Educational Plan

For The

Norbert Rich School Forest

Winneconne Community School District

Norbert Rich School Forest Education Plan
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Rationale

Value Statement:

The Norbert Rich School Forest provides an outdoor learning experience to students in the Winneconne Community School District. Integrating sustainable environmental education into school curriculum has been proven to increase student critical thinking skills linking to higher achievement on both classroom and standardized test scores. Utilizing this natural setting as an inquiry based teaching tool, students will learn to ask questions, research problems, perform experiments and solve investigations in the environment. By allowing students to experience nature through an active, hands-on approach to learning, they will become more knowledgeable and responsible citizens when making decisions about the environment in the future.

Target Messages:

1. Learning is improved by providing a center for hands-on application of life skills in environmental sciences, agriculture and natural resource management
2. Our lives are greatly enhanced physically, mentally, and emotionally through outdoor experiences
3. Environmental education is interdisciplinary and should be incorporated into all subject areas making it a lifelong process that begins with youth and continues throughout a person's life
4. Environmental stewardship is essential to create informed and responsible citizens who will make sustainable choices for future generations

Needs Assessment Results:

Upon conducting a district wide survey of the teachers in the fall of 2013, it was found that the most current and relevant needs for the Norbert Rich School Forest property are;

Development of a trail system through important ecological areas of the forest including, boardwalks and bridges over water sources

Preparation of a map of the school forest and the creation of signage at the site to help students, teachers and community members navigate the property

Building of toilet facilities to be utilized by the visitors of the school forest

Development of facilities for education including, an indoor nature center, several outdoor classroom/seating areas, camping sites for overnight groups with safe fire pit areas and safe pond access

Providing professional development opportunities to teachers and assisting them with developing curriculum ideas to be presented at the school forest area

Purchasing of school forest equipment and materials to assist the district in meeting educational goals

Site Description and Opportunities

Site Description:

The Norbert Rich School Forest is a 43 ½ acre tree farm/forest willed to the Winneconne Community School District by Mr. Rich who passed away in 2012. He created a stewardship forestry plan and was very much involved with wildlife conservation making a sanctuary on his property for many wildlife species. Surrounded by farmland, it is the primary shelter for a large deer and turkey population, in addition to various other forest wildlife. The many rows of coniferous trees, mostly spruce, cedar and red pine, surround the premises making a natural property border and fence line.

A long driveway entrance on the southeastern corner of the property leads up to the homestead area consisting of a small cabin, two very large sheds for equipment storage and several other smaller storage outbuildings including an old outhouse and smokehouse.

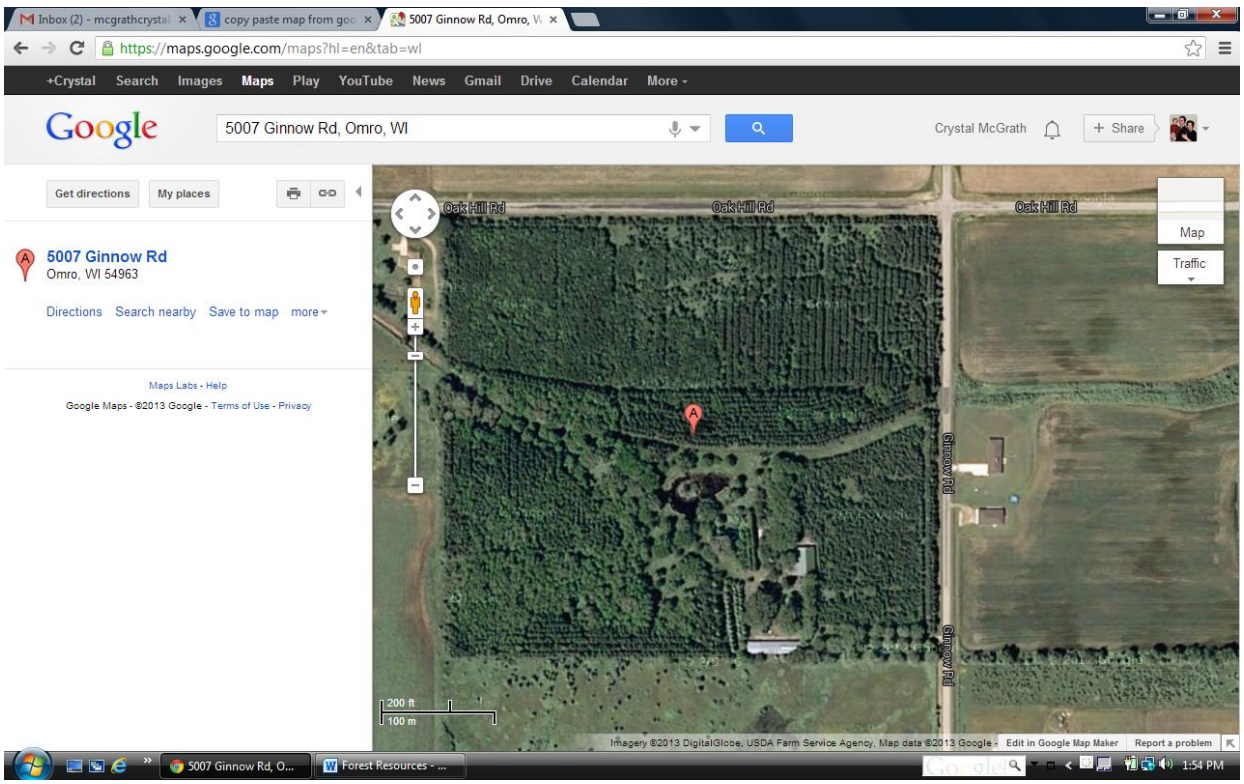
In the center of the property, there is a small pond water source that appears to be fed by a grass waterway on the Eastern portion which turns into an aboveground stream flowage on the Western side of the site. A seasonal hardwood swamp area can be found on the southwestern end of the property.

Several fruit production areas can be found on the south-central portion of the property near the cabin including; grape, rhubarb, apples & crabapples.

Site Location:

5007 Ginnow Road – Omro, WI 54963

Section 31: Township 19N: Range 15E



Directions:

Follow Hwy 116 South out of Winneconne towards Omro four miles. Turn right onto Oak Hill Road for one mile. Turn left onto Ginnow Road, continue ¼ mile until you see the driveway into the school forest on the right.

Site History:

Natural History

The Norbert Rich School Forest is located in Winnebago County well known for its many lakes as a result of the most recent glacier activity approximately 24,000 years ago. The area was covered in a floating ice sheet that carved out the valleys and creating the many lake areas of the region which can be seen today. Due to a warming climate the ice began to recede creating a large lake in the Fox River Valley known as glacial Lake Oshkosh. As the waters continued to drain towards the city of Portage, roughly 19,000 years ago, they deposited mostly clay and silt sediment deposits that make up the soils of Winnebago County. Beneath these deposits lie bedrock composed of sandstone and dolomite.

(Mode, William) Quaternary Geology of Winnebago County, Wisconsin [2008] Wisconsin Geological and Natural History Survey

Native American Settlers

Archeological evidence shows that early settlers in this region were members of the Oneota Native American communities. From 1200-1500 AD Oneota Indian villages were found along major waterways throughout the Midwest and Wisconsin. These people were early farmers in the region, planting corn, beans and squash along with knotweed and lamb's quarters. They hunted and fished this area until early explorers arrived, bringing foreign diseases with them which decimated much of the native population.

(Winnebago County Historical Society) Lasley Point Archeological Site, Wisconsin Historical Society

Early Explorers

The first recorded historical accounts of this area came from the early French explorer Jean Nicolet in 1634 where he proceeded up the Fox River to find the native Winnebago Indian village. Following Nicolet's route in 1673 Louis Joliet & Father Jacques Marquette arrived in the region also by boat. In the early years, the region was important for the transportation of explorers and immigrants as a water highway made by a portage between the Wisconsin & Fox Rivers (now Portage, Wisconsin) connecting Northeastward into Lake Winnebego, Lake Butte des Morts, Lake Winneconne and Lake Poygan then into the Wolf River & Lake Michigan as you continue North.

First European Settlers

In 1818 Augustin Grignon (pronounced Green'-yo) became one of the first settlers in the region. Establishing a trading post in Butte des Morts, his family did much business with the travelers following the mail route between Fort Winnebago in Portage and Fort Howard in Green Bay.

Immigration numbers increased after 1825 due to the opening of the Erie Canal in New York, allowing settlers to travel westward by boat. They settled in Menomonie tribal lands taken over by the U.S. Government in 1940. From 1840 to 1850 Winnebago County grew from 135 residents to 1,625. Homesteaders started with tracts of 40 acres of land, but many purchased additional property.

(Smith, Mariam) The History of Omro [1976] University of Wisconsin Digital Collections

Property History

Mr. Norbert Rich enjoyed forestry and wildlife and continued to plant trees on the property throughout the duration of his time there. Mr. Rich enlisted this property under the Managed Forest Land Law through the State of Wisconsin Department of Natural Resources in 1994. Creating a stewardship forestry plan, he managed the land to provide wood products, recreation and wildlife habitat. He raised Christmas trees and brought turkeys to the area, creating not only a tree farm, but a wildlife sanctuary.

Site Management:

There are 6 main forest stand types on the property

P1 – Red Pine/White Spruce (3 acres) – mostly red pine 5-7 inches diameter with a few white spruce 4-5 inches diameter. Planted in 1972 then thinned in 2006, this stand is poorly growing due to wet and heavy clay soils that have higher pH levels. Red Pine grows best in sandy, well drained, slightly acidic soils. After the 2020 thinning, a portion of the stand can be under planted with a mixture of native hardwood trees such as swamp white oak, silver maple, bur oak, sugar maple and black cherry which are more suited to the soil conditions.

P2 – Red Pine (14 acres) – medium, pole sized timber planted in 1970 then thinned in 2006, this red pine is growing poorly due to wet, heavy soil conditions. This will shorten its life span by approximately 50 years. Under plant native hardwood species after the 2020 thinning.

P3 – White Spruce/Norway Spruce (8 acres) – planted over a five year period from 1967-1971, these trees are better suited for the soil conditions than the red pine. The stand was thinned in 2006 and is well stocked. Thin this stand of trees again in 2020.

P4 – White Spruce (5 acres) – Well stocked white spruce intermixed with white cedar at 5 inches in diameter. This stand was planted in 1987 and will need to be thinned in 2020.

P5 – Swamp Hardwood (10 acres) – Primarily green and black ash, silver maple, basswood, burr oak and swamp white oak this is a natural stand originating in 1949. Because of the wet soils, the tree growth rate is slow. The threat from the invasive insect, Emerald Ash Borer is a concern as well as the prevalence of Common Buckthorn found in the stand. In 2020, a thinning will occur depending on the health of the ash trees.

P6 – Grass Opening (3 acres) – Several non-productive forest trees including apple, crabapple, willow, cottonwood and silver maple. Continual, periodic mowing to keep the brush and trees from growing will be necessary to provide access to the pond for an outdoor classroom area.

Continual timber harvesting of mature trees will be managed as necessary at approximately 15 year intervals with the next cut scheduled for 2019-2020 depending on the growth and health of the forest. Replanting efforts will be made to encourage appropriate native species growth to maintain a sustainable supply of wood and forest products.

Invasive species removal - some of the non native invaders found on the premises include Autumn Olive *(Elaeagnus umbellata)* and Common Buckthorn *(Rhamnus cathartica).* Both species grow and reproduce quickly to create a dense shade that hinders the growth of sun loving plants thus preventing understory regeneration in the forest. Both physical removal and chemical treatments may need to be used to control these species.

The Blue Spruce in the forest are infected with a needlecast disease caused by a fungus called Rhizosphaera, *(Rhizosphaera kalkhoffii)* causing the needles to brown and fall off near the bottom of the tree and working its way upward. Continuous monitoring and removal of infected branches and/or trees will be necessary.

Efforts will be made to provide wildlife habitat by providing native grasses & legumes for food, constructing brush piles for wildlife shelters and monitoring populations of overabundant species. Hunting is not permitted in the Norbert Rich School Forest.

The development and maintenance of recreational trails throughout this woodlot to be used for logging/firewood & other wood products, cross country skiing, snowshoeing, hiking and various nature studies will be a priority. ATV's, Snowmobiles & other personal motorized recreational vehicles will not be allowed on the property.

Educational Connections

Key Concepts:	Site Connections:
1. Humans impact environmental quality with their decisions about the management and use of natural areas	Wisconsin & U.S. natural resource history Invasive species impact &control Endangered species Water pollution and watershed management Air quality monitoring & climate change Hunting/fishing/trapping of wildlife Important people of natural resource history Appropriate use/building of fire and shelter in the outdoors
2. Natural resources are an important part of our everyday lives and should be sustainably managed so that we do not run out	Renewable & nonrenewable resources Forestry measurement and management techniques Forestry industry and products Soil resource management Wild edible plants/mushrooms
3. Energy is transferred throughout ecosystems in many ways making very complex cycles in nature and changes throughout time	Ecological disturbances &succession Food web and food chain applications Glacial geology&rock formation Formation of soils from parent material and horizons Water cycle/nutrient cycles Seasonal changes Plant & animal life cycles
4. Diversity of species and their interconnectedness is an important indicator of ecosystem health	Biotic and abiotic factors in ecosystems Forest layers &plant physiology Plant and animal identification and classification Ecosystem biodiversity surveys of flora & fauna Phenology Habitat components & types Animal tracking
5. Environmental education is a cross-curricular subject and should be incorporated into all curricular areas of study	Social Studies - Environmental issues topics, mapping & navigation skills Mathematics – Measurements in the forest, mapping and navigation skills using algebra & geometry Language Arts – Nature reading & writing Fine Arts – Nature based art, music, theatre, etc. Technology Education – Structural building
6. The natural world provides opportunities to enhance our physical, mental and emotional health by providing an outlet for creativity and observation	GPS/GIS & geocaching Mapping & navigation skills Orienteering with compass Service learning opportunities Team building & leadership opportunities Physical education opportunities Naturalist creative writing skills Nature based art and/or music Emergency & first aid procedures

Classroom Curriculum:

Kindergarten - Exploring the Outdoors

Subject	Key Concept	Objectives	Activities	Standards
Environmental Education Science	4, 5	Use senses to explore surroundings in nature Observe and discuss names of things found in the forest Describe how animals use the senses to identify objects and communicate	Senses Scavenger Hunt Un-nature trail Get in "Touch" With Nature Smell & Spell Sound Off	WI Model Academic Environmental Education - A.4.1, A.4.4, B.4.8 WI Model Academic Science – C.4.1, C.4.2, C.4.5, F.4.1, F.4.4
Math	5	Learn to identify shapes, sizes & patterns by finding examples in nature Identify and count unnatural objects found on a nature trail	Senses Scavenger Hunt Un-nature trail	Common Core Math K.G.1, K.CC.5
English Language Arts	5	Engage in group reading activities Confirm understanding of a text read aloud	Group Reading - "The Very Quiet Cricket", "Brown Bear, Brown Bear, What do you See?", "Polar Bear, Polar Bear, What do you Hear?" or "A Color of His Own"	Common Core English RL.K.10, SL. K.2
Physical Education	5, 6	Exercise in nature traveling fast and slow	Hiking the trails at the school forest	WI Model Academic Physical Education 1.1.A.2, 2.1.A.8
Art	5, 6	Observe objects in nature to learn colors, shapes and use them in artistic expression	Construct nature mobile from objects found on the scavenger hunt	WI Model Academic Art E.4.4, E.4.5, H.4.1, H.4.3, K.4.3

First Grade - Basic Needs for Life

Subject	Key Concept	Objectives	Activity	Standards
Environmental Education Science	3, 4, 5	Learn that animals need to find food, water, water, shelter, space and air to survive Describe how the outer coverings of organisms are different for their needs and purposes Show how plant and animal needs are different Develop habitat areas at home	Musical Needs Basic Needs Cooperative Picture Habitat Needs Scavenger Hunt Fur, Feather, Scales Camouflage Hide and Seek Create bird feeder	WI Model Academic Environmental Education – A.4.1, A.4.2, A.4.3, A.4.4, B.4.1, B.4.4, B.4.6 WI Model Academic Science – C.4.1, C.4.2, C.4.5, F.4.1, F.4.3, F.4.4
English Language Arts	5	Ask and answer questions about key details in a text read aloud	Group Reading - "The Salamander Room" or "Frederick"	Common Core English RL.1.1, SL.1.2
Physical Education	5, 6	Exercise in nature traveling fast and slow	Hiking the trails at the school forest	WI Model Academic Physical Education 1.1.A.2, 2.1.A.8

Second Grade – The Nature of Plants

Subject	Key Concept	Objectives	Activity	Standards
Environmental Education Science	3, 4, 5	Describe the life cycle of a plant/tree Understand the function of plant structures; roots, leaves, flowers, stems Discuss how plants adapt to different environments Show how plants provide habitat to other organisms	The Forest of S.T. Shrew To Be A Tree Factory Every Tree for Itself Life Cycle Sort & Scavenger Hunt Have Seeds Will Travel The Closer You Look Adopt a Tree	WI Model Academic Environmental Education - A.4.1, A.4.2, A.4.3, A.4.4, B.4.1, B.4.2, B.4.4, B.4.6 WI Model Academic Science – C.4.1, C.4.2, C.4.5, F.4.1, F.4.2, F.4.3, F.4.4
English Language Arts	5	Describe how characters respond to events & challenges	Group Reading – "The Forest of S.T. Shrew", "Life Cycles" "In a Nutshell" or "The Giving Tree"	Common Core English RL.2.3, SL.2.2
Physical Education	5, 6	Exercise in nature traveling fast and slow	Hiking the trails at the school forest	Physical Education 1.1.A.2, 2.1.A.8
Art	5, 6	Observe and collect seeds to show how plants reproduce	Construct seed mosaic	WI Model Academic Art E.4.4, E.4.5, H.4.1, H.4.3, K.4.3

Third Grade – Mammal & Bird Ecology

Subject	Key Concept	Objectives	Activity	Standards
Environmental Education Science	1, 3, 4	Describe how animals adapt to their environment to meet habitat requirements Explain the numerous and diverse organisms living in the forest Identify common Wisconsin species of organisms Discuss the importance of humans living cooperatively with nature to enjoy and provide habitat for organisms	Bird Beaks & Feeding Strategies Bird Watching Birds and Worms Animal Tracking	WI Model Academic Environmental Education - A.4.1, A.4.2, A.4.3, A.4.4, B.4.1, B.4.4, B.4.6, C.4.2, C.4.5, WI Model Academic Science – C.4.1, C.4.2, C.4.5, F.4.1, F.4.3, F.4.4
English Language Arts	5	Describe characters in a story & how their actions contribute to a series of events Refer to details and examples in a text when drawing inferences	Group Reading -"Whose Tracks are These", "Flute's Journey" or "Salamander Rain"	Common Core English RL.3.3, RL.4.1, SL.3.2
Physical Education	5, 6	Exercise in nature as leisure activity	Hiking the trails at the school forest	WI Model Academic Physical Education 1.2.B.1, 2.2.A.5

Fourth Grade – Wisconsin Forestry

Subject	Key Concept	Objectives	Activity	Standards
Environmental Education Science	Na1, 2, 4	Discuss the history of Wisconsin natural resources and its importance for the future Identify common species of trees found in Wisconsin forests Identify signs of damage and poor health of trees through observation Read annual growth rings of trees to determine environmental changes and their influence on growth Discover the vast array of products produced by trees	Name that Tree Tree Cookies Trees in Trouble Tree Treasures	WI Model Academic Environmental Education - A.4.1, A.4.2, A.4.3, A.4.4, B.4.3, B.4.6, B.8.23, B.8.24, C.4.2, C.4.5, WI Model Academic Science – C.4.1, C.4.2, C.4.5, F.4.1, F.4.2, F.4.3, E.4.8
Math	5	Use angles and standard geometric measurements to determine sizes of trees	How Big is Your Tree	Common Core Math 4.MD.5, 4.G.2
English Language Arts	5	Determine the theme & summarize a text	Forest History in Wisconsin Story "The Lorax" Story Walk	Common Core English RL.4.2
Social Studies	5	Learn the history of how the logging industry shaped Wisconsin	Forest History in Wisconsin Story Lumberjack Games	WI Model Academic Social Studies B.4.4
Physical Education	5, 6	Exercise in nature as leisure activity	Story Walk	WI Model Academic Physical Education 1.2.B.1, 2.2.A.5

Fifth Grade – Investigating Invertebrates

Subject	Key Concept	Objectives	Activity	Standards
Environmental Education Science	1, 2, 3, 4	Investigate and identify organisms associated with decomposition in the food chain Identify sources of water pollution Determine the health of a water source through macro-invertebrate collections Identify structures and values of arachnids found in natural environments Discuss adaptations of fish in aquatic environments	The Fallen Log Natures Recyclers Pond Life Macro-Invertebrate Investigation for Water Pollution Web It & Web Weavers Build a Bug	WI Model Academic Environmental Education – A.8.2, A.8.4, B.8.1, B.8.4, B.8.8, B.8.21, C.8.1, C.8.2, D.8.1 WI Model Academic Science – C.8.5, C.8.6, F.8.2, F.8.3, F.8.8, F.8.9
Physical Education	5, 6	Exercise in nature as leisure activity	Scavenger hunt for invertebrates	WI Model Academic Physical Education 1.2.B.1, 2.2.A.5
Art	5, 6	Observe bugs and their adaptations to help design a creative bug model	Build a Bug	WI Model Academic Art E.4.4, E.4.5, H.4.1, H.4.3, K.4.3

Sixth Grade – Outdoor Survival & Environmental Ethics

Subject	Key Concept	Objectives	Activity	Standards
Environmental Education Science	1, 2, 5, 6	Learn to use environmentally responsible decision making skills in outdoor situations to maintain balance in nature Prepare a campsite, campfire and meal in an outdoor setting using leave no trace ethics Identify what to do in an emergency situation in an outdoor setting Understand the sustainability of wildlife populations and carrying capacity in relationship to wildlife management	Overnight Camp Out Using a Compass Geocaching Leave No Trace Skits Shelter, Fire, & Cooking in the Outdoors First Aid Activity Wildlife Population Studies	WI Model Academic Environmental Education - B.8.8, B.8.16, B.8.17, B.8.18, C.8.1, D.8.3, D.8.5, D.8.6, D.8.8, E.8.1 WI Model Academic Science F.8.10, H.8.3, F.8.8, F.8.9
Math	5	Learn to use ratios to distinguish scale on a map Use degrees in a circle to determine direction using a compass	Navigate in the outdoors using map, compass & GPS	Common Core Math 6.RP.1, 4.MD.5
Social Studies	5	Understand various geographic representations	Navigate in the outdoors using map, compass & GPS	WI Model Academic Social Studies A.8.1
Physical Education	5, 6	Exercise in nature using technology	Hiking the school forest using Map Compass & GPS	WI Model Academic Physical Education 1.3.A.7

Seventh Grade – Ecosystems & Environmental Issues

Subject	Key Concept	Objectives	Activity	Standards
Environmental Education Science	1, 2, 5, 6	Examine different environments for biotic & abiotic factors to compare ecosystem components Learn to use environmentally responsible decision making skills in outdoor situations to maintain balance in nature Make a timeline of natural resource use in history to discuss resource conservation Discuss patterns of weather and climate in different ecosystems	Field, Forest, Stream Weather & Climate Monitoring	WI Model Academic Environmental Education – B.8.3, B.8.6, B.8.8, B.8.16, B.8.17, B.8.18, B.8.24, C.8.2, D.8.1, D.8.6 WI Model Academic Science F.8.2, F.8.7, F.8.8, F.8.9, H.8.2, E.8.1, E.8.3
Social Studies	5	Learn to use environmentally responsible decision making skills in outdoor situations to maintain balance in nature	Field, Forest, Stream	WI Model Academic Social Studies A.8.11
Physical Education	5, 6	Exercise in nature	Snowshoeing/Hiking in the forest	WI Model Academic Physical Education 1.3.A.7

Eighth Grade – Outdoor Career Exploration

Subject	Key Concept	Objectives	Activity	Standards
Environmental Education Science	1, 2, 5, 6	Identify the skills people need for a career in environmental science and technology Design and conduct investigations involving scientific concepts Discuss differences between organisms and their adaptations for survival	Career Geocache scavenger hunt Water Quality Testing Phenology – Wildlife Population study	WI Model Academic Environmental Education – A.8.1, A.8.2, A.8.4, A.8.5, A.8.6, B.8.18, B.8.19, B.8.22, B.8.23, B.12.4, D.8.1, D.8.2, D.8.3 WI Model Academic Science F.8.2 , F.8.7, F.8.8, F.8.9 G.8.1, C.8.3
Social Studies	5, 6	Use information generated from a computer to learn about geography	Career Geocache scavenger hunt	WI Model Academic Social Studies A.12.2
Physical Education	5, 6	Exercise in nature	Snowshoeing/Hiking in the forest	WI Model Academic Physical Education 1.3.A.7

High School (9-12th Grade)

Subject	Key Concept	Objectives	Activity	Standards
Agricultural Education Environmental Education	1, 2, 3, 4, 5, 6	**Natural Resources** Define & identify types of natural resources, the difference between renewable & nonrenewable resources Explain the importance of natural resource conservation by citing historical resource issues and people in history associated with preservation Identify career development and entrepreneurship opportunities in the field of natural resources **Forestry** Identify the major parts of the tree, explain how they function and explain the characteristics of a forest ecosystem Identify common native tree species using important physiological characteristics **Forest Management** Explain how to determine the volume of standing trees by measuring tree heights and diameters with forestry equipment Identify potentially harmful insects and diseases associated with forest management Discuss fire as a forest management tool **Soil Science** Understand the importance of soils for various land use	Natural Resource Walk/Scavenger Hunt Guest Speaker in Natural Resources Forester or Wildlife Biologist Reading tree cookies Taking core samples Layers of the forest inventory lab Tree identification collection project Timber Cruising Insect & disease identification project Soil textures labs Soil nutrients testing Water testing labs Compass, GPS, Map Reading Labs Natural Landscaping Fruit Orchard/Vineyard Production Vegetable Production	National Agricultural Education - NRS.01.02, NRS.01.02, NRS.01.01, NRS.01.01 Wisconsin Agricultural Education – ESS1.a, ESS2.b, ESS2.c, ESS2.d, ESS4.b, NR1.b, NR1.b, NR2.a, NR2.b, NR2.c, NR2.d, NR3.a, NR4.b WI Model Academic Environmental Education – B.12.2, B.12.4, B.12.5, B.12.6, B.12.10, B.12.12, B.12.21, B.12.22, C.12.1, C.12.3, D.12.1, D.12.5, E.12.3

		Determine soil textural classes based on particle size, discuss soil horizons, and importance of each layer as it applies to soil nutrients Identify the key soil forming factors from mineral parent materials and determine how to prevent soil erosion **Water Conservation & Management** Understand the need for clean water throughout the United States and the World Trace the path of the hydrologic cycle showing natural water cycles Identify water contaminants and nutrients through the conduction of laboratory testing procedures Discuss methods for conserving and managing various water sources **Navigation** Correctly use a compass with or without a map and a GPS Correctly read a topographic map understand map characteristics and terminology Know the developmental history, terminology and characteristics associated with the use of a compass, topo map and GPS **Horticulture & Landscape** Correctly identify common plants used for native landscapes Learn production practices for fruit trees/vines to establish a healthy harvest Assist with the development of natural landscapes on the school forest grounds Assist with the establishment of an annual vegetable/herb garden using native plantings		
Biology Environmental Education	3, 4	Classify plant/tree species using hierarchical classification systems Conduct plot studies to understand biodiversity in wetland & forested areas Identify endangered or invasive species of the school forest Conduct population studies of various organisms Study plant parts and functions of live plants and flowers	Tree/plant Identification Collections Biodiversity Plot Studies Population Studies	WI Model Academic Science F.12.5, F.12.6 WI Model Academic Environmental Education – B.12.6, B.12.7
Environmental Geology Environmental Education	1, 2, 3	Study the geological history of the school forest Analyze water chemistry In both the pond and the stream of the school forest Map the school forest geology and/or watershed & determine proper land management techniques for resource conservation	Water Quality Studies Soil/Rock/Geology Studies	WI Model Academic Science C.12.1, C.12.2, E.12.4, G.12.5, H.12.5 WI Model Academic Environmental Education – A.12.1, A.12.2, A.12.3, A.12.4,

				A.12.5
English/Language Arts Environmental Education	5, 6	Discover how nature can be an inspiration for creative writing Practice writing poetry about nature and share writings with class	Read writings of naturalists such as Aldo Leopold or Henry David Thoreau Creative Writing/Poetry	Common Core English L.9-12.4, SL.9-12.1, SL9-12.3, WHST.9-12.5 WI Environmental Education - B.12.22
Fine Arts Environmental Education	5, 6	Create artwork inspired by nature Create music inspired by nature	Plant/Animal/Landscape Drawings or Paintings of the school forest Band/Choir Retreat at the school forest	Art Education C.12.5, K.12.3, L.12.4 Music Education F.12.3, F.12.4, F.12.5 WI Environmental Education - B.12.22
Mathematics	5	Measure different land areas/species to create graphs, maps or other statistical data charts Use mathematical equations to measure, calculate volumes, determine distances, calculate basal areas and determine diameters of various items found in nature	Measurement Labs	Common Core Math N-Q.1, A-CED.2, F-TF.3, G-SRT.11, G-MG.1, S-IC.1
Social Studies/Geography Environmental Education	1, 5, 6	Correctly use a compass with or without a map and a GPS Correctly read a topographic map understand map characteristics and terminology Know the developmental history, terminology and characteristics associated with the use of a compass, topo map and GPS Learn about environmental issues effecting Winnebago County & Wisconsin	Compass, GPS, Map Reading Labs Geocache Environmental issues research	WI Model Academic Social Studies A.12.2, A.12.4, A.12.6, A.12.9 WI Environmental Education - D.12.4, D.12.5, D.12.7
Spanish	5	Learn vocabulary words in Spanish for plant/animal species or other forms of nature found at the school forest Write a story in Spanish using nature vocabulary and tell your classmates the story using the Spanish language	Identify plants animals and organisms at the school forest using Spanish names Tell a nature story in Spanish	WI Model Academic World Languages B.1, C.1, C.4, D.2
Technology Education	5	Research, develop, build and maintain structures that can be utilized by visitors at the school forest	Plan trail signs & maps, build bridges, benches, boardwalks, perform structural maintenance and install housing fixtures where necessary	WI Technology & Engineering BB1.b.6.h, BB1.f.5.h, BB1.f.6.h, AC1.a, AC1.b, AC1.c, AC1.d, AC1.e

Staff Development:

In the fall of 2013, teachers were introduced to and toured the newly acquired Norbert Rich School Forest property. An assessment was given to instructional staff to determine how to help teachers better utilize the property for their classroom activities, most teachers acknowledged a need for in-service training opportunities for staff to become comfortable using the school forest as a teaching tool and resource.

Professional development activities will include the following as needed throughout the school year:

Yearly new teacher tour of the school forest site

Grade specific teaching/curriculum workshops, generally conducted at the school forest by the school forest coordinator or possible partnering organizations

Introduction of teacher instructional totes as they become available for use – for appropriate grade level & subject areas

Training and Instructions on how to sign up for use at the school forest and rules/procedures for use

Possible hosting of environmental education workshops at the school forest, sponsored by LEAF, Project Learning Tree, Project WILD, Project WET, KEEP, etc.

Encourage teachers to attend professional development opportunities for environmental education

Resources: Last updated December 2013

People:

School Forest Advisory Committee
UWSP College of Natural Resources
Winnebago Co Dept of Natural Resources
Winnebago Co Land & Water Conservation
Winnebago Co Agriculture Extension
School Forest Coordinator
UWRF College of Agriculture
LEAF Program Staff
Fox Valley Technical College
Butte des Morts Conservation Club

Materials:

<u>Buildings</u>
Green Shed - Storage
Brown/White Shed - indoor classroom area
Cabin Area – kitchen & conference room

<u>Property Equipment</u>
2 Deutz Tractors, 1 with loader
Antique Farmall Tractor
Case Bulldozer
Case Loader
Case Lawn Mower

Resources Continued:

Shovels/Rakes/Forks – garden tools
Garden Hoses
Tool box with tool assortment
Saws (10), loppers (3) & hand pruners (2)
6 –Foot Ladder
Hardhat (24)

Teaching Resources
Identification guides for plants and animals
Forestry Measurement Tools – biltmore sticks, cruising sticks, wedge prism/angle gauges, clinometers, diameter tape, increment borer, GPS (garmin e-trex 10 & 20), 100' measuring tapes

Curriculum Resources (School Forest Coordinator's Office)
Project Learning Tree Environmental Education Activity Guide, 2002
Project WILD K-12 Curriculum & Activity Guide, 2002
Project WILD Aquatic K-12 Curriculum & Activity Guide, 2002

Multimedia Resources
Television with DVD/VCR Player

Camping /Cooking Resources
Pudgy Pie Makers (set of 6)
Set of cooking pots, pans, spatulas etc.
Set of dishes including plates, bowels, and silverware

General Resources
Paper Products & Towels
First Aid Kit
Work Gloves & Latex Gloves

Resources at the High School
Water testing equipment (Agriculture/Biology)
Soil testing equipment (Agriculture)
Set of compasses (Agriculture)
Snowshoes (Physical Education)

What is needed?:

Map of the school forest grounds with trails, improved parking area & safe pond access

Basic Supplies - Clipboards or drawing boards, safety glasses, magnifying lenses, rulers, markers/crayons, flip chart paper, scissors, tape, glue, string, container sets for materials, stop watches, projector with screen, laptop computer, printer, ink, paper, funnels, digital camera

Wildlife Equipment –Animal tracks & molds, animal track stamp kit, animal skulls, dissection kits, binoculars, insect nets, collecting jars, pelt set, live traps, trap set, trail cameras, mounted specimens, nest/hive/bone collection, nesting boxes and feeders for various wildlife

Geology/Soil Equipment – soil samples, soil testing kits, soil & rock specimens, soil color charts

Weather/Climate Equipment - rain & wind gauges, air temperature thermometers, anemometer, barometers, air quality test kits

Aquatic Studies – Pond nets, petri dishes, forceps, water quality test kits, thermometers, waders, Ice cube trays for sorting specimens, dishpans, microscopes and stereomicroscopes

Recreational Equipment – Archery, snowshoes, cross country skis, compasses, GPS's, topographic maps, various weather gear for cold and rain

Grounds Maintenance Equipment - Pole saws, hand pruners, hand garden tools (trowels & forks), wheel barrow, extension ladder, wood chipper, chain saw

Facilities – Restroom, trails, outdoor classroom seating, fire pit/camping areas, trail signs, trail benches, Landline telephone, tents, covered picnic shelter with tables, furnace, Norbert Rich memorial, storage shelving & storage bin areas

Curriculum – Grade level curriculum with totes for storage, curriculum related videos, environmental science related children's books, middle & high school literature resources

Assessment:

The primary goal of the Norbert Rich School Forest program is to increase student exposure to the outdoors so that these future land owners and policy decision makers will have a better awareness of the natural world and make more informed environmental choices.

The on-going success of the Norbert Rich School Forest program will be assessed in a variety of ways including:

Surveys of teachers and/or students to determine, facility needs/improvements, educational resource needs, and perceived value of the school forest educational experience

Tracking the school forest facility use by students, faculty and educational organizations

Evaluation of staff development and post-trip experience to determine future needs

Post-trip student assessments of environmental knowledge gained from experiences conducted at the school forest

Sustaining the School Forest Program

Advisory Committee and Responsibilities:

The purpose of the Norbert Rich School Forest Advisory Committee is to develop, guide, and oversee the activities of the Norbert Rich School Forest including:

- Assistance with the management decisions of the property in conjunction with a forestry management plan prepared by the county and school foresters
- Development and evaluation of the educational plan for various grade levels and subject areas
- Continual needs assessment and improvement activities involving the facilities with funding efforts
- Working to establish an effective communication plan to provide regular updates to staff, students, media and/or members of the community

Current Committee Members:

Faye Ewald – High School Science Teacher
Melodie Hoenecke – Physical Education Teacher
Mark Kunde - School Board Representative
Peggy Larson – Winneconne District Administrator
Crystal McGrath - School Forest Coordinator/Agriculture Instructor
James Melby - Agriculture Instructor
Rachel Piette – Wisconsin DNR Wildlife Biologist
Heidi Salm - 6th Grade Science Teacher
Nick Snyder - College Forestry Student – Winneconne Alumni
Kalen Tesch - Kindergarten - Elementary Teacher
Thomas Truman - Conservation Warden - Oshkosh Law Enforcement Team
Tom Vanden Elzen - Wisconsin DNR Forester, Winnebago County
Merle VenRooy - Retired Ag Teacher
Terry Wetzel - High School Principal

Communication Plan:

A presentation about the school forest activities, education and usage will occur at least annually to the board of education

A school forest web site, which is linked to the district website, will be created and maintained to share happenings with the school and community

Information will be shared for media publications including the local newspaper and district newsletter about important events relating to community involvement, restoration activities, student projects, fund raising, teacher training, and other significant events held at the school forest

The district will hold an annual in-service training for teachers to become more familiar with the curriculum and facilities offered by the school forest

An updated list of materials & supplies available for instructional purposes will be compiled and provided for educators utilizing the forest

Efforts will be made to attend the meetings of community organizations to promote and inform the public of school forest activities and opportunities (FFA Alumni, PTA, Chamber of Commerce, Lions Club, Civic League, etc.)

Long-Range Goals:

To fulfill the vision for the use of the Norbert Rich School Forest, the following goals have been identified:

Education:

Develop and establish a school forest curriculum so that all classes grades K-8 take a field trip to the school forest annually and grades 9-12 courses are offered the opportunity to utilize the school forest for appropriate lessons as needed

Develop a district wide calendar scheduling student field trips during appropriate seasons for curriculum needs and communicate school forest information on the district website

Provide in-service opportunities to assist teachers in developing environmental & outdoor education curriculum

Provide summer school and overnight camping opportunities for students with outdoor interests at different age levels

Community events for families and staff will be held at the school forest annually with community established service opportunities for youth groups

Facilities:

Acquire and create a storage center for necessary educational tools, equipment & curriculum on the property

Create a plan for improving outdoor/indoor educational areas and permanent bathroom facilities on site

Develop and establish a school forest trail system with access to different biologically diverse habitat areas and provide both permanent posted & paper maps for visitors

Design and create a permanent memorial to Norbert Rich who donated the property to the Winneconne Community School District

Resource Management:

Continue to manage the forest to optimize the diversity and health of the site for native plant & wildlife species

Improve upon habitat areas for native wildlife, including pond restoration and access

Clean up, restore and improve garden areas of the forest including orchard and vineyard areas to produce fruit and vegetables which may be utilized as part of the agriculture program

Implementation Plan:

Year 1

Create & implement a forest stewardship management plan for the school forest site with the Winnebago County forester

Register the Norbert Rich School Forest in the Wisconsin Community Forest Program (coordinated by LEAF)

Create the school forest educational plan, submit and have approved by January 1, 2014

Identify curriculum activities and materials for grade level field trip opportunities with connections to standards to be purchased and utilized with continued establishment of school forest field trips

Begin to acquire materials and equipment necessary for the development of facilities and curriculum

Build school and community awareness of the environmental education opportunities of the Norbert Rich School Forest site

Introduce the Norbert Rich Memorial Landscape Design Competition in agriculture classes

Begin the establishment of trails with corresponding maps of the forest

Begin to acquire materials to build bridges, benches, tables and boardwalks for more efficient use of property

Removal of invasive plant species as needed to improve the overall health of the forest

Brainstorm summer school use of property facilities for environmental education, orientations, staff development, etc.

Year 2

Implement & install Norbert Rich Memorial with landscape designed by agriculture classes

Explore pond renovation project ideas to have greater ease of access for student water quality studies

Continue to acquire materials to build bridges, benches, tables and boardwalks for better access and begin installation of these projects

Continue establishment of trails with corresponding maps of the forest

Continue to acquire materials and equipment necessary for the development of facilities and grade level curriculum with the creation of teacher guides to utilizing the school forest

Continue the removal of invasive plant species as needed to improve the health of the forest

Design and develop a summer school program for students

Begin improvement of the orchard area and vineyard to be utilized for fruit production

Establish better communication with school & community members through website development linking to the district website

Year 5

Complete pond renovation project to have greater ease of access for student water quality studies

Explore forest management plan to determine tree harvesting/thinning plan and continually update the school forest education plan

Have established grade level curriculum grades Kindergarten-8th grade and continue to encourage 9-12 grade course use as needed

Continue maintenance of existing trails and create signage with maps to identify trails for ease of use

Benches built and installed around pond and throughout trail system and established picnic areas for students

Secure and organized storage for equipment & materials established

Improvement of indoor educational center for students

Continual monitoring of invasive plant species as needed to improve the health of the forest

Increase of garden areas for fruit/vegetable production

Plans for more permanent bathroom/shower facility in progress

Continue to develop a summer school programming for students

Year 10

Initial timber harvest completed and under-planting of new trees initiated with assistance of the Winnebago County Forester

Permanent bathroom/shower facility constructed and in use

Well established trails with maps for use, curriculum & resources to be utilized at the forest site

Well established indoor and outdoor educational areas for teachers and students to utilize for education

Established landscape, garden, vineyard and orchard areas for school fruit/vegetable production

Have a well established summer school program for students

Continue to manage the forest to optimize the diversity and health of the site for native plant & wildlife species

District Commitment:

The Winneconne Community School District initially demonstrated their commitment to this project by developing a new position with the hiring of a school forest coordinator to manage the property along with the teaching and learning activities.

In September 2013 a school forest management plan was created by the Winnebago County Forester, Tom Vanden Elzen

In October 2013, the Norbert Rich School Forest was registered in the Wisconsin Community Forest Program through LEAF

This plan was compiled and produced by Crystal McGrath, the Norbert Rich School Forest Coordinator in the fall of 2013 with guidance from the school forest advisory committee

In February 2014, the Norbert Rich School Forest Plan will be presented to the Winneconne School Board for approval.