



ASSOCIATION of
FISH & WILDLIFE
AGENCIES

The North American Conservation Education Strategy:

Alignment of Outdoor Skills
with National Standards
and the Framework for
21st Century Learning

A white paper of the Association of Fish & Wildlife
Agencies' North American Conservation Education
Strategy

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Conservation Education = Conservation

North American Conservation Education Strategy Alignment of Outdoor Skills with National Learning Standards and the Framework for 21st Century Learning

Prepared for the
Association of Fish and Wildlife Agencies
by DJ Case & Associates
with
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About DJ Case & Associates and Dr. Flowers:

DJ Case is a full-service firm specializing in natural resources communication since 1986. DJ Case has been on the front line of natural resources communication and education nationwide for 25 years. The company has been actively involved in conservation education and outdoor skills work including facilitation of the 2004 Conservation Education Summit and development of the *Stewardship Education Planning Guide*.

Dr. Lisa Flowers is Director of Conservation Education for the Boone and Crockett Club. Since 1994, she has been instrumental in designing, developing, implementing, and evaluating science-based conservation education programs and professional development for educators for the Boone and Crockett Club. Lisa is a Montana certified secondary science teacher who taught in formal classrooms for six years, and for the past 15 years, has provided outdoor conservation education programs for all ages.



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Executive Summary

In 2009, the Association of Fish and Wildlife Agencies (AFWA) was awarded the second of two multistate conservation grants to develop, coordinate, and implement the North American Conservation Education Strategy (Strategy). The focus of the second grant, “Coordination and further development of Association’s North American Conservation Education Strategy,” was to unify and strengthen conservation education efforts of state fish and wildlife agencies and their partners. A goal under this priority was to include outdoor skills in the education process as a tool for team building, stewardship, personal health, and lifelong recreation.

Increasingly, schools are including outdoor skills in their physical education classes, or otherwise incorporating outdoor activity into the school day. The National Archery in the Schools program (NASP) continues to grow into thousands of schools across the United States. In New Hampshire, PE standards focus on life skills, and in 2008, the Minnesota legislature passed legislation requiring the departments of Natural Resources and Education to develop an outdoor education report and recommendations.

The AFWA Conservation Education Strategy outdoor skills committee identified a need to assist fish and wildlife agencies interested in developing school-based outdoor skills education. AFWA contracted with DJ Case & Associates, working with Dr. Lisa Flowers, Boone and Crockett Club, to align selected outdoor skills lessons and units with national health, physical education and agriculture education standards, and the Framework for 21st Century Learning, and to develop recommendations for outdoor skills education materials and programs to best meet selected standards.

This report includes:

- a discussion of the philosophical basis for the importance to outdoor skills education to formal education, particularly to physical education programs;
- correlations to national health, physical, and agriculture education standards, and the Framework for 21st Century Learning of activities and/or units from 12 outdoor skills education programs selected by the outdoor skills committee;
- connections of the above outdoor skills programs to AFWA core concepts and benchmarks for outdoor participation;
- addition of outdoor skills concepts to the AFWA K-12 Conservation Education Scope and Sequence; and
- recommendations for “school-friendly” outdoor skills education programs.

One purpose of this alignment project was to develop a systematic process, or tool to evaluate the appropriateness of existing outdoor skills curricula for formal K-12 school settings. To do that, the outdoor skills committee identified 12 curricula they felt represented a variety of outdoor skills and approaches covering diverse locations across the United States and scales of implementation – local, state and national.

A total of 143 lessons or units from the 12 curricula were examined and correlated to the National Health Standards, National Physical Education Standards, National Agriculture Education Standards, 21st Century Learning Frameworks, and the North

American Conservation Education Strategy Conservation Standards and Outdoor Participation Benchmarks for Conservation Literacy. A close connection was found between the outdoor skills lessons and units, and the standards. Included in the correlations are:

- The grade level(s) targeted by the lesson/unit
- Subject(s) covered
- Suggested subject connections where appropriate

The results of this project provide insights into the elements of a “school-friendly” outdoor skills education program. The recommendations and tools provided here will be combined with strategies in development by the outdoor skills committee to produce guidelines for school-based outdoor skills education. That document will become part of the AFWA Conservation Education Strategy toolkit.

Outdoor skills education programs must meet agencies’ needs and complement other agency programs, as well as meet criteria for quality physical education programs. The following recommendations are made for agencies interested in developing school-friendly outdoor skills education:

- Work with state departments of education and school district health and physical education coordinators to ensure outdoor skills materials are age and developmentally appropriate.
- Develop programs that are tailored to specific grade bands (K-2, 3-5, 6-8 and 9-12) and avoid using materials developed for one grade band for instructing older students.
- Contract with teachers or curriculum experts to assist in review and development of lessons and units.
- Include related subjects in outdoor skills lessons and units, and highlight those connections.
- Coordinate communication of outdoor skills and conservation education courses when approaching with educators.
- Develop a basic outdoor skills course that teaches skills such as dressing for the outdoors, using map and compass, outdoor safety and other skills necessary to safe outdoor recreation.
- Develop a comprehensive “series” for outdoor skills with suggestions for skill groupings and progressions, as well as target audiences and venues. Identify which skills are best taught in a formal education setting and how those skills can be complemented by after school and weekend events, programs and courses.
- Identify standards used in your state, and use the *Outdoor Skills Standards Correlation excel matrix* to correlate your lessons or units to those standards.
- Include clear, specific and detailed instructions for each lesson. Prepare materials assuming the user has no experience with the skill and equipment.
- Require teachers to teach the basic courses and provide teacher training to ensure they have the knowledge and skills for effective instruction.
- Provide teacher training courses that teach both skill and content. Require participants to develop lesson plans for use in their classrooms.

- Identify and suggest local organizations and community groups whose members may be interested in mentoring students and/or conducting after school programs or events. It is the school's job to make those contacts, but agencies can assist by making introductions.
- Include in lessons and units, suggestions for out-of-school extensions. For example in a fishing education program, provide information on local fishing opportunities and suggest participation in local fishing clinics or other events.
- Encourage schools to find local organizations or businesses that might be willing to provide grants to subsidize equipment costs.
- Partner with non-governmental organizations and/or businesses to develop grants to schools for equipment.
- Partner with local entities to create locally-based equipment loan programs. Many tackle loaner programs have successfully provided fishing equipment to schools for aquatic resource education and fishing program.
- Provide small (\$100-\$500) matching grants to schools for equipment, field trips, and/or teacher training.
- For teacher training that occurs during the school year, offer to pay for substitute teachers.
- Meet with state department of education health and physical education coordinator to learn about their needs and requirements.
- Meet with local school officials and teachers to determine what they are already doing and identify ways in which outdoor skills will fit into their physical education programs.
- Be sensitive to local values related to consumptive wildlife-related outdoor recreation. Identify the skills programs that schools will be comfortable offering and start with those. Focus on getting youth comfortable being in the outdoors.

Outdoor skills education that includes the above recommendations will meet the guidelines for a quality physical education program and teach students wildlife-related recreational skills they will enjoy for a lifetime.

Introduction and Background Information

In 2009, the Association of Fish and Wildlife Agencies (AFWA) was awarded the second of two multistate conservation grants to develop, coordinate, and implement the North American Conservation Education (CE) Strategy (Strategy). The focus of the second grant, "Coordination and further development of Association's North American Conservation Education Strategy," was designed to unify and strengthen conservation education efforts of state fish and wildlife agencies and their partners.

One priority of the project was to "develop and implement a nationally agreed upon strategy for integrating conservation education in grades K-12 that builds upon the Association's CE Strategy Core Concepts and groundwork laid at a May 2008 Denver meeting and to assure that conservation education programs meet the needs of fish and wildlife agencies in the context of today's educational climate." A goal under this priority was to include outdoor skills in the education process as a tool for team building, stewardship, personal health, and lifelong recreation. A committee was formed within the Conservation Education Strategy to identify ways to accomplish this goal. Committee members included fish and wildlife educators and outdoor skills educators, as well as physical education practitioners. This project has been carried out under the auspices and direction of that committee, and was one of several initiatives of the committee.

In late 2009 and early 2010, the AFWA conducted a survey of state fish and wildlife agencies to assess aspects of their conservation education programs, including school-based outdoor skills education (DJ Case 2010). Seventy-eight percent of respondents indicated they conducted in-school outdoor skills education. Archery was the most frequently cited, followed by fishing, hunter education and wildlife viewing. A high percentage of agencies with in-school programs indicated they correlated their programs to health and/or physical education standards. When asked what resources would be helpful to support in-school outdoor skills education programs, the top two items identified were "messages to use with school administrators," and "connections of skills activities to health and/or PE standards." In response to these survey results, the Strategy's outdoor skills committee and AFWA commissioned this project to correlate selected outdoor skills activities to national health, physical and agricultural education standards, and to the Framework for 21st Century Learning. A related literature review was also commissioned by AFWA to document benefits of outdoor skills to health, learning and lifestyle. It was completed by Cottrell and Associates Environmental Consulting (CAEC) (CAEC 2010).

DJ Case & Associates, working with Dr. Lisa Flowers, Boone and Crockett Club, was contracted by AFWA to conduct this project.

Summary of report content

The purpose of this project was to highlight the connections between outdoor skills and education standards - national health, physical education and agriculture education standards, and the Framework for 21st Century Learning - and create recommendations for outdoor skills education materials and programs to best meet selected standards.

This report includes:

- a discussion of the philosophical basis for the importance to outdoor skills education to formal education, particularly to physical education programs;
- correlations to national health, physical, and agriculture education standards, and the Framework for 21st Century Learning of activities and/or units from 12 outdoor skills education programs selected by the outdoor skills committee;
- connections of the above outdoor skills programs to AFWA core concepts and benchmarks for outdoor participation;
- addition of outdoor skills concepts to the AFWA K-12 Conservation Education Scope and Sequence; and
- recommendations for “school-friendly” outdoor skills education programs.

The identification of key outdoor skills or building blocks most likely to lead to hunting, fishing, wildlife viewing and shooting sports participation were not addressed in this report. In their review of literature, CAEC (2010) noted the limitations of research documenting direct relationships of outdoor skills education on recruitment and retention.

“...direct cause and effect relationships of outdoor skills education on activity participation (recruitment and retention), healthy lifestyles and life long learning, responsible environmental behavior and stewardship are difficult to determine due to the lack of longitudinal research. Much of the research pre 1990s of outdoor education were case / site specific with small numbers which could not be generalized to the general population. In addition, much of the literature remains anecdotal based on subjective/qualitative assessments which cannot be generalized as well.” (page 5)

It should be noted that in the review of selected program materials, the listed grade bands are the same as those recommended by the programs themselves. A more in-depth evaluation of the grade specific outdoor skills and building blocks is more time consuming and resource intensive than this project allowed for.

The Importance of Outdoor Skills in Formal Education

Increasingly, schools are including outdoor skills in their physical education classes, or otherwise incorporating outdoor activity into the school day. The National Archery in the Schools program (NASP) continues to grow into thousands of schools across the United States. In New Hampshire, PE standards focus on life skills. In the winter, elementary schools in New Hampshire are required to take one-half day each Friday for students to be outdoors engaging in winter activities such as snowshoeing, skiing, or other winter

sport. In 2008, the Minnesota legislature passed a bill requiring the departments of natural resources and education to develop a report and recommendations on the teaching of outdoor education in grades 7-12. That report was presented to the legislature in January 2009 (MNDNR 2009), and that body enacted a special funding package to support implementation. That package includes a full-time outdoor skills/environmental education specialist at the Minnesota Department of Education, regional specialists to design and implement teacher training, grants to schools for implementation, and program evaluation (C.B. Bylander, personal communication).

In his 2005 book *Last Child in the Woods*, Richard Louv cast a spotlight on this generation's disconnect with the natural world and captured the nation's interest. Highlighting the connections between time spent indoors and childhood obesity, Attention Deficit Hyperactivity Disorder, and more, he made the case for increased outdoor activity. Since then, a variety of initiatives at the local, state and national levels have sought to reconnect youth and families with the outdoors. In February 2010, First Lady Michelle Obama launched "Let's Move: America's Move to Raise a Healthier Generation of Kids"¹. The American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) initiated "Let's Move in School," www.aahperd.org/letsmoveinschool, to build on the First Lady's initiative and focus on activity within the school day.

Benefits to Fish and Wildlife Agencies

How do state fish and wildlife agencies benefit from working with schools to teach outdoor skills? State fish and wildlife agencies have much to gain by working with schools to incorporate outdoor skills education. In-school programs have the potential to expose every young person – regardless of background – to fishing, archery and other wildlife-related recreation, as well as convey the principles of conservation and the North American Model of wildlife conservation. In a 2009 study of youth participation in the outdoors, Hispanic, African American, and Asian/Pacific Islander respondents indicated school programs were a factor influencing their decision to participate in outdoor activities – ahead of community youth programs (Outdoor Foundation, 2009).

In its May 2010 report to the US President, the Task Force on Childhood Obesity cites the importance of outdoor education through the Department of the Interior:

“Another strategy for getting kids physically active is to involve them in environmental education programs that involve outdoor activity. Interpretive programs and alternative PE lessons involving activities such as hiking, biking, wildlife watching, and kayaking can make outdoor education good for the body and brain, and at the same time, enhance young Americans' exposure to and appreciation of our nation's cultural, historic, and environmental resources. Additionally, the Fish and Wildlife Service and the National Park Service offer

¹ <http://www.whitehouse.gov/the-press-office/first-lady-michelle-obama-launches-lets-move-americas-move-raise-a-healthier-genera>

curriculum-based teacher training by field stations to classroom teachers and other educators to prepare their students for field trips to national parks, wildlife refuges, fish hatcheries, and other public lands. However, more can be done on the national level to encourage outdoor education on public lands as part of school-based curriculum. These programs also facilitate healthier lifestyles by emphasizing indoor and outdoor activity and exercise.” (page 71)

State Fish and Wildlife agencies have been providing outdoor skills education and opportunities for decades, and already fill the need to get kids moving and outdoors. And there is some evidence to suggest agencies will benefit in the process. Recently, Southwick Associates® estimated a return on investment for the National Archery in the Schools Program (NASP). Using data from the USFWS National Survey of Shooting, Hunting and Wildlife Watching, the Sporting Goods Manufacturers Association Survey, National Shooting Sports Foundation (NSSF) and the US Census, Southwick identified the following crossover of archers to hunting and fishing: 17.4% of archers will bow hunt, 32.7% will hunt with a shotgun, 38% will hunt with a rifle, and 56.3% will fish (NASP report to Association of Fish and Wildlife Agencies, March 2011).

Finally, it is important to note that many of the skills used in adult recreational activities are learned during the school years. According to the National Association for Sport and Physical Education (NASPE), “people who do not learn these skills early in life are less likely to learn them and even less likely to use them than skilled people, and, for this reason, they will be less likely to reap the health and wellness benefits associated with lifelong physical activity” (NASPE 2004, page13).

Benefits to Schools

How do schools benefit from working with fish and wildlife agencies to implement outdoor skills education in physical education programs? Shrinking budgets and increasing focus on subject matter tested under No Child Left Behind has negatively impacted physical education classes. The 2006 School Health Policies and Programs Study (SHPPS) conducted by the Centers for Disease Control found that:

- Only 4% of elementary schools, % of middle schools, and 2% of high schools provided daily physical education or its equivalent for the entire school year for students in all grades, and
- Overall, 22% of schools did not require students to take any physical education.

In a 2009 survey of practicing K-12 physical education teachers, researchers found that the median amount of funding for physical education programs was \$764, with over 60% of programs having annual budgets of under \$1,000. Only 15% of schools reported budgets higher than \$2,000 per year. In the same study, about 45% of teachers indicated their budgets had remained the same in recent years, while 36% indicated their budgets had decreased since 2006. These cuts to physical education programs and budgets come at a time when childhood obesity is on the rise.

In addition to helping to combat obesity, there is evidence to suggest that regular activity during the school day may benefit academic achievement. A study published in 2010 by the Centers for Disease Control and Prevention reviewed literature on the education-related impacts of school-based activity, including physical education, recess, classroom activity and extracurricular physical activity. The study found that time spent on activity at a minimum, did not detract from academic outcomes, and in most cases had a positive impact on academic achievement.

NASPE position statements emphasize the importance of regular physical activity:

- Every K-12 student should participate in and benefit from developmental learning in physical competence, health-related fitness, cognitive understanding, and enthusiasm for physical activity so they can adopt a physically active lifestyle.
- Physical education plays an essential and unique role in educating the whole student – mind and body – that fosters lifespan competencies of physical activity, good health, motivation, intellectual, and social challenges.

NASPE (2004) defines a high quality physical education program as including three components: opportunity to learn, meaningful content, and appropriate instruction. Key elements of these components as they relate to instruction of outdoor skills and other recreational activities include the following:

Opportunity to Learn:

- Instructional periods totaling a minimum of 150 minutes per week for elementary and 225 minutes per week for middle and secondary school.
- Qualified physical education specialists providing a developmentally appropriate program.
- Adequate equipment and facilities.

Meaningful Content:

- Instruction in a variety of motor skills that are designed to enhance the physical, mental, and social/emotional development of every child.
- Development of cognitive concepts about motor skills and fitness.
- Opportunities to improve their emerging social and cooperative skills and gain a multicultural perspective.
- Promotion of regular amounts of appropriate physical activity now and throughout life.

Appropriate Instruction:

- Full inclusion of all students.
- Maximum practice opportunities for class activities.
- Well-designed lessons that facilitate student learning.
- Out-of-school assignments that support learning, practice, and establishing lifelong habits.

Well-planned and well-implemented programs include:

- Skill development – development of motor skills that allow for safe, successful, and satisfying participation in physical (outdoor recreation) activity.
- Regular, healthful physical activity – a wide range of developmentally appropriate activities for all children and youth.
- Support for other subject areas – reinforce knowledge learned across the curriculum and serve as a laboratory for application of content in science, math and social studies.
- Self-discipline – facilitate development of responsibility for personal health, safety and fitness.
- Improved judgment – influence moral development. Students learn to assume leadership, cooperate with others, and accept responsibility for their own behavior.
- Strengthen peer relations – help children and youth socialize with others successfully and provide opportunities to learn positive social skills.
- Improve self-confidence and self-esteem – instill a stronger sense of self-worth in young people based on their mastery of skills and concepts.
- Goal setting – give children and youth the opportunity to set and strive for personal, achievable goals.

The intersection of outdoor skills and physical education

Where do outdoor skills and physical education needs meet? In August 2010, the AFWA Conservation Education Strategy outdoor skills committee convened a meeting of outdoor skills, health, physical education and agriculture education professionals from across the country to discuss the idea of incorporating wildlife-related outdoor skills in school health, physical education and agriculture education programs. Participants included teachers, school district curriculum coordinators, fish and wildlife agency educators, university professors, state department of education specialists, a representative from the NASPE, and more. All participants were enthusiastic about the opportunities for incorporating outdoor skills education into physical education. The senior program manager for NASPE noted that outdoor skills education is a model for helping schools extend physical activity throughout the school day and it can promote family and community involvement (C. Richardson, personal communication).

Meeting participants identified several benefits of outdoor skills education to school-based physical education programs.

- All students can participate and be successful. According to NASPE's *Appropriate Practices for Elementary School Physical Education* (2000), "in a quality physical education class teachers involve ALL children in activities that allow them to participate actively, both physically and mentally."
- Outdoor skills education helps schools make the case for increasing the amount of physical activity during the school day by getting kids outdoors and by laying the foundation for lifelong recreational activity.
- Outdoor skills education can help schools find new partners and funding for their physical education programs.

- Outdoor skills programs often include science (e.g. wildlife population management, fish identification, etc.), language arts (journaling) and more, providing support for other subject areas.
- Outdoor skills education addresses virtually all physical education national standards, as well standards for health and agriculture education.
- Outdoor skills programs encourage family and community involvement with schools' physical education programs.

Certainly in-school outdoor skills programs are not the “silver bullet” for fish and wildlife agencies or for school physical education programs and meeting participants identified a number of challenges as well, including the following²:

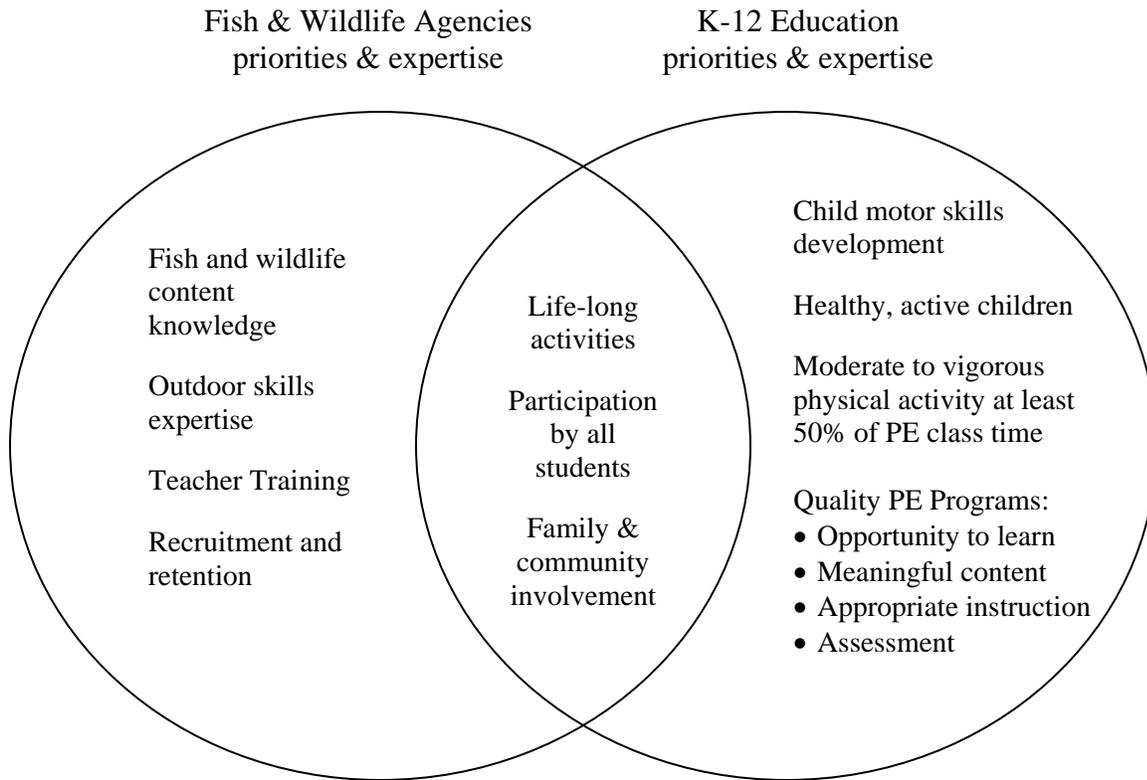
- Teacher comfort level – many teachers do not feel they have the skill or content knowledge to teach the material.
- Lack of training programs for outdoor education at the post-secondary level, pre-service and in-service.
- Individual and/or school concerns with hunting and shooting sports, and to a lesser extent archery and fishing – differences in cultural norms as well as safety concerns.
- Lack of access to outdoor settings for teaching.

Nonetheless, there is a great deal of opportunity where the interests and expertise of agencies and schools overlap (Figure 1). In essence, schools are looking for ways to engage youth in meaningful physical activity that will lead to life-long recreation and fitness. Fish and wildlife agencies want to instill an understanding and ethic of conservation, and encourage people to enjoy wildlife-related recreation in the outdoors. Schools are well-suited for teaching basic outdoor skills and providing a variety of opportunities for students to try. Fish and wildlife agencies have the expertise to provide teacher training, as well as advanced and/or specialized skill instruction and outdoor experiences. Each can help the other in achieving at least some of their goals.

In-school programs can be invaluable to agencies. Formal education provides an opportunity to teach basic skills to all students. Schools, and community partners such as parks and recreation departments, 4-H and others, can also provide opportunities for students and their families to try a variety of outdoor skills-related activities through afterschool and weekend programs and events. In addition to exposing youth to a variety of activities, these opportunities have the added benefit of building the local social support networks necessary to nurture and sustain participation. In turn, fish and wildlife agencies can focus their efforts on advanced skill development, specialization and training in areas that may be less acceptable to some schools, such as hunting, through youth hunting clinics and other programs.

² The AFWA Conservation Education Strategy outdoor skills committee is developing recommendations for addressing these challenges and these will be included in a guidelines document for agencies.

Figure 1: Relationship of Outdoor Skills and K-12 Education



Before leaving this discussion, it is important to clarify some terminology: outdoor education vs. outdoor skills education, and physical education vs. physical activity. While outdoor education and outdoor skills education are similar, outdoor education usually includes an adventure component such as ropes courses, wilderness backpacking, sea kayaking, etc. Priest (1986), defines outdoor education as “the blending of both *adventure* and environmental approaches into a program of activities and experiences. Through exposure to the outdoor setting, individuals learn about the relationship with the natural environment, relationship between the various concepts of natural ecosystems, and personal relationships with others and with their inner self.” Outdoor skills education is a subset of outdoor education with a focus on building skills that enhance wildlife-related outdoor recreation such as hunting and fishing. Outdoor skills education does not tend to include the adventure aspects of outdoor education.

The terms physical education and physical activity are often used interchangeably but they have different meanings. Physical education includes physical activity, but more importantly, physical education teaches students the skills and knowledge necessary to establish and maintain active lifestyles (NASPE 2004). Physical education includes four components: opportunity to learn, appropriate instruction, meaningful content, and student and program assessment. NASPE recommends instructional periods of 150

minutes per week for elementary students and 225 minutes per week for middle and high school. Physical activity is bodily movement at a level that increases heart rate and produces heavier than normal breathing and includes recreational and fitness activities as well as daily activities such as walking to school. NASPE recommends students accumulate at least 60 minutes and up to several hours of physical activity per day, some of which occurs during physical education classes.

Methods for Alignment – Process, Filters & Decisions

It is critical in today's formal K-12 education field to show how conservation education materials, developed and used by fish and wildlife agencies, are connected to and support national learning and content standards. The main tool used to demonstrate how these materials support learning standards is correlations. Conservation education activities can be correlated to national or state standards. Correlations illustrate which activities address specific standards. This project's correlation process illustrates how closely aligned selected outdoor skills programs and associated activities are with the current National Health and Physical Education Learning Standards, National Agriculture, Food and Natural Resources Content Standards, National Standards for Physical Education, and the Framework for 21st Century Learning. The Association of Fish and Wildlife Agencies' (AFWA) Scope and Sequence Standards and the Outdoor Participation Benchmarks were also part of this alignment and are foundational to AFWA's National Conservation Education Strategy.

The purpose of this alignment project was to develop a systematic process, or tool to evaluate the appropriateness of existing outdoor skills curricula for formal K-12 school settings. This process began by using a current definition for "outdoor skills"³ articulated in the recent literature review, applicable to the benefits of health, physical education, agriculture, and 21st Century Learning standards. With this definition, all standards were reviewed and applicable ones were selected for correlation to activities. A separate list of applicable standards was compiled for each set of standards, then, distributed to members of the AFWA outdoor skills committee and some expert health and physical education teachers for their review. The complete list of standards and grade level expectations are located in Appendix A.

Once all relevant standards were agreed to, the next step was to collect the outdoor skills curricular materials.

³ "Outdoor skills are wildlife related outdoor recreation that is not team sports, including but not limited to the following: hiking, camping, backpacking, woodcraft, fishing, snowshoeing, wildlife viewing, birdwatching, hunting, archery, winter survival, tracking, wildlife identification, map and compass, orienteering, boating, canoeing, and kayaking." (AFWA White Paper – Benefits of outdoor skills to health, learning and lifestyle. April 2010)

The AFWA outdoor skills committee identified 12 curricula they felt represented a variety of outdoor skills and approaches covering diverse locations across the United States and scales of implementation – local, state and national. The committee wanted programs that had not already been aligned with standards, at least nationally. A list of the curricula chosen by the committee is located in Appendix B.

The next step required a thorough examination of all curricular activities to determine which units/lessons/activities could be classified as “outdoor skills” related. Again, the “outdoor skills” definition was used as a filter.

Utilizing the definition to initially filter both the standards and the activities clearly distinguished how closely each “outdoor skills” activity is aligned with the selected learning and content standards. If an activity did not directly address a specific standard – not stated in black and white – or was not specific to the subject area and grade level or range of grade levels, it was not considered aligned. The cell in the spreadsheet remained blank. If it did directly address the specific standard an “X” was placed in the cell under the standard. Making these decisions does have an element of subjectivity due to people’s various levels of experience and expertise. This can be challenging but probably leads to a deeper and more agreed upon understanding of the standards overall.

Correlations should be done in a systematic manner especially when dealing with more than one set of standards and several different types of curricular activities. A matrix was designed for each set of standards – Health, PE, Agriculture and the 21st Century Learning Framework. This approach organized the applicable standards across the top of the spread sheet and the activities from the 12 curricula to be listed on the left-hand side. This decision was made because there were 143 activities that needed to be correlated with the 4 sets of standards individually. This provided an efficient and straightforward system when deciding which standards were directly addressed and the system can be easily replicated. The variety of activity formats used made this a time-consuming process. This diversity is refreshing, but similar formatting would have made the correlation process less time consuming and more efficient.

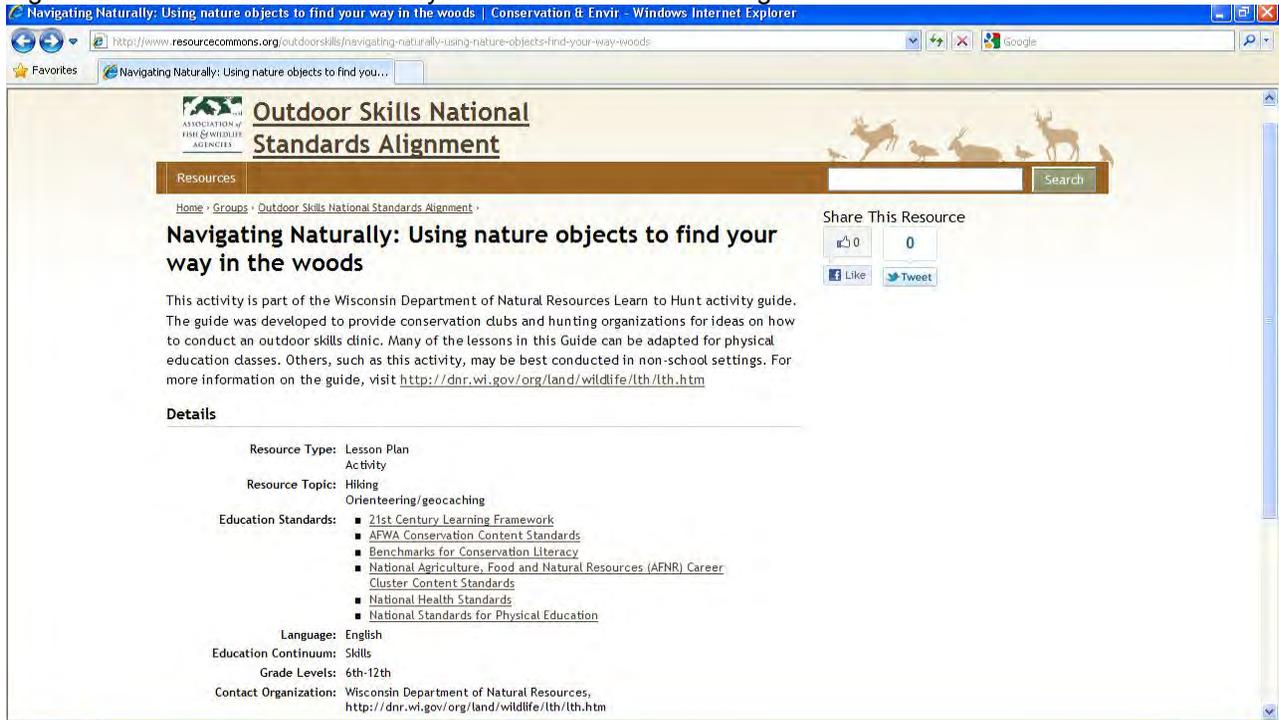
The same approach was used to present the alignment of AFWA Scope and Sequence Standards and the Outdoor Participation Benchmarks with the activities. The standards and benchmarks were organized in columns and activities that aligned received an “X” in the corresponding spreadsheet cell. The correlations are documented in the *Outdoor Skills Standards Correlations excel matrix*, which accompanies electronic versions of this report.

With the exception of the Dallas Ecological Foundation’s Outdoor Adventures,⁴ all of the activities and related standards were entered into the Resource Commons online database: www.resourcecommons.org/outdoorskills (Figure 2). This online data base

⁴ Dallas Ecological Foundation asked their materials not be disseminated.

can be used by any agency, organization or teacher to correlate their materials, and can be searched by educators looking for lessons, materials, outdoor experiences or other information by grade level, subject matter, and by national standards.

Figure 2: Screen shot of lesson entry from resourcecommons.org



Information entered onto resourcecommons.org included:

- A description of the program including the lesson or unit, with information about the original purpose of the program and a link to the program's web site
- The resource type (activity, lesson plan, unit)
- The resource topic (archery, orienteering, hiking, hunting, etc.)
- The national standards which apply
- Language in which the materials are available (English)
- Education continuum location (awareness to action)
- The name and web site link for the organization
- A link to the specific lesson when available

Electronic copies of any of the specific lessons or materials were not placed on the web site, as that fell outside the scope of this project.

Alignment Results

A total of 143 lessons or units were correlated to the National Health Standards, National Physical Education Standards, National Agriculture Education Standards, 21st Century Learning Framework, and the North American Conservation Education Strategy Conservation Standards and Outdoor Participation Benchmarks for Conservation Literacy. As noted above, these correlations are documented in an *Outdoor Skills Standards Correlations excel matrix*, and on the Resource Commons at www.resourcecommons.org/outdoorskills. Included in the correlations are:

- The grade level targeted by the lesson/unit
- Subject(s) covered
- Suggested subject connections where appropriate
- Notation of each standard addressed by each lesson/unit as described in the methods section above

Scope and Sequence for Outdoor Skills Education

In educator terms, a scope and sequence is a plan for what to teach and when to teach it in order to achieve the desired student skills and/or content knowledge. Think of it as a roadmap, which shows a destination and the routes to get there. Similarly, a scope and sequence identifies what a student should know and be able to do, and provides a progression for teaching skills and concepts. It ensures that skills and concepts are physically and cognitively age appropriate and taught in a way that builds on prior skills and knowledge to achieve the end goals. With a focus on the national physical education standards, this section of the report will discuss developmentally appropriate physical activity, the AFWA Outdoor Participation Benchmarks, and how the benchmarks and appropriate physical activity fit with the AFWA K-12 Conservation Education Scope and Sequence.

First, it is important to understand characteristics of motor skill development. The following information is adapted from the NASPE position statement “Looking at Physical Education from a Developmental Perspective: A Guide to Teaching” (1995).

Motor skills develop over a lifetime from a combination of hereditary potential and life experiences, including formal instruction. The characteristics of developmental change include six elements, and these are important to take into consideration when developing outdoor skills education materials.

- *Change is qualitative.* Developmental change is not simply more of something. Rather, more advance performers use more effective movement patterns than immature movers do. Instruction should include both qualitative and quantitative goals, and include demonstrations and feedback on the development of movement patterns.

- *Change is sequential.* Motor skills develop over a time sequence in an orderly manner. Curriculum and instruction should present content in both vertical and horizontal progressions, and be designed to promote the sequential development of motor skills. No two grades should completely overlap in content and outcome goals.
- *Change is cumulative.* It builds upon previous capabilities and early skills serve as building blocks for later emerging skills. Design curriculum so experiences build on previous learning experienced in earlier grades. Develop basic skills before moving to more complex skills, and provide plenty of opportunity for practice.
- *Change is directional.* Developmental change is moving toward some goal, such as a particular level of skillfulness. Some people may never reach skillfulness before beginning to lose their skill through lack of practice or aging. Either way, whether declining or advancing, the change is directional. The National Standards for Physical Education and AFWA's benchmarks for outdoor participation show the direction of development.
- *Change is multifactorial.* In other words, multiple factors are involved in acquisition of any given skill, including motor development, social skills, and knowledge. A student may have the ability to perform a skill, but lack the knowledge of when and how to use that skill. Instruction should take into account multiple factors, not simply motor skill development.
- *Change is individual.* While development occurs in sequence, the rate of change differs among individuals. In any given age group there will be a range of developmental levels and abilities. One reason outdoor skills are well suited to physical education is they allow for success at multiple ability levels.

The National Standards for Physical Education (Appendix A) are designed to assist in determining developmentally appropriate instruction for different grade bands and are an excellent resource in evaluating or creating outdoor skills education lessons.

AFWA's Outdoor Participation Benchmarks for Conservation Literacy (Appendix C) provide another tool to assist in development of outdoor skills materials. Developed by conservation and outdoor skills educators, and reviewed by physical education teachers, the benchmarks outline what we expect students to know and be able to do at the end of grades 5, 8, and 12 on their way to becoming actively engaged in wildlife-related recreation as adults.

The K-12 Conservation Education Scope and Sequence outlines what it is reasonable to expect a student to know or be able to do at particular grade bands. It aligns core conservation concepts with national frameworks and standards in science and other subject areas. The Scope and Sequence outlines five standards based on core conservation concepts (Appendix A). Outdoor skills education is addressed within standard 4:

Students should understand and accept, and/or lawfully participate in hunting, fishing, trapping, boating, wildlife watching, shooting sports, and other types of resources-related outdoor recreation.

- 4.1. Regulated hunting, fishing and trapping are important tools for managing some wildlife populations and habitats.
- 4.2. Fish and wildlife-based resources provide recreational benefits directly to participants and increase advocacy for conservation.
- 4.3. Responsible users of fish, wildlife and the out of doors respect the rights and property of others.

Three of the four AFWA Outdoor Participation Benchmarks for Conservation Literacy are very similar to the NASPE National Standards for Physical Education:

Table 1: Comparison of outdoor participation benchmark concepts of learning, national standards for physical education, and K-12 conservation education scope and sequence standard 4

Outdoor Participation Benchmark Concepts of Learning	NASPE National Standard for Physical Education	Scope and Sequence Standard 4
Outdoor recreational pursuits have many benefits and impacts (such as health, economic, ecological, etc.)		Fish and wildlife-based resources provide recreational benefits directly to participants and increase advocacy for conservation.
Demonstrate competency in motor skills needed to participate in a variety of nature-related outdoor recreational activities.	Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities.	
Participate regularly in nature-related outdoor recreation.	Participates regularly in physical activity.	
Exhibit responsible personal and social behavior that respects self and others in nature-related outdoor recreation.	Exhibits responsible personal and social behavior that respects self and others in physical activity settings.	

The outdoor participation benchmarks, national physical education standards, and the K-12 conservation education scope and sequence standard 4, combine to create a scope and sequence for outdoor skills education. The detailed scope and sequence tables are located in Appendix D.

Standard 4: Students should understand and accept and/or lawfully participate in hunting, fishing, trapping, boating, wildlife watching, shooting sports, and other types of resources-related outdoor recreation.

- 4.1. Regulated hunting, fishing and trapping are important tools for managing some wildlife populations and habitats. (*AFWA 4*)
- 4.2. Fish and wildlife-based resources provide recreational benefits directly to participants and increase advocacy for conservation. (*AFWA 4*)
- 4.3. Responsible users of fish, wildlife and the out of doors respect the rights and property of others. (*AFWA 4*)
- 4.4. Demonstrates competency in motor skills needed to participate in a variety of nature-related outdoor recreational activities. *NEW (NSPE 1, AFWA Outdoor Participation Benchmark)*
- 4.5. Demonstrates understanding of movement concepts, principles, strategies and tactics as they apply to the learning and performance of outdoor recreational activities. *NEW (NSPE 2)*
- 4.6. Participates regularly in nature-related outdoor recreation. *NEW (NSPE 3, AFWA Outdoor Participation Benchmark)*
- 4.7. Responsible users of fish, wildlife and the out-of-doors exhibit responsible personal and social behavior that respects self and others. *NEW (NSPE 5, AFWA Outdoor Participation Benchmark)*
- 4.8. Values outdoor recreation for health, enjoyment, challenge, self-expression, and/or social interaction. *NEW (NASPE 6)*

Recommendations for Effective School-Based Outdoor Skills Education

The results of this project provide insights into the elements of a “school-friendly” outdoor skills education program. Having said that, there is no one “right” program that will work for every agency and every school in every school district and state. However, the following are some recommendations that will help agencies look at their programs through a “formal education” filter, as well as help them communicate with school administrators and educators. It should be noted that the AFWA Conservation Education Strategy outdoor skills education committee is developing strategies for implementing school-based outdoor skills education. The recommendations and tools provided here will be combined with those strategies into guidelines for school-based outdoor skills education. That document will become part of the AFWA Conservation Education Strategy toolkit.

What makes school-friendly outdoor skills education? From the agency’s standpoint, it is a program that meets the agency’s needs and complements other agency programs. From the formal education perspective, an outdoor skills education program:

1. is developmentally age appropriate (physically, cognitively, and emotionally) and follows a logical progression;
2. connects with and supports other subject areas;

3. provides opportunities for students to learn basic skills and try a variety of activities;
4. is correlated to state and/or national standards;
5. provides clear instructional materials;
6. is supported by teacher training and/or agency or volunteer instructors;
7. uses equipment that is either readily available or is provided at little to no cost or through grants;
8. encourages family and community involvement;
9. is affordable given school budgets; and
10. takes into account local outdoor recreational opportunities and is sensitive to local values.

Outdoor skills education that includes the above elements will meet the guidelines for a quality physical education program (opportunity to learn, meaningful content and appropriate instruction), an important consideration for schools.

Let's look at each of these in more detail.

1. *Is developmentally age appropriate (physically, cognitively, and emotionally) and follows a logical progression*

Activities should match the developmental stage of the students involved. The focus for early (K-2) elementary students should be on large motor skills. Activities should provide opportunities for students to walk, run, etc, and instruction should focus on basic skills such as walking – and staying – on a trail, and observing nature in the outdoors. Upper elementary (3-5) students are ready for more advanced motor skills and hand-eye coordination. Activities involving targets – casting or archery – are good at this age.

Instruction of any skill should move the student toward skillfulness, building on basic skills to more advanced forms. Lessons and activities need to be different for each grade level. Recall that skill development is cumulative. Students need to be learning advanced forms of skills they have mastered, as well as new skills. In other words, if basic fishing is taught in 5th grade, the same lessons and skills should not be repeated in the 6th grade. Rather, instruction for students who have completed basic fishing should build on what they learned, teaching new skills and applying skills they have learned in different ways. For example, a short introductory program on basic paddling will provide students with the basics they will need for canoeing or kayaking, and give them an opportunity to experience initial success. This might be followed by an outing to put their newfound skills to use.

At the same time, any program needs to allow for a variety of skill levels in any given class, since students develop skills at different rates. Instruction should be such that all students can participate and experience success (improvement or mastery) regardless of their level of development.

Finally, instruction needs to include meaningful content – knowledge about the motor skills they are learning, as well as opportunities to use and improve their social and cooperative skills.

Recommendations:

- Work with state departments of education and school district health and physical education coordinators to ensure outdoor skills materials are age and developmentally appropriate.
- Develop programs that are tailored to specific grade bands (K-2, 3-5, 6-8 and 9-12) and avoid using materials developed for one grade band for instructing older students.
- Contract with teachers or curriculum experts to assist in review and development of lessons and units.

2. Connects with and supports other subject areas

Outdoor skills education is ideal for connecting physical education with other subject areas. Learning to use a map and compass involves an understanding of landscapes, as well as geometry. Learning to track animals includes learning something about their biology and life histories. Learning about fishing involves learning about aquatic habitats. Any outdoor recreational activity requires an understanding of the natural resources in which that activity occurs, as well as the ethics involved.

Recommendation:

- Include related subjects in outdoor skills lessons and units, and highlight those connections.

3. Provides opportunities for students to learn basic skills and try a variety of activities

A program that teaches basic skills for a variety of activities and provides a variety of experiences for students to experience sets a good foundation for more advanced skills. Students will have an opportunity to discover what they are good at and what they enjoy. In addition, it gives them options for incorporating those activities into their daily lives as their skills and interests mature.

Many students may have little experience with the outdoors. The most basic outdoor skills education should include topics such as dressing for the outdoors, understanding direction, basic outdoor safety, and more. Many of these are topics and skills that can be introduced at an early age, and built upon in subsequent grades. In addition, they are foundational to any wildlife-related outdoor recreational activity.

A challenge to the delivery of basic skills is lack of coordination among outdoor skills programs within many fish and wildlife agencies. Outdoor skills programs are often housed in different divisions within an agency; aquatic resource education is often housed in the fisheries unit, hunter education in the law enforcement unit, and hunting skills in the wildlife or law enforcement units. These may or may not coordinate with

each other or with other agency conservation education efforts. As a result, teachers are frequently contacted by multiple personnel, each with a different education resource. This is frustrating to teachers who don't have a good idea of where they should start.

Recommendations:

- Coordinate communication of outdoor skills and conservation education courses when approaching with educators.
- Develop a basic outdoor skills course that teaches skills such as dressing for the outdoors, using map and compass, outdoor safety and other skills necessary to safe outdoor recreation.
- Develop a comprehensive "series" for outdoor skills with suggestions for skill groupings and progressions, as well as target audiences and venues. Identify which skills are best taught in a formal education setting and how those skills can be complemented by after school and weekend events, programs and courses.

4. Is correlated to state and/or national standards

As demonstrated by the alignment section of this report, the majority of outdoor skills align closely to physical education standards as well as health and agriculture education (at the high school level). Standards correlation is a strong selling point when approaching school administrators.

Recommendation:

- Identify standards used in your state, and use the *Outdoor Skills Standards Correlations excel matrix* to correlate your lessons or units to those standards.

5. Provides clear instructional materials

Most teachers will have little to no experience with many outdoor skills. Instructional materials need to be clear, including background information as well as easy to follow step by step instructions.

Recommendation:

- Include clear, specific and detailed instructions for each lesson. Prepare materials assuming the user has no experience with the skill and equipment.

6. Is supported by teacher training and/or agency or volunteer instructors

Because teachers are not likely to have experience with many outdoor skills, they may be reluctant to include them in their physical education classes. Teacher training will help them overcome concerns about their ability to instruct their students. From an agency's standpoint, it's best to train the teachers to the point they have the confidence and knowledge to teach the courses themselves. To the extent possible, work with local organizations to assist with teacher training. Volunteers can also assist teachers in the classroom and with field outing such as taking students fishing at a nearby pond. Training teachers to do their own instruction frees agency staff to provide more specialized outdoor skills training.

Recommendations:

- Require teachers to teach the basic courses and provide teacher training to ensure they have the knowledge and skills for effective instruction.
- Provide teacher training courses that teach both skill and content. Encourage participants to develop lesson plans for use in their classrooms.

7. Encourages family and community involvement

Quality physical education programs encourage out-of-school practice to help students become proficient enough to enjoy an activity and establish life-long habits. Enlist the support of local organizations to help students engage in wildlife-related recreation outside of the classroom. Many schools that have adopted the National Archery in the Schools Program have also developed after school archery clubs where students can practice and even participate in archery competitions. If local fishing opportunities are available, find organizations whose members will mentor kids and take them fishing. In addition to contacting youth groups and sportsmen's organizations, check with other community groups. Sometimes community organizations such as Lions Clubs, Rotary, Jaycees or other groups will want to become involved.

Recommendations:

- Identify and suggest local organizations and community groups whose members may be interested in mentoring students and/or conducting after school programs or events. It is the school's job to make those contacts, but agencies can assist by making introductions.
- Include in lessons and units, suggestions for out-of-school extensions. For example in a fishing education program, provide information on local fishing opportunities and suggest participation in local fishing clinics or other events.

8. Uses equipment that is either readily available or provided at little to no cost or through grants

Classes need enough equipment for each student to have adequate practice time during the class period. Cost of equipment can be a significant limiting factor. Find creative ways for schools to purchase or borrow equipment.

Recommendations:

- Encourage schools to find local organizations or businesses that might be willing to provide grants to subsidize equipment costs.
- Partner with non-governmental organizations and/or businesses to develop grants to schools for equipment.
- Partner with local entities to create locally-based equipment loan programs. Many tackle loaner programs have successfully provided fishing equipment to schools for aquatic resource education and fishing program.

9. *Is affordable*

Recall that schools' budgets for physical education programs are typically very small; more than half have budgets of less than \$1,000 per year. No matter how attractive a program is, if it is not affordable, the school will not use it. Affordability applies to more than just equipment. Schools need money for teacher training as well as for busses to take students on field outings.

Recommendations:

- Provide small (\$100-\$500) matching grants to schools for equipment, field trips, and/or teacher training.
- For teacher training that occurs during the school year, offer to pay for substitute teachers.

10. *Takes into account local outdoor recreational opportunities and is sensitive to local values*

It may be obvious, but not every outdoor skill can or should be taught everywhere. If streams, lakes or other bodies of water are not readily accessible, teaching fishing, kayaking or canoeing doesn't make sense because students will not be able to get the practice time they need to become proficient. Likewise, agencies may experience resistance to teaching shooting sports or hunter education in some areas, where in other areas those programs would be welcomed. Some teachers may have personal values that conflict with consumptive activities. It is important for agencies to be aware of local values and work with those values rather than try to change them.

Traditional outdoor skills such as hunting develop over a lifetime. School physical education programs are well-suited to teach skills that lay a foundation for a variety of lifelong wildlife-related outdoor recreation activities that get people outdoors and enjoying our natural resources.

Recommendations:

- Meet with your state department of education health and physical education coordinator to learn about their needs and requirements.
- Meet with local school officials and teachers to determine what they are already doing and identify ways in which outdoor skills will fit into their physical education programs.
- Be sensitive to local values related to consumptive wildlife-related outdoor recreation. Identify the skills programs that schools will be comfortable offering and start with those. Focus on getting youth comfortable being in the outdoors.

Concluding Remarks

To summarize, the following recommendations will assist agencies in developing school-friendly outdoor skills education programs.

- Work with state departments of education and school district health and physical education coordinators to ensure outdoor skills materials are age and developmentally appropriate.
- Develop programs that are tailored to specific grade bands (K-2, 3-5, 6-8 and 9-12) and avoid using materials developed for one grade band for instructing older students.
- Contract with teachers or curriculum experts to assist in review and development of lessons and units.
- Include related subjects in outdoor skills lessons and units, and highlight those connections.
- Coordinate communication of outdoor skills and conservation education courses when approaching with educators.
- Develop a basic outdoor skills course that teaches skills such as dressing for the outdoors, using map and compass, outdoor safety and other skills necessary to safe outdoor recreation.
- Develop a comprehensive “series” for outdoor skills with suggestions for skill groupings and progressions, as well as target audiences and venues. Identify which skills are best taught in a formal education setting and how those skills can be complemented by after school and weekend events, programs and courses.
- Identify standards used in your state, and use the *Outdoor Skills Standards Correlations excel matrix* to correlate your lessons or units to those standards.
- Include clear, specific and detailed instructions for each lesson. Prepare materials assuming the user has no experience with the skill and equipment.
- Require teachers to teach the basic courses and provide teacher training to ensure they have the knowledge and skills for effective instruction.
- Provide teacher training courses that teach both skill and content. Require participants to develop lesson plans for use in their classrooms.
- Identify and suggest local organizations and community groups whose members may be interested in mentoring students and/or conducting after school programs or events. It is the school’s job to make those contacts, but agencies can assist by making introductions.
- Include in lessons and units, suggestions for out-of-school extensions. For example in a fishing education program, provide information on local fishing opportunities and suggest participation in local fishing clinics or other events.
- Encourage schools to find local organizations or businesses that might be willing to provide grants to subsidize equipment costs.
- Partner with non-governmental organizations and/or businesses to develop grants to schools for equipment.

- Partner with local entities to create locally-based equipment loan programs. Many tackle loaner programs have successfully provided fishing equipment to schools for aquatic resource education and fishing program.
- Provide small (\$100-\$500) matching grants to schools for equipment, field trips, and/or teacher training.
- For teacher training that occurs during the school year, offer to pay for substitute teachers.
- Meet with your state department of education health and physical education coordinator to learn about their needs and requirements.
- Meet with local school officials and teachers to determine what they are already doing and identify ways in which outdoor skills will fit into their physical education programs.
- Be sensitive to local values related to consumptive wildlife-related outdoor recreation. Identify the skills programs that schools will be comfortable offering and start with those. Focus on getting youth comfortable being in the outdoors.

The curriculum alignments in this report demonstrate the strong connection between outdoor skills education and national standards for health, physical and agriculture education. The *Outdoor Skills Standards Correlations excel matrix* is a useful tool for agencies interested in correlating their outdoor skills curricula to national standards. Following the above recommendations will assist agencies in creating school-friendly outdoor skills education programs that meet the guidelines for quality physical education.

In conclusion, outdoor skills education and school physical education programs are a natural fit. Agencies benefit by reaching students of all socio-economic backgrounds, and by have a trained cadre of educators teaching wildlife-related outdoor recreational skills. Schools benefit by having quality physical education programs that teach lifetime recreational skills and in which all students can participate successfully. Most of all, students benefit from the satisfaction that comes with mastering skills, and perhaps more importantly, spending time outdoors.

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Appendices

Appendix A: National Standards and Grade level expectations

National Health Standards

Reducing health risk

- Students will demonstrate the ability to practice health-enhancing behaviors and reduce health risks.
 - NPH-H.K-4.3 Identify responsible health behaviors; identify personal health risks; demonstrate strategies to improve or maintain personal health
 - NPH-H.5-8.3 Explain the importance of assuming responsibility for personal health behaviors; demonstrate strategies to improve or maintain personal and family health
 - NPH-H.9-12.3 Develop strategies to improve or maintain personal, family and community health

Influences on health

- Students will analyze the influence of culture, media, technology and other factors on health
 - NPH-H.K-4.3 Describe how culture influences personal health behaviors
 - NPH-H.5-8.3 Describe the influence of cultural beliefs on health behaviors and the use of health services
 - NPH-H.9-12.3 Analyze how cultural diversity enriches and challenges health behaviors; analyze how information from the community influences health

Setting goals for good health

- Students will demonstrate the ability to use goal-setting and decision-making skills to enhance health
 - NPH-H.K-4.3 Demonstrate the ability to apply a decision-making process to health issues and problems; explain when to ask for assistance in making health-related decisions and setting health goals; predict outcomes of positive health decisions; nest a personal health goal and track progress toward its achievement; demonstrate the ability to influence and support others in making positive health choices
 - NPH-H.5-8.3 Apply strategies and skills needed to attain personal health goals
 - NPH-H.9-12.3 Demonstrate the ability to utilize various strategies when making decisions related to health needs and risks of young adults.

National Standards for Physical Education 2nd Edition

Standard 1 – Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities

- K-2
 - Expectations - Young children are very active and enjoy learning and mastering new ways to move and be active
 - Outcomes - Shift their weight, discovers how to balance on different body parts

- 3-5
 - Expectations - Older children develop maturity and versatility in the use of fundamental motor skills for more pleasurable movement experiences
 - Outcomes - Demonstrates good posture while lifting and carrying an object. Balances control on a variety of objects.
- 6-8
 - Expectations - Adolescents are able to participate with skill in a variety of modified sport, dance, gymnastics, and outdoor activities.
 - Outcomes - Uses Fisherman's and Figure 8 knots appropriately
- 9-12
 - Expectations - Possess motor skills and movement patterns allowing them to perform a variety of physical activities and to achieve a degree of success that make the activities enjoyable.
 - Outcomes - Navigates a kayak skillfully and safely in calm water using a variety of paddle strokes

Standard 2 – Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.

- K-2
 - Expectations - Young children are rapidly maturing in their basic cognitive abilities
 - Outcomes - Explains that appropriate practice improves performance, states that best effort is shown by trying new or hard tasks
- 3-5
 - Expectations - Older children are able to comprehend more complex concepts and principles and apply them in structured settings
 - Outcomes - Explains how appropriate practice improves performance; identifies physical and psychological benefits that result from long-term participation in physical activity
- 6-8
 - Expectations - Adolescents exhibit an increasingly complex discipline-specific knowledge
 - Outcomes - Describes basic principles of training and how they improve fitness; selects appropriate practice procedures to learn and master skills and movement patterns
- 9-12
 - Expectations - High School students demonstrate knowledge and understanding necessary to develop scientifically based personal activity plans that include selected sports and activities
 - Outcomes - Develops an appropriate conditioning program for self-selected game/activity to engage in for life; explains the impact of participation in selected sports/activities on various components of fitness

Standard 3 – Participates regularly in physical activity.

- K-2
 - Expectations - Young children participate in physical activities largely because of the pleasure they experience
 - Outcomes - Consciously chooses to participate in moderate to vigorous physical activity outside of physical education class on a regular basis; chooses to participate in structured and purposeful activity
- 3-5
 - Expectations - Older children develop an awareness of participation in physical activity as a conscious personal decision, choosing activities for both the enjoyment and the health benefits they derive
 - Outcomes - Consciously chooses to participate in moderate to vigorous physical activity outside of physical education class on a regular basis; chooses to participate in structured and purposeful activity.
- 6-8
 - Expectations - Adolescents are able to independently set physical activity goals and participate in individualized programs of physical activity and exercise based on personal goals and interests as well as on the results of fitness assessments
 - Outcomes - Participates in health-enhancing physical activities both during and outside of school
- 9-12
 - Expectations - High School students fully recognize and understand the significance of physical activity in the maintenance of a healthy lifestyle and possess the skills, knowledge, interest, and desire to maintain an active lifestyle
 - Outcomes - Willingly participates in a variety of physical activities appropriate for maintaining or enhancing a healthy, active lifestyle

Standard 4 – Achieves and maintains a health-enhancing level of physical fitness

- K-2
 - Expectations – Young children engage in a variety of activities that serve to promote health-related physical fitness
 - Outcomes - Engages in a series of locomotor activities without tiring easily
- 3-5
 - Expectations – Older children regularly participate in physical activity for the purpose of improving physical fitness
 - Outcomes – Chooses to participate in sports activities that require high levels of muscular strength; recognizes that physiological responses to exercise are associated with their own levels of fitness
- 6-8
 - Expectations – Adolescents participate in moderate to vigorous physical activities on a regular basis without undue fatigue
 - Outcomes – Demonstrates appropriate training principles and exercise techniques during participation in activities designed to improve physical fitness

- 9-12
 - Expectations – Young adults assume greater self-responsibility in their lives and display greater autonomy in their personal behaviors
 - Outcomes – Demonstrates ability to monitor and adjust a personal fitness program to meet needs and goals

Standard 5 – Exhibits responsible personal and social behavior that respects self and others in physical activity settings

- K-2
 - Expectations – Young children discover the joy of playing with friends and experience how social interaction can make activities more fun
 - Outcomes – Handles equipment safely by putting it away when not in use; uses equipment and space safely and properly
- 3-5
 - Expectations – Older children are active participants and learn to work independently and with small groups, enjoying the diversity of those around them
 - Outcomes – Assesses and takes responsibility for his or her own behavior problems without blaming others; regularly encourages others and refrains from put-down statements
- 6-8
 - Expectations – Adolescents begin to understand the concept of physical activity as a microcosm of modern culture and society
 - Outcomes – Makes responsible decisions about using time, applying rules, and following through with the decisions made; includes concerns for safety of self and others during an orienteering activity
- 9-12
 - Expectations – Young adults demonstrate the ability to initiate responsible personal and social behavior, function independently, and positively influence the behavior of others in a physical activity setting
 - Outcomes – Chooses to participate in an activity because of personal enjoyment rather than only when friends are participating; sets up the safety procedures to guide a class hike over treacherous terrain

Standard 6 – Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction

- K-2
 - Expectations – Young children are the most active segment of our population
 - Outcomes – Willingly tries new movements and skills; identifies several activities that are enjoyable
- 3-5
 - Expectations – Older children can identify activities they consider to be fun
 - Outcomes – Identifies positive feelings associated with participation in physical activities; selects and practices a skill on which improvement is needed

- 6-8
 - Expectations – Adolescents seek physical activity experiences for group membership and positive social interaction
 - Outcomes – Appreciates the aesthetic and creative aspects of skilled performance in others and in self; enjoys becoming more skilled through effort and practice
- 9-12
 - Expectations – High School students are more comfortable with their new interests and their physiques, thus once again enjoying movement for the sheer pleasure of moving
 - Outcomes – Creates self rewards for achieving personal fitness/physical activity goals; reflects on reasons for choosing to participate in selected physical activities

National Agriculture Education Standards

Career Pathway: Natural Resource Systems – study of management of soil, water, wildlife forests, air.

Pathway Content Standard: Student will demonstrate competence in the application of scientific principles and techniques to the management of natural resources

- NRS.02 Apply scientific principles to natural resource management activities
 - NRS.02.05 – Interpret laws related to natural resource management and protection.
 - NRS.02.05.01.a Identify laws associated with natural resource systems (9 - 10 grades)
 - NRS.02.05.01.b Identify the purposes of laws associated with natural resource systems (11-12 grades)
 - NRS.02.05.01.c Abide by specific laws pertaining to natural resource system (13 - 14 grades)
 - NRS.02.05.02.b Identify issues involving mitigation of natural resources (11 - 12 grades)
 - NRS.02.05.02.c Demonstrate mitigation techniques for natural resources (13 - 14 grades)
- NRS.03 Apply knowledge of natural resources to production and processing industries
 - NRS.03.01 Produce, harvest, process and use natural resource products
 - NRS.03.01.08.a Identify recreational uses of natural resources (9 - 10 grades)
 - NRS.03.01.08.c Evaluate a natural resource site and recommend opportunities for recreational activities (13 - 14 grades)
 - NRS.03.01.09.a Identify aquatic species harvested for commercial and recreational purposes (9 - 10 grades)
 - NRS.03.01.09.a Identify aquatic species harvested for commercial and recreational purposes (9 - 10 grades)

- NRS.04 Demonstrate techniques used to protect natural resources
 - NRS.04.02 Diagnose plant and wildlife diseases and follow protocol to prevent their spread
 - NRS.04.02.02.a Identify causes of diseases in wildlife (9 - 10 grades)
 - NRS.04.02.02.b Report the observance of diseases affecting wildlife to the appropriate authorities (11 - 12 grades)
 - NRS.04.02.02.c Explain wildlife disease management techniques (13 - 14 grades)

Framework for 21st Century Learning

Interdisciplinary Themes:

- Global Awareness
 - Using skills to understand and address global issues
 - Learning from and working collaboratively with individuals representing diverse cultures and lifestyles
- Civic Literacy
 - Participating effectively in civic life through knowing how to stay informed and understanding governmental processes
 - Exercising the rights and obligations of citizenship at local, state, and national and global levels
 - Understanding the local and global implications of civic decisions
- Health Literacy
 - Obtaining, interpreting and understanding basic health information and services and using such information and services in ways that enhance health
 - Understanding preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance and stress reduction
 - Using available information to make appropriate health-related decisions
 - Establishing and monitoring personal and family health goals
 - Understanding national and international public health and safety issues
- Environmental Literacy
 - Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water and ecosystems
 - Demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.)

Learning and Innovation Skills:

- Creativity and Innovation
 - Think Creatively
 - Use a wide range of idea creation techniques (such as brainstorming)
 - Create new and worthwhile ideas (both incremental and radical concepts)
 - Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts

- Work Creatively with Others
 - Develop, implement and communicate new ideas to others effectively
 - Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work
 - Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas
 - View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes
 - Critical Thinking and Problem Solving
 - Reason Effectively
 - Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation
 - Use Systems Thinking
 - Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems
 - Make Judgments and Decisions
 - Effectively analyze and evaluate evidence, arguments, claims and beliefs
 - Analyze and evaluate major alternative points of view
 - Synthesize and make connections between information and arguments
 - Interpret information and draw conclusions based on the best analysis
 - Reflect critically on learning experiences and processes
 - Solve Problems
 - Solve different kinds of non-familiar problems in both conventional and innovative ways
 - Identify and ask significant questions that clarify various points of view and lead to better solutions
 - Communication and Collaboration
 - Communicate Clearly
 - Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts
 - Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions
 - Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)
 - Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact
 - Communicate effectively in diverse environments (including multi-lingual)
 - Collaborate with Others
 - Demonstrate ability to work effectively and respectfully with diverse teams
-

- Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal
- Assume shared responsibility for collaborative work, and value the individual contributions made by each team member

Life and Career Skills

- Initiative and Self-Direction
 - Manage Goals and Time
 - Set goals with tangible and intangible success criteria
 - Balance tactical (short-term) and strategic (long-term) goals
 - Utilize time and manage workload efficiently
 - Work Independently
 - Monitor, define, prioritize and complete tasks without direct oversight
 - Be Self-directed Learners
 - Go beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise
 - Demonstrate initiative to advance skill levels towards a professional level
 - Demonstrate commitment to learning as a lifelong process
 - Reflect critically on past experiences in order to inform future progress
- Social and cross-cultural skills
 - Interact Effectively with Others
 - Know when it is appropriate to listen and when to speak
 - Conduct themselves in a respectable, professional manner
 - Work Effectively in Diverse Teams
 - Respect cultural differences and work effectively with people from a range of social and cultural backgrounds
 - Respond open-mindedly to different ideas and values
 - Leverage social and cultural differences to create new ideas and increase both innovation and quality of work
- Leadership and responsibility
 - Guide and Lead Others
 - Use interpersonal and problem-solving skills to influence and guide others toward a goal
 - Leverage strengths of others to accomplish a common goal
 - Inspire others to reach their very best via example and selflessness
 - Demonstrate integrity and ethical behavior in using influence and power
 - Be Responsible to Others
 - Act responsibly with the interests of the larger community in mind

Conservation Education Scope and Sequence Standards

1. Conservation and management of terrestrial and water resources are essential to sustaining fish and wildlife, the outdoor landscape, and the quality of our lives.

- 1.1. The health and well-being of fish, wildlife and humans depend on the quality of their environment.
 - 1.2. All living things depend on habitat that includes adequate supplies and suitably arranged food, water, shelter, and space.
 - 1.3. The “Carrying Capacity” of an area determines the size of the population that can exist or will be tolerated.
 - 1.4. Living things tend to reproduce in numbers greater than their habitat can support. The populations are limited by factors such as quality of food, water, shelter, space, also disease, predation, climatic conditions.
 - 1.5. Fish and wildlife are present in nearly all areas of Earth. Each ecosystem has characteristic species.
 - 1.6. Ecological succession is a process involving continuous replacement of one community by another.
 - 1.7. Species differ in their ability to adapt.
 - 1.8. Conserving biodiversity is important.
 - 1.9. Fish and wildlife can be conserved and restored through science-based management which considers the needs of humans as well as those of fish and wildlife.
2. Students should understand and actively participate in the stewardship and support of our natural resources.
 - 2.1. A person’s culture affects his or her view and use of fish and wildlife and their habitats.
 - 2.2. The distribution and abundance of fish and wildlife provide significant economic benefits.
 - 2.3. Everyone impacts fish and wildlife and their habitats and as human populations grow, impacts on natural resources increase.
 - 2.4. Unlike other organisms, only humans have the capacity and responsibility to consider the effects of their actions on the environment.
3. Students should understand the value of our fish and wildlife resources as a public trust.
 - 3.1. In North America, fish and wildlife are public trust resources managed by governmental agencies.
 - 3.2. Primary responsibility for most fish and wildlife management programs in North American is delegated to governmental agencies.
4. Students should understand and accept and/or lawfully participate in hunting, fishing, trapping, boating, wildlife watching, shooting sports, and other types of resource-related outdoor recreation.
 - 4.1. Regulated hunting, fishing and trapping are important tools for managing some wildlife populations and habitats.
 - 4.2. Fish and wildlife-based resources provide recreational benefits directly to participants and increase advocacy for conservation.

4.3. Responsible users of fish, wildlife and the outdoors respect the rights and property of others.

5. Students should understand the need for, and actively support funding for fish and wildlife conservation.

5.1. Within the United States, state fish and wildlife management is funded through hunting, fishing and trapping licenses and through federal excise taxes collected from the sale of hunting, target shooting and fishing equipment, and motor boat fuels.

Outdoor skills related conservation concepts not included in AFWA standards above

- Understands and actively participates in the stewardship and support of our natural resources.
- A person's culture affects his or her view and use of fish and wildlife and their habitats.
- People use fish and wildlife resources for food, shelter, clothing, and other products; practices that have continued throughout history.
- Fish and wildlife provide a recreational focus for millions of people in North America.
- Wildlife-based activities, such as hunting, fishing, viewing, and photography provide people with millions of days of outdoor recreation each year and generate billions of dollars for the economy.

Appendix B: List of curricula used in the project

Hunting/shooting sports:

- Wisconsin Learning to Hunt Program (state, agency)
- 4-H National Shooting Sports Program (national, 4-H)

Fishing

- Minn-Aqua, Minnesota Department of Natural Resources (state, agency)
- National Flyfishing in the Schools Program (national, NGO)
- Hooked on Fishing – Not on Drugs, Future Fisherman Foundation (national, NGO)
- Explore the Blue, Discovery Education and Recreational Boating and Fishing Foundation (national, NGO)

Archery

- National Archery in the Schools Program (national, NGO)
- Explore Bowhunting, Archery Trade Association (national, NGO)

Canoeing/Kayaking

- Iowa Basic Canoeing/Kayaking, Iowa Department of Natural Resources (state, agency)

Multi-skill

- Outdoor Education Recreation Opportunities (O.R.E.O.), Wyoming Game and Fish Department (state, agency)
- Outdoor Adventures, Dallas Ecological Foundation (local, NGO)

Orienteering

- Orienteering – Central Washington University (local, University)

Appendix C: AFWA Outdoor Participation Benchmarks

		Conservation Benchmarks		
		5th Grade	8th Grade	12th Grade
Concepts of learning that all students should know and be able to do.				
Outdoor recreational pursuits have many benefits and impacts (such as health, economic, ecological, etc.)	Identifies nature-related outdoor recreation opportunities for health, fun, challenge, self expression, and/or social interaction.	Describes the role of nature-related outdoor recreation for health, fun, challenge, self expression, and/or social interaction.	Creates an individual plan for lifelong nature-related outdoor recreation for health, fun, challenge, self expression, and/or social interaction.	
<i>Outdoor Participation</i>	Identifies nature related outdoor activities and their impact on the natural environment.	Describes impacts that nature-related outdoor recreation activities can have on the local natural environment and community.	Calculates the benefits, costs, and obligations associated with regular participation in nature-related outdoor recreation beyond the local level.	
Demonstrate competency in motor skills needed to participate in a variety of nature-related outdoor recreational activities.	Demonstrates mature forms of locomotor and non-locomotor skill combinations used in nature-related outdoor-activities.	Demonstrates competency in modified versions in at least one nature-related activity from three of the following categories: aquatics (water-based activities), shooting/archery, traversing (hiking, tracking, walking, etc.).	Demonstrates competency in basic and advanced skills in at least one nature-related activity from three of the following categories: canoeing, archery, fishing, shooting, tracking, camping, and hiking.	
<i>Outdoor Participation</i>	Participate regularly in nature-related outdoor recreation.	Sets personal nature-related outdoor recreational activity goals independently to meet needs and interests.	Cultivates interest and strengthens desire to independently maintain an active lifestyle in nature-related outdoor activities.	
<i>Outdoor Participation</i>	Exhibit responsible personal and social behavior that respects self and others in nature-related outdoor recreation.	Participates cooperatively in nature-related outdoor activities with persons with diverse abilities and backgrounds.	Initiates responsible behavior, functions independently and responsibly, and positively influences the behavior of others while participating in nature related outdoor activities.	
<i>Outdoor Participation</i>	Understands and follows activity-specific safe practices, rules, procedures and etiquette during nature-related outdoor activities.			

Appendix D: Additions to K-12 Scope and Sequence Standard 4

Standard 4: Students should understand and accept and/or lawfully participate in hunting, fishing, trapping, boating, wildlife watching, shooting sports, and other types of resources-related outdoor recreation.

- 4.1. Regulated hunting, fishing and trapping are important tools for managing some wildlife populations and habitats. *(AFWA 4)*
- 4.2. Fish and wildlife-based resources provide recreational benefits directly to participants and increase advocacy for conservation. *(AFWA 4)*
- 4.3. Responsible users of fish, wildlife and the out of doors respect the rights and property of others. *(AFWA 4)*
- 4.4. Demonstrates competency in motor skills needed to participate in a variety of nature-related outdoor recreational activities. *NEW (NSPE 1, AFWA Outdoor Participation Benchmark)*
- 4.5. Demonstrates understanding of movement concepts, principles, strategies and tactics as they apply to the learning and performance of outdoor recreational activities. *NEW (NSPE 2)*
- 4.6. Participates regularly in nature-related outdoor recreation. *NEW (NSPE 3, AFWA Outdoor Participation Benchmark)*
- 4.7. Responsible users of fish, wildlife and the out-of-doors exhibit responsible personal and social behavior that respects self and others. *NEW (NSPE 5, AFWA Outdoor Participation Benchmark)*
- 4.8. Values outdoor recreation for health, enjoyment, challenge, self-expression, and/or social interaction. *NEW (NASPE 6)*

The following tables are from the K-12 Conservation Education Scope and Sequence, expanded to include outdoor participation.

Standard 4: Themes at a Glance

Descriptor	Key Theme 1	Key Theme 2	Key Theme 3
4.1. Regulated hunting, fishing and trapping are important tools for managing some wildlife populations and habitats. <i>(AFWA 4)</i>	Government	Human Impact	
4.2. Fish and wildlife-based resources provide recreational benefits directly to participants and increase advocacy for conservation. <i>(AFWA 4)</i>	Healthy Living	Use of Resources	Role of Citizens
4.3. Responsible users of fish, wildlife and the out of doors respect the rights and property of others. <i>(AFWA 4)</i>	Safety	Use of Resources	Property Rights
4.4. Demonstrates competency in motor skills needed to participate in a variety of nature-related outdoor recreational activities. <i>(NSPE 1)</i>	Healthy Living	Safety	

Descriptor	Key Theme 1	Key Theme 2	Key Theme 3
4.5. Demonstrates understanding of movement concepts, principles, strategies and tactics as they apply to the learning and performance of outdoor recreational activities. (NSPE 2)	Healthy Living	Safety	
4.6. Participates regularly in nature-related outdoor recreation. (NSPE 3)	Healthy Living	Safety	Use of Resources
4.7. Responsible users of fish, wildlife and the out-of-doors exhibit responsible personal and social behavior that respects self and others. (NSPE 5)	Healthy Living	Safety	Use of Resources
4.8. Values outdoor recreation for health, enjoyment, challenge, self-expression, and/or social interaction. (NASPE 6)	Healthy Living	Safety	Use of Resources

Standard 4 by Theme; Outdoor Skills Participation Added

Theme	Standards
Government	4.1. Regulated hunting, fishing and trapping are important tools for managing some wildlife populations and habitats.
Use of Resources	4.2. Fish and wildlife-based resources provide recreational benefits directly to participants and increase advocacy for conservation. 4.3. Responsible users of fish, wildlife and the out of doors respect the rights and property of others. 4.6. Participates regularly in nature-related outdoor recreation. (NSPE 3) 4.7. Responsible users of fish, wildlife and the out-of-doors exhibit responsible personal and social behavior that respects self and others. (NSPE 5) 4.8. Values outdoor recreation for health, enjoyment, challenge, self-expression, and/or social interaction. (NASPE 6)
Property Rights	4.3. Responsible users of fish, wildlife and the out of doors respect the rights and property of others.
Human Impact	4.1. Regulated hunting, fishing and trapping are important tools for managing some wildlife populations and habitats.
Healthy Living	4.2. Fish and wildlife-based resources provide recreational benefits directly to participants and increase advocacy for conservation. 4.4. Demonstrates competency in motor skills needed to participate in a variety of nature-related outdoor recreational activities. (NSPE 1) 4.5. Demonstrates understanding of movement concepts,

Theme	Standards
	<p>principles, strategies and tactics as they apply to the learning and performance of outdoor recreational activities. (NSPE 2)</p> <p>4.6. Participates regularly in nature-related outdoor recreation. (NSPE 3)</p> <p>4.7. Responsible users of fish, wildlife and the out-of-doors exhibit responsible personal and social behavior that respects self and others. (NSPE 5)</p> <p>4.8. Values outdoor recreation for health, enjoyment, challenge, self-expression, and/or social interaction. (NASPE 6)</p>
Safety	<p>4.3. Responsible users of fish, wildlife and the out of doors respect the rights and property of others.</p> <p>4.4. Demonstrates competency in motor skills needed to participate in a variety of nature-related outdoor recreational activities. (NSPE 1)</p> <p>4.5. Demonstrates understanding of movement concepts, principles, strategies and tactics as they apply to the learning and performance of outdoor recreational activities. (NSPE 2)</p> <p>4.6. Participates regularly in nature-related outdoor recreation. (NSPE 3)</p> <p>4.7. Responsible users of fish, wildlife and the out-of-doors exhibit responsible personal and social behavior that respects self and others. (NSPE 5)</p> <p>4.8. Values outdoor recreation for health, enjoyment, challenge, self-expression, and/or social interaction. (NASPE 6)</p>
Role of Citizens	<p>4.2. Fish and wildlife-based resources provide recreational benefits directly to participants and increase advocacy for conservation.</p>

NOTE: The following tables adapted from the AFWA Scope and Sequence are only partially completed. It is recommended that a team of outdoor skills educators and physical education and health instructors be convened to complete them.

4.4 Demonstrates competency in motor skills needed to participate in a variety of nature-related outdoor recreational activities. (NSPE 1)

Key theme	Grade K-5 Concepts & Indicators	Grades 5-8 Concepts & Indicators	Grades 9-12 Concepts & Indicators
Healthy Living	<ul style="list-style-type: none"> • Students achieve skills in various types of movement and demonstrate smooth transitions between sequential locomotor skills such as smoothly casting a fishing rod, performing paddling strokes. • Students achieve manipulative skills such as hitting targets (casting a fishing lure to a specific location). (NSPE 1) 	<ul style="list-style-type: none"> • Adolescents are able to participate with skill in a variety of outdoor activities. • Adolescents achieve mature manipulative skills such as tying fisherman’s knots. (NSPE 1) 	<ul style="list-style-type: none"> • Students have enough skill and mature movement patterns to achieve a degree of success that makes the activities enjoyable. • Students demonstrate the ability to perform basic and advanced skills and tactics to engage in activities such as navigating a kayak skillfully and safely in calm water using a variety of paddle strokes. (NSPE 1)

4.5 Demonstrates understanding of movement concepts, principles, strategies and tactics as they apply to the learning and performance of outdoor recreational activities. (NSPE 2)

Key themes	Grade K-5 Concepts & Indicators	Grades 5-8 Concepts & Indicators	Grades 9-12 Concepts & Indicators
Healthy Living	<ul style="list-style-type: none"> Students use performance feedback to increase their understanding of a skill as well as to improve performance. Students transfer concepts learned in other skills to perform new skills. <p><i>Indicators:</i></p> <ul style="list-style-type: none"> Identifies and demonstrates the key elements of a proper grip for casting a fishing rod. Identifies psychological benefits that result from long time participation in outdoor recreational activity. 	<ul style="list-style-type: none"> Identify principles of practice and conditioning that enhance movement performance. Know when, why and how to use strategies and tactics. Use internal and external sources to guide and improve performance. <p><i>Indicators:</i></p> <ul style="list-style-type: none"> Detects and corrects errors in personal performance when target archery shooting based on knowledge of results. 	

4.6 Participates regularly in nature-related outdoor recreation. (NSPE 3)

Key themes	Grade K-5 Concepts & Indicators	Grades 5-8 Concepts & Indicators	Grades 9-12 Concepts & Indicators
Healthy Living			
Safety			
Use of Resources			

4.7 Responsible users of fish, wildlife and the out-of-doors exhibit responsible personal and social behavior that respects self and others. (NSPE 5)

Key themes	Grade K-5 Concepts & Indicators	Grades 5-8 Concepts & Indicators	Grades 9-12 Concepts & Indicators
Healthy Living	<ul style="list-style-type: none"> There are rules for some outdoor activities such as fishing. 	<ul style="list-style-type: none"> Rules and regulations for outdoor activities such as fishing are enacted to safeguard the resource while providing outdoor recreational opportunity. 	

Safety			
Use of Resources			

4.8 Values outdoor recreation for health, enjoyment, challenge, self-expression, and/or social interaction. (NASPE 6)

Key themes	Grade K-5 Concepts & Indicators	Grades 5-8 Concepts & Indicators	Grades 9-12 Concepts & Indicators
Healthy Living			
Safety			
Use of Resources			

Academic Concepts used in Outdoor Recreation Participation Scope and Sequence by Themes

(Adapted from AFWA Conservation Education Strategy Scope and Sequence)

Key themes	Grade K-5 Concepts	Grades 5-8 Concepts	Grades 9-12 Concepts
Healthy Living	<ul style="list-style-type: none"> • The activity of the day relates to a healthy lifestyle (AR PEL, p. 17). • There are a variety of outdoor sports and games that promote healthy living (AFWA CE). • Relaxation is important for stable mental and physical health and reduces stress (AFWA CE). • Family members seek opportunities for individual, dual and team participation in outdoor related activities (AFWA CE). • Rules and procedures 	<ul style="list-style-type: none"> • The length and quality of human life are influenced by many factors, including environmental conditions (AAAS1, 6B/5, p. 89). • People in communities seek opportunities for recreational activities in the community that meet the needs of various skill levels and interests (AR PEL 3.6.2). 	<ul style="list-style-type: none"> • Human health and well being depends on access to the outdoors and an environment with sustainable and renewable resources (AFWA CE). • Humans strive to achieve and maintain a health-enhancing level of physical fitness (AR HE 12). • Humans benefit from an understanding of the importance and health benefits of participating in life-time sports and recreation (AR PE 12). • Personal health and fitness plans

Key themes	Grade K-5 Concepts	Grades 5-8 Concepts	Grades 9-12 Concepts
			include potential lifetime activities that promote health related fitness, relieve tension and maintain a healthy weight in school and non-school settings (e.g. hiking, canoeing, archery, shooting sports, fishing) (AR PE 12).
Safety	<ul style="list-style-type: none"> • Safety and security are basic needs of humans. Safety involves freedom from danger, risk, or injury. Security involves feelings of confidence and lack of anxiety and fear. Student understandings include following safety rules for home and school, preventing abuse and neglect, avoiding injury, knowing whom to ask for help, and when and how to say no (NSES, p.139) 	<ul style="list-style-type: none"> • The potential for accidents and the existence of hazards imposes the need for injury prevention. Safe living involves the development and use of safety precautions and the recognition of risk in personal decisions. Injury prevention has personal and social dimensions (NSES, p. 168). 	<ul style="list-style-type: none"> • Hazards and the potential for accidents exist. Regardless of the environment, the possibility of injury, illness, disability, or death may be present. Humans have a variety of mechanisms – sensory, motor, emotional, social, and technological –that can reduce and modify hazards (NSES, p. 197).
Use of Resources	<ul style="list-style-type: none"> • The natural environment provides humans with food, shelter, objects for trade and recreational opportunities (AFWA CE). • 	<ul style="list-style-type: none"> • The pursuit of recreation has influenced the geographic extent, composition, biological diversity, and viability of natural systems (e.g., park development, trail use, off-road vehicles) and called for new laws, regulations, and 	<ul style="list-style-type: none"> • Humans benefit from an understanding of the importance and health benefits of participating in life-time sports and recreation (AR PE 12).

Key themes	Grade K-5 Concepts	Grades 5-8 Concepts	Grades 9-12 Concepts
		<p>policies (CA Sc/SS, p. 102).</p> <ul style="list-style-type: none"> • People in communities seek opportunities for recreational activities in the community that meet the needs of various skill levels and interests (AR PEL). • People can have careers in natural resource related sports and recreation (AR PEL). 	