driver’s Seat, 86. Our Changing World, 90. Native Ways, ,91. In the Good Old Days, 92. A Look At Lifestyles, 94. By the Rivers of Babylon 95. Did You Notice?

H&SS5-6:12 Students show understanding of human interaction with the environment over time by...

- Describing how people have changed the environment in the U.S. and world for specific purposes (e.g., development of urban environments, genetic modification of crops, reforestation).

PLT Activities - 17. People of the Forest 20. Environmental Exchange Box, 32. A Forest of Many Uses, 33. Forest Consequences, 35. Loving It Too Much, 40. Then and Now, 47. Are Vacant Lots Vacant? 49. Tropical Treehouse, 50. 400-Acre Wood, 53. On the Move, 54. I’d Like to Visit A Place Where--, 55. Planning the Ideal Community, 56. We Can Work It Out, 70. Soil Stories, 74. People, Places, Things, 77. Trees in Trouble, 92. A Look At Lifestyles, 94. By the Rivers of Babylon, 95. Did You Notice?

- Generating information related to the impact of human activities on the physical environment (for example, through field studies, mapping, interviewing, and using scientific instruments) in order to draw conclusions and recommend actions (e.g., accompanying a naturalist working to identify areas in need of preservation).

PLT Activities - 4. Sounds Around, 25. Birds and Worms, 36. Pollution Search, 40. Then and Now, 42. Sunlight and Shades of Green, 41. How Plants Grow, 47. Are Vacant Lots Vacant? 55. Planning the Ideal Community. 67. How Big Is Your Tree?, 70. Soil Stories, 76. Tree Cookies, 80. Nothing Succeeds Like Succession ,89. Trees for Many Reasons, 56. We Can Work It Out, 82. Resource-Go-Round, 85. In the Driver’s Seat, 94. By the Rivers of Babylon,

- Identifying different viewpoints regarding resource use in the U.S. and world (e.g., Interview the owner of a hybrid or electric vehicle.).

PLT Activities - 17. *People of the Forest*, 18. *Tale of the Sun*, 19. *Viewpoints on the Line*, 33. *Forest Consequences*, 40. *Then and Now*, 50. *400-Acre Wood*, 53. *On the Move*, 54. *I'd Like to Visit A Place Where--*, 55. *Planning the Ideal Community*, 56. *We Can Work It Out*, 70. *Soil Stories*, 89. *Trees for Many Reasons*, 90. *Native Ways*, 91. *In the Good Old Days*, 92. *A Look At Lifestyles*, 94. *By the Rivers of Babylon*.

- Describing how the environment influences a particular demographic factor, such as disease/epidemic rates, life expectancy, infant mortality rate, population growth rate (e.g., describe how environmental factors influence income).

PLT Activities - 33. *Forest Consequences*, 40. *Then and Now*, 53. *On the Move*, 70. *Soil Stories*, 91. *In the Good Old Days*, 92. *A Look At Lifestyles*, 94. *By the Rivers of Babylon*,

- Recognizing patterns of voluntary and involuntary migration in the U.S. and world.

PLT Activities- 14. *Renewable or Not?*, 17. *People of the Forest*, 75. *Tipi Talk*, 35. *Loving It Too Much*, 40. *Then and Now*, 71. *Watch on Wetlands*, 84. *The Global Climate*, 88. *Life on the Edge*, 92. *A Look At Lifestyles*, 90. *Native Ways* 94. *By the Rivers of Babylon*, 95. *Did You Notice?*

PLT Alignment with Grade Expectations for Grades 5-6- Science Inquiry

Scientific Questioning

S5-6:1

Students demonstrate their understanding of SCIENTIFIC

QUESTIONING by ...

· Distinguishing between observational, experimental, and research questions (e.g., Observational—How does a cricket chirp? Experimental—Does the amount of light affect how a cricket chirps? Research—Do all crickets chirp? Why do crickets chirp?).

AND

· Identifying multiple variables that affect a system and using the variables to generate experimental questions that include cause and effect relationships.

PLT Activities that Address these Skills- 20. *Environmental Exchange Box*, 25. *Birds and Worms*, 27. *Every Tree for Itself*, 86. *Our Changing World*, 83. *A Peek at Packaging*, 31. *Plant A Tree*, 40. *Then and Now*, 34. *Who Works in This Forest?* 41. *How Plants Grow*

Predicting and Hypothesizing

S 5-6: 2

Students demonstrate their understanding of PREDICTING

AND HYPOTHESIZING by...

· Using logical inferences derived from evidence to predict what may happen or be observed in the future.

AND

· Providing an explanation (hypothesis) that is reasonable in terms of available evidence.

PLT Activities that Address these Skills- 28. *Air Plants*, 25. *Birds and Worms*, 11. *Can It Be Real?* 27. *Every Tree For Itself*, 38. *Every Drop Counts*, 84. *The Global Climate*, 41. *How Plants Grow*, 35. *Loving It Too Much*, 29. *Rain Reasons*, 14. *Renewable or Not?* 22. *Trees as Habitats*, 44. *Water Wonders*, 45. *Web of Life*.

Designing Experiments

S5-6:3

Students demonstrate their understanding of EXPERIMENTAL DESIGN by...

- Writing a plan related to the question and prediction that includes: a. A list of materials needed that specifies quantities (e.g., 250 ml water).
- b. A procedure that lists significant steps sequentially and describes which variable will be manipulated or changed and which variables will remain the same (“Fair Test”).
- c. An appropriate format for recording data.
- d. A strategy for conducting multiple trials (“Fair Test”).

PLT Activities that Address these Skills- 3. *Peppermint Beetle*, 28. *Air Plants*, 25. *Birds and Worms*, 42. *Sunlight and Shades of Green*, 41. *How Plants Grow*, 44. *Water Wonders*, 47. *Are Vacant Lots Vacant?* 66. *Germinating Giants*, 70. *Soil Stories*,

Conducting Experiments

S5-6:4

Students demonstrate their ability to CONDUCT EXPERIMENTS by...

- Choosing appropriate measurements for the task and measuring accurately.
- AND**
- Collecting data and recording accurate and complete data from multiple trials.
- AND**
- Drawing scientifically:
 - a. Selecting an appropriate perspective (e.g., cross section, top view, side view) and recording precise proportions.

PLT Activities that Address these Skills- 3. *Peppermint Beetle*, 28. *Air Plants*, 25. *Birds and Worms*, 42. *Sunlight and Shades of Green*, 41. *How Plants Grow*, 44. *Water Wonders*, 47. *Are Vacant Lots Vacant?* 66. *Germinating Giants*, 70. *Soil Stories*,

Representing Data and Analysis

S5-6:5

Students demonstrate their ability to REPRESENT DATA by...

- Determining an appropriate representation (line graph in addition to prior examples) to represent their findings accurately.
- AND**
- Selecting a scale that is appropriate for range of data to be plotted, labels units, and presents data in an objective way.
- AND**
- Including clearly labeled keys and symbols, when necessary.
- AND**
- Using correct scientific terminology to label representations.

PLT Activities that Address these Skills- 20. *Environmental Exchange Box* 32. *A Forest of Many Uses*, 2. *Get in Touch With Trees*, 7. *Habitat Pen Pals*, 25. *Birds and Worms*, 41. *How Plants Grow*, 43. *Have Seeds, Will Travel*, 46. *School Yard Safari*, 64. *Looking At Leaves*, 67. *How Big Is That Tree?* 68. *Name That Tree*, 6. *Picture This*, 9. *Planet Diversity* 4. *Sounds Around*, 13. *We All Need Trees*

Representing Data and Analysis

S 5-6: 6

Students demonstrate their ability to ANALYZE DATA

by...

- Identifying relationships of variables based upon evidence.

AND

- Questioning data that might not seem accurate or does not fit into the pattern of other findings.

PLT Activities that Address these Skills- 3. Peppermint Beetle, 12. Invasive Plants, 28. Air Plants, 25. Birds and Worms, 33. Forest Consequences, 42. Sunlight and Shades of Green, 41. How Plants Grow, 44. Water Wonders, 47. Are Vacant Lots Vacant?, 67. How Big Is Your Tree? 69. Forest for the Trees, 72. Air We Breathe, 66. Germinating Giants, 70. Soil Stories, 80. Nothing Succeeds Like Succession, 81. Living With Fire, 85. In The Driver's Seat, 94. By the Rivers of Babylon

Representing Data and Analysis

S5-6:7

Students demonstrate their ability to EXPLAIN DATA

by...

- Explaining data using correct scientific terminology .

AND

- Using experimental results to support or refute original hypothesis.

AND

- Considering all data when developing an explanation/conclusion.

AND

- Using additional resources (e.g., books, journals, databases, interview, etc.) to strengthen an explanation.

AND

- Identifying problems/flaws with the experimental design.

AND

- Preparing a conclusion statement/summary.

PLT Activities that Address these Skills- 3. Peppermint Beetle, 8. The Forest of S.T. Shrew 25. Birds and Worms, 40. Then and Now, 42. Sunlight and Shades of Green, 41. How Plants Grow, 44. Water Wonders, 47. Are Vacant Lots Vacant? 65. Bursting Buds, 69. Forest for the Trees, 72. Air We Breathe, 66. Germinating Giants, 70. Soil Stories, 80. Nothing Succeeds Like Succession, 94. By the Rivers of Babylon, 95. Did You Notice?

Applying Results

S5-6:8

Students demonstrate their ability to APPLY RESULTS

by...

- Explaining how experimental findings can be generalized to other situations.

PLT Activities that Address these Skills- 25. Birds and Worms, 36. Pollution Search, 40. Then and Now, 42. Sunlight and Shades of Green, 41. How Plants Grow, 47. Are Vacant Lots Vacant? 70. Soil Stories, 80. Nothing Succeeds Like Succession, 94. By the Rivers of Babylon

PLT Alignments with Grade Expectations for Grades 5-6: Life Science

<p>S5-6:34 Students demonstrate their understanding of Energy Flow in an Ecosystem by...</p> <ul style="list-style-type: none"> Developing a model that shows how the flow of energy from the sun is transferred to organisms as food in order to sustain life. 	<p>Science Concept: a. Energy within an ecosystem originates from the sun. Plants use energy from the sun, carbon dioxide, and water, to make energy rich food and oxygen. Plants are producers. b. Animals eat food that plants make combined with oxygen to produce energy, carbon dioxide, and water. . Animals are consumers.</p>
<p>PLT Activities: 23. <i>The Fallen Log</i>, 24. <i>Nature's Recyclers</i>, 28. <i>Air Plants</i>, 41. <i>How Plants Grow</i>, 42. <i>Sunlight and Shades of Green</i></p>	
<p>S5-6:35 Students demonstrate their understanding of Food Webs in an Ecosystem by..</p> <ul style="list-style-type: none"> Developing a model for a food web of a local aquatic and local terrestrial environment. 	<p>Science Concept: a. Food webs model the interdependent relationships that organisms engage in as they acquire their food and energy needs. Aquatic food webs (fresh water and marine) are supported by microscopic ocean plants. Land food webs are supported by land plants.</p>
<p>PLT Activities: 21. <i>Adopt a Tree</i>, 22. <i>Trees as Habitats</i> 23. <i>The Fallen Log</i>, 24. <i>Nature's Recyclers</i>, 25. <i>Birds and Worms</i>, 26. <i>Dynamic Duos</i>, 27. <i>Every Tree For Itself</i>, 28. <i>Air Plants</i>, 29. <i>Rain Reasons</i> 41. <i>How Plants Grow</i>, 42. <i>Sunlight and Shades of Green</i>, 45. <i>Web of Life</i>, 47. <i>Are Vacant Lots Vacant?</i>, 48. <i>Field, Forest and Stream</i>. 77. <i>Trees in Trouble</i>, 81. <i>Living With Fire</i>, 86. <i>Our Changing World</i>, 88. <i>Life on the Edge</i></p>	
<p>S5-6:36 Students demonstrate their understanding of Equilibrium in an Ecosystem by...</p> <ul style="list-style-type: none"> Experimenting with a closed system, describing how an environmental change effects the system (e.g., bottle biology). 	<p>Science Concept: a. The number of organisms an ecosystem can support depends on the kinds of organisms present and the availability of biotic and abiotic resources (i.e., quantity of light and water, range of temperatures, and soil composition).</p>
<p>PLT Activities,7. <i>Habitat Pen Pals</i>, 8. <i>Forest of S.T. Shrew</i>, 9. <i>Planet Diversity</i>, 12. <i>Invasive Species</i>, 22. <i>Trees as Habitats</i> 23. <i>The Fallen Log</i>, 24. <i>Nature's Recyclers</i>, 25. <i>Birds and Worms</i>, 26. <i>Dynamic Duos</i>, 27. <i>Every Tree For Itself</i>, 28. <i>Air Plants</i>,</p>	
<p>S5-6:37 Students demonstrate their understanding of Recycling in an ecosystem by...</p> <ul style="list-style-type: none"> Identifying the recycling role of decomposers in a variety of situations. 	<p>Science Concept: a. Decomposers, primarily bacteria and fungi, are consumers that use waste material and dead organisms for food.</p>
<p>PLT Activities-7. <i>Habitat Pen Pals</i>, 8. <i>Forest of S.T. Shrew</i>, 22. <i>Trees as Habitats</i> 23. <i>The Fallen Log</i>, 24. <i>Nature's Recyclers</i> 26. <i>Dynamic Duos</i>, 27. <i>Every Tree For Itself</i>, 41. <i>How Plants Grow</i>, 45. <i>Web of Life</i>, 46. <i>School Yard Safari</i></p>	
<p>S5-6:39 Students demonstrate their understanding of Evolution/ Natural Selection by...</p> <ul style="list-style-type: none"> Explaining, through engaging in simulations, how a variation in a characteristic (trait) enables an organism to survive in a changing environment. 	<p>Science Concepts: a. When the environment changes some plants and animals with advantageous traits are able to survive; others, with less-advantageous traits, either move to new locations or die.</p>
<p>PLT Activities,7. <i>Habitat Pen Pals</i>, 8. <i>Forest of S.T. Shrew</i>, 9. <i>Planet Diversity</i>, 12. <i>Invasive Species</i>, 22. <i>Trees as Habitats</i> 23. <i>The Fallen Log</i>, 24. <i>Nature's Recyclers</i>, 25. <i>Birds and Worms</i>, 26. <i>Dynamic Duos</i>, 27. <i>Every Tree For Itself</i>, 28. <i>Air Plants</i>, 29. <i>Rain Reasons</i> 41. <i>How Plants Grow</i>, 42. <i>Sunlight and Shades of Green</i>, 45. <i>Web of Life</i>, 46. <i>School Yard Safari</i>, 47. <i>Are Vacant Lots Vacant?</i>, 77. <i>Trees in Trouble</i>, 80. <i>Nothing Succeeds Like Succession</i>, 79. <i>Tree Lifecycle</i>, 86. <i>Our Changing World</i>, 88. <i>Life on the Edge</i>.</p>	

Grade Expectations for Grades 5-6: Universe, Earth, Environment

<p>S5-6:48 Students demonstrate their understanding of Processes and Change over Time within Earth Systems by... <ul style="list-style-type: none"> • Diagramming, labeling and explaining the process of the water cycle (e.g., evaporation, precipitation, run-off). </p> <hr style="border-top: 1px dashed black;"/> <p>PLT Activities : 44. <i>Water Wonders</i>, 14. <i>Renewable or Not?</i> 29. <i>Rain Reasons</i>, 48. <i>Field, Forest and Stream</i>, 70. <i>Soil Stories</i>,</p>	<p>Science Concepts: a. The cycling of water in and out of the atmosphere plays an important role in determining climatic patterns. Water evaporates from the surface of the earth, rises and cools, and falls again to the surface as rain. The water falling on land collects in rivers and lakes, soil and porous layers of rock and much of it flows back into the ocean.</p> <hr style="border-top: 1px dashed black;"/> <p>71. <i>Watch on Wetlands</i>, 28. <i>Air Plants</i>,</p>
<p>S5-6:49 Students demonstrate their understanding of Processes and Change within Natural Resources by... <ul style="list-style-type: none"> • Identifying examples of good and poor management of natural resources. AND • Explaining how overpopulation of living things can degrade an environment due to increased use of resources. </p> <hr style="border-top: 1px dashed black;"/> <p>PLT Activities: 31. <i>Plant a Tree</i>, 32. <i>A Forest of Many Uses</i>, 33. <i>Forest Consequences</i>, 35. <i>Loving It Too Much</i>, 37. <i>Reduce, Reuse, Recycle</i></p>	<p>Science Concepts: a. Responsible management of the earth’s resources (air, soil, water, trees) is beneficial for the environment and for human use.</p> <hr style="border-top: 1px dashed black;"/> <p>39. <i>Energy Sleuths</i>, 38. <i>Every Drop Counts</i>, 50. <i>400-Acre Wood</i>, 69. <i>Forest for the Trees</i>, 70. <i>Soil Stories</i>, 71. <i>Watch on Wetlands</i>, 73. <i>Waste Watchers</i>, 77. <i>Trees in Trouble</i>, 81. <i>Living With Fire</i>, 84. <i>The Global Climate</i>, 86. <i>Our Changing World</i>. 87. <i>Earth Manners</i>, 89. <i>Trees for Many Reasons</i>, 96. <i>Improve Your Place</i></p>

Project Learning Tree Correlations 2006

Natural Resources and Agriculture

PreK-4	5-8
Natural Resources and Agriculture	
7.16 Students demonstrate an understanding of natural resources and agricultural systems why and how they are managed_ This	
7.17 Is evident when students:	
a. Identify natural and agricultural resources and where they come from (e.g. wildlife, fish, plant, rock, water, soil, minerals, sunlight, and air), and distinguish between natural resources and things made by humans (e.g. sand vs. cement, milk vs. ice cream, wheat vs. bread, sap vs. syrup, wildlife vs. domesticated animals).	aa. ÷ Identify and investigate the natural resource and agricultural areas in Vermont and the products and markets for each (e.g., interaction of major natural communities, fish and wildlife, water and earth resources; locate farming regions and products).

PLT PreK-Grade 8 Guide Activities- a. Grades Prek-4 13. *We All Need Trees*, 15. *A Few of My Favorite Things*, 16. *Pass the Plants, Please*, 22. *Trees as Habitats*, 27. *Every Tree For Itself*, . 28. *Air Plants* , 30. *Three Cheers For Trees*, 31. *Plant a Tree*, 32. *A Forest of Many Uses*, 38. *Every Drop Counts*, 39. *Energy Sleuths*, 41. *How Plants Grow*, 42. *Sunlight and Shades of Green*, 43. *Have Seeds, Will Travel*, 48. *Field, forest, and Stream*, 70. *Soil Stories*, 51. *Make Your Own Paper*, 79. *Tree Life Cycle*, 82. *Resource-Go-Round*,

aa. Grades 5-8 (see above, plus the following) 14., *Renewable or Not?*, 37. *Reduce, Reuse, Recycle*. 44. *Water Wonders*, 50. *400-Acre Wood*, 52. *A Look at Aluminum*, 71. *Watch on Wetlands*, 72. *Air We Breathe*, 83. *a Peek at Packaging*, 93. *Paper Civilizations*,

b. Identify the; benefits of agriculture and natural resources (e.g., public health , public welfare , recreation, safe food.	bb. Describe the effects of the interrelationships among multiple natural resources and agricultural practices (e.g., forestry management, wildlife population management, nutrient and pesticide use).
--	--

PLT PreK-Grade 8 Guide Activities – b. Grades Prek-4 13. *We All Need Trees*, 15. *A Few of My Favorite Things*, 16. *Pass the Plants, Please*, 22. *Trees as Habitats*, 27. *Every Tree For Itself*, . 28. *Air Plants* , 30. *Three Cheers For Trees*, 31. *Plant a Tree*, 32. *A Forest of Many Uses*, 38. *Every Drop Counts*, 39. *Energy Sleuths*, 41. *How Plants Grow*, 42. *Sunlight and Shades of Green*, 43. *Have Seeds, Will Travel*, 48. *Field, forest, and Stream*, 70. *Soil Stories*, 51. *Make Your Own Paper*, 79. *Tree Life Cycle*, 82. *Resource-Go-Round*, 87. *Earth Manners*

bb. Grades 5-8 (see above, plus the following) 14., Renewable or Not?, 37. Reduce, Reuse, Recycle. 44. Water Wonders, 50. 400-Acre Wood, 52. A Look at Aluminum, 71. Watch on Wetlands, 72. Air We Breathe, 83. A Peek at Packaging, 93. Paper Civilizations, 86. Our Changing World, 88. Life on the Edge. 92. A Look at Lifestyles.94. by the Rivers of Babylon, 96. Improve Your Place

<p>c.÷ Identify actions individuals and families can take to help manage natural resources and agriculture (e.g., walking on established trails, fishing and hunting in season, picking up litter, recycling, purchasing locally grown agricultural products).</p>	<p>cc.; Describe how management and development practices affect resource conservation and agricultural systems (e.g., People decide when and how to harvest trees, fish, and wildlife; where to plant and how to grow crops; where to preserve wild areas; where to locate businesses and homes; and how farm practices can reduce their impacts on streams).</p>
---	---

PLT PreK-Grade 8 Guide Activities - c. Grades Prek-4. 4. *Sounds Around*, 15. *A Few of My Favorite Things*, 16. *Pass the Plants, Please*, 22. *Trees as Habitats*, 27. *Every Tree For Itself*, . 27. *Every Tree for Itself*, 28. *Air Plants* , 30. *Three Cheers For Trees*, 31. *Plant a Tree*, 32. *A Forest of Many Uses*, 36. *Pollution Search*, 38. *Every Drop Counts*, 39. *Energy Sleuths*, 41. *How Plants Grow*, 42. *Sunlight and Shades of Green*, 43. *Have Seeds, Will Travel*, 48. *Field, forest, and Stream*, 77. *Trees in Trouble*, 81. *Living With Fire*, 82. *Resource-Go-Round*,

cc. Grades 5-8 (see above, plus the following) 73. 12. *Invasive Species*, 14., *Renewable or Not?*, 19. *Viewpoints on the Line*, 33. *Forest Consequences*, 35. *Loving It Too Much*, 37. *Reduce, Reuse, Recycle.*, 50. *400-acre Wood*, 52. *A Look at Aluminum*, 53. *On the Move*, 55. *Planning the Ideal Community*, 56. *We Can Work It Out*, 59. *Power of Print*, , 60. *Publicize It!*, 67. *How Big Is Your Tree?*, 69. *Forest For the Trees*, 70. *Soil Stories* 71. *Watch on Wetlands*, 72. *Air We Breathe*, *Waste Watchers*, 83. *A Peek at Packaging*, 84. *The Global Climate*, 85. *In the Driver's Seat*, 93. *Paper Civilizations*,