

**School District
Of
Rhineland**

**School Forest
Education
Plan**

December 2009

RATIONALE

Mission Statement

At Cedric A. Vig Outdoor Classroom (CAVOC), we will provide hands-on, outdoor learning experiences that help students acquire the awareness, knowledge, skills and commitment to become responsible stewards of their natural environment.

Philosophy

We believe that:

Students should learn to become responsible stewards of their environment by becoming familiar with nature and developing the attitudes, values and skills necessary to participate in resource stewardship.

Effective Environmental Education (EE) revolves around an interdisciplinary approach, with EE being infused into a variety of subject areas.

Student experiences at CAVOC should complement and build upon their classroom experiences and should take advantage of CAVOC's unique features and setting.

Students should be engaged in relevant, hands-on experiences that relate to Wisconsin EE standards.

Every student, teacher, parent and community member should have opportunities to explore CAVOC and pursue lifelong environmental learning.

Value Statement

Being outside in nature brings tremendous value to students' education, appreciation of life, and environmental behavior, especially for schools in an urban setting. Outdoor nature experiences help students get in touch with their natural pre-disposition to be connected with nature, increases student's awareness and sensitivity to nature, and are integral to environmental behavior and responsible citizenry.

Most adults remember with fondness the unstructured time spent as a child outside with nature. Historically, man grew up outside immersed in nature (Rivkin 1997), and this is still the case in developing countries. However, with the increase in urbanization and industrialization he/she has moved further away from nature, and this affects children the most keenly. Children are multi-sensory physical beings and they need to learn first-hand about their surroundings. With the increase of these modern forces, children spend less and less time in nature due to numerous factors: increase in motorized transportation, increase in hours within a school building, decrease in working with parents outside at home (i.e. farming) increase in use of

childcare and organized sports, decrease in neighborhood playmates and safe environment, increase in media entertainment (Rivkin 1997) “We are ‘hard-wired’ to affiliate with natural environments, needing such affiliation in the same way we need contact with other people” (Rivkin 1997). Increasing time spent outside in a natural setting raises enjoyment and relaxation, lowers stress levels, increases health and increases satisfaction in all areas of life (Kaplan & Kaplan, 1989, as quoted in Rivkin, 1997). It is important for schools, when and however possible, to allow children time to interact with our natural world.

The first sub-goal of environmental education is to raise students’ awareness and sensitivity towards the natural world. According to Simmon (1998), having consistent exposure to nature is an essential part of an EE curriculum. It offers students direct, purposeful experience in a diverse natural setting. In nature students are able to see that change is constant and inevitable, that natural resources are necessary for our survival, and that ecosystems have definite limitations (McKnight & McKnight 1987). Outdoor classrooms reach all students, but are especially needed for students with a naturalist intelligence (Meyer 1997). In this setting they will be observing, measuring, classifying, analyzing, and interpreting. Learning about our natural world within a natural setting, enables students to become sensitive and aware and appreciative of our environment.

Once students are aware of and sensitive to nature, the knowledge they receive in the classroom will achieve special meaning. “As individuals develop an emotion-connection to their local natural resources they appear to act responsibly in day-to-day activities as well as at that setting” (Vaske & Kobrin 2001). People act on issues they feel strongly about. Therefore, first-hand contact with the environment can be a catalyst for developing effective citizens (Heath & Weible, 1979-1980).

Target messages

1. All living things have value and deserve respect.
2. People are an integral part of the environment.
3. Personal connection with “place” increases desire to care for it.
4. Students should learn to become stewards of their environment.
5. Environmental learning is a life long pursuit.

Needs Assessment Results

In dialoguing with teachers, students and administrators in our district and data from 2005-6 using school forest usage and interest the following observations were noted:

There is a great interest in using the school forest among the elementary teachers in the district, currently 60% of the pre K- 5 teachers take their students out at least once a year. About 80% of the James Williams Middle School (JWMS) students are taken out at least once a year with an expressed interest from at least 2 of the teachers to have the resources to take their students out 3 times a year; fall, winter and spring. Northwoods Community Secondary School (NCSS) a 6-12 District School also takes students to CAVOC several times a year. A private school, Nativity Catholic, also uses the facility at least twice a year. The real lack of interest and lack of use because of barriers, real or perceived, is at the high school level. Less than 10% of Rhinelander High School (RHS) teachers have used CAVOC as part of their curriculum.

Barriers

- Transportation
- Limited Bathroom Facilities

Knowledge Base/Comfort

- Not comfortable with teaching students outside
- Don't know how to use the forest site or what to teach
- Don't understand or not aware of value of teaching outside in the environment
- Lack of understanding of Environmental Education goals.

Logistics needs

- More bathrooms-presently only one stall each for male and female bathrooms
- Guaranteed monies for 2 trips/class
- Director or lead teacher to make arrangement, help with teaching
- Safety
 - Walkie Talkies
 - Storm Siren

SITE DESCRIPTION, MANAGEMENT AND EDUCATIONAL OPPORTUNITES

Rhineland School District owns 1200 acres of school forest property, the greatest amount in the State of Wisconsin. Most of this is used for timber sales to make the school forest program self supporting. One site, named CAVOC after Cedric A. Vig who was the Superintendent of Schools for many years, is a 160-acre parcel with facilities. This is the site that is used by schools and will from here on be the site referred to in this plan. The CAVOC parcel features 2600 feet of bog frontage on Long Lake. This lake is approximately 10 acres in size with a maximum depth of 19 feet, stocked with bass and pan fish. There is a marsh area near the south end of the lake with an inland location also. Vegetation on the CAVOC parcel consists of mixed young hardwoods, mature aspen, black spruce, large red pine, tamarack found on rolling hills typified of glaciated land. There are also ridges and depressions.

The upland areas of the property have developed predominately on a sandy loam or loamy sand soils while the wetland areas have developed on muck soils. Property slopes range from 0 to 1% (almost flat) in the wetland mucks, to as much as 45 % slopes in the upland sands. These upland soils developed from glacial outwash and have medium fertility, are well drained and are suited for growing trees. The habitat type across the upland portions of the School Forest is dominated by White pine-Red maple/Blueberry-Wild sarsaparilla. The presumed climax over story cover type is White Pine with a component of Red Maple, Red Oak, Balsam Fir and White Spruce.

This property has five different stands of management. Aspen/mixed hardwoods and pine make up approximately 95% of the property while black spruce, kegs and a small lake make up the rest. The aspen/mixed hardwood area is composed of big tooth and trembling aspen, white birch, red maple, red oak and scattered pine. The pine area of this property is primarily

composed of red and white pine and a scattering of balsam fir, aspen, red oak and white birch. The natural stands of pine have a year of origin of 1928. All aspen, birch, maple and selectively marked pine have been harvested. Our first harvest was in 1961 and we are currently following through on harvest plans that project out for 50 years.

This School Forest parcel will be developed as a productive forest asset and managed for its periodic supply of forest products. Other important educational opportunities that may be incorporated into the management of this parcel include, but are not limited to: maintenance of wildlife cavity trees, wildlife and watershed protection, maintenance and release of mast producing trees (black or pin cherry-cherries and red oak-acorns) and the development of a trail system for educational and recreational opportunities

Legal Description and Location:

CAVOC-160 acres, NE ¼, section 10 Township 36 N Range 9 E Pelican Township

Directions:

Take Lincoln Street East to County Highway P, turn left on Faust Lake Road about one mile to immediate right on South Shore Road about 3 miles, to the CAVOC sign and access road on the right across from Holiday Acres Camp Grounds.

Unique Site Features:

From a booklet developed by Rollie Alger titled Nature Trail Guide, Located in the CAVOC Lodge. (Numbers match numbers on "unique site features map")

1. Cross section of old red pine
2. Watershed of Long Lake
3. Black Spruce and tamarack swamp
5. Soil profile exposed on slope
6. Decomposed pulpwood cord
7. Maple tree with wire and nail growing around
8. Padus Soil Series
9. Large Red Pine Stump-struck by lightening
10. Giant red pine destroyed by forest fire
12. Evidence of fire scaring
13. 135 year old white pine
14. Bog shelf
15. Weathering on glacial boulder
16. Tree hummocks
17. Bog
18. Trees with burls
19. Den trees
20. Beaver tree
23. Aspen blow-down
24. Long Lake outlet
25. Succession are from aspen to maple

- 29. White Birch clumping
- 30. Seasonal (vernal) ponds-upland ponds
- 31. Cord of firewood/pulpwood
- 32. Example of saw-log
- 33. Tree ID area
- 34. Long Lake-glacial kettle

Maps of directions, major community types and unique site features are attached at end of report.

Facilities:

The facilities include a lodge with two large gathering areas for about 30 students each. The main level includes a kitchen, storage closets, fireplace and two single stall bathrooms. The lower level also includes a fireplace and sink. The facility is heated and has equipment for teaching, boards, projectors, television, VCR and tables and chairs. Outdoors there is a large pavilion with 10 picnic tables, a campfire area with benches, storage buildings, low ropes and high ropes course, multiple trails with ample signage and a caretaker's house.

Site History

Natural and Cultural History Timeline of CAVOC

- The shape of the area fixed by the Wisconsin Glacier lasting 60,000 years and receding some 10,000 years ago. The Chippewa Lobe covered most of Oneida County.
- Native Americans and their prehistoric ancestors lived here about 9,000 years before white settlers arrived. The Sioux and Chippewa established travel routes throughout the region. Eventually, the Chippewa became the main tribe in this area.
- 1634 Jean Nicolet first white man in Wisconsin.
- 1805 Michigan Territory created.
- 1836 Wisconsin Territory formed.
- 1848 Wisconsin Statehood.
- 1854 La Pointe treaty; Indians ceded land.
- 1865 Government completed land survey. (\$1.25 per acre)
- 1885 Oneida County was established.
- Land purchased by wealthy logging companies who had the virgin pine cut down.
- Land passed through several different private ownerships until it became tax delinquent.
- 1932 acquired by Joint School District # 1, Town of Pelican (\$28.70 for 80 acres)
- 1968 parcel became part of K-12 School District of Rhinelander due to district consolidation.
- Area named Cedric A. Vig Outdoor Classroom in late 1970's. Mr. Vig was the Superintendent of Schools for many years in Rhinelander. He is well known in the area for his "Wood Smoke" column in the local newspaper as well as his radio comments on nature topics.

- 1976 site selection by early school forest committee. Land obtained through trade with Samoset Council BSA.
- 1977 Site and trail development begins CETA student summer programs (high school students).
- 1980 School Board approves outdoor curriculum guide.
- 1981 Ground breaking for Rominsky Lodge. (Practical Forest Management high school students involved in construction.)
- 1983 Rominsky Lodge dedicated.
- 1984 Ground breaking for caretaker's house (Senior Building Trades students involved in construction).
- 1985 Caretaker's house dedicated.
- In the early 1980's, a high and low ROPES course was constructed on site.
- In the mid 1980's a nature trail along with guide was developed. During this time until the early 1990's, curriculum was developed for CAVOC and a one-acre clear cutting project was conducted.
- By the year 2000, over 5000 individuals use the CAVOC site annually.
- Early in the 2000-01 school years, a School Forest Advisory Committee was reestablished to make recommendations to the board concerning decisions and policies about school district forest properties and oversees CAVOC.
- In the summer of 2001 a handicapped accessible pier to Long Lake, a picnic shelter, and handicapped accessible bog walk were constructed. The lower logging road was graveled to make it handicapped accessible. The nature trail was revised and a new guide developed by environmental education (EE) intern hired for the summer. Also, a group of elementary teachers and the intern worked to develop K-4 EE activities that align with state EE standards.

Site Management

Property Goal:

The goal for this property is to provide the basis for a permanent School Forest program and to enable and encourage the planned development and management of the School Forest for the optimum production of forest products, together with educational and recreational opportunities, wildlife and watershed protection.

Property Objective:

The primary objective for this property is to produce forest products that can be used for School Forest projects or offered for sale by the School District of Rhinelander. This School Forest parcel will be developed as a productive forest asset and managed for its periodic supply of forest products. Other important objectives that may be incorporated into the management of this parcel include, but are not limited to: maintenance of wildlife cavity trees, maintenance and release of other mast producing trees (black or pin cherry and red oak) and the development of a small trail system for educational and recreational opportunities.

Connection to Education:

Harvesting of trees provides funding for all educational opportunities at CAVOC such as transportation, equipment and improvements. Lumber for technology education class projects. Educational projects that include site management are; deer exclusion and natural plant regeneration, tree planting, gypsy moth trapping, various types of timber harvesting and active and passive forest management.

EDUCATIONAL CONNECTIONS

Key Concepts

Site Connections

1. An awareness and understanding of man's relationship to his environment is essential to the survival of both.	Man & Environment • Forest harvesting, products • Forest management • Land Use History • Land Value Changes • Exotic species impact • Edible/non-edible plants • Native American herbal/medical usage of plants • Natural resource careers • Land surveying/legal descriptions • Observation with a variety of senses • Nature aesthetics • Outdoor recreation/health
2. The development of constructive, organized, and cooperative group living experiences is necessary preparation for participation as responsible and productive members of society	Group Exercises • Teamwork • Cooperation • Leadership (ropes) • Mapping/orienteering
3. Each person must exercise stewardship of all our natural resources.	Stewardship • Ecological restoration • Management plan development • Forest regeneration • Exotic species eradication • Species monitoring • Ecological footprint

	• Community action on environmental issues
4. All living organisms interact among themselves and their environment, forming an intricate unit called an ecosystem.	Ecosystems • Plant/wildlife I.D. & classification • Habitat surveys & studies • Data utilization & display – graphing & statistics • Succession • Niche/specialization/evolution • Food webs • Energy flow • Cycles • Wetlands – including bog & lakeshore • Uplands – including mixed hardwoods & conifers
5. Environmental factors limit the numbers of organisms living within their influence.	Populations • Carrying capacity • Biodiversity • Exponential growth • Population studies • Data utilization & display • Invasive vs natural species • Homeostasis • Poverty, death rate, Socio – economics • Forest/Land fragmentation
6. A supply of clean air, soil and water is essential for life.	Pollution • Water & soil chemistry • Watershed analysis & mechanics • Geological processes • Aquatic studies • Water quality/sanitation
7. An informed population is the best guarantee of preservation of life as we know it.	EE Knowledge & Ethics • Educational materials/ program development (workshops) • Instruction on EE principles/goals
8. The distribution of our natural resources and the interaction of physical and social factors greatly affect the quality of life.	Diversity & Economics • Forest mgt. economics • Natural resource careers • Material consumption • Biodiversity
9. Factors such as recreation, transportation, economic	Interest in outdoors • Recreational use

conditions, population growth, and development of industry and energy influence the interest in outdoor education instruction	• Wellness/healthy lifestyle • Lifestyle and resource consumption • Use of renewable vs nonrenewable products • History of logging industry • Nature photography • Aesthetics • Observing wildlife
10. Cultural, economic, social and political factors determine man's values, understanding, appreciation and individual attitudes towards his environment & peers.	Values & Attitudes • Needs perception • Value awareness • Environmental goals • Citizenship skills • Positive & negative human activities • Native American history of land • Natural origin of wood instruments • Interpretive trail development • Forest management economics • Non-timber forest products • Geological history

Classroom Curriculum Connections

Kindergarten

SUBJECT ACTIVITY KEY CONCEPT STANDARD

Environmental Education (EE)	Use all senses to identify objects in nature and discuss the information that these sensory organs provide.	1, 4, 7	EE A.4.1, A.4.2, A.4.3, A.4.4, B.4.6, B.4.7, E.4.1, E.4.2
EE	Characteristics of living things-plants found in the woods, bog and highland.	1,2,4,7	EE A.4.1, A.4.2, A.4.3, A.4.4, B.4.1, B.4.3
EE	Characteristics of living things-animals specific to our school forest.	1,4,7	EE A.4.1, A.4.2, A.4.3, A.4.4, B.4.5, B.4.6
EE	Identifying/comparing leaf shapes specific to our school forest.	1,2,8	EE A.4.1, A.4.3, A.4.4,

First Grade

SUBJECT ACTIVITY KEY CONCEPT STANDARD

EE	Explore the concept of camouflage and its relationship to animal and plant adaptations in their natural habitats.	1, 4, 7	EE A.4.1, A.4.3, B.4.6 Benchmarks S.1, C.1, F.1
EE	Describe movement and identify states of water within the water cycle at Long Lake.	1, 4, 6, 7	EE A.4.1, A.4.2, A.4.3, B.4.7
EE and Music	Focusing on the Native Americans who inhabited our area, make connections through music with drums, flutes and other wooden instruments.	10	Music 1.8.9

Second Grade

SUBJECT ACTIVITY KEY CONCEPT STANDARD

EE, Lang. Arts, Math and Science	Describe various properties of the rocks found at CAVOC.	1,4,	EE A.4.1, A.4.2, A.4.3, A.4.4, Benchmarks LA 2.A.1,5, LA 2.B.1,2,3,5,8 LA 2.C.1, LA 2.D.1, M 2.A.1, M2.D.2,3,4, M2.E.1, S.2.A.1,2,3, S.2.C.1, S.2.C.4,5,6, S.2.D.1,2
EE, Lang. Arts, Science	Introduction to pond ecosystem; habitats and food webs found in and around our bog and Long Lake.	1,2,4,6,7	EE A.4.2, B.4.4, D.4.1, Benchmarks LA 2.C.1, LA 2.F.1, S.2.A.1, 2, S.2.B.1, S.2.F.1,3
EE, Lang. Arts., Math and Science	Learn how to read a thermometer. Predict, compare and record temperature changes in various locations throughout our school forest.	2, 4	EE A.4.1, A.4.2, A.4.3, A.4.4, B.4.1, Benchmarks LA

Fourth Grade

SUBJECT	ACTIVITY	KEY CONCEPT	STANDARD
EE, Lang. Arts, Math and Science	Compass use and orienteering through the school forest.	2,7	EE A.4.1-3, Benchmarks LA 4.C.1, M.4.A.1, M.4.B.5, M.4.C.3, M.4.D.1,3, 5, M.4.E.1, M.4.F.6, S.4.B.3, S.4.C.3
EE, Lang. Arts and Science	Observing and classifying wetland organisms in Long Lake and CAVOC'S wetlands and bogs.	1,4,7	EE A.4.1-4, B.4.6, Benchmarks LA.4.B.3, LA.4.C.1, S.4.A.3, S.4.B.1, S.4.C.3, S.4.D.2, S.4.F.2
EE, Lang. Arts and Science	Tree aging and identification of trees on school forest site.	1,4,7	EE A.4.1-4, B.4.6, Benchmarks LA4.A.2,3, LA.4.B.3, LA 4.C.1, S.4.C.3, S.4.D.2, S.4.F.2
EE, Lang. Arts and Phy. Ed.	Identification of wildlife specific to CAVOC based on tracking and characteristic clues.	2,4	EE A.4.2,3, Benchmarks LA.4.A.1, LA.4.C.1, PE.D.4.3, PE.F.4.1

Fifth Grade

SUBJECT	ACTIVITY	KEY CONCEPT	STANDARD
EE and Science	CAVOC pond study using field guides, microscopes and hand lens to identify and understand micro-organisms specific to our school forest.	1,4,6	EE.A.8.5, EE.C.8.2, Benchmarks S.5.A.2, S.5.C.3

EE, Lang. Arts and Science	Use dichotomous key to identify native deciduous and coniferous Wisconsin trees growing at CAVOC.	1,4,7	EE.A.8.4,5, EE.B.8.22, Benchmarks LA.5.A.3, S.5.C.2,3, S.5.G.3
EE	Soil properties and analysis: compare soils from the school forest, lake, wetland, highland and lodge areas.	1,4,6,7,8	EE.A.8.1, 2, 4, 5, EE.B.8.10, 17, 23
EE and Science	Collect, classify, identify seeds and discuss methods of dispersal.	1,4,5,7,8	EE.A.8.3-6. EE.B.8.8, Benchmarks S.5.C.1, 2

Sixth Grade

SUBJECT ACTIVITY KEY CONCEPT STANDARD

Science, EE and Lang. Arts	While sitting in the school forest, students will express their feelings and attitudes about the environment using various forms of poetry. Students will use their own & other people's poetry to discover its full meaning.	1, 10	S.A.8.3,4,7. B.8.3,4 C.8.1,2,5 6,7,10,11 F.8.1 EE. A.8.3,4,5,6 B.8.3.6.8 LA. B.8.1,2,3 C.8.3 D.8.1 F.8.1
Science and EE	Students will describe how leaf shapes, sizes and other characteristics vary from tree to tree at the school forest. Students will explain how particular types of trees can be identified by their leaves.	1, 4	S.A.8.3,4,6,7 B.8.1,3,4,5,6 C.8.1,3-7,9-11 F.8.1,2,7-10 EE.A.8.3,4,5 B.8.3,6,8
Science, Math, Phy. Ed., Health EE and Lang. Arts	Using the low ropes course, students will explore simple heart health and aerobic activities. Students will develop a graph and interpret their health through different aerobic activity. Students will use poetry to express the emotions they experience by participating in such activities.	9	S.A.8.1,3,4,6,7 B.8.3,4,6 C.8.1,2 5,6,7,9,10,11 F.8.1,2,3,6,7 G.8.3 H.8.3 LA.A.8.2 B.8.1-3 C.8.2,3 D.8.1,2 F.8.1 EE A.8.2-5 M.A.8.1,6

			D.8.1,1-4 E.8.1-4 PE A.8.4 B.8.3,4 D.8.1-4 F.8.3,4 G.8.4 Health A.8.2-7 B.8.1-5 C.8.2-4
Science and EE	Students will be given the opportunity to study, collect and identify insects that are found at CAVOC, both on land and in water. Students will identify forms of microscopic life that live in water and how they're interrelated	4	S.A.8.4 B.8.3,4 C.8.1-6,10,11 F.8.1-3,7-9 EE. A.8.2-5 B.8.3,8
Science and EE	Students will recognize and identify the major species of freshwater fish that live in Long Lake. Students will identify forms of life, describe various values of fish species and locate places where the species occur other than CAVOC.	1,4,7,9 &10	S.A.8.2-4,6,7 B.8.3,4 F.8.1-3,5-10 EE. A.8.2-5 B.8.3,6,8,,14,15

Seventh Grade

SUBJECT ACTIVITY KEY CONCEPT STANDARD

Math and Science	Students will: create right triangle clinometers and check tree height, check height with real clinometers and become familiar with and apply volume & pythagorean theorem formulas.	2,3,8, & 10	M.C.8.1 D.8.1-4 E.8.1,4 F.8.2 EE. B.8.3,4 C.8.1,4-7
EE	<u>Logging and Its Impact on the Environment</u> Students will explore the history of logging in Wisconsin from 1856-1945 and the concept of forest management.	1, 8,9 & 10	<u>EE</u> F.8.8-10 H.8.2 & 3
Science	<u>Classification of Northern WI Trees</u> Students will learn to identify trees of Northern Wisconsin using a field guide to trees.	2, & 4	<u>Sc.</u> C.8.1-7
LA, EE and Science	<u>Tree Friend</u> Using the five senses students will describe in correct writing style the unique characteristics of "their" new tree friends to the rest of the group.	1,2, & 8	<u>LA.</u> B.8.1 C.8.2,3 D.8.1 <u>EE.</u> A.8.2-5 B.8.14 <u>Sc.</u> B.8.4 & 5 C.8.2,5 & 10

Eighth Grade

SUBJECT ACTIVITY KEY CONCEPT STANDARD

Science and EE	<u>Geocaching</u> Students will review the proper use of a GPS and will use the device to navigate through a course.	9	<u>Sc.</u> C.8.4,6,8,10,11 G.8.7 <u>EE.</u> A.8.3 B.8.14 C.8.2
Science and EE	<u>Orienteering</u> Students will review the proper use of a compass and a GPS unit. Students will use both devices to navigate through a course.	9	<u>Sc.</u> C.8.4,6,8,10,11 G.8.7 <u>EE.</u> A.8.3 B.8.14 C.8.2
Science	<u>Urban Forestry</u> Students will: use a clinometer correctly, measure tree heights and diameters, calculate board footage of a given tree and calculate the number of trees needed to build a small structure.	1, 2, 9 & 10	<u>Sc.</u> G.8.1,4 & 5
EE, PE and Health	<u>When Seconds Count</u> Students will learn: how to be prepared for the woods and stay safe, simple treatment methods for an emergency and observe CPR.	1 & 2	<u>EE.</u> A.8.3 & 4 <u>PE.</u> A.8.3 D.8.3 F.8.2-4 <u>Health</u> A.8.2 & 7 B.8.3,5,& 6

Team Building

(All Areas) Leadership	Ropes Course/team building exercises	2,9,10	LA. 12. A.2, 3 SS. E. (all) H.12.C.2 PE.D.12.1-3
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High School Subjects:

Business Computers Information Systems

ACTIVITY KEY CONCEPT STANDARD

Create PR Brochure for CAVOC	1,3,7,10	<u>Bus/Tech</u> 12.A.2,
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		12.B.12.13, B.BS.9.15
Accounting: Tree Harvesting Sales, Gravel, Boulder	1,8,9,10	<u>Bus/Tech</u> 12.F.5,6,10 , 12.F.BS.1,2,6,8 EE.12.A.1-5, 12.B.12, 16,19

FACS

ACTIVITY KEY CONCEPT STANDARD

Edible/Non edible Forest Plants/Natural Foods	1,4,5,8	<u>FACE</u> 12.A.2, EE.12.B.2
Child Dev: Design safe activities for children outside	7,9,10	<u>FACE</u> 12.B.4, 12.C.3
Grill food with different species of wood	1,5,8,9,10	<u>FACE</u> 12.C.13, EE.B.12.10
DNR Speaker, Safety of Outdoor Cooking, Gas, Charcoal and Wood	6,8,9,10	<u>FACE</u> 12.E.1-3

Music

ACTIVITY KEY CONCEPT STANDARD

Natural Origin of Wood Instruments	1,8,9,10	<u>Music</u> 12.H.1, 12.I.1,9
Native American Connection: drums, flutes and other wooden instruments-speaker	1,8,9,10	<u>Music</u> 12.I.1,12.F.1 EE.12.D.2

Art

ACTIVITY KEY CONCEPT STANDARD

Nature drawing/ water color landscape painting	1,4,9,10,11	<u>Art</u> 12.A.1-6, 12.B.27 12.J.2,5,7
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Pottery from natural clay	1,8,9,10	<u>Art</u> 12.A.1,3,4 12.B.1,2,3,4,6
Nature collage	1,9,10,11	<u>Art</u> 12.A.1,2 12.C.5,6
Making paint with natural elements; clay, berries, nuts etc.	1,6,9,10	<u>Art</u> 12.A.1,2, 12.C.10, 12.D.5, 12.K.4, 12.L.2

Physical Education/Health

ACTIVITY KEY CONCEPT STANDARD

Ropes	2,9,10	<u>PE</u> 12.B.1-6
Medicine from plants	1,3,8,9,10	<u>Health</u> 12.E.1-4
Hiking, canoeing	1,2,6,9,10,11	<u>PE</u> 12.D.1-4 12.E. 1-4 EE.12.D.1

Technology Education

ACTIVITY KEY CONCEPT STANDARD

Bat houses, bird houses, picnic tables,	1,5,9,11	<u>TE</u> 12.A.1,3,7, 12.B.2,3,4,5,7, 12.C.2-7
Design green building	1,6,8,9,10	<u>TE</u> 12.B.5-1
Lumber start to finish	1,3,4,5,8,9,10	<u>TE</u> 12.B.3,4 EE.12.B.3

Foreign Language

ACTIVITY KEY CONCEPT STANDARD

French-The Man Who Planted Trees	1,3,5,9,10	<u>Fr.</u> 12.D.1-3 12.E.1-3 12.K.1,2 EE 12.D.3-7
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German-Comparing Forests in Germany with Northern Wisconsin	1,5,8,10	<u>Gm.</u> 12.D.1-3 12.E.1-3
Spanish-Translate nature words	9,10,11	<u>Sp</u> 12.D.1-3 12.E.1-3

English/Language Arts

ACTIVITY KEY CONCEPT STANDARD

Nature Poems	1,5,9,10,11	<u>LA</u> 12.B.1-3
Journaling	3,5,7,9,10,11	<u>LA</u> 12.B.1-3 EE.12.E.2
Debates/School Forest Issues	1,2,3,5,6,7,10	<u>LA</u> 12.C.1-3 EE.12.A.1, 12.D.1-9, 12.E.1
Reading literature that depicts the outside world, outdoors	1,9,10,11	<u>LA</u> 12.A.1-3 EE.12.B.21-22

Mathematics

ACTIVITY KEY CONCEPT STANDARD

Orienteering, maps to scale	2,8,9	<u>Math</u> 12.C.1,2,5 12.D.2,3
Forest Management, Geometry-tree measurement, volume and tree density of the forest	1,3,4,5,8,10	<u>Math</u> 12.B.2,3,4,5, 12.C.1,2,5 12.D.2,3 12.F.4
Statistics: plant diversity, economics of timber sale and harvest.	5,8,9,10	<u>Math</u> 12.A.4,5 12.B.2-6, 12.C.1-3 12.D.3, 12.F.1-4 EE.12.C.4
Develop algebraic equation to predict forest growth from DNR and other data	5,8,9,10	<u>Math</u> 12.D.3 12.E.1-3 F.12.1-

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Social Studies

ACTIVITY KEY CONCEPT STANDARD

Research and report on global uses of forest products that are or can be produced at the school forest by following a product from harvest to production	1,3,5,8,9,10	<u>SS</u> 12.B.5 12.D.1-14 EE.12.A.1-5 12.D.7
Economic benefits of having a school forest	1,8,9,10	<u>SS</u> 12.D.1-14, EE. 12.B.1,2
History of forestry and logging in Northern Wisconsin	1,8,9,10	<u>SS</u> 12.A.1, EE.12.C.1-4

Science

ACTIVITY KEY CONCEPT STANDARD

Chemistry: water and soil chemistry	1,6,7,9,10	<u>SCI</u> 12.D.4-6 12.F.8 EE.12.B.18-20 12.E.8
Biology/Botany: population studies, plant adaptations	4,5,7	<u>SCI</u> 12.F.6,7,10,11 EE.12.A.2, 12.B.6-8
Earth Science: glacier landforms, geology	1,4,7	<u>SCI</u> 12.E.2,3,5
Physics: High Ropes: momentum, pendulum	2,9	<u>SCI</u> 12.D.7-12 G.12.3
Astronomy: Star study at night	7,9,10,11	<u>SCI</u> 12.E.5
Environmental Science: Natural Resource Mgmt.	1,3,8,9,10	<u>SCI</u> 12.E.4 12.H.1-7 EE.12.A.2-5 12.B.1-9

Invertebrate Bio: Lake water quality evaluation	1,3,6,7,10	<u>SCI 12.F.8,10</u>
Vertebrate Bio: Species study, energy path	1,4,5,8,10	<u>SCI 12.F.9-11</u>

Staff Development

Creating the time and resources for each teacher to become acquainted with the school forest, resources, activity ideas and scheduling issues is the first step. The next step is to implement in-service training for teachers along with peer mentoring to insure success for each teacher's trips to CAVOC. During the beginning of the school year in-service days, new teachers will tour CAVOC and receive instruction on the resources and procedures for CAVOC.

Topic	Date	Location	Presenter
LEAF/ROPES	Spring 2010	CAVOC	LEAF/ROPES Facilitators
PROJECT WILD	Fall 2010	CAVOC	Wild Facilitator
PROJECT AQUATIC	Spring 2011	CAVOC	Aquatic Facilitator
FLYING WILD	Fall 2011	CAVOC	Flying Facilitator

Resources Available

People:

School Forest Management Committee
DNR-Fire Control, Insect & Disease, Forester, Naturalist, Basin Educator, Wildlife Biologist
U.S. Soil Conservation Service
Local Nordic Ski Club
Chemical Specialist UAP, DOW Monsanto
Forest Industry Safety Training and Alliance
Great Lakes Timber Producers Association of WI and MI
Local and Regional harvesting contractors
School Administration and Board
UW Extension
U.S. Forest Service
Northwoods' Wild Life Center (Bart Kotarba)
Wisconsin School Forest Education Specialist Stevens Point
UWSP-Treehaven
YMCA
Boy Scouts of America
USDA Soil Conservation Department
Oneida County Land and Water Conservation Department

Materials:

Tape Measures
Built-more sticks
Bagged sets of tree seeds
Goggles
Globes
String
Thermometers
Magnifying glasses
Nets
Microscopes
Mammal Pelts-boxed
Snowshoes
TV-DVD
Computer
Overhead projector
Tubs for each pre-K through 8, with all required material for listed lessons

Safety:

Walkie-talkies
Weather radio

Resource Needs

People:

Retired Teacher Chaperones
Community Volunteers/Speakers
List of guest speakers

Material:

Cross Country Skis
Fishing Rods & Reels
Digital Cameras
Video Camera
Binoculars
Shovels
Forestry Supplies
Soil Testing Supplies
Water Testing Supplies
Vernier Probes
Weather Station
Sling psychrometers
Air quality kits

Soil sieves
Trowels
Safety goggles
Plaster of paris
Dissection kits
Microscopes
Secchi Disks
Bug Boxes

Facilities:

Improve bathrooms
Add classroom and lab space
New septic system

Safety:

Blankets
Flashlights/Batteries
Candles and matches
First Aid Kits
Extra clothes/boots

Assessment

The success of the school forest program will be assessed by tracking annual attendance at CAVOC, annual teacher surveys addressing the value and usage of the school forest and random student surveys on environmental awareness and literacy.

SUSTAINING THE SCHOOL FOREST PROGRAM

School Forest Committee:

Carol Carlson, Curriculum Office SDR, carlscar@rhinelander.k12.wi.us

Roger Erdahl, Superintendent SDR, erdahrog@rhinelander.k12.wi.us

Cheryl Esslinger, Science Teacher RHS, essliche@rhinelander.k12.wi.us
Chuck Fitzgerald, DNR, School Board liaison, fitzge@charter.net

Kelli Jacobi, Director of Curriculum & Instruction, SDR, jacobkel@rhinelander.k12.wi.us

Bob Lefebvre, Technology Teacher, RHS Ropes Course Administrator,
lefebrob@rhinelander.k12.wi.us

Genene Lynott, Elementary Teacher SDR, lynottgen@rhinelander.k12.wi.us

Manny Oradei, DNR Forester, emanuel.oradei@DNRstate.wi.us

Paula Schneider, Middle School Teacher Nativity Catholic School, pjsrhinelander@yahoo.com

Jeremy Solin, School Forest Coordinator, LEAF/UWSP, jsolin@uwsp.edu

Ced A. Vig, Retired SDR Superintendent

Glen Witmer, Retired Forester, sgwit@charter.net

* Denotes Co-Chair

Subcommittees

School Forest Management Plan subcommittee

Manny Oradei

Glen Witmer

Bob LeFebvre

Responsibilities: plan timber sales, review management plan on an annual basis, update policies regarding hunting, access roads and use.

Curriculum subcommittee

Cheryl Esslinger

Genene Lynott

Paula Schneider

Ced Vig

Responsibilities: Community events, research new EE programs, updating/reviewing education plan, make suggestions and provide content for website, liaisons within the schools, update and maintain materials and in-service staff.

CAVOC Site subcommittee

Kelli Jacobi

Bob LeFebvre

Chuck Fitzgerald

Cheryl Esslinger

Carol Carlson

Paula Schneider

Responsibilities: Financial aspects of restoration and expansion, monitoring and reviewing updates on facilities, technology advances, security and trail procedures and policies/restrictions/signage, PR pertaining to facility usage and trail maintenance.

Communication

- Maintain the CAVOC link on the School District of Rhinelander Official Site. The CAVOC web page contains: Mission Statement, Curriculum, Schedule/Calendar, Committee Members, FAQ, map and photos.
- The School Forest Committee will host highly publicized annual open-house event for the community targeting school families.
- The School Forest Committee will host school board meetings at CAVOC to learn more about the school forest.
- The School Board will be invited to the annual school forest committee cook-out along with a presentation of the year in review of CAVOC
- Student Poster Contest of Class Trips to CAVOC
- Students/teachers will submit articles to the local papers showcasing their participation at CAVOC.
- School Forest Committee/Teachers will also contact the local television and radio stations to highlight special events at CAVOC.
- The School Forest Committee will offer in-service training for teachers to become more familiar with the School Forest site and curriculum.
- Twice a year School Forest Committee members will meet with staff during faculty meetings or professional development days.
- Hold some classes for School of the Arts at CAVOC.

Long Range Plans

- Hire a full time School Forest director.
- Provide more training for teachers about the School Forest curriculum.
- Improve the School Forest Curriculum to maximize student learning.
- Continue Forest Management practices by using the expertise of the local DNR.
- Increase School Forest attendance by all grade levels.
- Maintain the opportunity for each student (pre K-12) to visit CAVOC twice per year.
- Establish a “Friends of CAVOC” community group.
- Upgrade School Forest technology to be comparable to the classroom.
- Update and add space to current facilities i.e. classrooms, labs and bathrooms.
- Improve our handicap accessibility.
- Improve trail system.
- Improve bathroom facilities.

Implementation Plan

Event/Activity	2009/10	2010/11	2011/12	2012/13	2013/14
Follow forest management plan	X	X	X	X	X
Maintain CAVOC link (website)	X	X	X	X	X

Offer community open-house @ CAVOC		X	X	X	X
Increase community awareness of CAVOC (poster contest, media releases)	X	X	X	X	X
Offer in-service for teachers	X	X	X	X	X
Increase school forest use	X	X	X	X	X
Maintain bussing for students to CAVOC	X	X	X	X	X
Hire S.F. coordinator ½ time		X			
Expand curriculum thru high school		X			
Elementary curriculum updated			X		
Middle School curriculum updated				X	
Establish a “Friends of CAVOC” group				X	
Update S.F. Educational Plan		X			
Update facilities			X	X	
Apply for educational grants		X	X	X	X
Hire S.F. Coordinator full-time				X	

Forest Management

Activities:

- Once per year, the forest management plan will be reviewed.
- Plans will be made for management for the year based on the plan.
- Some tasks may be accomplished by student and scout groups.

Resources:

- DNR forester
- School Forest Management Subcommittee

Community Outreach

Activities:

- Continuous: CAVOC link will be updated with photos, curriculum additions and upcoming events.
- Continuous: request teachers to invite media to CAVOC when their class is using CAVOC facility.
- May (each year), host poster contest for classrooms. Winner will receive a free fun day at CAVOC. Posters will be displayed downtown
- June (each year), host open house with tours, displays, and refreshments.

Resources:

- School Forest advisory Committee
- Public Relations Specialist (superintendent)

Staff Development

Activities:

- Every year, offer at least one content related workshop (i.e. LEAF, Project WILD).
- Every fall, offer a one hour in-service to staff addressing a school topic (i.e. curriculum, resources available).
- Seek grant money to fund workshops
- Contact EE groups/organizations to offer workshops

Resources:

- School Forest curriculum subcommittee
- LEAF
- Guest speakers
- Retired teachers
- Project WILD/WET
- Grant programs

Increase use of School Forest

Activities:

- School Forest Committee will continue to offer one paid trip (bussing) per student per year, school district will pay for a second trip.
- School Forest Curriculum Subcommittee will continue to expand and update the curriculum.
- Teachers on the School Forest Committee will communicate via email flyers school forest news to rest of district staff.
- Facilities will be updated on a timely fashion in order to accommodate larger school groups.
- School Forest Committee will look into value of and options to finance a school forest coordinator/director.

Resources:

- S.F. Curriculum Sub-committee
- S.F. Management Sub-committee
- Teachers
- CAVOC Site Sub-committee

Curriculum

Activities:

- Ongoing – online curriculum will be updated continually as needed.
 - 2010-2011 – High School curriculum will be updated.
 - 2011-2012 – Elementary school curriculum will be updated.
 - 2012-2013 – Middle school curriculum will be updated.

Resources:

- S.C. Curriculum Sub-committee
- Teachers
- Curriculum Director

Friends Group

Activities:

- 2011-2012 – Research will be done in order to establish a Friends group.
- 2012-2013 – Friends group will be formed. Press releases will be sent out to announce beginning of group.

Resources:

- Superintendent
- School Forest Secretary
- Teachers
- Retired staff
- School Forest Committee Members

Facilities & Accessibility

Activities:

- Annually
 - S.F. Committee will discuss plans to update the facilities. Maintenance department will handle implementation of plans.
 - When necessary – local contractors/specialists will be hired.
 - When necessary – financial assistance will be requested from various groups that use the facilities (i.e. Silent Sports Club), but most improvements will be paid through timber harvesting sales

Resources:

- School Forest Committee
- Maintenance Director
- Local contractors
- Director of Pupil Services
- Community organizations

Grant Writing

Activities:

- Annually – write one grant to provide staff development or to provide/replace equipment and materials

Resources:

- S.F. Curriculum Sub-committee
- Director of Curriculum & Instruction
- Sub-contracted professional grant writer

District Commitment

In 2008, the superintendent of the SDR made a commitment to Rhinelander School Forest through supporting and endorsing a Wisconsin Environmental Education School Forest Grant with matching money from the district. The Rhinelander School Forest Education Plan will be presented to the Rhinelander School Board in June of 2009.

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