Science

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

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Science

A. Science Connections

Content Standard

Students in Wisconsin will understand that among the science disciplines, there are unifying themes; systems, order, organization, and interactions; evidence, models, and explanations; constancy, change, and measurement; evolution, equilibrium, and energy; and form and function.

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

Project Learning Tree Activities	Grade	Performance Standards: Grade 4								Grade 8									
		A.4.1 Decide the general areas of science being addressed	A.4.2 Apply knowledge from previously studied themes	A.4.3 Decide what data should be collected	A.4.4 Decide which science themes are important in a problem	A.4.5 Decide what changes over time are occurring				A.8.1 Use themes to frame questions about issues & problems	A.8.2 Describe limitations of science systems	A.8.3 Defend and critique explanations and models	A.8.4 Show that models are based on available evidence	A.8.5 Show how models & explanations changed with findings	A.8.6 Use models & explanations to predict actions and events	A.8.7 Test the usefulness and limitations of models	A.8.8 Predict future events or changes in the natural world			
Nothing Succeeds Like Succession – PartC	4 – 8					✱													

Science

B. Nature of Science

Content Standard

Students in Wisconsin will understand that science is ongoing and inventive, and that scientific understandings have changed over time as new evidence is found.

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

Project Learning Tree Activities	Grade	Performance Standards: Grade 4								Grade 8									
		B.4.1 Use various sources to help answer questions	B.4.2 Acquire information about scientists and their cultures	B.4.3 Show how scientific knowledge has changed over time						B.8.1 Describe how scientific knowledge has changed over time	B.8.2 Describe major changes in conceptual models	B.8.3 Explain how the general rules of science apply	B.8.4 Describe reasoning and evidence used outside of science	B.8.5 Explain how science is shared, checked, & extended	B.8.6 Explain how scientific knowledge is applied to social issues					
Forest Consequences	6 – 8														•					
In the Good Old Days	4 – 8		✱	•						•										
Life on the Edge	4 – 8	•																		

Science

C. Science Inquiry

Content Standard

Students in Wisconsin will investigate questions using scientific methods and tools, revise their personal understanding to accommodate knowledge, and communicate these understandings to others.

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

Project Learning Tree Activities	Grade	Performance Standards: Grade 4									Grade 8										
		C.4.1 Use vocabulary of the unifying themes to ask questions	C.4.2 Question, investigate, observe, and predict	C.4.3 Select and use multiple sources of information	C.4.4 Use simple science equipment safely and effectively	C.4.5 Use data they have collected to develop explanations	C.4.6 Communicate the results of their investigations	C.4.7 Support their conclusions with logical arguments	C.4.8 Ask additional questions to focus investigations	C.8.1 Identify questions they can investigate	C.8.2 Identify data and locate sources of information	C.8.3 Design and safely conduct investigations	C.8.4 Use inferences and observations to interpret results	C.8.5 Use good science to explain their results	C.8.6 State what they have learned from investigations	C.8.7 Explain their data and conclusions to an audience	C.8.8 Use technologies to organize, process & present data	C.8.9 Evaluate, explain, and defend their investigations	C.8.10 Discuss the importance of their investigations	C.8.11 Raise further questions which still need to be answered
Are Vacant Lots Vacant?	4 – 8		•			✱	✱				•		•							
Every Drop Counts	4 – 8		✱		•		✱					•				•				
The Fallen Log	4 – 8		✱			✱					✱	✱								
Field, Forest and Stream	4 – 8		•		✱	✱					•									
Have Seeds Will Travel	K – 8		•																	
How Big Is Your Tree?	3 – 8		✱																	
How Plants Grow	4 – 8		✱		•	✱					•	✱	•							
Looking at Leaves	K – 4		•																	
Nature's Recyclers	1 – 6		✱			✱	✱		•		✱	✱	✱			✱				
Nothing Succeeds Like Succession – Part C	4 – 8		✱			•														
Planet of Plenty	4 – 6		✱		•	✱	✱	•	•		✱	✱	✱	•	✱	✱					•
Rain Reasons	6 – 8									✱	✱	✱	✱	✱	✱	✱					
School Yard Safari	PreK – 5		✱		•	✱	•				•										

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		C.4.1 Use vocabulary of the unifying themes to ask questions	C.4.2 Question, investigate, observe, and predict	C.4.3 Select and use multiple sources of information	C.4.4 Use simple science equipment safely and effectively	C.4.5 Use data they have collected to develop explanations	C.4.6 Communicate the results of their investigations	C.4.7 Support their conclusions with logical arguments	C.4.8 Ask additional questions to focus investigations	C.8.1 Identify questions they can investigate	C.8.2 Identify data and locate sources of information	C.8.3 Design and safely conduct investigations	C.8.4 Use inferences and observations to interpret results	C.8.5 Use good science to explain their results	C.8.6 State what they have learned from investigations	C.8.7 Explain their data and conclusions to an audience	C.8.8 Use technologies to organize, process & present data	C.8.9 Evaluate, explain, and defend their investigations	C.8.10 Discuss the importance of their investigations	C.8.11 Raise further questions which still need to be answered
Soil Stories	5 – 8												✱		•					
Sounds Around – Part B	6 – 8												✱		•					
Sunlight and Shades of Green	2 – 8		•										•							
Trees as Habitats	3 – 8		✱		✱	✱	✱				✱		✱							
Trees in Trouble – Part B	4 – 8		✱		✱	✱					•	✱	✱							
Watch on Wetlands – Part A	7 – 8									✱	✱	✱	✱	✱	✱	✱				

Science

D. Physical Science

Content Standard

Students in Wisconsin will demonstrate an understanding of the physical and chemical properties of matter, the forms and properties of energy, and the ways in which matter and energy interact.

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

Project Learning Tree Activities	Grade	Performance Standards: Grade 4								Grade 8										
		D.4.1 Understand that objects are made of substances	D.4.2 Group and/or classify objects and substances	D.4.3 Understand that substances can exist in different states	D.4.4 Observe and describe changes to objects	D.4.5 Construct simple models of the changes taking place	D.4.6 Observe and describe physical events in objects	D.4.7 Observe, measure, and record physical events	D.4.8 Distinguish matter from untouchable substances	D.8.1 Observe, describe, and measure properties of substances	D.8.2 Describe physical and chemical interactions	D.8.3 Understand how new substances are made	D.8.4 Develop explanations of physical and chemical interactions	D.8.5 Explain the motion of objects by describing forces	D.8.6 Explain the motion of objects in real-life situations	D.8.7 Use commonly accepted definitions of energy	D.8.8 Investigate the properties of waves and force fields	D.8.9 Explain the behaviors of various forms of energy	D.8.10 Explain how atomic models have changed over time	
Sounds Around – Part B	6 – 8																✱			

Science

E. Earth and Space Science

Content Standard

Students in Wisconsin will demonstrate an understanding of the structure and systems of the earth and other bodies in the universe and their interactions.

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

Project Learning Tree Activities	Grade	Performance Standards: Grade 4								Grade 8										
		E.4.1 Investigate the composition of earth materials	E.4.2 Show the different properties of earth materials	E.4.3 Describe the land and water masses of the earth	E.4.4 Identify celestial objects, noting changes in patterns	E.4.5 Describe Wisconsin's weather and seasonal changes	E.4.6 Find patterns and cycles in the earth's changes	E.4.7 Describe resources used in home, community & nation	E.4.8 Illustrate resources humans use in business	E.8.1 Explain and predict changes in earth systems	E.8.2 Describe underlying structures of the earth	E.8.3 Investigate change in the forces acting on earth	E.8.4 Analyze the influence of living organisms on earth systems	E.8.5 Analyze the geologic and life history of the earth	E.8.6 Investigate the use of the earth's resources by humans	E.8.7 Describe the general structure of the universe	E.8.8 Explain the cycles of the earth			
Energy Sleuths	6 – 8														✱					
Environmental Exchange Box	K – 8					•														
Every Drop Counts	4 – 8							•							✱					
The Fallen Log	4 – 8						✱						✱							
A Few of My Favorite Things	4 – 8							✱	✱						✱					
Field, Forest and Stream	4 – 8												✱							
Habitat Pen Pals	3 – 6											•								
The Native Way	4 – 8														•					
Nothing Succeeds Like Succession	3 – 8						✱													
Our Changing World	5 – 8						✱													
Paper Civilizations	4 – 8														•					
A Peek at Packaging	5 – 8							✱	✱											
Rain Reasons	6 – 8											✱								

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		E.4.1 Investigate the composition of earth materials	E.4.2 Show the different properties of earth materials	E.4.3 Describe the land and water masses of the earth	E.4.4 Identify celestial objects, noting changes in patterns	E.4.5 Describe Wisconsin's weather and seasonal changes	E.4.6 Find patterns and cycles in the earth's changes	E.4.7 Describe resources used in home, community & nation	E.4.8 Illustrate resources humans use in business	E.8.1 Explain and predict changes in earth systems	E.8.2 Describe underlying structures of the earth	E.8.3 Investigate change in the forces acting on earth	E.8.4 Analyze the influence of living organisms on earth systems	E.8.5 Analyze the geologic and life history of the earth	E.8.6 Investigate the use of the earth's resources by humans	E.8.7 Describe the general structure of the universe	E.8.8 Explain the cycles of the earth			
Reduce, Reuse, Recycle	4 – 8							✱												
Renewable or Not?	4 – 8							✱	✱						•					
Resource-Go-Round	4 – 8							✱	✱											
Signs of Fall – Part A	K – 5					✱														
Soil Stories	5 – 8												•							
Talking Trash, Not!	1 – 6							✱							✱					
Tree Treasures	2 – 6							✱												
Waste Watchers	5 – 8												✱		✱					
Water Wonders	4 – 8						✱			✱			✱							
We All Need Trees	4 – 6								✱											
Where Are the Cedars of Lebanon?	6 – 8														•					

Science

F. Life and Environmental Science

Content Standard

Students in Wisconsin will demonstrate an understanding of the characteristics and structures of living things, the processes of life, and how living things interact with one another and their environment.

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

Project Learning Tree Activities	Grade	Performance Standards: Grade 4								Grade 8									
		F.4.1 Discover how each organism meets its basic needs	F.4.2 Investigate how organisms respond to cues	F.4.3 Illustrate how organisms grow through life stages	F.4.4 Explain connections among living and nonliving things					F.8.1 Understand the structure and function of organisms	F.8.2 Show how organisms have adapted structures	F.8.3 Differentiate between single- and multi-celled organisms	F.8.4 Investigate and explain heredity	F.8.5 Show how structures reproduce & pass characteristics	F.8.6 Understand how organisms are regulated	F.8.7 Understand that behavior evolves through adaptation	F.8.8 Investigate interdependence in populations & ecosystems	F.8.9 Explain how changes affect the balance of life	F.8.10 Project the influence of humans on the environment	
Air Plants	3 – 6				✱														
Are Vacant Lots Vacant?	4 – 8				✱														
Birds and Worms	K – 6	•			•						•								
Bursting Buds	K – 6			•															
Can It Be Real?	4 – 8										✱					✱			
Charting Diversity	4 – 8										✱					✱			
Dynamic Duos	5 – 8										✱					✱			
Energy Sleuths	6 – 8																	✱	✱
Environmental Exchange Box	K – 8				✱														
Every Drop Counts	4 – 8																	•	•
Every Tree for Itself	K – 8	✱	✱		✱													•	•
The Fallen Log	4 – 8	•			✱												✱		
A Few of My Favorite Things	4 – 8																		•

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Field, Forest and Stream	4 – 8	✱	✱		✱												✱			
Forest Consequences	6 – 8																	•	•	
Forest for the Trees	4 – 8	✱	✱		•													•	•	
A Forest of Many Uses	5 – 8										•							✱		
The Forest of S. T. Shrew	1 – 6	•			✱						✱									
Germinating Giants	4 – 6			✱																
Habitat Pen Pals	3 – 6	✱			✱						✱									
Have Seeds Will Travel	K – 8		•	•	•															
How Plants Grow	4 – 8	•	✱								•							✱		
Life on the Edge	4 – 8	✱			✱															
Living with Fire – Part B	4 – 8				•															
Looking at Leaves	K – 4		•																	
Loving It Too Much	6 – 8																	✱	✱	

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Nature's Recyclers	1 – 6	✱			•								✱		
Nothing Succeeds Like Succession – Parts A & B	3 – 8		•		✱								•	✱	
Our Changing World	5 – 8													✱	•
The Peppermint Beetle	K – 6		•		✱										
Planet of Plenty	4 – 6				✱								•		
Plant a Tree	1 – 8	✱	✱		✱		✱							✱	•
Pollution Search	2 – 6				✱									✱	
Rain Reasons	6 – 8												✱		
School Yard Safari	PreK – 5	✱			✱										
Signs of Fall	K – 6		✱												
Sounds Around	PreK – 8						•								
Sunlight and Shades of Green	2 – 8	✱	•				•								
To Be a Tree	PreK – 4	✱			•										

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Project Learning Tree Activities	Grade	Performance Standards: Grade 4								Grade 8										
		F.4.1 Discover how each organism meets its basic needs	F.4.2 Investigate how organisms respond to cues	F.4.3 Illustrate how organisms grow through life stages	F.4.4 Explain connections among living and nonliving things					F.8.1 Understand the structure and function of organisms	F.8.2 Show how organisms have adapted structures	F.8.3 Differentiate between single- and multi-celled organisms	F.8.4 Investigate and explain heredity	F.8.5 Show how structures reproduce & pass characteristics	F.8.6 Understand how organisms are regulated	F.8.7 Understand that behavior evolves through adaptation	F.8.8 Investigate interdependence in populations & ecosystems	F.8.9 Explain how changes affect the balance of life	F.8.10 Project the influence of humans on the environment	
Tree Cookies	3 – 8	✱	✱		✱						✱							•		
Tree Factory	3 – 6	✱	✱								✱									
Tree Lifecycle	3 – 6			✱	✱															
Trees as Habitats	3 – 8				✱												✱			
Trees for Many Reasons	2 – 8				✱													✱	•	
Trees in Trouble	1 – 8	✱	✱								•									
Tropical Treehouse	3 – 8	✱			✱													✱	✱	
Watch on Wetlands – Part A	7 – 8																✱			
Water Wonders	4 – 8				✱												✱			
Web of Life	4 – 8	✱	✱		✱													✱		
Where Are the Cedars of Lebanon?	6 – 8																✱			

Science

G. Science Applications

Content Standard

Students in Wisconsin will demonstrate an understanding of the relationship between science and technology and the ways in which that relationship influences human activities.

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

Project Learning Tree Activities	Grade	Performance Standards: Grade 4								Grade 8									
		G.4.1 Identify the technology used by a Wisconsin employee	G.4.2 Discover changes in technology in a career over time	G.4.3 Determine what discoveries have led to technologies	G.4.4 Identify the simple machines in a device	G.4.5 Ask questions about inventions and production				G.8.1 Identify & investigate the skills people need for a career	G.8.2 Explain how current discoveries influence work	G.8.3 Illustrate the impact science & technology have had	G.8.4 Propose a design of an applied science model or machine	G.8.5 Investigate a specific local problem	G.8.6 Use relevant sources to identify examples of new technology	G.8.7 Show how science and technology are interdependent				
Every Drop Counts	4 – 8											•			•						
On the Move	4 – 8											✱	✱								
A Peek at Packaging	5 – 8											•									

Science

H. Science in Social and Personal Perspectives

Content Standard

Students in Wisconsin will use scientific information and skills to make decisions about themselves, Wisconsin, and the world in which they live.

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

Project Learning Tree Activities	Grade	Performance Standards: Grade 4								Grade 8									
		H.4.1 Describe how science and technology affect progress	H.4.2 Identify issues helped by science and technology	H.4.3 Show how science helps meet personal needs	H.4.4 List issues that citizens must make decisions about					H.8.1 Evaluate the scientific evidence used in media	H.8.2 Present a scientific solution to a problem	H.8.3 Understand consequences of health & safety decisions							
Air We Breathe	6 – 8											•							
Every Drop Counts	4 – 8		•																
On the Move	4 – 8	✱	✱																
Paper Civilizations	4 – 8	✱																	
A Peek at Packaging	5 – 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 We Breathe

Students will ① identify various types of indoor air pollutants and their sources, ② understand how various pollutants can be harmful to people's health, ③ trace how radon can get into buildings and eventually into our bodies, and ④ take action to improve indoor air quality; Grades 6 – 8; Science, Language Arts.

ELA: A.8.4
EE: A.8.2, A.8.5, B.8.18, B.8.21, D.8.5, D.8.6
S: H.8.3

Are Vacant Lots Vacant?

Students will ① describe plants and animals that live at and around the study site and ② give examples of and describe ecological relationships between biotic and abiotic elements at the study site; Grades 4 – 8; Science, Math, Visual Arts.

EE: A.4.1, A.4.2, A.4.3, A.4.4, B.4.4, B.8.5, B.8.8, B.8.10
S: C.4.2, C.4.5, C.4.6, C.8.2, C.8.4, F.4.4

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

Bursting Buds

Students will ① explain the purpose of a tree's buds and their relationship to the leaves and ② describe the stages that buds go through as the leaves develop throughout the year; Grades K – 6; Science, Visual Arts.

S: F.4.3

Can It Be Real?

Students will ① study the characteristics of unusual plants and animals and ② describe how plant and animal species are adapted to a particular set of environmental conditions; Grades 4 – 8; Science, Language Arts.

ELA: C.4.2, F.4.1, F.8.1
EE: B.4.6
S: F.8.2, F.8.7

Charting Diversity

Students will ① organize different species of plants and animals according to various characteristics and ② determine how certain characteristics help species adapt to environmental conditions; Grades 4 – 8; Science.

EE: B.4.6
S: F.8.2, F.8.7

Dynamic Duos

Students will ① examine close relationships that exist between different organisms and ② explain how partners in these relationships help each other to survive; Grades 5 – 8; Science, Language Arts.

EE: B.8.8
S: F.8.2, F.8.7

Energy Sleuths

Students will ① identify different energy sources, ② discuss the pros and cons of various energy sources from economic, social, and environmental perspectives, and ③ describe some of the ways people use energy in their daily lives; Grades 6 – 8; Science, Social Studies.

ELA: A.8.4, C.8.2, F.8.1
EE: B.8.15, B.8.16, B.8.17, D.8.4
S: E.8.6, F.8.9, F.8.10
SS: A.8.10, B.8.8, C.8.7, D.8.7

Environmental Exchange Box

Students will ① discover some of the resources, products, and other characteristics of their region and ways that people in their region are trying to improve the environment and ② describe similarities and differences between their region and another region with respect to these characteristics; Grades K – 8; Science, Social Studies.

EE: B.8.6, B.8.14
S: E.4.5, F.4.4
SS: A.4.5, A.8.1, E.4.9

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

The Fallen Log

Students will ① identify some of the organisms that live in, on, and under fallen logs and explain how those organisms depend on the dead wood for survival and ② describe the process of decomposition; Grades 4 – 8; Science, Visual Arts.

EE: A.4.1, A.4.2, A.4.3, B.4.1, B.4.6, B.8.2, B.8.8
S: C.4.2, C.4.5, C.8.2, C.8.3, F.4.1, F.4.4, F.8.8, E.4.6, E.8.4

A Few of My Favorite Things

Students will ① explain how the different materials that go into making a product all come from natural resources, ② identify natural resources as being renewable or nonrenewable, ③ identify the steps that go into making a product, and ④ describe some of the impacts from obtaining and processing natural resources for making products; Grades 4 – 8; Science, Social Studies, Visual Arts.

EE: B.4.2, B.4.3, B.4.8, B.4.9, B.4.10, B.8.17
S: E.4.7, E.4.8, E.8.6, F.8.10
SS: D.4.7, D.8.11

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

Forest Consequences

Students will ① evaluate the options for managing or using a piece of forested land and ② make a land-use decision and explore the consequences of that decision; Grades 6 – 8; Science, Social Studies, Language Arts.

ELA: A.8.4, C.8.1, C.8.3
EE: D.8.1, D.8.2, D.8.7
S: B.8.6, F.8.10
SS: C.8.7

Forest for the Trees

Students will ① participate in a simulation designed to teach how forest resources are managed and ② simulate managing a piece of land for various products; Grades 4 – 8; Science, Math, Social Studies.

EE: B.4.9, B.4.10, B.8.2, B.8.5, B.8.8, B.8.10
S: F.4.1, F.4.2, F.4.4, F.8.9, F.8.10
SS: A.4.4, A.4.6

A Forest of Many Uses

Students will ① identify ways that people use forest resources, ② explain that forests are managed to satisfy a variety of human needs, and ③ explore how different forest uses can be balanced with each other; Grades 5 – 8; Science, Social Studies.

EE: B.8.10, B.8.15
S: F.8.9
SS: D.8.11

The Forest of S. T. Shrew

Students will ① identify microhabitats in the forest by drawing pictures or writing a story describing a microhabitat and ② describe some of the plants and animals that characterize several microhabitats within the forest; Grades 1 – 6; Science, Language Arts, Visual Arts.

ELA: C.4.2
EE: B.4.6, B.8.8
S: F.4.1, F.4.4, F.8.2

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

Habitat Pen Pals

Students will ① explain the relationship between climate conditions and habitat, ② identify relationships between organisms within habitats, and ③ distinguish between kinds of animals that can and can't live in a particular habitat; Grades 3 – 6; Science, Language Arts.

ELA: B.4.1, B.8.1
EE: B.4.6, B.8.8
S: E.8.3, F.4.1, F.4.4

Have Seeds, Will Travel

Students will ① sort or classify plant seeds they have collected, ② identify varying methods of seed dispersal, and ③ model or design seeds that use varying methods of dispersal; Grades K – 8; Science, Visual Arts.

S: C.4.2, F.4.2, F.4.3, F.4.4, 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

In the Good Old Days

Students will ① describe important events in the history of conservation, ② explain how environmental problems and perceptions of environmental quality have changed through history, and ③ express the point of view of a famous figure in the history of conservation; Part A: Grades 4 – 8, Part B: Grades 6 – 8; Science, Social Studies, Visual Arts, Language Arts, Performing Arts.

ELA: A.8.3, B.8.1, F.4.1, F.8.1
S: B.4.2, B.4.3, B.8.1
SS: B.4.3, B.4.7, C.4.5, C.8.8, E.8.4

Life on the Edge

Students will ① identify environmental factors that can cause species to become endangered, ② research the current status of several endangered plants or animals, and ③ present persuasive arguments for the protection of a particular plant or animal species; Grades 4 – 8; Science, Social Studies.

ELA: E.4.3, E.8.3, E.8.4, F.4.1
EE: B.4.6, B.8.2, B.8.5, B.8.8
S: B.4.1, F.4.1, F.4.4, F.8.2, F.8.9
SS: A.4.8, A.8.11, E.4.10, E.8.8

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

Looking at Leaves

Students will ① describe how leaf shapes, sizes, and other characteristics vary from tree to tree and ② explain how particular types of trees can be identified by their leaves; Grades K – 4; Science, Visual Arts.

S: C.4.2, F.4.2, F.8.2

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.8.10, D.8.1, D.8.2
M: E.8.4
S: F.8.9, F.8.10
SS: D.8.5, D.8.11

The Native Way

Students will describe traditional Native American lifestyles and Native Americans' use of natural resources and the land; Grades 4 – 8; Science, Social Studies, Language Arts.

ELA: A.4.3, A.8.3, C.4.3, C.8.3
EE: B.8.9, B.8.12
S: E.8.6
SS: B.4.1, B.4.7, B.8.1, B.8.4, E.4.8, E.4.11, E.8.9, E.8.10

Nature's Recyclers

Students will ① understand and describe the process of decomposition, ② explain the function of scavengers and decomposers, and ③ experiment with sowbugs to determine what they eat and what their role is in the ecosystem; Grades 1 – 6; Science, Language Arts.

EE: A.4.1, A.4.2, A.4.3, A.4.4, B.4.1, B.8.2

S: C.4.2, C.4.5, C.4.6, C.4.8, C.8.2, C.8.3, C.8.4, C.8.7, F.4.1, F.4.4, F.8.8

Nothing Succeeds Like Succession

Students will ① explore basic relationships between species diversity and ecosystem stability, ② identify successional stages in ecosystems based on plant and animal species, and ③ draw conclusions about the process of succession based on study test plots in different stages of succession; Part A: Grades 3 – 6, Parts B and C: Grades 4 – 8; Science, Math, Language Arts, Visual Arts.

ELA: A.4.2

EE: B.4.4, B.4.6, B.8.2, B.8.5, B.8.8, B.8.10

S: A.4.5, C.4.2, C.4.5, E.4.6, F.4.2, F.4.4, F.8.8, F.8.9

On the Move

Students will ① compare various transportation methods for getting to and from school, ② describe the transportation systems their community uses, and ③ design or propose a practical and efficient transportation system for the future; Grades 4 – 8; Science, Math, Social Studies, Visual Arts.

EE: B.4.2, D.4.2, D.8.1, D.8.2

S: G.8.3, G.8.4, H.4.1, H.4.2

Our Changing World

Students will ① identify some global environmental patterns, ② discuss issues related to global change, and ③ describe actions that people can take to improve the environment and quality of life; Grades 5 – 8, Science, Social Studies, Language Arts.

ELA: C.8.1

EE: B.8.10, B.8.17, D.8.5

S: E.4.6, F.8.9, F.8.10

Paper Civilizations

Students will ① chronicle the major events in the history of papermaking and ② create a pictorial representation of the history of paper; Grades 4 – 8; Social Studies, Language Arts, Visual Arts.

ELA: A.4.4, A.8.4

S: E.8.6, H.4.1

SS: B.4.2, B.4.8, B.8.8, B.8.12

A Peek at Packaging

Students will ① describe the different purposes for packaging, ② identify the pros and cons of different types of packaging, and ③ explore how packaging affects our decisions as consumers; Grades 5 – 8; Science, Social Studies, Visual Arts.

EE: B.8.15, D.8.5

S: E.4.7, E.4.8, G.8.3, H.8.3

Peppermint Beetle

Students will ① describe various ways animals use their sense of smell, ② explain why some animals use scent marking, and ③ identify the importance of the sense of smell in our daily lives; Grades K – 6; Science, Social Studies.

S: F.4.2, F.4.4

Planet of Plenty

Students will ① investigate the diversity of plants and animals on a small plot of land and ② explain the value of a diversity of life forms in a particular ecosystem; Grades 4 – 6; Science, Language Arts, Visual Arts.

ELA: C.4.1, C.4.2, C.8.1, C.8.2

EE: A.4.2, A.4.3, A.4.4, B.8.3, B.8.5

S: C.4.2, C.4.4, C.4.5, C.4.6, C.4.7, C.4.8, C.8.2, C.8.3, C.8.4, C.8.5, C.8.6, C.8.7, C.8.11, F.4.4, F.8.8

Plant a Tree

Students will ① identify ways that urban trees enrich our lives, ② determine how people care for urban trees, ③ identify areas in the community that would benefit from having more trees, and ④ organize and execute a class tree-planting project in a local area; Grades 1 – 8; Science, Social Studies.

EE: B.8.10, D.4.3, D.4.4, D.4.6, D.8.6, E.4.2
S: F.4.1, F.4.2, F.4.4, F.8.2, F.8.9, F.8.10
SS: C.4.5, D.4.7, D.8.11, E.4.5

Pollution Search

Students will ① identify forms of pollution and describe the effects that various pollutants can have on people, wildlife, and plants and ② describe relationships between various forms of pollution and human actions; Grades 2 – 6; Science, Social Studies, Math.

ELA: C.4.1, C.4.3, C.8.2, C.8.3
EE: B.4.12, B.8.18, B.8.21, E.4.1
S: F.4.4, F.8.9
SS: D.4.7, D.8.11

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

Renewable or Not

Students will ① identify renewable, nonrenewable, perpetual, reusable, and recyclable resources and explain the differences among them and ② play a game that simulates society's use of renewable and nonrenewable resources; Grades 4 – 8; Science, Social Studies.

EE: B.4.8, B.4.9, B.8.13, B.8.16
S: E.4.7, E.4.8, E.8.6
SS: D.4.2, D.4.7, D.8.2, D.8.11

Resource-Go-Round

Students will ① identify the natural resources from which products are derived, ② trace the lifecycle of a product from natural resources, to the raw materials, to the finished product, and ③ describe how energy is consumed in the manufacturing and transportation of products and how it might be conserved; Grades 4 – 8; Science, Social Studies.

EE: B.4.2, B.4.8, B.4.10, B.8.13, B.8.15, B.8.16, B.8.17, B.8.18
S: E.4.7, E.4.8
SS: A.8.7, D.8.7

School Yard Safari

Students will ① find signs of animals living in the school yard and ② describe ways the school environment provides those animals with what they need to live; Grades PreK – 5; Science, Language Arts.

EE: B.4.4, B.8.8

S: C.4.2, C.4.4, C.4.5, C.4.6, C.8.2, F.4.1, F.4.4

Signs of Fall

Students will ① describe some of the differences between deciduous and evergreen trees, ② identify patterns in the changing of seasons, and ③ understand why leaves of deciduous trees change color in the fall; Part A: Grades K – 5, Part B: Grades 3 – 6.

S: E.4.5, F.4.2

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

Sunlight and Shades of Green

Students will ① test the effects of lack of sunlight on plant leaves and ② describe the process of photosynthesis and how it enables a plant to survive; Grades 2 – 8; Science, Language Arts.

S: C.4.2, C.8.4, F.4.1, F.4.2, F.8.2

Talking Trash, Not!

Students will ① analyze the solid waste that they generate over a period of time, ② describe what happens to various types of waste when it's discarded, and ③ develop and implement a plan for reducing the amount of waste they generate; Grades 1 – 6; Science, Social Studies, Math.

EE: B.4.10, B.8.20, D.4.6, D.8.1, D.8.5, D.8.6, E.4.1

S: E.4.7, E.8.6

SS: D.4.7, D.8.11, E.8.4

To Be a Tree

Students will create a tree costume and learn the structure and function of tree parts; Grades PreK – 4; Science, Visual Arts, Performing Arts.

S: F.4.1, F.4.4

Tree Cookies

Students will ① identify heartwood, sapwood, and a tree's annual rings, ② infer from a tree's rings what damage or stress might have occurred in its life, and ③ make a timeline of human history that coincides with a tree's rings; Grades 3 – 8; Science, Social Studies, Visual Arts, Language Arts.

S: F.4.1, F.4.2, F.4.4, F.8.2, F.8.9

SS: B.4.2, B.4.7, B.8.7

Tree Factory

Students will ① describe the general structure of a tree and ② explain how different parts of a tree help the tree function; Grades 3 – 6; Science Physical Education, Performing Arts.

S: F.4.1, F.4.2, F.8.2

Tree Lifecycle

Students will ① diagram the lifecycle of a tree, ② compare a tree lifecycle to a human lifecycle, and ③ explain the role each stage of a tree's life plays in the forest (or other) ecosystem; Grades 3 – 6; Science, Language Arts, Visual Arts, Performing Arts.

ELA: F.4.1
S: F.4.3, F.4.4

Tree Treasures

Students will ① identify and categorize products derived from trees, ② find out which forest products are recyclable or reusable, and ③ recommend actions for conserving forest resources; Grades 2 – 6; Science, Social Studies; Visual Arts.

EE: B.4.10, E.4.1
S: E.4.7

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

Trees for Many Reasons

Students will discuss and analyze a fictional story relating to the proper and improper use of natural resources; Part A: Grades 2 – 8, Part B: Grades 6 – 8; Science, Social Studies, Language Arts.

ELA: A.8.3, C.4.2, C.8.2, C.8.3
EE: B.8.5, B.8.8, B.8.10, D.8.5, D.8.7, E.8.2
S: F.4.4, F.8.9, F.8.10
SS: A.4.4, D.4.7, D.8.11

Trees in Trouble

Students will ① cite factors that can cause trees to become unhealthy, ② describe symptoms of unhealthy trees, ③ compare environmental conditions that affect both human health and plant health, and ④ identify people or agencies that care for trees and forests; Part A: Grades 1 – 8, Part B: Grades 4 – 8; Science, Math, Social Studies, Language Arts, Performing Arts.

ELA: A.4.4, A.8.4
EE: A.4.2, B.4.4, B.8.5, B.8.21, B.8.23, C.4.3, C.4.4
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, F.8.2

Tropical Treehouse

Students will ① describe the plants and animals that live in different levels of the tropical rainforest, ② examine and discuss a case study that involves the rights of native inhabitants of a tropical rainforest in a national park, and ③ describe the sounds they might encounter when visiting a rainforest; Part A: Grades 3 – 6, Part B: Grades 6 – 8; Science, Social Studies, Language Arts, Performing Arts, Visual Arts.

ELA: A.8.4, C.8.3, F.4.1, F.8.1
EE: B.4.4, B.4.6, B.8.5, B.8.8, B.8.9, B.8.10, B.8.12, B.8.15, B.8.17
S: F.4.1, F.4.4, F.8.9, F.8.10
SS: A.8.8, B.8.10, C.8.3, E.8.3, E.8.10

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

Watch on Wetlands

Students will ① study a wetland ecosystem and ② analyze the issues and opinions relating to the management and protection of wetlands; Grades 7 – 8; Science, Social Studies, Language Arts, Performing Arts.

ELA: A.8.4, C.8.1, C.8.3, F.8.1
EE: A.8.1, A.8.2, A.8.4, B.8.5, B.8.6, B.8.23
S: C.8.1, C.8.2, C.8.3, C.8.4, C.8.5, C.8.6, C.8.7, F.8.8
SS: C.8.7, E.8.4

Water Wonders

Students will ① simulate the paths that water takes in the water cycle, ② describe the importance of the water cycle to living things, ③ conduct an experiment to discover how plants affect the movement of water in a watershed, and ④ describe how plants are important in maintaining water quality; Grades 4 – 8; Science, Language Arts, Physical Education.

ELA: B.4.1
EE: B.4.7, B.8.17
S: E.4.6, E.8.1, E.8.4, F.4.4, F.8.8

We All Need Trees

Students will ① examine various products and determine which ones are made from trees, ② describe ways that trees are used to make products and ways that these products can be conserved, and ③ explore methods for recycling and reusing products; Grades 4 – 6; Social Studies, Science, Language Arts.

ELA: A.4.4, A.8.4
EE: B.4.10, E.4.1
S: E.4.8

Web of Life

Students will ① collect information about various organisms in an ecosystem, ② create a mural that depicts the interdependence of various organisms with other components in an ecosystem, and ③ create a simulated web of life using a ball of string; Grades 4 – 8; Science, Language Arts, Visual Arts.

ELA: F.4.1, F.8.1
EE: B.4.4, B.8.8
S: F.4.1, F.4.2, F.4.4, F.8.9

Where Are the Cedars of Lebanon?

Students will ① investigate how ancient civilizations used natural resources and affected the environment and ② apply environmental lessons learned in the past toward solving current environmental problems; Grades 6 – 8; Social Studies, Science.

EE: B.8.9, B.8.10, B.8.12, B.8.17
S: E.8.6, F.8.8
SS: A.8.8, B.8.2, B.8.4