

The background features abstract, overlapping green geometric shapes in various shades, creating a modern and dynamic feel. The shapes are primarily triangles and polygons, some with thin white outlines, set against a white background.

Evaluating Environmental Literacy

Erin E. Anderson

Audubon Center of the North Woods, Charter School Division

What is the Audubon Center of the North Woods?

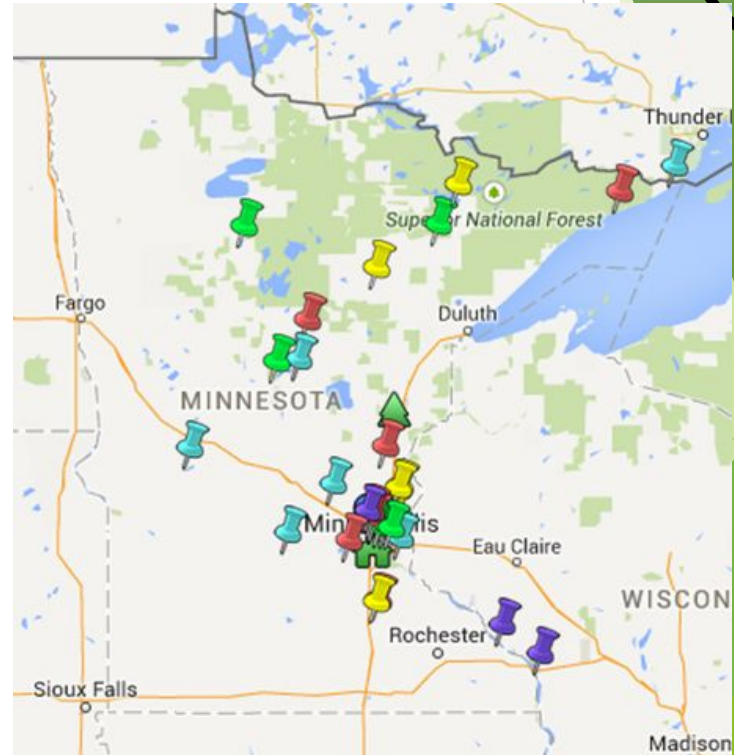
- ▶ Not the Audubon Society (although we're both named for John James Audubon, a wildlife painter)
- ▶ Environmental and adventure learning center in east central Minnesota
- ▶ Our mission is to instill a connection and commitment to the environment in people of all communities through experiential learning.
- ▶ Began authorizing schools in 2003 as a way to advance our organizational mission, and each school is required as a condition of its contract to provide environmental education and measure its impact



Portfolio Profile:

ACNW currently authorizes 36 schools.

- ▶ 8,600 students in 2017-2018
- ▶ 64% low income students
- ▶ 65% students of color
- ▶ 15% special education students
- ▶ 25% English language learners
- ▶ Smallest school: 20 students
- ▶ Largest school: 1,029 students



What should we measure?

Awareness

Knowledge

Critical thinking & problem solving skills

Attitudes

Capacity to take action



Environmental Literacy



Drawing Rubric—Present 1, Absent 0



Fauna / flora	5 or more appropriate species Iconic species present No animal / plant misconceptions
Ecosystem Diversity	>2 natural communities Burrows, beaver dams present No ecosystems misconceptions
Longleaf Pine	Pines have characteristics of longleaf pine Multiple longleaf life cycle stages present Trees widely spaced No pine tree misconceptions
Processes	Abiotic Decomposition Fire Predator / prey relationship



Knowledge



- ▶ Often the easiest thing for schools to measure using existing tools (e.g. unit assessments, pre- and post- quizzes)
- ▶ CHEAKS: Children's Environmental Attitudes & Knowledge Scale
 - ▶ Verbal Commitment
 - ▶ Actual Commitment
 - ▶ Affect
 - ▶ Knowledge
- ▶ Alliance for Climate Education Student Survey (pre- and post-learning activity)
 - ▶ Your thoughts about global warming
 - ▶ What you know about global warming
 - ▶ Your actions related to global warming
 - ▶ Your intentions related to global warming

Attitudes of appreciation and concern for the environment



American Camp Association Affinity for Nature Scale

- ▶ Designed for learners ages 10-17
- ▶ Specifically designed for use at summer camps, but schools have adapted the questions for a classroom environment

How much, if any, has your experience at this school changed you in each of the following ways?

	Decreased	Did not increase or decrease	Increased a little bit, maybe	Increased some, I am sure	Increased a lot, I am sure
Liking nature	0	0	0	0	0
My desire to spend time outdoors	0	0	0	0	0
Comfort in the outdoors	0	0	0	0	0
Enjoying the freedom of being outside	0	0	0	0	0
Feeling connected to the natural environment	0	0	0	0	0

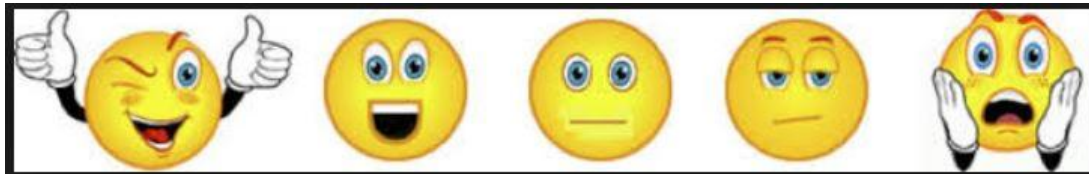
(scale AN-SB)

Attitudes of appreciation and concern for the environment



3. I want to spend time outdoors	False	Somewhat False	A little False	A little True	Somewhat True	True
Is the above statement more or less true today than before camp?	A lot less	Somewhat less	A little less	A little more	Somewhat more	A lot more
4. I am attracted to nature	False	Somewhat False	A little False	A little True	Somewhat True	True
Is the above statement more or less true today than before camp?	A lot less	Somewhat less	A little less	A little more	Somewhat more	A lot more

For younger learners:



Critical Thinking & Problem Solving Skills



- ▶ This outcomes lends itself well to projects and writing assignments in science, social studies, and English Language Arts
- ▶ Example activities:
 - ▶ Persuasive writing essay
 - ▶ Research and summarize a local environmental issue and propose a solution
 - ▶ Explore the intersection of environmental regulation and the economy
 - ▶ Graph and analyze data to draw conclusions
 - ▶ Science fair projects

Capacity to make healthy decisions on behalf of myself and the planet



- ▶ Measure students' self-efficacy and belief in their ability to make a difference in their community
- ▶ Example activities:
 - ▶ Learn to navigate and participate in political processes that impact the community
 - ▶ Climate Justice Day at the Capitol, writing letters to the editor, or contacting local, state, and national representatives
 - ▶ Conduct a food waste or energy reduction project
 - ▶ Food waste audit and lower energy bills
 - ▶ Conservation-focused service project
 - ▶ Project presentation, final reflection or reflection journal
 - ▶ Contribute research to a citizen science project
 - ▶ UMN Driven to Discover curriculum

Questions?

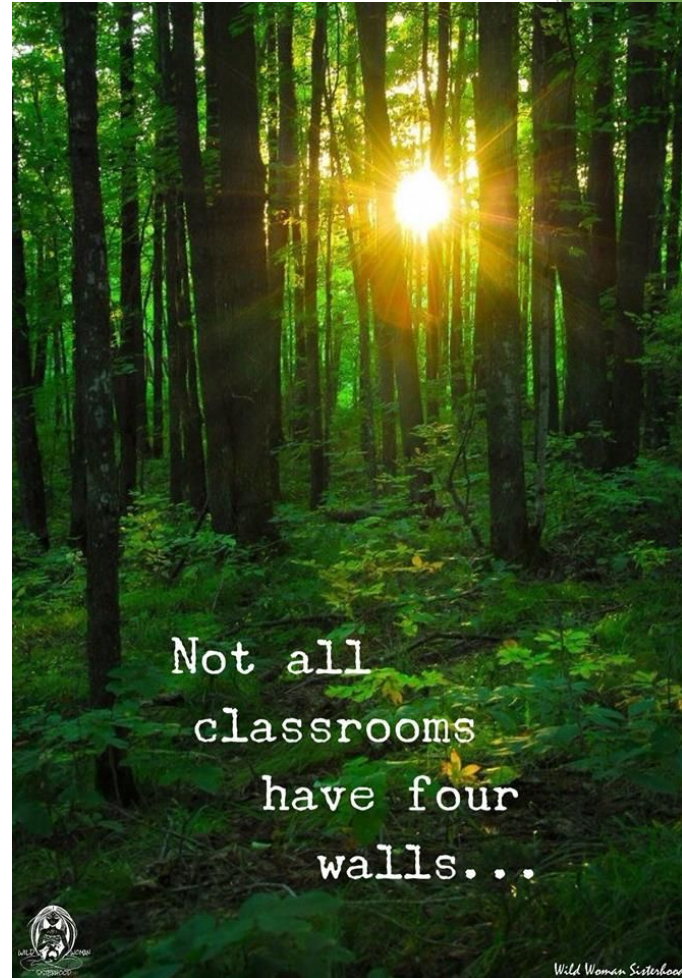
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Additional Contact Information



- ▶ Want to learn more about using drawing rubrics to measure environmental literacy?
- ▶ Contact Michael Dentzau
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- ▶ Want to participate in a nation-wide study of environmental education outcomes?
- ▶ Contact Marc J. Stern Robert B. Powell
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