

Superior School Forest Education Plan



Submitted by members of the Superior School Forest Planning Committee

February, 2012

Rationale

Value Statement

The City of Superior is surrounded by an abundance of undisturbed natural areas as well as Lake Superior, yet a high percentage of students or their families seldom leave the city limits to explore these areas. The Superior School Forest is a unique educational site that provides the opportunities to enhance and expand student and teacher learning in a natural environment, increase family involvement in student learning, and provide a community connection to our schools. Exposure to natural environments improves children's cognitive development (Pyle, 2002). In Superior and the surrounding area, this need is great as a large percentage of our population is categorized as low income. Nature buffers the life impact of life stress on children and helps them deal with adversity. The greater amount of nature exposure, the greater the benefits (Wells, 2003). Many of our students exhibit high risk social and academic behaviors. Exposure to natural environments reduces antisocial behavior such as violence, bullying, vandalism and littering, as well as reducing absenteeism (Coffey, 2001; Malone and Tranter, 2003; Moore and Cosco, 2000). The Superior School Forest offers students and families the opportunity to become environmentally literate citizens as defined by the National Association for Environmental Education by:

- Understanding the natural area in a social context
- Understanding how individual decisions and actions impact environmental quality
- Practicing personal and civic responsibility for environmental decisions.

Target Messages

1. The natural world has inherent value. Humans are an integral part of systems of this world. By developing an appreciation for the value of the natural world, children will value the role they play in protecting their world.
2. Fostering environmental literacy by teaching specific skills will help students identify, investigate and take action toward prevention and resolution of environmental issues.
3. Sustainability is an important goal which our society and school district has now recognized.
4. Our personal health is directly related to the health of the environment.
5. We have an obligation to contribute to and protect the health of human and natural communities.

Needs Assessment

Upon completion of a needs assessment survey that was administered to the teaching staff of the Superior School District in April of 2006, it was learned that the Superior school forest was only being used for one week during the summer by our Indian Education program to provide a one week Native American immersion class, and one weekend in January to host the local Boy Scout troops' Klondike Derby competition. It was also learned that *70% of the staff who responded to the survey had an interest in using the Superior School Forest as a resource*. However, *67% of the teaching staff had never used the school forest*, and *17% did not know that the Superior school district has a school forest*.

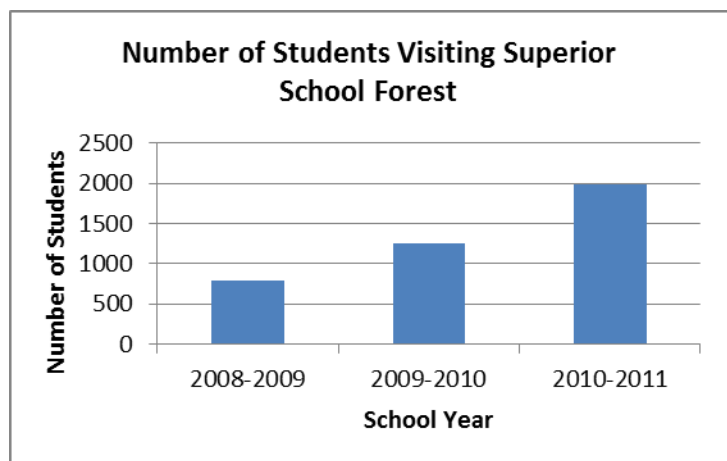
According to survey results, the reason our school forest is being underutilized falls into three main categories;

- Lack of funding for transportation and curriculum resources
- Lack of content knowledge in the area of environmental education topics by interested teachers, and a resulting lack of confidence in taking students to the site
- Lack of time to integrate environmental concepts into recently established district wide curriculum maps
- Inadequate bathroom facilities
- Inadequate handicap accessible facilities, including trail access

In May of 2011, a second School Forest Needs Assessment survey was administered to all teachers in the district, via email, and 141 teachers responded. After analyzing data from the survey, key concepts related to professional development became apparent. According to our survey results;

- 92% of respondents who are not currently using our school forest facilities have an interest in doing so
- 57% of respondents stated that lack of transportation funding to and from the school forest impeded efforts to use the school forest
- 52% of respondents feel they do not have enough knowledge of natural resources to effectively utilize the school forest
- 37% of respondents feel they need help developing school forest lesson ideas to use with their classes

In addition to these survey results, data related to school forest use has been documented over the past three school years, the time that the Superior School District has implemented and staffed a district wide school forest program as a way to meet its goal of increasing environmental literacy among all students. *See chart at right.* These numbers indicate increasing interest by school district staff and students to utilize our local environment to supplement and enhance their regular classroom instruction.



The needs assessment brought to our attention that our staff would like to develop a district wide integrated environmental education curriculum that complements existing curricula. Most staff lack training in how to integrate forestry and environmental education lessons that meet the Wisconsin Model Academic Standards for EE into existing lessons. Professional development in this area is needed to increase the knowledge base and comfort level of the staff.

Teachers interested in using our school forest to enhance their curriculum, and community members who wish to visit our school forest, shared the following ideas and topics that they would use to enhance their curriculum or understanding of the local environment;

- Animal tracks and signs
- Art and nature appreciation
- Bird identification
- Biology and Chemistry CSI applications
- Citizen Science Projects
- Entomology
- Ecosystem studies
- Field Based Student Research Projects
- Forest Ecology
- Geocaching
- Habitat studies
- Holiday wreath making
- Local geology
- Lifelong health and wellness
- Mathematics – practical applications
- Nature writing and journaling
- Orienteering
- Ornithology
- Photography lessons
- Physical Science – practical applications
- Plant surveys and population studies
- Tree identification and classification
- The science of decomposers
- Service learning projects
- Soil studies
- Snowshoeing
- Sustainable forest management
- Sustainability principles
- Team building
- Wetland studies
- Wisconsin's Logging History

These topics will be discussed in more detail in the Educational Connections section of our education plan

Site Description and Opportunities

Description and Location

Legal Description:

Superior School Forest Owned Section: Sec.7, T46N, R14W and Sec.12, T46N, R15W

Superior School Forest Leased Section: Sec.13, T46N, R15W

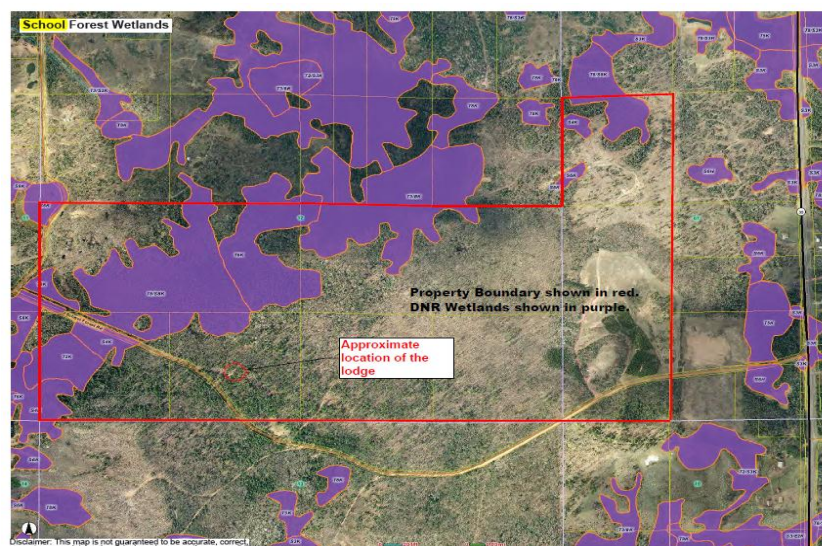
Directions from Superior:

- Take Highway 35 south from Superior.
- Drive south approximately 20 miles. You will pass Pattison State Park and County Road BB.
- Approximately 5 miles south of Pattison State Park look for School Forest Road on the right (west) side of Highway 35.
- Take a right on School Forest Road.
- Follow School Forest Road approximately 2 miles.
- The entrance to the Superior School Forest property will be on the right (north) side of the road.

Ecological Description:

The Superior School Forest is located adjacent to the southern shoreline of Glacial Lake Duluth. The school forest property is comprised of two parcels of land, one 440 acre parcel which the Superior School District owns and an adjoining 280 acre parcel which the Superior School District leases from Douglas County. The school forest property is located in the Town of Summit in Douglas County, approximately 25 miles south of the city of Superior.

The majority of the school forest property would best be described as a Mixed Pine-Hardwood Forest which contains several wetland communities including a bog and a beaver pond. The primary tree species found on this site include red and white pine, red oak, a stand of sugar maple, and paper birch. Tree species that dominate our wetland areas include tamarack and black spruce. Because of the diversity of habitats found on the school forest property, a wide variety of wildlife species inhabit the area. Species on our property include, but are not limited to white tail deer, black bear, fox and coyotes. A wide variety of bird species inhabit the property. Some such as many woodpecker species, chickadees, blue jays and nuthatches act as year round residents. Others species such as a wide variety of warblers, orioles and tanagers are observed more during spring migratory periods.





Educational Opportunities

During the 1970's, under the leadership and guidance of teacher Steve Malcheski, students that were enrolled in the school forest program built five buildings on the school forest property. Of these five, three are still being used. Two of the buildings are garages and serve as storage buildings. The largest building on the property serves as our main classroom and dining facility. This building has indoor restroom facilities and a built in fireplace. In addition to serving as a comfortable classroom and dining facility, this building serves as a meeting place for community events.

During the summer and fall of 2009, two buildings that were originally designed to be student dorms had to be torn down due to structural deficiencies. Two new classrooms were built on the original foundations of these dorms. These new classrooms offer additional classroom space when large groups are visiting the forest. These buildings are heated and have electrical service. Our future plans include adding plumbing facilities to one building to create a wet lab, and computer access to the other building to create a research/writing facility.

Located between the two new classrooms is a wildlife feeding station, designed mainly to attract a variety of local bird species. This structure was built during the summer of 2010 by a local Boy Scout who chose this project as his Eagle Scout project. This structure is visible from both of the new classrooms, so it will offer opportunities for student groups or local community members to observe and study local bird species. Several bird feeders and nesting platforms were also built and hung from this structure to attract more bird species.

Near the new classrooms a campfire area was designed and built by another local Boy Scout. This scout also chose this project as a way to earn his Eagle Scout rank. The campfire area consists of a cleared area with a large campfire pit and ring, surrounded by 10 Leopold benches. This area offers a safe and comfortable place for smaller groups to congregate outside near a fire. In addition to the social opportunities offered by this site, we will also use the campfire area to teach outdoor cooking skills, and fire building skills during our outdoor survival unit.

Also built during the summer of 2010 was a low ropes challenge course. This course was designed by three local teachers, and built by volunteers from within the school district as well as the community. The course consists of six elements, each with the purpose of developing team building and cooperative problem solving skills among the participants who use the course. A group of teachers from within the school district were trained as facilitators of this course. All sixth grade students in our district used the course this fall, and it is our hope to offer this course to other organizations within our community as needed.

There are approximately 16 miles of trails on the school forest property. Each trail takes students through a variety of habitats. These trails are used extensively for a wide variety of lessons, as well as for community events such as our candlelight snowshoe hike that we offer every February. Students also use these trails for mountain biking as part of a health and wellness unit offered at the middle school.

In addition to the trails that are presently developed on our property, we hope to develop a system of cross country ski trails that will be available for student, as well as community use. A large area of our property east of our lodge is undeveloped. We anticipate the ski trail system being developed on this land.

There is a small cleared area found on our property that we hope to develop into an outdoor archery course. Superior Middle School has a well-established archery program and we hope to offer students and other members of the community an outdoor archery range where they can learn the sport of archery, or practice their skills in a more natural setting.

During the winter and early spring of 2008, a 40 acre stand of Aspen was selectively cut. In our timber harvest plan, we preserved an area near the logged area that was not cut. This site presents an opportunity for classes to do long term studies and comparisons between a harvested area of forest with an area that is undisturbed. This area is a living classroom in that students will be able to study regeneration of harvested forest land when left undisturbed.

Finally, we hope to look at existing wetland areas on our property and work to improve an existing wetland area that could be used to study wetland ecology. Some of our wetland sites are bog habitats, that due to changes in the groundwater flow as a result of highway construction projects on Hwy 35, are being invaded by shrubs that are not typically found in wetland environments. We would also like to study the groundwater flow and topography of our site to possibly develop a large pond to use as a study site for students.

Facilities

There are presently five main buildings on the Superior school forest property; two garage (storage) buildings, one main building (fondly named “the lodge”) which has restroom and kitchen facilities, and two newly built classrooms. At this time the classrooms are not yet fully furnished. However, they are heated and act as additional classroom space when needed. Our existing septic system will need to be upgraded as larger numbers of students begin to use the facilities. The school forest property also has approximately 16 miles of established trails. Due to lack of use, many of these trails are becoming overgrown and difficult to locate and follow. Part of our trail system consisted of a boardwalk crossing through a bog area on the property. This boardwalk has not been maintained and at this time is not safe due to rotten wood and exposed nails.

Natural History

The Superior School Forest lies approximately five miles south of Pattison State Park in Douglas County. The land that the school forest occupies has a rich geologic history which accounts for the unique and ecologically sensitive ecosystems found on this site. Two main geologic events account for the underlying sequence of volcanic rock which is overlain by sandstones and sandy soils on the school forest property.

The Superior School Forest lies along the mid- continent rift zone. Evidence of this rifting shows along basaltic outcrops between Pattison Park and the school forest property. This hard bedrock forms the escarpment along the South Shore of Lake Superior along which Pattison Park lies. In more recent geologic times, the Lake Superior region was periodically covered and uncovered by ice as glaciers advanced and then retreated during the Pleistocene. The last advance of ice occurred approximately 50,000 years ago, and it was this last period of glaciation that accounts for many features of the present landscape. The thickness of the ice lobe that covered the area that is now Superior, Wisconsin reached

as high as the Duluth hills. These ice sheets scoured the existing bedrock and shaped the landforms that we see in our area today.

The sandy soils and sand pits found near and on the school forest property are a result of streams that entered Glacial Lake Duluth, which built up sand and gravel deposits, similar to what we see in delta areas during the present day. The Superior Lobe of the most recent glacial deposited terminal moraine across the area that the school forest property is part of. One of the main hiking trails in the school forest runs along this moraine. This most recent advance of the ice also created many depressions in the land which we now see as the bogs and wetlands that are found on the school forest property.

The rich diversity in ecosystems found on the school forest property is due in large part to this geologic past. As stated earlier our forest is dominated by white and red pine, red oak and paper birch. The lower elevations of the forest are thick with balsam fir and white and black spruce. Many woody shrubs occupy the forest. There is a sphagnum bog on the school forest. However, due to construction on highway 35 during the 1990's, the drainage pattern of the groundwater in our area changed, essentially draining the bog. Most characteristic bog plants are still present in this area including sphagnum moss, leatherleaf, Labrador tea and black spruce. However, tag alder is now dominating a lot of the original bog area. A goal of our school forest committee is to research this area to see if it would be possible to amend the topography of the land in this area to change groundwater drainage patterns in the hope of restoring this wetland area.

The school forest property also lies within the Lake Superior drainage basin. This offers us endless educational opportunities. It also offers us the opportunity to partner with the University of Wisconsin in Superior to engage our students in relevant and ongoing research. This area was recently designated one of 28 NERR sites in the nation. These areas are federally designated sites that are deemed ecologically sensitive. These sites are federally protected and designated research sites.

Cultural History

The history and acquisition of the land holding now known as the Superior School Forest Property dates back to the 1930's. However, official records prior to March 24, 1969 were not found. An oral history of this land area was researched and a summary of what we now know about the school forest property follows.

As was common in the early to mid-1900's, present day school districts originally consisted of many small school districts operated by smaller townships. This was the case in the Superior area in the early 1900's. The school district which is now known as The Superior School District actually consisted of many small multi-grade school buildings; each was operating in its existing township. Citizens in the Superior community have shared how when they were students in the 1930's, they were actually taken to the Douglas County property that is now part of the Superior School Forest to replant trees that were logged during the early logging era of our state. Many of the present day trails that are located on the Superior school forest property date back to this early history, and are remnants of old logging roads and even railroad rights of way. Back when this property was originally logged, trains were brought in to the property during the winter months to haul the logs out and back to Superior.

The first recorded history of the Superior school district acquiring the land that would later become part of our school forest was on March 7, 1968. On this date, Douglas County deeded 120 acres of land to the

Superior Independent School District. Roughly one year later, on March 24, 1969, Douglas County deeded an additional 240 acres to the Superior Independent School District. These 240 acres were adjacent to the original 120 acres deeded a year earlier. On September 17, 1970 the Town of Summit deeded another 80 acres of land to the Superior School District. These 80 acres again were adjacent to the other sections of property, bringing the total acreage of land owned by the School District of Superior to be used as school forest property to 420 acres.

In November 1980, the Superior School District entered into a Land Use agreement with Douglas County to use an additional 280 acres of land for educational purposes. This land is adjacent to the property owned by the Superior School District and accounts for the land described in this document as that acreage which is leased from Douglas County.

Throughout this changing history of property acquisition, a formal environmental education program was being developed and utilized at the Superior school forest site. As stated earlier, one of the first connections between the Superior school district and this site was when students were taken to the property to participate in reestablishing forested land by planting white pine trees. This program was part of the implementation of the Wisconsin School Forest Program, whose early goal was to reestablish forests on the land that was logged during the late 19th century and early 20th century.

In the 1960's, a teacher and counselor at Central High School in Superior established the School Forest Program in Superior as a stand-alone program. He was concerned about a relatively large number of students who were not succeeding in the regular public school setting. He established this program to be its own school. Students who participated in this early program were bused to the site daily. These students spent the entire day on site. They were the students who also built the original buildings on this property.

During the 1980's the school forest program changed somewhat. The school still operated as a program for At-Risk students. However, the students now attended school at the school forest site for ½ days. Students either spent the morning or afternoon at the school forest, and the rest of their day at Superior Senior High. In 1984, the Department of Natural Resources worked with the Northland program to develop a forest management plan. A map of existing forest stands was established with a management plan for each stand described.

In 1987, the Superior School District established an off-site alternative education program for at-risk students. The Superior School Forest again played a major role in the curriculum and alternative education program. Students of Northland school attended classes at the school forest site one day per week in the fall and again in the spring. Throughout the other months of the school year, the high school students taught many elementary classes and programs as requested by elementary teachers. The Northland students also coordinated and taught many community events. This program ran from 1987-2002. In 2002, the Superior School District eliminated the Northland program as a separate off-site school, and they incorporated the at-risk program into the regular high school setting. It was at this time that the regular educational use of the Superior School Forest also ceased.

In May 2006 a school forest committee was established to study how the Superior School District could again have students access the Superior school forest as part of the regular education curriculum. The goal of this committee was to develop an environmental education program with the goal of increasing the environmental literacy of all students in the Superior School District. A needs assessment was administered and funding possibilities were researched. During the 2008-2009 school year, the school

district supported (with the support of the Superior Board of Education) a plan to have all fifth grade students in the district participate in environmental lessons at the school forest. All fifth grade students attended classes at the school forest three different times throughout the 2008-2009 school year. At the conclusion of the school year the program was evaluated. Changes were made for the 2009-2010 school year, with the focus of the program being on the middle school. During the 2010-2011 school year the program has been expanded with a formal environmental curriculum being written for grades kindergarten through five, and continuation of the middle school program. To help fund this program, funds have been solicited through local foundations. The school district has also worked in cooperation with our local Department of Natural Resources office to establish a selective timber harvest on a 40 acre section of our property. Earnings from this sale helped supplement funding by the school district to build two new classrooms during the summer and fall of 2009. The school forest committee continues to work with the Department of Natural Resources. We hope to update the 1984 forest management plan to effectively manage the school forest property using sustainable forestry management practices.

Management

The objective of the Superior school forest program is to increase environmental literacy among the students, staff and community members of the Superior School District by utilizing our outdoor classrooms and exposing participants to the natural environment in a relevant learning environment.

Key Goals:

- To provide a safe, diverse and accessible site for educational use.
- To develop a sustainable forest management program to provide educational opportunities as well as a sustainable timber supply, wildlife and recreational opportunities.
- To provide educational opportunities which promote sustainable and healthy lifestyles.
- To develop educational opportunities which protect the Lake Superior watershed and local water supplies.

The environmental education program within the Superior School District continues to develop. As use at the Superior school forest facilities increase, facility, safety and educational needs have also emerged. These needs will need to be addressed if we are to meet our educational objective. The school forest advisory committee has prioritized these needs into immediate needs, and short term and long term goals.

Immediate Tasks

Task	Parties Involved	Educational Value
Repair of main building facilities. Problems include leaking roof, fireplace structural deficiencies, and the intrusion of mice.	School district carpenters and possibly high school technology education students and community volunteers.	Community members will be involved in local education. High school technology classes will participate in real life applications of skills learned in class.
Establish an off road parking area and turnaround site for buses.	Local paving companies and local community volunteers to assist in clearing the site.	Increase safety for students and members of the community participating in educational activities.

Develop handicap accessible restroom facilities and handicap accessible trails.	School district carpenters. Local boy scout troops. Possible student service learning project.	By participating in this project, students will be exposed to the needs of handicapped individuals; diversity education. Also, to build the boardwalk, students will have to use math skills as well as understand the geology of a bog and the impacts of frost as related to construction practices.
Improvement of existing trail system-clearing vegetation and deadfall.	Local boy scout troops and possible student service learning project.	Students will learn that forests are dynamic. Students will experience how the natural elements (wind, snow) change habitats. Students will experience the principles of succession, and by participating in this project will become local stewards of their environment.

Short Term Tasks

Task	Parties Involved	Educational Value
Develop computer writing/research center in one new classroom, and wet lab in another new classroom.	School district carpenters. Local community volunteers.	Students will have on-site access to resources needed for field studies. Students will be able to participate in "citizen science" projects. Students will be able to immerse themselves in the natural environment when studying nature writing and journaling.
Addition of bathroom facilities-outdoor bathroom building with composting toilets.	School district carpenters. Local community volunteers. Superior High School Technology classes.	Students from technology classes will be able to apply construction skills to real life application. Composting toilets are a sustainable alternative to traditional bathroom facilities and models ecological principles in our environmental education curriculum. Composting toilets are a perfect example of ecological decomposition.

Task	Parties Involved	Educational Value
Construction of compost bin(s).	Local Boy Scout troop, possible student service learning project.	Composting of on-site food waste models sustainable living practices. Students can also participate in math lessons calculating how much food waste is generated on site. Ecological decomposition can be studied. The role of decomposers in our environment can be explored. If several models of compost bins can be constructed, can be used as an interpretive site to educate not only students, but community members.
Construction of wetland education models- these may include indoor and outdoor stream models, an indoor lotic stream model, and construction of a wildlife pond.	Community volunteers, possible student service learning project.	There are many educational applications, but all of these projects will enhance and supplement our goal of wetland education as part of our environmental curriculum.
Construction of soil profile pit.	Superior High School geology classes.	Students will apply real life applications to the study of local geology.
Update Forest Management Plan	Dale Rochon, Forester with the Department of Natural Resources, University of Wisconsin-Superior Forestry class (Instructor Nick Danz)	Developing this plan provides application of founding principles in the study of forestry.
Development of interpretive trails-signage, written materials and enhancement of sites.	Possible student service learning project.	Development of the interpretive materials will involve application of knowledge related to the natural history, types of flora and fauna found on site, the geologic history of the site, and explanation of ecological principles on site.
Development of a Superior School Forest web page.	School district IT personnel. Superior High School marketing classes.	Students will apply principles learned in class on how to market and publicize an idea and project using a web page. The Superior community will gain knowledge about local environmental topics and events related to the school forest.

Long Term Tasks

Task	Parties Involved	Educational Value
Creation of an Art corridor	Superior Middle School and Superior High School art classes.	Students will have the opportunity to create art immersed in the natural environment. Students will have the opportunity to use nature to create works of art. Students will have the opportunity to display the works of art they create, and the Superior community will have the opportunity to view the works of art presented by students.
Expand the existing Challenge Course	Community and teacher volunteers.	Students will have the opportunity to gain problem solving skills in order to solve a physical problem. They will gain experience working with others to accomplish a task. Students will gain confidence by attempting the course.
Create a system of cross country ski trails.	Community volunteers and possible student service learning project.	Students will have the opportunity to apply principles of GPS and GIS use to create and map out new trails on the school forest property. Community members will have the opportunity to participate in environmental stewardship. Finally, students and community members can learn about healthy lifestyle choices by utilizing the ski trails.
Create a student mentoring program.	High school alternative education classes.	In order to teach and mentor younger students, high school students will have to gain detailed knowledge about our natural community, the flora and fauna present on site, and ecologic principles. In addition, students will gain interpersonal skills by learning to interact with and engage their audience. The younger students will gain information by participating in the classes offered by the older students.

Task	Parties Involved	Educational Value
Build collaboration with the University of Wisconsin-Superior and staff at the Lake Superior NERR (Nation Estuarine Research Reserve)	School Forest Advisory Committee members.	Collaboration with our local university and research and education coordinators at NERR will benefit both college students and high school students. High students can gain research experience by working with local university classes and experienced research biologists.
Construct an outdoor amphitheater.	Superior High School Technology classes. Local community volunteers.	Students will have a stage to perform on in a natural setting. The connection between nature and the arts can be explored. Acoustics can be compared and contrasted when performing in an indoor setting versus and outdoor setting. Community members will be able to listen to musical performances and other presentations in an outdoor setting.

Educational Connections

Key Concepts

1. The natural world exhibits predictable patterns. Humans seek to understand these natural patterns and cycles.
2. Our natural world is in a state of fragile equilibrium. Human actions can disrupt this equilibrium.
3. The natural world provides many opportunities for participation in lifelong wellness activities.
4. Experiences in nature can lead to appreciation for the natural world, which in turn can lead to personal stewardship by individuals to protect the natural environment.
5. The natural world can inspire; spiritually and creatively.
6. The natural environment has played historic roles in influencing the development of local communities, populations and cultures.

Classroom Curriculum Connections

Grade Level	Goals/Skills/Content Area	Site Connections-Activity	Key Concept(s)	Wisconsin Model Academic Standard
PreK	Become aware of differences between the forest environment and the urban environment	Colors and Shapes in Nature Forest Scavenger Hunt Holiday Swag Make and Take	1, 4, 5	N/A
K	Our world is made up of both living and non-living things. All living things have needs that must be met in order to survive.	I Spy Trail Lichen Looking Get in Touch With a Tree	2	C 4.6 F 4.4
K	Living things grow and change over time.	Every Tee For Itself	1,3,4	F 4.1 F 4.2 F 4.3
1	How are land, water and air important?		1,2,4,6	C 4.1 E 4.4
1	How do living things meet their basic needs ?	Smell and Spell Sound Off Basic Needs Scavenger Hunt Ants on Parade Bird Beak Buffett	1,2,5	F 4.1 F 4.2
2	Machines are devices that improve the quality of life by allowing us to do work with less effort.		4,5,6	G 4.1 G 4.2 G 4.3 H 4.1 H 4.4
2	What are the different habitats, ecosystems and niches we can observe at the school forest?	Habitat Lap Sit Trees as Habitats Sticklers Acorns Fur, Feathers and Scales	1,2,4	
3	Living and non-living things within an ecosystem affect each other.	Oh Deer Logs to Soil	1,2	F 4.1 F 4.4
3	Rock is composed of different kinds of materials. There are three types of rock.		1,5	E 4.1 E 4.2 E 4.6
3	Predator and prey relationships impact the ecosystem found within an ecosystem.	Birds and Worms Owl Pellets Scram or Freeze Food Chain Game	1,2,4	
4	Plants can make their own food.	Describe the parts of a tree	1,2	A 4.3 A 4.5 C 4.1 C 4.2 C 4.4 C 4.5 F 4.2 F 4.3

Grade Level	Goals/Skills/Content Area	Site Connections-Activity	Key Concept(s)	Wisconsin Model Academic Standard
4	How has our logging history influenced the past, present and future	Lumberjack Games Sawing Away	2,6	
5	Humans influence changes on the Earth.	Forest Value Bingo	2,6	E 8.2 E 8.4 G 8.3
5	An understanding of basic survival skills can help you survive in the natural world	Don't Lose Your Head Map and Compass Reading Building a Fire Outdoor Cooking	3,4	
Middle School	Teambuilding			
Middle School	Interrelationships			
Middle School	Local Geology			
High School	Yet to be addressed			

Staff Development

Due to a large number of retirements of experienced teachers, the Superior School District has a high percentage of teachers who are new to the profession. For this reason, as well as the needs expressed on our last school forest needs assessment survey, we feel it is essential to offer all staff development opportunities to familiarize them with the resources offered at our school forest, effective teaching practices to use when teaching in an outdoor setting, and staff who can act as mentors to them when planning a class trip to the school forest. The School Forest Planning Committee will constantly evaluate the most effective ways to offer and promote staff development opportunities by working with our administration. Our initial plan is as follows;

Topic	Format/Location	Timeline	Presenters
Overview of Superior's school forest facilities, program and curriculum offerings	Presented to all teachers at administrative grade level meetings	School Year 2012-2013	Lori Danz--School Forest Coordinator
Tour of school forest property and grounds	Superior School District school forest	Event will be scheduled during one early release staff development day during the 2012-2013 school year	School Forest Planning Committee Members
LEAF Workshop	Superior School District school forest	To be determined but hopefully during the Spring of 2013	LEAF Facilitator

Topic	Format/Location	Timeline	Presenters
Incorporating local resources to enhance outdoor education	To be determined by interested parties	Ongoing	University of Wisconsin-Superior faculty members Lake Superior NERR staff
Planning your school forest visit	As determined by teacher	Ongoing as needed	Lori Danz-School Forest Coordinator

Resources

Available Resources

Facilities/Materials

- Five buildings on site; lodge with kitchen and bathroom facilities, two new classrooms with heat and electricity, new garage for storage of larger equipment needs, small storage shed for storage of equipment such as snowshoes, challenge course materials, etc.
- Low ropes challenge course
- Extensive trail system
- Campfire area
- Fossil Dig Learning Center and Track Making and Identification Learning Center presently under construction (not yet completed)
- Computer projection capabilities
- High speed wireless internet
- Facilitator Handbook for Low Ropes Challenge Course
- Curriculum Binders for Elementary Schools and Staff
- Some Field Guides (Tree Identification, Bird Guides, Geology Field Guides)
- Compasses
- Books (fiction and nonfiction) to enhance literacy component of outdoor education and to enhance elementary curriculum

People

- School Forest Coordinator
- School Forest Planning Committee Members
- LEAF Program Staff
- Wisconsin Center for Environmental Education
- Staff at local Department of Natural Resources offices
- Faculty at Lake Superior Resources and Research Institute
- Staff at Lake Superior NERR

Funding Sources

- Transportation Funding provided by school district (\$5,000.00 annually)
- Donation by Ryan Hoff Memorial Foundation (\$5,000.00 possible)
- Local Rotary Grants (amounts vary)
- WEEB School Forest Grants (amounts vary)

Resources Needed

Facilities/Materials

- Bathroom Facilities (we presently have two stalls for females and two stalls for males)
- Renovation of one classroom to add running water and sinks to create a “wet lab”
- Renovation of one classroom to add computers to create a writing/computer lab
- Materials to complete two new learning centers presently under construction
- Construction materials for handicap accessible facilities and trails
- Construction materials for trail signs and welcome signs at entrance
- Construction materials for amphitheater seating area
- Logging artifacts
- Field guides
- Snowshoes
- Forestry kits
- Binoculars
- Digital cameras
- Funding to increase trail system
- Animal specimens
- Weather station equipment
- Archery equipment
- Live traps
- Game cameras
- Waders
- GPS units
- GIS computer software
- Topographic maps

People

- Community involvement from local business owners
- Heavy equipment operators to assist in clearing areas for wildlife garden area and to develop ski trails and outdoor archery area
- Carpenters to assist with construction projects

Funding

- Long term transportation funding plan
- Computer costs
- Costs associated with construction of signage and remodeling and renovations of buildings
- Costs associated with developing a logging interpretive trail/center
- Equipment and material needs

Assessment of School Forest Program

Assessment of the Superior school forest program will focus on analyzing how well we are meeting our goals; are we increasing the environmental literacy of our student population and teaching staff, are we increasing appreciation and awareness of our local environment, and are we increasing the use of our school forest as an off campus learning site?

To evaluate if we are being successful in meeting these goals, and to what degree, we will do several things;

- We will administer teacher and student surveys annually. The purpose of the survey will include the following (but will not be limited to);
 - Ways that the school forest has been integrated into classroom curricula
 - The effect on student and staff motivation in teaching and learning (climate study)
 - Concerns and obstacles regarding the use of the school forest site
 - Needs that are not being met in regards to using the school forest site.
- We will track numbers of students using the school forest annually.
- We will track the number of business members who become involved in the school forest program as well as the number of community members who attend community sponsored events at the school forest.

Sustaining the School Forest Program

School Forest Committee

Committee Member	Affiliation	Responsibilities
Mary Cane	Indian Education Program Coordinator	Integrating Native American curriculum and student involvement
Lori Danz	High School Science Teacher School Forest Coordinator	Facilitate committee meetings Long and short range planning On site teacher and student support Education and Management plan review Fundraising Community and business outreach Curriculum development and review
Erika Drengler	Middle and High School Teacher	Curriculum development
Kurt Drengler	Elementary EBD Teacher	Curriculum Integration of curriculum and facility upgrades for students of special needs

Committee Member	Affiliation	Responsibilities
Deanna Erickson	Lake Superior National Estuarine Research Reserve (NERR) Education Outreach Coordinator	Curriculum development
Stephanie Francis	Middle School Teacher	Curriculum Site Development Long and Short Range Planning
Larry Hoff	Community Member	Community and Business Outreach/Partnerships Fundraising
Jeanne Hopkins	District Food Service Director	School Forest Lunch Program
Stacy Jardine	Elementary Teacher	Site Development and Maintenance
		Curriculum Development and Review
Roseann Larson	Middle School Teacher	Forest Finances Management Plan Review
Donna Martin	Retired Teacher Community Member	Personnel Structure Long and Short Range Planning Forest Finances
Gary Niemi	District Buildings and Grounds Director	Long and Short Range Planning Site Development and Maintenance
Robin Reckinger	Middle School Teacher	Curriculum Development Education Plan Review Management Plan Review
Bill Reynolds	High School Teacher	Site Development and Maintenance Forest Finances Fundraising
Dale Rochon	Department of Natural Resources	Community Partnerships Site Development
Nate Schilling	Elementary Teacher	Curriculum Development Long and Short Range Planning Education Plan Review
Janna Stevens	District Superintendent	Forest Finances Long and Short Range Planning Personnel Structure Business and Community Partnerships

Communication Plan

A goal of the school forest committee is to keep the school forest program “on the radar” of all school district staff, community members and school district administration. We feel it is essential to make people aware of what students are learning at the school forest, opportunities and support available for teaching staff, and opportunities available for members of the community and their families. Our plan for making this goal a reality is as follows;

- To continue to develop and maintain our School Forest website. This site is listed on our school district webpage under the *Community* link. Our goal is to post school forest updates, high lite students and classes that visiting the school forest, and to advertise community events that we host. In addition, this website will be a great resource to solicit volunteer help and/or donations for our program, as well as to recognize individuals and organizations that support our program. Our school forest web site can be found at http://school-forest.superior.schoolfusion.us/modules/groups/integrated_home.phtml?&gid=2245398&sessionid=9ac2d8e6cd410527a20a0f9dcd97c5f9&t=
- The School Forest Coordinator will meet with all district staff at least once per school year by attending scheduled grade level meetings.
- The School Forest Coordinator will offer staff development opportunities for district staff who are interested in learning more about our school forest facilities, and curriculum that has been developed to use on site.
- The School Forest Planning Committee will prepare an annual summary report to present to the school board.
- The School District Coordinator will continue to contact local newspapers to high light community happenings, student achievements and class projects that happen at the school forest.
- The School Forest Coordinator will continue to work with the Superior Chamber of Commerce and members of the Superior Business Improvement District as a way to partner the Superior Business Community with classes that learn at our school forest site.

Long Range Plan

Our vision for the school forest is to create an outdoor educational site that all students and staff have the opportunity to use as they best see fit to enhance their regular classroom curriculum. We envision a site that motivates students to learn and staff to teach. In order to move this vision to reality, we foresee several immediate needs, as well as many longer range needs and goals. *These goals are specifically detailed in the management section of this education plan.* More general goals and needs include;

- Creating a plan to bring financial stability to our program that includes funding transportation to and from the school forest for all interested classrooms.
- Upgrading existing trails and to clearly mark all established trails.
- Providing training to all interested staff to increase their knowledge base and confidence levels when teaching at the school forest.
- Providing handicap accessible bathroom facilities and developing handicap accessible trails.
- Increasing the use of technology to increase the number of students who are exposed to our natural environment, to increase the methods of research that students can participate in at the school forest, to increase the curriculum connections taught at the school forest, and to increase

communication between students and staff within our district as well as increase communication between our students and students in other districts related to our school forest.

- Updating our school forest timber management plan so we manage our school forest in a sustainable and responsible manner.

Implementation Plan

Spring/Summer 2012		
Goal	Who Will Implement	Resources Needed
Construct stream tables	High school science (Bill Reynolds)	Approximately \$250.00. Volunteer time
Complete School Forest Education Plan and present to school board	School Forest Planning Committee	
Development of school forest website	Lori Danz	
Develop and implement Flock to the Forest Program	Lori Danz Superior BID	Brochures
School Year 2012-2013		
Goal	Who Will Implement	Resources Needed
Implement Woods to Water Curriculum	Lake Superior NERR and Lori Danz (School District of Superior)	Funding
Repairs to main lodge (take out fireplace and insert new gas insert)	Buildings and Grounds	Funding
Complete Fossil Dig Area and Tracking Area	High school science classes	Gravel Interpretive Signs
Write curriculum for Fossil Dig	School Forest Planning Committee	
Clear existing trails	Local Boy Scout Troops	
Use GPS to create new trail maps	High school science and middle school science classes	Additional SPS units
Build and install trail markers and signage	High School Tech Ed class	Wood
Develop garden between new classrooms to attract bird and other wildlife	Local Boy Scout Troops Master Gardeners Buildings and Grounds	Seeds Landscaping
Increase high school visits to the school forest	School Forest Planning Committee	Survey
Planning of Logging Interpretive Area	School Forest Planning Committee Superior Historical Society	Artifacts Interpretive Signs
Update School Forest Timber Management Plan	School Forest Planning Committee UWS Forestry Class WI DNR (Dale Rochon)	
Investigate selective timber harvest	School Forest Planning Committee WI DNR (Dale Rochon)	
Continue to develop school forest curriculum	School Forest Planning Committee	

School Year 2013-2014		
Goal	Who Will Implement	Resources Needed
Remodel lodge to be handicap accessible	Buildings and Grounds	Funding
Build handicap accessible trail	Local Scout Troops	Brushing equipment Funding
Addition of bathroom facilities with composting toilets	School Forest Planning Committee	Funding
Develop system of ski trails		Heavy Equipment and personnel to clear trails
Develop Outdoor Archery Course	High School Archery Club	Archery Equipment Heavy equipment and personnel to clear trails
Planning and construction of a wetland study area	WI DNR 5 th grade elementary students (Waterwatch Program) Lake Superior NERR Program	Funding

District Commitment

Upon completion of the final copy of our school forest education plan, we will present it to the Superior School Board. We anticipate this presentation to be in the Spring of 2012 or at the latest, the Fall of 2012.

Prior to presenting this plan, our district superintendent, Janna Stevens has read this draft and has written a letter in support of our plan.