Mathematics

PLT

Correlation of
Wisconsin's Model Academic Standards to
Project Learning Tree's PreK - 8
Environmental Education Activity Guide

Wisconsin's Model Academic Standards

Our state has established rigorous goals for teaching and learning in 18 subject areas. As defined in the introduction to each document:

Academic standards specify what students should know and be able to do, what they might be asked to do to give evidence of standards, and how well they must perform. They include content, performance, and proficiency standards.

- *Content standards refer to what students should know and be able to do.*
- *Performance standards tell how students will show that they are meeting a standard.*
- *Proficiency standards indicate how well students must perform.*

Paraphrased Standards

In this document, you will find that the performance standards have been reworded to fit the tables. We hope these shortened statements will give some meaning to the numbers and letters of the standards as you refer to the tables. While every attempt has been made to preserve the intent of the standards, you should always consult the original wording for clarification, reference, and further correlations.

About These Correlations!

Project Learning Tree (PLT) is a set of environmental education activities that focuses on forestry education. The hands-on interdisciplinary nature of the activities makes them ideal for meeting the needs of educators and students. We hope these correlations help to facilitate the infusion of PLT activities into Wisconsin's classrooms and other educational settings.

Disclaimer ☺

Correlating written activities with the standards is challenging and subjective. Since you may have a different perspective on the standards and the activities, consider these charts as starting points for selecting and using PLT activities.

Direct Relationship

Only direct relationships have been identified. For example, if the use of mathematics is a primary focus of the activity and a performance standard is directly addressed, the standard is marked with a "✽". If the use of mathematics is secondary or the performance standard is simply reinforced, the standard is marked with a "●". Incidental references to standards have not been correlated. For example, every PLT activity containing references to numbers could be correlated to the A.4 or A. 8 content standards in Mathematics.

Main Activity Only

To limit the scope of this project, correlations have **not** been made to variations, extensions, enrichments, or assessments. In some activities, these enhancements more completely address some of the academic standards.

Correlations Make No Assumptions

These correlations are based on the way the activity is written. They do not take into account the myriad of ways the activity could be modified to address a standard more directly or completely. In addition, if the content of the standard is referred to in the activity's background, but the students do not act on the information in the written activity, it is not included in the correlations.

Links to PLT Activity Descriptions

In the electronic version of this document, click on the name of the PLT activity to jump to a description of the activity. Each description includes the following: objectives, grade levels, subjects, and a complete listing of correlations to English Language Arts, Environmental Education, Math, Science, and Social Studies. *Note:* PLT's listing of subjects is not based on Wisconsin's Model Academic Standards. Therefore, a subject might be listed by PLT and not address any standards. In addition, standards might be addressed in an activity without the subject being listed by PLT.

Project Sponsors

Mathematics

A. Mathematical Processes

Content Standard

Students in Wisconsin will draw on a broad body of mathematical knowledge and apply a variety of mathematical skills and strategies, including reasoning, oral and written communication, and the use of appropriate technology, when solving mathematical, real-world and nonroutine problems.

✱ Activity directly addresses the achievement of the standard.
• Activity reinforces or supports the achievement of the standard.

Performance Standards

Project Learning Tree Activities	Grade	A.4.1 Use reasoning abilities	A.4.2 Communicate mathematical ideas in a variety of ways	A.4.3 Connect mathematical learning with other subjects	A.4.4 Use appropriate mathematical language	A.4.5 Explain solutions to problems clearly and logically	A.8.1 Use reasoning abilities	A.8.2 Communicate logical arguments to explain results	A.8.3 Analyze nonroutine problems	A.8.4 Develop effective oral and written presentations	A.8.5 Explain mathematical concepts, procedures, and ideas	A.8.6 Read and understand mathematical texts
Birds and Worms	K – 6		✱									
Every Drop Counts	4 – 8		✱						•			
Every Tree for Itself	K – 8		•									
400-Acre Wood	7 – 8						✱					
How Plants Grow	4 – 8		•									
Pass the Plants, Please – Part B	3 – 8		✱									
Rain Reasons – Part B	6 – 8						✱					
Reduce, Reuse, Recycle – Project 3	6 – 8								✱			
Trees as Habitats	3 – 8		•									
Waste Watchers	5 – 8								•			

Mathematics

B. Number Operations and Relationships

Content Standard

Students in Wisconsin will use numbers effectively for various purposes, such as counting, measuring, estimating, and problem solving.

- ✱ Activity directly addresses the achievement of the standard.
- • Activity reinforces or supports the achievement of the standard.

Performance Standards

Project Learning Tree Activities	Grade	B.4.1 Represent and explain numbers	B.4.2 Determine the number of things in a set	B.4.3 Read, write, and order various numbers	B.4.4 Identify and represent equivalent fractions	B.4.5 Select and use appropriate computational procedures	B.4.6 Add and subtract fractions with like denominators	B.4.7 Add and subtract monetary decimals	B.8.1 Read, represent, and interpret rational numbers	B.8.2 Perform and explain operations on rational numbers	B.8.3 Generate and explain equivalencies	B.8.4 Express order relationships among rational numbers	B.8.5 Apply proportional thinking in problem situations	B.8.6 Model and solve problems involving number-theory	B.8.7 Use appropriate computational procedures
Air Plants	3 – 6					✱									✱
Air to Drive – Part B	5 – 8														✱
Every Drop Counts	4 – 8					✱							•		✱
4OO-Acre Wood	7 – 8									✱					
Germinating Giants	4 – 6					✱									✱
Reduce, Reuse, Recycle – Project 3	6 – 8														✱
Waste Watchers	5 – 8														•

Mathematics

C. Geometry

Content Standard

Students in Wisconsin will be able to use geometric concepts, relationships, and procedures to interpret, represent, and solve problems.

✳ Activity directly addresses the achievement of the standard.
● Activity reinforces or supports the achievement of the standard.

Project Learning Tree Activities	Grade	C.4.1 Describe two-and three-dimensional figures	C.4.2 Use physical materials and motion geometry	C.4.3 Identify and use relationships among figures	C.4.4 Use simple two-dimensional coordinate systems		C.8.1 Describe complex two- and three-dimensional figures	C.8.2 Identify and use relationships among figures	C.8.3 Identify 3D shapes from 2D perspectives	C.8.4 Perform transformations on two-dimensional figures	C.8.5 Locate objects using the rectangular coordinate system	
The Shape of Things	PreK – 3	✳										

(Performance Standards header: **Grade 4** spans columns C.4.1–C.4.4; **Grade 8** spans columns C.8.1–C.8.5)

Mathematics

D. Measurement

Content Standard

Students in Wisconsin will select and use appropriate tools (including technology) and techniques to measure things to a specified degree of accuracy. They will use measurements in problem-solving situations.

✱ Activity directly addresses the achievement of the standard.
• Activity reinforces or supports the achievement of the standard.

Performance Standards

Project Learning Tree Activities	Grade	D.4.1 Recognize and describe measurable attributes	D.4.2 Demonstrate understanding of measurement	D.4.3 Read and interpret measuring instruments	D.4.4 Determine measurements directly using standard tools	D.4.5 Determine measurements by using basic relationships		D.8.1 Identify and describe attributes in complicated situations	D.8.2 Demonstrate basic measurement principles	D.8.3 Determine measurements directly using standard units	D.8.4 Determine measurements indirectly		
Air Plants	3 – 6					✱					✱		
Every Drop Counts	4 – 8				•					•			
Field, Forest and Stream	4 – 8			✱	•					•	•		
Germinating Giants	4 – 6				✱					✱	✱		
How Big Is Your Tree?	3 – 8			✱	✱					✱	✱		
How Plants Grow	4 – 8				•					•			
Rain Reasons – Part A	6 – 8									•			
Soil Stories	5 – 8									•	•		
Sounds Around – Part B	6 – 8									✱			
Waste Watchers	5 – 8									•			

Mathematics

E. Statistics and Probability

Content Standard

Students in Wisconsin will use data collection and analysis, statistics and probability in problem-solving situations, employing technology where appropriate.

✱ Activity directly addresses the achievement of the standard.
• Activity reinforces or supports the achievement of the standard.

Performance Standards

Project Learning Tree Activities	Grade	E.4.1 Work with data in real-world situations	E.4.2 Describe a set of data	E.4.3 Read, extract, and use data to solve problems	E.4.4 Determine the occurrence of future events	E.4.5 Predict outcomes of future events and test predictions	E.8.1 Work with data real-world situations	E.8.2 Organize and display data from statistical investigations	E.8.3 Extract, interpret, and analyze data	E.8.4 Use the results of data analysis	E.8.5 Compare several sets of data	E.8.6 Evaluate presentations and statistical analyses	E.8.7 Determine the likelihood of simple events
		Grade 4					**Grade 8**						
Birds and Worms	K – 6			✱									
Every Drop Counts	4 – 8					•				✱			
4OO-Acre Wood	7 – 8									✱			
Living with Fire – Part B	4 – 8	✱		✱				•		•			
Loving It Too Much	6 – 8									•			
Rain Reasons – Part B	6 – 8									✱			
Soil Stories	5 – 8									•			
Sounds Around – Part B	6 – 8						•	✱		✱			

Air Plants

Students will ① demonstrate and describe the general process of photosynthesis and ② explore the relationship between the amount of oxygen produced by plants and the amount of oxygen used by humans; Grades 3 – 6; Science, Math.

EE: B.4.1, B.8.7
M: B.4.5, B.8.7, D.4.5, D.8.4
S: F.4.4.

Air to Drive

Students will ① gain knowledge about possible global changes resulting from the emission of greenhouse gases and other pollutants and ② explain strategies for removing carbon dioxide from the air; Grades 5 – 8; Science, Math, Social Studies.

EE: B.8.10
M: B.8.7
SS: A.8.11, D.8.11

Birds and Worms

Students will ① simulate how predators use their vision to find prey, ② describe some different ways animals use camouflage for survival, and ③ invent a fictional animal that is camouflaged for its particular environment; Grades K – 6; Science, Math, Physical Education.

EE: B.4.6, B.8.8
M: A.4.2, E.4.3
S: F.4.1, F.4.4, F.8.2

Every Drop Counts

Students will ① monitor their daily actions and estimate the amount of water they use in a day, ② describe how water is wasted and why it is important to conserve it, ③ design and implement a water conservation plan, and ④ determine the amount of water and money saved through their plan; Grades 4 – 8; Science, Social Studies, Math.

EE: A.4.2, A.4.3, A.4.4, B.4.10, D.4.1, D.4.2, D.4.3, D.4.4, D.4.6, D.8.5, D.8.6, E.4.1
M: A.4.3, A.8.3, B.4.5, B.8.5, B.8.7, D.4.4, D.8.3, E.4.5, E.8.4
S: C.4.2, C.4.4, C.4.6, C.8.3, C.8.7, E.4.7, E.8.6, F.8.9, F.8.10, G.8.3, H.4.2
SS: D.4.7, D.8.7, D.8.11

Every Tree for Itself

Students will ① simulate how trees compete for their essential needs and ② describe how varying amounts of light, water, and nutrients affect a tree's growth; Grades K – 8; Science, Math.

EE: B.8.8
M: A.4.2
S: F.4.1, F.4.2, F.4.4, F.8.9, F.8.10

Field, Forest, and Stream

Students will ① investigate and measure components in three different ecosystems, ② describe similarities and differences they observe among three ecosystems, and ③ identify ways that the abiotic components of an ecosystem affect the biotic components; Grades 4 – 8; Science, Math.

EE: A.4.1, A.4.2, A.4.3, A.4.4, B.4.4, B.8.8
M: D.4.3, D.4.4, D.8.3, D.8.4
S: C.4.2, C.4.4, C.4.5, C.8.2, E.8.4, F.4.1, F.4.2, F.4.4, F.8.8

4OO-Acre Wood

Students will ① create a management plan for a hypothetical piece of public forest land, taking into account factors such as ecosystem stability, monetary income or costs, wildlife, water, and visitors and ② experience the analysis and decision making that goes into managing forest land; Grades 7 – 8; Science, Math, Social Studies.

EE: B.8.5, B.8.8, B.8.1O, B.8.15, D.8.1, D.8.2, D.8.4, D.8.7
M: A.8.1, B.8.2, E.8.4
SS: C.8.7, E.8.5

Germinating Giants

Students will ① measure certain physical characteristics of at least three different trees and ② compare various measurements from these trees and draw conclusions about the nature of each tree; Grades 4 – 6; Science, Math.

EE: B.4.6, B.8.8
M: B.4.5, B.8.7, D.4.4, D.8.3, D.8.4
S: F.4.3, F.8.2

How Big is Your Tree?

Students will ① measure and compare trees and tree parts, ② discuss how and why people measure things, including trees, and ③ explain the need for consistency in measuring; Grades 3 – 8; Science, Math, Social Studies.

M: D.4.3, D.4.4, D.8.3, D.8.4
S: C.4.2

How Plants Grow

Students will ① set up an experiment to determine what factors are necessary for plant growth and ② measure and compare plant growth under different environmental conditions; Grades 4 – 8; Science, Math.

M: A.4.2, D.4.4, D.8.3
S: C.4.2, C.4.4, C.4.5, C.8.2, C.8.3, C.8.4, F.4.1, F.4.2

Living with Fire

Students will ① describe a forest fire: how it starts, spreads, and burns out and ② explain several approaches to forest fire management; Grades 4 – 8; Science, Social Studies.

EE: B.8.5, B.8.23
M: E.4.1, E.4.3, E.8.2, E.8.4
S: F.4.4
SS: A.4.8

Loving It Too Much

Students will ① explain how increased numbers of park visitors and activities outside park boundaries affect ecosystems within national and local parks and ② offer possible solutions to problems facing national and local parks; Grades 6 – 8; Science, Language Arts, Social Studies.

ELA: A.8.4
EE: B.8.5, B.8.1O, D.8.1, D.8.2
M: E.8.4
S: F.8.9, F.8.10
SS: D.8.5, D.8.11

Pass the Plants, Please

Students will ① identify edible plant parts and give examples of each, ② describe how plants are used to make various kinds of foods, and ③ discuss the importance of plants in people's diets; Part A: Grades K – 8, Part B: Grades 3 – 8, Part C: Grades PreK – 8; Science, Social Studies, Math, Language Arts.

M: A.4.2

Rain Reasons

Students will ① explore how variations in water, light, and temperature affect plant growth and ② describe how precipitation and geography can affect the plant and animal species that are found in a particular region; Grades 6 – 8; Science, Math, Social Studies.

M: A.8.1, D.8.3, E.8.4
S: C.8.1, C.8.2, C.8.3, C.8.4, C.8.5, C.8.6, C.8.7, E.8.3, F.8.8
SS: A.8.1

Reduce, Reuse, Recycle

Students will ① learn about ways to reduce solid waste in their community by reducing consumption, reusing products, recycling materials, and composting and ② communicate to others the importance of recycling in their community; Projects 1 and 2: Grades 4 – 8, Project 3: Grades 6 – 8; Science, Math, Social Studies, Language Arts.

ELA: B.4.1, B.4.2, E.8.3
EE: B.4.11, B.8.20, D.4.3, D.4.6, D.8.5, D.8.6
M: A. 8.3, B.8.7
S: E.4.7
SS: D.4.7, D.8.11, E.8.4

The Shape of Things

Students will identify common shapes appearing in the natural and built environment as a way of understanding the function of shapes; Part A: Grades PreK – K, Part B: Grades K – 3; Visual Arts, Language Arts, Math, Science.

M: C.4.1

Soil Stories

Students will ① identify components of soil and how these components determine its function, ② explain how different soil types determine the characteristics of ecosystems, and ③ predict the influence of soils on water filtration and on human use of an area; Grades 5 – 8; Science, Math, Social Studies.

EE: B.8.17, C.8.2
M: D.8.3, D.8.4, E.8.4
S: C.8.3, C.8.4, C.8.6, E.8.4

Sounds Around

Students will ① identify sounds and map their location in the environment, ② explain how noise can be a problem in the community, ③ create and carry out a plan to lessen a local noise problem, and ④ study a Greek myth about sounds in nature; Part A: Grades 1 – 6, Part B: Grades 6 – 8, Part C: Grades PreK – K; Science, Language Arts, Social Studies, Math.

ELA: C.4.2
EE: A.8.1, A.8.2, A.8.4, A.8.5, B.8.18, B.8.21, B.8.23, C.8.2, D.8.6
M: D.8.3, E.8.1, E.8.2, E.8.4
S: C.8.4, C.8.6, D.8.8, F.8.2
SS: C.8.7, C.8.8, E.4.11, E.8.4

Trees as Habitats

Students will ① take inventory of the plants and animals that live on, in, and around trees and ② identify ways those animals and plants depend on trees for survival and, in turn, influence the trees; Grades 3 – 8; Science, Math, Social Studies, Visual Arts.

EE: A.4.1, A.4.2, A.4.3, A.4.4, B.4.6, B.8.8
M: A.4.2
S: C.4.2, C.4.4, C.4.5, C.4.6, C.8.2, C.8.4, F.4.4, F.8.8

Waste Watchers

Students will ① identify ways to save energy in their daily lives and ② explain how saving energy can reduce air pollution; Grades 5 – 8; Science, Math, Social Studies.

EE: B.8.17, B.8.18, B.8.21, D.8.5, D.8.6
M: A.8.1, B.8.7, D.8.3
S: E.8.4, E.8.6
SS: A.8.10, A.8.10, D.8.11