

Correlation Key  
to  
The Wyoming Science Performance and Content Standards  
for  
Grades 9-12

**Introduction:**

The purpose of this document is to provide Wyoming educators who use Project Learning Tree materials with an easy reference guide in how PLT's activities correlate to the Wyoming Science Content and Performance Standards for grades 9-12. Project Learning Tree is an interdisciplinary environmental education program. PLT activities supplement curriculum and can be used to organize instructional units in a variety of subjects. Educators can use PLT activities to teach or assess mastery of science skills in basic concepts and knowledge, unifying concepts and processes, inquiry, habits of mind, communicating and applying scientific concepts and principles, history and nature of science, science and technology, and safety in scientific inquiry.

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**CONTENT STANDARD: 1. BASIC CONCEPTS AND KNOWLEDGE**  
*Students develop an understanding of scientific concepts using facts, theories, principles, and models.*

**Matter and Energy**

**Benchmark 1:** Students identify and describe the structure and properties of matter.

In: Exploring Environmental Issues: Focus On Risk:

Special Topic: Chlorine: Looking At Tradeoffs

**Benchmark 2:** Students identify and describe physical, chemical, and nuclear changes in matter.

In: The Changing Forest: Forest Ecology:

- 6. Story Of Succession
- 7. Understanding Fire

In: Exploring Environmental Issues: Municipal Solid Waste:

- 4. Composting

**Benchmark 3:** Students describe, analyze, and predict interactions and conservation of matter and energy.

PLT activities do not apply as written, but with modifications and adjustments, some activities may correlate with the benchmark.

**Benchmark 4:** Students identify and describe energy transformations

including life, earth/space, and physical systems.

In: *The Changing Forest: Forest Ecology:*

6. Story Of Succession
7. Understanding Fire
8. Fire Management

In: *Exploring Environmental Issues: Municipal Solid Waste:*

4. Composting
5. Waste-To-Energy

#### Force and Motion

**Benchmark 5:** Students develop an understanding of force and motion by utilizing physical laws and principles to solve problems.

PLT activities do not apply as written, but with modifications and adjustments, some activities may correlate with the benchmark.

#### Ecology

**Benchmark 6:** Students recognize, explain, and correlate the interdependence of organisms.

In: *Introductory Handbook For The Secondary Modules:*

3. Trees As Habitats

In: *The Changing Forest: The Forest Ecology:*

1. Adopt-A-Forest

**Benchmark 7:** Students describe the origin, limitations, and conservation of natural resources, to include examples of Wyoming resources.

PLT activities do not apply as written, but with modifications and adjustments, some activities may correlate with the benchmark.

#### Adaptation

**Benchmark 8:** Students identify and describe evolutionary changes relative to earth/space, physical, and biological systems.

PLT activities do not apply as written, but with modifications and adjustments, some activities may correlate with the benchmark.

**Benchmark 9:** Students identify, interpret, and correlate the behaviors and adaptations of organisms in the environment.

In: *The Changing Forest: Forest Ecology:*

2. Cast Of Thousands
3. The Nature Of Plants
4. Home Sweet Home
5. Saga Of The Gypsy Moth

#### Reproduction

**Benchmark 10:** Students analyze and explain genetic processes and hereditary principles.

PLT activities do not apply as written, but with modifications and adjustments, some activities may correlate with the benchmark.

#### Classification

**Benchmark 11:** Students develop and use classification systems.

In: The Changing Forest: Forest Ecology:

1. Adopt-A-Forest
7. Understanding Fire
8. Fire Management

#### Structure and Function

**Benchmark 12:** Students describe cell structure and function.

PLT activities do not apply as written, but with modifications and adjustments, some activities may correlate with the benchmark.

**Benchmark 13:** Students explain disease prevention and behaviors to maintain personal wellness.

In: Exploring Environmental Risk: Focus On Risk:

5. Communicating Risk  
Special Topic: Electromagnetic Fields  
Special Topic: Chlorine: Looking At Tradeoffs
8. Taking Action: Reducing Risk In Your School Or Community

#### Earth and Space

**Benchmark 14:** Students identify and describe evolutionary changes relative to earth/space, physical, and biological systems.

PLT activities do not apply as written, but with modifications and adjustments, some activities may correlate with the benchmark.

**Benchmark 15:** Students recognize and describe natural cycles (geo-chemical, nutrient, cellular, and stellar).

In: Exploring Environmental Issues: Focus On Forests:

2. Old-Growth Forests

In: The Changing Forest: Forest Ecology:

6. Story Of Succession

**Benchmark 16:** Students analyze the present to interpret the past and predict the future of earth processes.

In: The Changing Forest: Forest Ecology:

1. Adopt-A-Forest
6. Story Of Succession
7. Understanding Fire

**CONTENT STANDARD: 2. UNIFYING CONCEPTS AND PROCESSES**

*Students recognize patterns and processes, making connections in terms of systems and subsystems that explain the interrelationships of the natural and designed world.*

**Benchmark 1:** Students apply scientific evidence to develop descriptions, explanations, predictions, and models.

In: Introductory Handbook For The Secondary Modules:

1. Renewable Or Not?

In: The Changing Forest: Forest Ecology:

1. Adopt-A-Forest
2. Cast Of Thousands
3. The Nature Of Plants
4. Home Sweet Home
6. Story Of Succession

In: Exploring Environmental Issues: Focus On Risk:

4. Risk Assessment: Tools Of The Trade  
Special Topic: Plastics, Risk/Benefit Analysis, and Environmental Legislation

**Benchmark 2:** Students compare and analyze systems, order, and organization.

In: Introductory Handbook For The Secondary Modules:

9. A Look At Lifestyles

**Benchmark 3:** Students recognize that present forms are the result of physical and biological changes over time.

In: The Changing Forest: Forest Ecology:

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

**Benchmark 4:** Students describe and analyze cycles, balance, constancy, and change in rate, scale, and pattern.

In: The Changing Forest: Forest Ecology:

3. The Nature Of Plants
7. Understanding Fire

**Benchmark 5:** Students recognize the function and importance of measurement.

In: The Changing Forest: Forest Ecology:

2. Cast Of Thousands

In: Exploring Environmental Issues: Municipal Solid Waste:

4. Composting

**Benchmark 6:** Students explain function by referring to form and explain form by referring to function.

In: Introductory Handbook For The Secondary Modules:

3. Trees As Habitats

**Benchmark 7:** Students make connections among the science disciplines.

In: The Changing Forest: Forest Ecology:

1. Adopt-A-Forest
2. Cast Of Thousands
3. The Nature Of Plants
5. Saga Of The Gypsy Moth
6. Story Of Succession
7. Understanding Fire
8. Fire Management

**CONTENT STANDARD: 3. SCIENCE AS INQUIRY**

**Students demonstrate knowledge and skills necessary to perform scientific inquiry.**

**Benchmark 1:** Students design and conduct scientific experiments.

In: The Changing Forest: Forest Ecology:

3. The Nature of Plants

**Benchmark 2:** Students access, organize, synthesize, evaluate, and apply information to solve problems involving multiple variables and solutions.

In: Exploring Environmental Issues: Focus On Risk:

4. Risk Assessment: Tools Of The Trade
7. Decision Making: Ecological Risk, Wildfires, and Natural Hazards

**Benchmark 3:** Students formulate and revise personal theories and models using logic and evidence.

In: Introductory Handbook For The Secondary Modules:

7. Watch On Wetlands
9. A Look At Lifestyles

In: The Changing Forest: Forest Ecology:

7. Understanding Fire

In: Exploring Environmental Issue: Focus On Risk:

2. Things Aren't Always What They Seem
4. Risk Assessment: Tools Of The Trade
6. Weighing The Options: A Look At Tradeoffs

In: Exploring Environmental Issues: Municipal Solid Waste:

5. Waste-To-Energy

**Benchmark 4:** Students distinguish among hypotheses, theories, laws, postulates, and models.

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**Benchmark 5:** Students recognize and analyze alternative explanations and models.

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**CONTENT STANDARD: 4. HABITS OF MIND**

*Students develop habits of mind including curiosity, open-mindedness and persistence.*

**Benchmark:** Students develop habits of mind that include curiosity to pursue scientific questioning, acceptance of uncertainty and current limitations in science, persistence in learning, and appreciation for the world around them.

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**CONTENT STANDARD: 5. COMMUNICATION**

*Students communicate and apply scientific concepts.*

**Benchmark 1:** Students research scientific information through written, technological, and expert sources.

In: *The Changing Forest: Forest Ecology:*

2. Cast Of Thousands

In: *Exploring Environmental Issues: Focus On Risk:*

Special Topic: Plastics, Risk/Benefit Analysis, and Environmental Legislation

**Benchmark 2:** Students communicate scientific information and results through formal and informal laboratory reports using technical writing.

In: *The Changing Forest: Forest Ecology:*

3. The Nature Of Plants

**Benchmark 3:** Students use scientific vocabulary, mathematics, and technology to communicate information via oral, written, visual means.

In: *The Changing Forest: Forest Ecology:*

2. Cast Of Thousands
3. The Nature Of Plants

**CONTENT STANDARD: 6. SCIENCE IN PERSONAL AND SOCIAL PERSPECTIVES**  
*Students apply scientific principles to personal and social issues.*

**Benchmark 1:** Students explain cause and effect with regard to personal and community health, population change, the use and non-use of natural resources, and environmental quality.

In: *The Changing Forest: Forest Ecology:*

4. Home Sweet Home

**Benchmark 2:** Students recognize the nature, characteristics, and limitations of science and technology.

PLT activities do not apply as written, but with modifications and adjustments, some activities may correlate with the benchmark.

**Benchmark 3:** Students explore options for a career in scientific or technical fields.

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**Benchmark 4:** Students explain the interdisciplinary connections of science to social, economic, and political issues to include examples of Wyoming issues.

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**CONTENT STANDARD: 7. HISTORY AND NATURE OF SCIENCE**  
*Students develop an understanding of the nature of science, its history, and science as a human endeavor.*

**Benchmark 1:** Students describe historical development of scientific thoughts and principles contributed by diverse cultures and significant individuals.

In: *Exploring Environmental Issues: Municipal Solid Waste:*

1. The Waste Stream

**Benchmark 2:** Students recognize that scientific knowledge is acquired through the use of empirical data, logical arguments, and skepticism.

In: *The Changing Forest: Forest Ecology:*

3. The Nature Of Plants

**Benchmark 3:** Students explain that scientific knowledge changes by evolving over time, often building on earlier knowledge.

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**CONTENT STANDARD: 8. SCIENCE AND TECHNOLOGY**

**Students develop skills in using technology and recognize the relationship between technology and science, including its potential and limits.**

**Benchmark 1: Students use scientific principles and skills to develop technological design and projects.**

In: Exploring Environmental Issues: Municipal Solid Waste:

4. Composting

**Benchmark 2: Students explain the relationship among science, mathematics, and technology.**

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**Benchmark 3: Students identify which solutions created by scientific endeavor are most useful in light of socio-economic factors, environmental risks, practicality, and other considerations to include Wyoming examples.**

PLT activities do not apply as written, but with modifications and adjustments, some activities may correlate with the benchmark.

**Benchmark 4: Students select and use the tools of technology in science.**

In: Introductory Handbook For The Secondary Modules:

8. Waste Watchers

In: The Changing Forest: Forest Ecology:

1. Adopt-A-Forest
2. Cast Of Thousands
3. The Nature Of Plants
4. Home Sweet Home
6. Story Of Succession

In: Exploring Environmental Issues:

3. Chances Are...Understanding Probability and Risk
4. Risk Assessment: Tools Of The Trade
5. Communicating Risk
7. Decision Making: Ecological Risk, Wildfires, and Natural Hazards  
Special Topic: Electromagnetic Fields  
Special Topic: Chlorine: Looking At Tradeoffs

In: Exploring Environmental Issues: Municipal Solid Waste:

1. The Waste Stream
3. Recycling and Economics
4. Composting

**Benchmark 5: Students recognize that technology plays a key and**

rapidly increasing role in scientific inquiry, and the results of scientific inquiry play a key role in advancing technology.

In: Introductory Handbook For The Secondary Modules:

- 4. Energy Sleuths
- 8. Waste Watchers

In: Exploring Environmental Issues: Focus On Risk:

- 4. Risk Assessment: Tools Of The Trade
- 5. Communicating Risk
  - Special Topic: Electromagnetic Fields
  - Special Topic: Chlorine: Looking At Tradeoffs

**Benchmark 6:** Students recognize the potential and limits of technology in its relationship with science.

PLT activities do not apply as written, but with modifications and adjustments, some activities may correlate with the benchmark.

**CONTENT STANDARD: 9. SAFETY**

*Students exercise care in scientific inquiry and recognize the importance of safety.*

**Benchmark 1:** Students select, identify, and properly use scientific equipment.

In: The Changing Forest: Forest Ecology:

- 3. The Nature Of Plants

**Benchmark 2:** Students select and use appropriate safety equipment.

PLT activities do not apply as written, but with modifications and adjustments, some activities may correlate with the benchmark.

**Benchmark 3:** Students recognize standards and appropriate safety symbols.

PLT activities do not apply as written, but with modifications and adjustments, some activities may correlate with the benchmark.

**Benchmark 4:** Students observe standard safety procedures.

In: The Changing Forest: Forest Ecology:

- 3. The Nature Of Plants

**Benchmark 5:** Students exhibit responsible, appropriate conduct.

In: The Changing Forest: Forest Ecology

**Benchmark 6:** Students transfer and apply safety, knowledge, and techniques to daily lives.

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