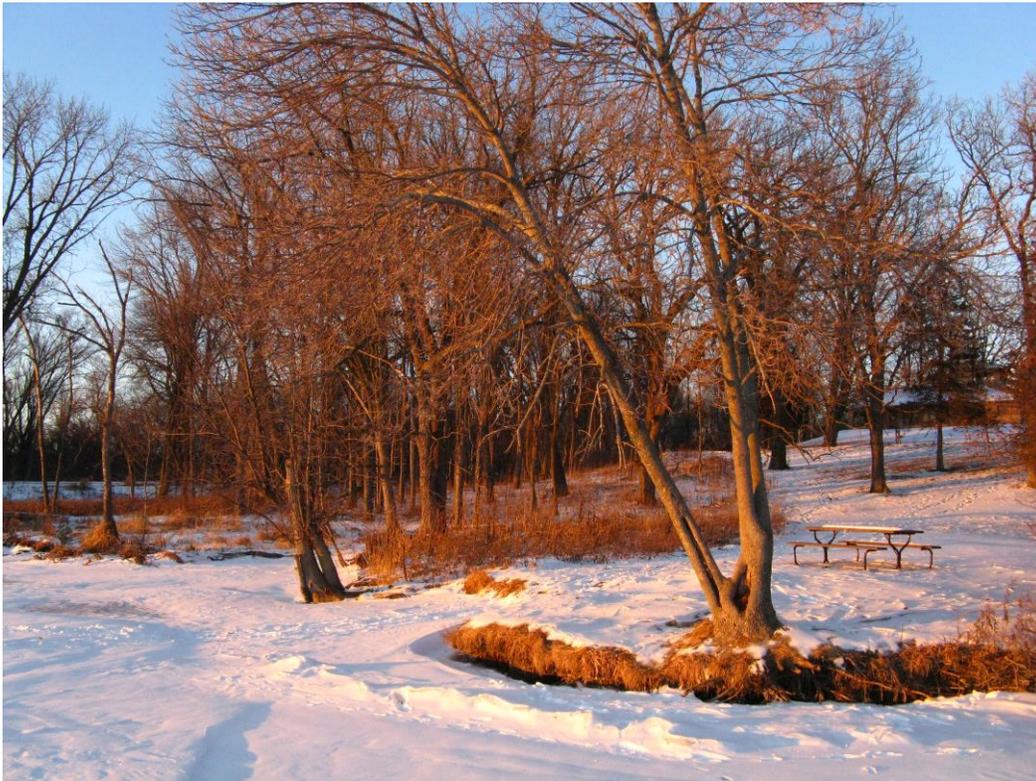


School District of Green Lake

School Forest Education Plan



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1. Rationale

1.1 Value Statement

The Green Lake School Forest, located on the shores of Green Lake, provides an essential dimension of learning to the Green Lake School District’s K-12 students and community. Green Lake is the deepest natural inland lake in the State of Wisconsin and is an ecological system that is a vital part of the local culture and economy. The Green Lake School Forest provides an essential learning environment for students to study the lake and the surrounding ecosystems.

Green Lake School has a proud history of involvement with its natural surroundings. The Green Lake School Forest provides the opportunity for positive, tangible learning experiences which create a lasting impression of environmental stewardship. Students are reminded of their connection to each other and the natural world. Furthermore, research by Sivek (2002) demonstrates that environmental sensitivity is a pre-cursor to environmental literacy. Students who have significant positive outdoor experiences show improvements in their test scores, as well as decreased behavioral issues and increased attendance (Lieberman and Hoody, 1998).

The Green Lake School District seeks to foster students to become environmental stewards for its local and global community. The Green Lake School Forest is a location where this can be accomplished.

1.2 Target Messages

1. Humans are part of the natural world.
2. Environmental education cultivates engaged, responsible stewards.
3. We influence the relationship between the land and the lake, which impacts our community and our quality of life.
4. Understanding water issues in our community helps us better relate to others the world.
 - a. Natural Resources are precious and valuable.
 - b. We have a moral obligation to take care of our natural resources.
5. Environmental stewardship is most effective as a multi-generation platform: just as new generations inherit natural resources and the environment, so they also inherit ethical land values that naturally translate to sound environmental stewardship.

1.3 Needs Assessment Results

A School Forest Needs Assessment survey was given out to all the teachers in the school district and the results were summarized.

- Interest in using the school forest among teachers, administrators and/or students
 - 82% of teachers are interested in using the school forest
- Barriers to using the school forest
 - Transportation
 - Time
 - Scheduling
 - Restrooms
- Knowledge base and comfort of teachers related to outdoor environmental education
 - A little over half the teachers don't feel comfortable with their knowledge base to use the school forest
- Logistics needs, e.g., restrooms, transportation, safety
 - Transportation
 - Time
 - Restrooms
 - Education shelter
 - Existing trail improvement
- What do teachers need in order to utilize the school forest for student field trips?
 - First aid kit
 - Clipboards
 - Bug spray
 - Clothing
 - Nets
 - Sampling kits
 - ID guides
 - Canoe and kayaks
- What are the first priorities the school forest committee should "tackle" in order to begin moving the school forest program forward for the district?
 - Scheduling and transportation are the greatest challenges
 - Restrooms

Administrative concerns:

- Shoreline restoration needs to be completed to be more accessible to all students and is currently a safety concern.
- Handicapped accessible areas for students with disabilities
- Form of communication from the forest to the school
- Trail to access the nearby prairie
- Shelter for education or in case of bad weather

2. Site Description and Opportunities

2.1 Site Description and Location

Deeded to the Green Lake School District in 2011 as part of the Lindenwood Development, the Green Lake School Forest is located within the Green Lake Conference Center in the Town of Brooklyn, Green Lake County, Wisconsin. The school forest is 7.3 acres in size, bordered by undeveloped Green Lake Sanitary District lands to the north and west with approximately 100 feet of shoreline on Green Lake to the south.

The Green Lake School forest is located at N5161 Log Cabin Road, Town of Brooklyn, Green Lake County, Wisconsin (PLSS: Section 35, T16N, R12E, SW ¼, NE ¼). To get to the school forest from the Green Lake School District building:

- Head north on Mill Street toward North Street
- Turn left onto North Street
- Take the second left onto Route 23
- Turn left on Lawson Drive into the Green Lake Conference Center
- Turn right onto Sunset Drive
- Take a slight right onto Cabin Road
- Continue onto Hillside Road
- Turn left into the gravel area near the lift station

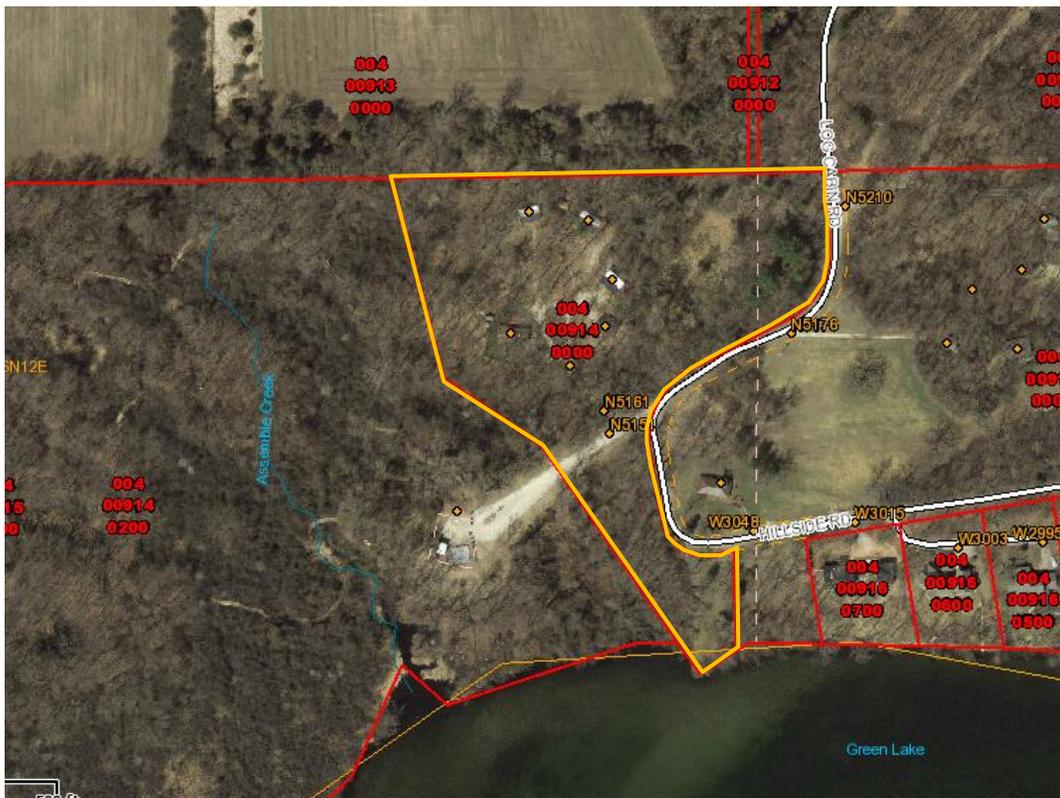


Figure 1. Aerial view of the Green Lake School Forest with property lines highlighted in yellow.

Portions of the Green Lake School Forest were historically parceled for residential and agricultural use (Phase 1 Environmental Site Assessment, American Baptist Assembly Property, June 2009). Only a gazebo foundation remains from the former homestead. The School Forest is 7.3 acres in size and is bordered by undeveloped Green Lake Sanitary District lands to the west. The vegetative cover of the parcel is approximately 60% natural woodland, 30% light canopy with mowed understory, 5% roadway and 5% mowed open space. The northern section of the parcel is lightly developed with 5 cabins fanned out from east to west. The southern portion of the parcel is directly lakeward of the old tea house. This section is maintained in lawn with the shoreline area showing evidence of prolonged erosion.

Table 1. The trees, shrubs and groundcover found at the Green Lake School Forest, listed in order of general abundance.

Trees	Shrubs	Groundcover
White oak	Buckthorn	Misc. grasses
Cottonwood	Honeysuckle	Misc. goldenrod
Hickory	Blackberry	Misc. asters
Walnut	Locust	Misc. thistles
Ash	Misc. cherry	R. canary grass
Red pine	Box elder	Wild geranium
Red cedar		Daylilies
Aspen		Virginia creeper
Locust		Grape vine
		Bittersweet vine

Table 2. Documented animals that have been sighted at the Green Lake School Forest.

Mammals	Birds	Amphibians
Squirrels	Robin	Frogs
Coyote	Crow	Salamanders
Whitetailed deer	Eagle	Toads
Raccoon	Cardinals	
Opossum	Woodpeckers	
Woodchuck		
Chipmunks		
Otter		

Some of the unique features of the property are cabins, ephemeral pond and lake frontage. There are currently five cabins on the School Forest, which are currently leased. These could be incorporated into educational/research centers. There is a small ephemeral pond located in the northeast section of the property. It was created by the construction of a dam that has now been removed. There still remains a gazebo foundation on the edge of the pond from the original homestead. The school owns 140 feet along Green Lake. The lake depth gradually increases from 1' at the shore to 5' as one moves about 50 feet out from shore. The lake depth slowly increases to about 10' of depth straight out from shore a distance of 400'.

Currently, there are no bathrooms on the property. Nearby there is a building, the Tea House, owned by the Green Lake Conference Center that can be opened up for restroom use. There is one bench for students to sit

on in the parking lot. There aren't any trails in the school forest for student use. The adjacent Green Lake Sanitary District property does have Hammer's Trail that runs through their property.

2.2 Site History

The school forest had glaciers covering it during the last ice age. Green Lake is a dominant feature created by the glaciers. In the 1800s, the land was used for agricultural production. In 1918, the school forest was owned by the Lawsonia family and used for recreation. They created a manmade lake on the property along with a golf course. By 1963, the land was owned by the American Baptist Assembly (ABA). The manmade lake was drained and there were buildings in the same locations as the present day cabins. The land to the west of the school forest was being used as a sewage disposal facility, which was later converted to a lift station. The school forest was used for recreational purposes by the ABA up until 2009 when it was given to the Green Lake School District. An Environmental Site Assessment was completed on the property in 2009. The five cabins remain on the property and it is still being used for recreational purposes.

The two major soil types on the property are GhA and KeD2. GhA – 75% of the school forest – Granby loamy fine sand – is loamy soil underlain by stratified layers of sand then clay which cause the soil to be poorly drained. Low areas underlain by this soil has standing water during wet periods and is known to limit natural soil fertility. KeD2 – 25% of the school forest – Kidder loam – is well-drained, fine sandy loam soil underlain by more layers of fine sandy or sandy clay loam glacial. The soil is only moderately fertile.

2.3 Site Management

Stand 1: Open Grassland, Scattered Oak Sawlogs (GH/ O 15+1) -1 acre

Objectives:

- Maintain a scattered overstory of oak and other central hardwoods species
- Eliminate invasive species
- Establish native plants to occupy the understory

Recommended Practice (ongoing):

- Continue to reduce and eliminate the invasive species
- Once invasive species are eliminated, conduct prescribed burning every 3-5 years

Educational Opportunities:

- Discuss invasive species and eradication techniques for each species
- Discuss prairie management and the plant and animal species associated with lowland prairies
- Discuss the importance of lowland prairies and how they protect water quality

Stand 2: Oak/Central Hardwoods Sawtimber (O 15+³ / CH 11-15²) - 6 acres

Objectives:

- Provide a recreational and educational opportunity for the users of the property
- Maintain a forested condition within this stand
- Regenerate the oak and central hardwoods species to create a new stand of tree seedlings

Recommended Practice (Anytime):

- Eliminate the invasive species.

Educational Opportunities:

- Explain the process of oak regeneration and the need to regenerate oaks in older oak stands
- Discuss oak savannahs and their historical significance on the landscape in this area
- Continued opportunities also exist to enhance and expand the hiking trail and wetland areas on the property

3. Educational Connections

3.1 Key Concepts/Educational Goals

The Green Lake School District is a K-12 International Baccalaureate (IB) school. This curriculum embraces the IB Learner Profile which strives to develop principled, caring, globally-minded thinkers. In addition, the school places a high emphasis on connecting with and caring for one’s natural environment.

3.1.1 Primary Years Program (PYP)

Key Concepts	Site Connection
1. Connection	Lake and land use Food web and food chain
2. Causation	Pollution
3. Function	Soil Tree shape Biological design
4. Perspective	Local influence on greater community Size of organisms
5. Form	Purpose of design Leaf shape
6. Change	Seasons Water cycle
7. Responsibility	Stewardship
8. Reflection	Psychological benefits of nature
9. Change	Seasons Water cycle

3.1.2 Middle Years Program (MYP) and Diploma Program (DP)

Key Concepts	Site Connection
1. Aesthetics	Flowers Arrangement Landscaping Invasive species
2. Connections	Land, communities, water and humans Habitat and wildlife
3. Form	Structure and its use
4. Perspective	Conservation vs. Preservation
5. Change	Seasons Climate Water
6. Creativity	Drawing of specific area over time
7. Global Interaction	Ethics
8. Relationships	Wildlife and plants depend on each other Food web Environmental justice
9. Communication	Writing about the land around them
10. Culture	Social history
11. Identity	Our place in nature
12. Time, Place and Space	What is done today affects the future Site history
13. Communities	Biological Environmental vs. human
14. Development	Land use and management Evolution
15. Logic	Population statistics
16. Systems	Natural processes Food web Energy cycle

3.2 Classroom Curriculum Connections, Site Connections and Alignment with State Standards

Table 3. Classroom Curriculum Connections, Site Connections and Alignment with State Standards

Grade	Subject(s)	Concept	Students will be able to ... Objectives	Activity: What will they actually do at the forest? Or list lesson name from activity book which will be used	Location Which site at the forest?	State Standards Be sure to include all appropriate subject areas
4k	Science		Students will be able to identify five different types of leaves found at the school forest.	Students will collect five different types of leaves from the forest. They will match the leaves to their tree name. The students will do leaf rubbings and display their work.	The forest area	WEMLS Standards: Scientific Thinking C.EL. 1 Uses observation to gather information. C.EL. 2 Uses tools to gather information, compare observed objects, and seek answers through active investigation. Exploration, Discovery, and Problem Solving A.EL. 1 Uses multi-sensory abilities to process information.
K	Science - IB Unit Food From the Earth	5,1	Locate plants in the forest and diagram the parts of the plant they observe - the roots, stem, leaves, etc.	Walking through the area and locating plants.	In the more wooded areas	K-LS1-1 K-ESS2-2 W.K.7 SL.K.5 W.K.2
1	Science-IB Unit How We Grow	1,5	*Learn that animals need to find food, water, shelter, space and air to survive *Describe how the outer coverings of organisms are different based on their needs	Students will participate in a scavenger hunt that will have them search for examples of food, water, and shelter of animals. They will also look for various ways to compare/contrast the	In the forest, prairie, and by the lake	1-LS3-1 1-LS1-1 CCR-1 CCR-3

Grade	Subject(s)	Concept	Students will be able to ...	Activity:	Location	State Standards
			and purposes *Show how plant and animal needs are different	differences in plant and animal needs.		
2	Science IB Unit Changes and Science IB Unit Cycles	1,6	*Make observations about changes, such as leaves changing in the fall *Living things have life cycles	-Students will go on a treasure walk looking for leaf adaptations -Students will describe life cycles of plants and understand function of plant structures of roots, leaves, flowers, stems. Students will go on a life cycle scavenger hunt looking for native butterflies	Forest, prairie, near lake	2-LS4-1 2-ESS2-2 2-LS2-1
3	Science	1, 2	*Understand issues related to species biodiversity and distribution *Collect and interpret data to answer a question *Graph data and extract, interpret, and use information presented in the graph *Explore and determine best data collection processes	“What’s Green and Grows All Over?” Students will compare the biodiversity of different natural ecosystems. Divide into teams. Give each team a hoola-hoop area - one by lake, one in a prairie, one in the woods, and one in an open field or lawn. Students count the number of different species of plants in the hoop. If the plants are small (and not illegal wildflowers), students will collect a sample. Students will bring back samples and list of species inside the hoop. As a class,	Multiple locations: wooded area, prairie, open field or lawn, near the lake	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

Grade	Subject(s)	Concept	Students will be able to ...	Activity:	Location	State Standards
				plot the number of species found in each hoop. Record the number of new species. Compare species that were found in different locations - discuss why some species grow in certain locations and not in others.		
4	Science	1,2,4	Students will be to group animals according to their shared characteristics.	Students will observe animals in the forest, shoreline, and prairie.	Prairie, forest and shoreline of lake	F.4.1
5	Language Arts	8	Students will write personal journal entries to explore their thoughts and make connections to their environment through sights, sounds, and smells.	Students will select a spot in the school forest. Students will close their eyes for five minutes to reflect on the sounds and smells around them. Students will record their thoughts and sensory observations in their journals.	School Forest	- CCSS.ELA-LITERACY.L.5.6 - CCSS.ELA-LITERACY.L.5.5.A - CCSS.ELA-LITERACY.L.5.5.B - CCSS.ELA-LITERACY.L.5.3.A
6	Ecology-PYP Unit	1, 2, 3, 4, and 7	Students will learn the importance of the careful interaction between life forms.	-Students will research the invasive species that are present in our area. Their findings will be documented in a Science Notebook. Students should include a detailed picture and notes so that identification will be possible. -Students will visit the school forest, locate the invasive species that is of focus, and evaluate the	School Forest	MS-LS2-1. MS-LS2-2. MS-LS2-4.

Grade	Subject(s)	Concept	Students will be able to ...	Activity:	Location	State Standards
				relationship between the invader and host while reflecting on the availability of finite resources. -Observations, notes, new discoveries, and reflections will be documented in their Science Notebook.		
K-6	Physical Education	1,8	Students will develop, refine, and apply fundamental locomotor patterns as it pertains to the different terrains and nature of the forest.	Students will travel fast and slow, using different pathways, changing directions in response to a signal or obstacle using a variety of locomotor skills.	School Forest	Wisconsin Standards for Physical Education:1:1:A2,2:1:A8
7-8	Social Studies	Change	Students will learn the history of the School Forest Site, and the various buildings and people involved.	We will visit some of the buildings at the ABA/School Forest, and then compile a report about our findings	Tower at the ABA, School Forest	B8.3,B8.4,B8.8
7	English, Science and Technology (cross-disciplinary)	6 (change) and 13 (Environmental vs human communities/environment)	English (Hintz)- Students will study man's attempt to adapt and survive in adverse conditions in the Yukon Territory. Technology (Jandrin)- Students will build survival kits appropriate to the arctic conditions. Science (Starr)- Students will measure their ability to construct and maintain habitable environments)	Setup and test their survival tents.	Some place in the woods during January or February, so outside conditions can be measured and contrasted.	English: Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history. Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or

Grade	Subject(s)	Concept	Students will be able to ...	Activity:	Location	State Standards
						<p>events, or how individuals influence ideas or events).</p> <p>Science:</p> <p>Technology: K. Energy can be grouped into major forms: thermal, radiant, electrical, mechanical, chemical, nuclear, and others. (16.9-12.K)</p>
7-8	Math	4 (perspective)	Students will create and use a forest-management measurement tool for the diameter for trees.	<p>(From UW-SP's "Greening your Math" workshop) Students will create and use a Biltmore stick.</p> <p>1) Each student will need a 30"x1"x 1/4" piece of wood, a very small tape-measure, a pen/fine-marker, paper/pencil/calculator to produce their own personal Biltmore stick. The marks on the stick are related to the distance between the student's fingers and nose when the hand is extended straight in front of the nose. 2) Use the Biltmore stick; record measurements.</p>	In various areas of the school forest; looking for a variety of sized trees.	<p>7.G.4</p> <p>7.G.6</p> <p>7.NS.2d</p> <p>8.NS.2</p>
7-12	Physical Education	2	Exercise in nature Snowshoeing/Hiking/Skiing in the forest	Skiing, hiking, snowshoeing	Paire, in the forest, near the lake, if frozen on the lake.	<p>Wisconsin state standards:</p> <p>1.1.A.2, 2.1.A.8</p> <p>1.2.B.1, 2.2.A.5</p>

Grade	Subject(s)	Concept	Students will be able to ...	Activity:	Location	State Standards
7-12	Language arts	1,2,5,9,1 1	Students will write poetry (haiku, or free-verse) or prose patterned after A Sand County Almanac using sensory imagery they have recorded from the school forest.	Pre-field work: learn how to record sensory observations and convert them to similes, metaphors and personification. Learn poetic and prose forms best suitable for nature writing. Look at samples of those forms. Field work: Hike, sit in silence, record and write.	School Forest Learning Center (Tea House) and School Forest	CCSS.ELA - LITERACY.W.7.3.B CCSS.ELA - LITERACY.W.7.3.D CCSS.ELA - LITERACY.W.8.3.B CCSS.ELA - LITERACY.W.8.3.D CCSS.ELA.LITERACY.W.9-10.3.D CCSS.ELA.LITERACY.W.9-10.3.E CCSS.ELA.LITERACY.W.11-12.3.D CCSS.ELA.LITERACY.W.11-12.3.E
K-12	Music	1, 9 and 10	Explore connections of nature and music through analysis and/or performance of key pedagogical works	i.e., study Handel's Water Music / Dvorak New World Symphony, create and play water gongs, African water drums, etc / study nature-inspired compositional techniques / what defines music? Are bird songs music? etc	Performances in the multi-use barn structure; other activities in applicable outdoor spaces on the property	A.4.4, A.8.3, A.12.5, B.4.6 B.8.8, B.12.8 C. Improvisation / D. Composition F.4-12 G.4-12 H. 4-12 I.4-12
9	Biology	16	Student will be able to identify aquatic plants that are in Norwegian Bay.	Students will go out on canoes to collect and identify the aquatic vegetation throughout Norwegian Bay.	Norwegian Bay.	HS-LS2-1.
9-12	Science	7	Students will be able to establish native plants.	Students will be planting trees and shrubs that are native to the area.	Areas where invasive species have been removed.	HS-LS4-5
9-12	Science	1, 2	Students will be able to identify and eliminate invasive species.	Students will learn the identifying characteristics of invasive species	Areas containing	HS-LS4-5.

Grade	Subject(s)	Concept	Students will be able to ...	Activity:	Location	State Standards
			They will also understand the importance of removing invasives for native plants.	and what makes them a problem for the native plants in the area. They will then help remove the invasive species using a variety of methods.	invasive species.	
9-12	Science	2	Students will be able to create a soil profile by using a soil boring device.	Students will use a soil bore to take soil samples at two different spots with the associated soil types on the property. They will be texturing the soil and looking for other features such as modeling to create a soil profile.	GhA soil and KdB soil locations	HS-LS2-8
9	Biology	11	Classify plant/tree species using hierarchical classification system.	Tree/plant Identification Collections Biodiversity Plot Studies Population Studies	Near the lake	HS-LS1-2
9-12	Metals	3	Learn various welding methods for a practical use	Build canoe and Kayak Racks	Near the Lake	AC1.a.10.h
9-12	Leadership Development	7	*Learn how to think, not what to think about complex environmental issues. *Develop an understanding of the importance of informed decision-making on issues that affect the environment. *Engage in debates about real-world environmental, social, and economic issues *Develop collaborative team building skills	Research and discover current environmental issues at our school forest. Collaboratively decide on a service learning project designed around improving the environment of our school forest. Develop and carry out an environmental focused service learning project	Wooded area and Prairie	Reading Standards for Literacy: 3. Key Ideas and details 7. Integration of Knowledge and Ideas

Grade	Subject(s)	Concept	Students will be able to ...	Activity:	Location	State Standards
9-10	Math	15 (Logic)	Students will estimate the board feed available for harvest in a section of forest.	(From UW-SP's "Greening your Math" workshop) Students will use trigonometry and proportional reasoning to understand why this technique works. 1) Students will establish a center, then count the number of trees within a specified radius of that center having a minimum diameter. Each pair of students needs 2 stakes and a VERY LARGE tape-measure. 2) Students will stand in a center, rotate 360 degrees and use their tools to count the number of trees that exceed a certain width.	In various sectors of forest on the school's property with varying tree density.	N-Q.3 G-GMD.1 G-GMD.3
11-12	IB Social and Cultural Anthropology	10, 11	*Learn about their place through oral history; *Prepare and conduct an interview * Communicate and compare insights and perspectives gathered from the interviews	Land Use Over Time: Examining Living History: Compare the perspectives and experiences between the older residents and today's children in the community. Compare the land use and condition with that of the past.	Multiple locations: Building Archives, wooded area, prairie, open field, near the lake	Writing Standards for Literacy: 7. Research to Build and Present Knowledge Speaking and Listening Standards for Literacy: 4. Presentation of Knowledge and Ideas
11-12	IB History of the Americas	2	*Use observational skills *Learn how plants differ structurally from one another *Increase their understanding of both plant and human diversity	Botany Bouquet Students discover why there are scientific names for plants, and review the history. Research the related habitat preferences, and human uses for the plants.	Prairie	Common Core State Standards for LITERACY: 2. Key Ideas and details 5. Craft and Structure

Grade	Subject(s)	Concept	Students will be able to ...	Activity:	Location	State Standards
11-12	IB Social and Cultural Anthropology	12	<p>*Practice transferable skills of observation, critical thinking, inquiry, and hypothesis-testing applicable to many disciplines.</p> <p>*Illustrate the importance of context to the meaningful interpretation of data</p> <p>*Show the distinction between observations (the discoveries we make) and inferences (the stories we make up).</p> <p>*Engage in thinking about multiple interpretations.</p>	<p>Dig!</p> <p>Survey and excavate the historic pavilion from the Lawson estate. Measure, map, draw, a top plan(grid) and cross section (translate three into two dimensions). Keep field notes and write a report based on findings.</p>	Pavilion ruins in wooded area	Common Core State Standards for LITERACY 3. Key Ideas and details 9. Integration of Knowledge and Ideas
11-12	Physics	3	Determine if there is a relationship between the circumference of a buckthorn tree and the force required to pull it out.	Students will be measuring the circumference of different sized buckthorn trees and measuring the force required to pull the tree out. They will then graph the data to determine if there is a relationship.	Buckthorn throughout forest. Tests will need to be done on similar soil types.	HS-PS3-1
11-12	Physics	2	Students will be able to calculate the force that waves have on the shoreline.	Students will measure wave height, frequency, amplitude and water density to help determine the force the waves impact the shoreline with.	Shoreline	HS-PS4-1.
11-12	Chemistry	14	Students will be able to perform dilutions.	Students will be able to calculate and mix the appropriate amounts of water and concentrated poison used to treat the invasive species.	Parking lot and invasive species.	HS-PS1-3

Grade	Subject(s)	Concept	Students will be able to ...	Activity:	Location	State Standards
11-12	DP French	2,8	<p>*Compare and contrast, in French, environmental issues we face here at home compared with the Francophone world</p> <p>*Discuss, in French, the importance of being a good “eco-citoyen” right here in our own backyard</p> <p>*Students will be able to describe, in French, the natural beauty of our lake</p>	Students will visit the school forest/trails/lake area and take pictures and video to create multimedia projects in line with the IB text types	School forest, trails, lakefront, interview members of the Green Lake conversation group	<p>A.1. Conversations: Students will discuss and defend an option on selected topics from the local to the international level</p> <p>C.1. Oral presentations: Students will present student-created and/or authentic short plays, stories, skits, poems, songs</p> <p>E.3. Mutual influences: Students will identify some historical and contemporary influences from other cultures that impact today's society such as the democratic form of government and environmental concerns</p>
11-12	Math	5 (form)	Students will estimate the acreage of the school's properties.	(From UW-SP's "Greening your Math" workshop) 1) Students will pace and use angle-measurement tools, then use trigonometry to calculate the acreage of an irregularly-shaped quadrilateral. Need blocks of wood, small nails and protractors to build the angle measurement tool. 2) They will then use GPS tools to calculate the acreage of the same parcel. Tech Ed has GPS tools for us to use.	In various sectors of the various school properties.	<p>G-SRT.8</p> <p>G-GMD.3</p> <p>G-MG.1</p> <p>G-MG.2</p>

Grade	Subject(s)	Concept	Students will be able to ...	Activity:	Location	State Standards
11-12	Chemistry	8	Students will be able to determine if there is a change in water quality from the top of the property to the bottom.	Students will take water samples along the small stream that starts at the ephemeral pond and flows to the lake to determine if there are any major changes.	Small stream throughout property	HS-PS1-5

3.3 Staff Development

Teachers will be visiting the school forest on an August Inservice Day and then fill out the blue School Forest Education Connections sheet. School Board members will be invited to join the teachers as they tour the school forest. Teachers will be given the task and time to develop one lesson that will be implemented at the school forest. Additional training opportunities will be available for the teachers who would like more environmental education background.

3.4 Resources

What we already have:

- Some Vernier testing equipment
- D-Nets
- Macroinvertebrate collecting equipment
- Compasses
- Small hand lenses
- Some clipboards
- Pencils
- Cross-country skis
- Canoes
- Water testing equipment

Needs:

- Chainsaw
- Chemicals associated with treating invasive species
- 50 foot measuring tape
- Buckthorn wrenches
- Plastic measuring beakers, graduated cylinders
- Clipboards
- Boots knee and hip
- Shovels
- Soil bore
- Aquatic weed sampling rake
- Ten 5-gallon buckets
- String for marking grids
- Flags for marking locations
- Screens for sifting soil
- Wheelbarrow
- First-aid kit
- Tape measurers
- Rain coats
- Digital Camera
- Dutch Ovens
- Tree borer
- Bug boxes
- Thermometers
- Binoculars
- Storage bins
- Biltmore sticks

3.5 Assessment

What types of data can you collect regarding student learning at the school forest?

- Students will be given a pre and post assessment regarding students awareness of the program values

Can you measure how often the forest is being used by students or community members?

- A tally of how often teachers take students to the school forest will be recorded
- Teachers will keep track of how often they talk about the school forest in their lessons
- A log book will be kept at the entrance to record community use

What impacts are the school forest experiences having on the teaching styles of district staff?

- A survey will be given to teachers and students

4. Sustaining the School Forest Program

4.1 School Forest Committee and its Responsibilities

Table 4. List of School Forest committee members and individual responsibilities.

Committee Member	Affiliation
Ken Bates	School Superintendent
Virginia Rogers	Green Lake Teacher
Lucas Jandrin	Green Lake Teacher
Dan Starr	Green Lake Teacher
Mary Hunter	Green Lake Teacher
Cathy Moore	Green Lake Teacher
Jason Ladwig	Green Lake Teacher
Amanda Guay	Green Lake Teacher
Stephanie Prellwitz	Green Lake Association
Paul Meuer	Green Lake Association

* People from these organizations will be added or at least contacted as more activities are done at the school forest: Green Lake Sanitary District, Green Lake Conservancy, DNR Forester, Green Lake County, UW-System, UW-Extension Office and other area outdoor specialists.

4.2 Communication Plan

The media contact list is attached. When an event takes place at the school forest, the teacher(s) will contact the appropriate media outlet that will best suit the activity that took place.

4.3 Short- and Long-Range Goals and Implementation Plan

Table 5. Short- and long-range goals with corresponding implementation plan.

Year	Goals	Personnel Responsible	Resources Needed
Year 1 (2015)	-ONGOING: Develop and establish a school forest curriculum so that all classes grades 4K-12 courses are offered the opportunity to utilize the school forest for appropriate lessons as needed	-educational staff -custodial staff -administration -K-12 students	-volunteers for manual labor -district commitment to cover transportation costs and provide on-site staff in-service time
Big Goal: Student Use	-on-site teacher in-service for lesson plan brainstorming/collaboration/site awareness -create a design for the layout of future changes -create a trail that leads to the nearby prairie -ONGOING: arrange available transportation for classes to access school forest at convenient times -ONGOING: land restoration: begin restoration of shoreline, buckthorn removal, and other cleanup as necessary -establish reliable resources (equipment, personnel) for land maintenance. Stewardship of land will be annual/ongoing responsibility (mowing/clearing, etc) -establish land maintenance board: comprised of teachers and community members who will oversee long-range maintenance plan and organize volunteer laborers -ONGOING: schedule twice annual multi-age/school-wide field trip to school forest (International Peace Day and Earth Day)		ONGOING: grant writing to fund future projects and needs
Year 2 (2016)	-property maintenance and new structures (after habitat restoration): pier, canoe/kayak storage, forest trails	-land maintenance board -custodial staff	-funding for labor and supplies
Big Goal: Property	-educational signage along trails/at		

Year	Goals	Personnel Responsible	Resources Needed
Maintenance	<ul style="list-style-type: none"> noteworthy sites/including site boundaries -acquisition of necessary land maintenance equipment (mower / utility vehicle / other tools as necessary) -secure storage for maintenance equipment -5 year long-range maintenance plan review -ONGOING: teacher training/awareness to include school forest in classroom curriculum 	<ul style="list-style-type: none"> -administration -9-12th grade students 	
Year 5 (2021) Big Goal: Vegetation / flora	<ul style="list-style-type: none"> -convert cabin into an educational / nature center with internet access -establish living field guide / set aside areas for native plantings -5 year maintenance plan review -ONGOING: woodland and shoreline maintenance -create trail guides / field guides to supplement signage and living field guide -plans and bids for construction of barn-style multi-use facility for community and school use -create handicap accessible spaces 	<ul style="list-style-type: none"> -high school biology teacher / local experts in native flora -land maintenance board -K-12th grade students -administration 	<ul style="list-style-type: none"> -manual labor -grants/funding for plantings and nature center conversion
Year 10 (2031) Big Goal: New Structures	<ul style="list-style-type: none"> -restore pavilion -complete construction of large multi-use facility ("barn-style") for school and community use -public restrooms -5 year maintenance plan review 	<ul style="list-style-type: none"> -contractor / construction company 	<ul style="list-style-type: none"> -grants/funding for large construction projects

Attachments: Media Contact List

Table 6. Media contact list with corresponding contact information and deadlines.

Media Name	Contact Name	Phone Number	Email	Deadline Date	Notes
Ripon Commonwealth	Aaron Becker, Editor	748-3017	aaronb@riponprinters.com	4:00 p.m.- the Friday before Thursday's publication	He will publish events on the calendar page as well as our press releases. Write things that appeal to the masses, not to our membership exclusively.
Berlin Papers	Alyssa Paulsen	295-6261	news@theberlinjournal.com	4:00 p.m.- the Monday before Thursday's publication	Specify which local areas our press releases are relevant to.
The Green Laker	Aaron Becker, Editor	748-3017	aaronb@riponprinters.com	Deadline May 6 May 27 June 10 June 17 July 1 July 15 July 15 July 29 August 19 August 26 September 9 <i>Two Wednesdays before each bi- monthly publication.</i>	Issue May 20 June 10 June 24 July 1 July 15 July 29 August 12 Sept 2 Sept 9 Sept 23

Media Name	Contact Name	Phone Number	Email	Deadline Date	Notes
GL Chamber of Commerce	Denise Hibbits	294-3231	info@visitgreenlake.com		In the beginning of each year, reserve board as soon as possible for our event dates. When our calendar of events is complete, let Denise know and she will post them on their website.
Green Lake Country Visitors Bureau	Nicole Chase	294-1050	info@glcountry.com		
Oshkosh Northwestern	Stewart Rieckman, Executive Editor Erin Wasinger, Editor	920-426-6691 920-426-6687	Oshkoshsubmit@thenorthwestern.com	Published every Thursday	Send at least 10 days in advance, request to be put online.
Fond du Lac Reporter	Peggy Breister, Editor	920-907-9712	pbreister@fdlreporter.com	Published every Thursday	Send at least 10 days in advance, request to be put online.
Ripon Chamber of Commerce	Paula Price, Exec Director Jolene Rueden, Outreach Coordinator	920-748-6764	info@ripon-wi.com		
Oshkosh Convention and Visitors Bureau	Jeff Potts, Marketing Director	(920) 303-9200	info@visitoshkosh.com jeff@visitoshkosh.com		Only events in Oshkosh area

Media Name	Contact Name	Phone Number	Email	Deadline Date	Notes
Green Lake Extension, 4H	Darrell McCauley		Darrell.mccauley@ces.uwex.edu	Monthly Newsletter	Send before 15 th of each month. Request for post on Facebook and website.
Fond du Lac Extension, 4H	Denise Retzleff		Denise.retzleff@ces.uwex.edu	Monthly Newsletter	Send before 15 th of each month. Request for post on Facebook and website.
Green Lake Extension, Girl Scouts of America	Sarah Roberts		sroberts@gsnwgl.org		General information to share with Girl Scouts