

Wyoming Project Learning Tree  
Correlation Key  
to  
The Wyoming Mathematics Content and Performance 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 Plots activities correlate to the Wyoming Mathematics 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 mathematical skills in number operations and concepts, geometry, measurement, algebraic concepts and relationships, statistics and probability, tools and technology, and problem-solving and mathematical reasoning.

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**CONTENT STANDARD: 1. NUMBER OPERATIONS AND CONCEPTS**  
*Students use numbers, number sense, and number relationships in a problem-solving situation. Students communicate the reasoning used in solving these problems.*

**Benchmark 1:**           **Students represent, use, and apply numbers in a variety of forms including rational, radical, and exponential expressions.**

In: Introductory Handbook For The Secondary Modules:

- 5. 400-Acre Wood
- 8. Waste Watchers

In: Exploring Environmental Issues: Focus On Forests:

- 4. Who Owns America's Forests?

In: The Changing Forest: Forest Ecology:

- 2. Cast Of Thousands
- 7. Understanding Fire

In: Exploring Environmental Issues: Focus On Risk:

- 3. Chances Are...Understanding Probability And Risk
- 6. Weighing The Options: A Look At Tradeoffs
- 7. Decision Making: Ecological Risk, Wildfires, And Natural Hazards

In: Exploring Environmental Issues: Municipal Solid Waste:

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

**Benchmark 2:** Students apply the structure and properties of the real number system including the use of opposites, reciprocals, estimation, and absolute value.

In: The Changing Forest: Forest Ecology:

2. Cast Of Thousands

**CONTENT STANDARD: 2. GEOMETRY**

*Students apply geometric concepts, properties, and relationships in a problem-solving situation. Students communicate the reasoning used in solving these problems.*

**Benchmark 1:** Students use transformations, congruency, symmetry, similarity, perpendicularity, and parallelism to solve problems.

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

**Benchmark 2:** Students identify and apply scale factors, ratios, and proportions to length, area, and volume.

In: The Changing Forest: Forest Ecology:

7. Understanding Fire

In: Exploring Environmental Issues: Municipal Solid Waste:

1. The Waste Stream

**Benchmark 3:** Students communicate, using mathematical language, to: Interpret, represent, or create geometric figures; Draw or build figures from a mathematical description; Give a precise geometric description of a physical object.

In: The Changing Forest: Forest Ecology:

2. Cast Of Thousands
6. Story Of Succession
7. Understanding Fire

In: Exploring Environmental Issues: Municipal Solid Waste:

4. Composting

**Benchmark 4:** Students apply the Pythagorean theorem and right-triangle trigonometry in a variety of situations (sine, cosine, tangent ratios).

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

**Benchmark 5:** Students formulate conjectures through inductive reasoning, verify conjectures through inductive reasoning, construct and present a valid argument, and

use counter examples to invalidate arguments.

In: Exploring Environmental Issues: 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

**Benchmark 6:** Students connect geometry with other mathematical topics.

In: The Changing Forest: Forest Ecology:

2. Cast Of Thousands
6. Story Of Succession
7. Understanding Fire

In: Exploring Environmental Issues: Municipal Solid Waste:

4. Composting

**CONTENT STANDARD: 3. MEASUREMENT**

*Students use a variety of tools and techniques of measurement in a problem-solving situation. Students communicate the reasoning used in solving these problems.*

**Benchmark 1:** Students apply the appropriate methods and units to problems involving length, weight, area, volume, and angle measure.

In: Exploring Environmental Issues: Municipal Solid Waste:

1. The Waste Stream

**Benchmark 2:** Students understand the structure of standard measurement systems both metric and U.S. customary including derived units, and within system unit conversion,

In: The Changing Forest: Forest Ecology:

2. Cast Of Thousands

In: Exploring Environmental Issues: Municipal Solid Waste:

1. The Waste Stream

**CONTENT STANDARD: 4. ALGEBRAIC CONCEPTS AND RELATIONSHIPS**

*Students use algebraic methods to investigate, model and interpret patterns and functions involving numbers, shapes, data, and graphs in a problem-solving situation. Students evaluate and communicate the reasoning used in solving these problems.*

**Benchmark 1:** Students use algebraic concepts, symbols, and skills to analyze, represent, and solve consumer and professional problems.

In: Exploring Environmental Issues: Municipal Solid Waste:

3. Recycling And Economics

**Benchmark 2:** Students write, model, and evaluate expressions, functions, systems, and inequalities.

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

**Benchmark 3:** Students use linear, inverse, and quadratic relationships to solve problems involving practical applications.

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

**Benchmark 4:** Students graph linear equations and interpret the results to solve algebraic problems.

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

**Benchmark 5:** Students connect algebra with other mathematical topics.

In: Exploring Environmental Issues: Municipal Solid Waste:

3. Recycling And Economics

**CONTENT STANDARD: 5. STATISTICS AND PROBABILITY**

*Students use statistics and probability to analyze given situations and the results of experiments. Students communicate the reasoning used in arriving at a conclusion.*

**Benchmark 1:** Students apply knowledge of statistical indicators to interpret and evaluate information and data for reasonableness, reliability, accuracy, and bias to make informed decisions.

In: Exploring Environmental Issues: Focus On Risk:

3. Chances Are...Understanding Probability And Risk

**Benchmark 2:** Students draw valid inferences from statistical data to predict likely outcomes.

In: Exploring Environmental Issues: Focus On Risk:

3. Chances Are...Understanding Probability And Risk

**Benchmark 3:** Students determine the probability of independent and dependent events.

In: Exploring Environmental Issues: Focus On Risk:

3. Chances Are...Understanding Probability And Risk

**Benchmark 4:** Students solve problems using fundamental methods of combinations and permutations.

In: Exploring Environmental Issues: Focus On Risk:

3. Chances Are...Understanding Probability And Risk

**Benchmark 5:** Students determine whether to use theoretical or experimental probability to represent and solve a problem involving uncertainty.

In: Exploring Environmental Issues: Focus On Risk:

3. Chances Are...Understanding Probability And Risk

**CONTENT STANDARD: 6. TOOLS AND TECHNOLOGY**

*Students use appropriate tools and technologies to model, measure, and apply the results in a problem-solving situation. Students communicate the reasoning used in solving these problems.*

**Benchmark 1:** Students select and use appropriate calculator/computer technology including spreadsheets, graphing calculators, and geometric modeling and algebra software to accurately model and solve consumer and professional problems.

In: Exploring Environmental Issues: Focus On Risk:

3. Chances Are...Understanding Probability And Risk  
7. Decision Making: ecological Risk, Wildfires, And Natural Hazards

**Benchmark 2:** Students select and use appropriate manipulatives including 3D and 2D models, algebra tiles, Mira devices, patty paper, dice and cards.

In: The Changing Forest: Forest Ecology:

2. Cast Of Thousands  
7. Understanding Fire

In: Exploring Environmental Issues: Focus On Risk:

3. Chances Are...Understanding Probability And Risk  
7. Decision Making: Ecological Risk, Wildfires, And Natural Hazards

In: Exploring Environmental Issues: Municipal Solid Waste:

1. The Waste Stream  
3. Recycling And Economics

**CONTENT STANDARD: 7. PROBLEM-SOLVING AND MATHEMATICAL REASONING**

*Students apply a variety of problem-solving strategies to investigate and solve problems from across the curriculum as well as from practical applications.*

**Benchmark 1:** Students identify a problem to be solved mathematically from a real-life situation in business, personal finance, health care, or industry.

In: Introductory Handbook For The Secondary Modules:

5. 400-Acre Wood
8. Waste Watchers

In: Exploring Environmental Issues: Focus On Risk:

3. Chances Are...Understanding Probability And Risk
7. Decision Making: Ecological Risk, Wildfires, And Natural Hazards

In: Exploring Environmental Issues: Municipal Solid Waste:

1. The Waste Stream
3. Recycling And Economics

**Benchmark 2:** Students determine, collect, and organize the relevant data needed to make decisions regarding personal and professional situations.

In: Introductory Handbook For The Secondary Modules:

8. The Waste Watchers

In: The Changing Forest: Forest Ecology:

2. Cast Of Thousands

In: Exploring Environmental Issues: Focus On Risk:

3. Chances Are...Understanding Probability And Risk

In: Exploring Environmental Issues: Municipal Solid Waste:

1. The Waste Watchers
3. Recycling And Economics
4. Composting
7. Where Does The Garbage Go?
8. Take Action: Success Stories And Personal Choices

**Benchmark 3:** Students demonstrate strategies for solving multiple-step problems.

In: Introductory Handbook For The Secondary Modules:

5. 400-Acre Wood
8. Waste Watchers

In: Exploring Environmental Issues: Municipal Solid Waste:

1. The Waste Stream

**Benchmark 4:** Students demonstrate logical reasoning, both inductive and deductive.

In: Introductory Handbook For The Secondary Modules:

5. 400-Acre Wood
6. Democracy In Action
8. Waste Watchers

10. Improve Your Place

In: The Changing Forest: Forest Ecology:

- 4. Home Sweet Home
- 7. Understanding Fire
- 8. Fire Management

In: Exploring Environmental Issues: Focus On Risk:

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

In: Exploring Environmental Issues: Municipal Solid Waste:

- 7. Landfills
- 8. Take Action: Success Stories And Personal Choices

**Benchmark 5: Students communicate mathematically to explain reasoning, verify results, and write solutions in a quantitative form.**

In: Exploring Environmental Issues: Focus On Risk:

- 1. Chances Are...Understanding Probability And Risk

In: Exploring Environmental Issues: Municipal Solid Waste:

- 1. The Waste Stream
- 3. Recycling And Economics