Washington Office of Superintendent of
PUBLIC INSTRUCTION

Washington State Environmental and Sustainability Literacy Plan: Appendices

2022

WASHINGTON STATE ENVIRONMENTAL AND SUSTAINABILITY LITERACY PLAN: APPENDICES

Version 2.0

2022

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These appendices were assembled to support implementation of the Environmental and Sustainability Literacy Plan.
Many documents are incorporated from a variety of sources. They are used here with permission and gratitude.

APPENDIX A: SELECTED RELEVANT LAWS, STATUTES, RULES, AND REGULATIONS

These laws, statutes, rules, and regulations were selected for relevance to Washington's environmental and sustainability education policy. Therefore, it should not be considered a comprehensive guide.

The focus of this section is on statutes that OSPI implements. However, it does not cover potentially related work in other state agencies.

National Environmental Education Act

The National Environmental Education Act of 1990 requires the Environmental Protection Agency (EPA) to provide national leadership to increase environmental literacy. In addition, EPA established the Office of Environmental Education to implement this program.[1]

Washington State Administrative Codes (WAC) and Revised Codes of Washington (RCW)

These Washington Administrative Codes and Revised Codes of Washington support Environmental and Sustainability Education Learning, Teaching, and Facilities Rules adopted by the State Board of Education.

Washington Administrative Codes (WAC): Education and Educational Facilities

The law governing environmental education in Washington state is WAC 392-410-115[2]

- (6) Pursuant to RCW 28A.230.020 instruction about conservation, natural resources, and the environment shall be provided at all grade levels in an interdisciplinary manner through science, the social studies, the humanities, and other appropriate areas with an emphasis on solving the problems of human adaptation to the environment.

WAC 180-51-068: State subject and credit requirements for high school graduation—Students entering the ninth grade on or after July 1, 2015. [3]

- (17)(a) "Laboratory science" means any instruction that provides opportunities for students to interact directly with the material world, or with data drawn from the material world, using the tools, data collection techniques, models and theories of science. A laboratory science course meeting the requirement of section (3) may include courses conducted in

[1] Full pdf of the Act is available at: https://www.epa.gov/sites/production/files/documents/neea.pdf

[2] Accessed via the Washington State Legislature website https://apps.leg.wa.gov/wac/default.aspx?cite=392-410-115 on 9/4/2020.

[3] https://sbe.wa.gov/sites/default/files/public/documents/BoardMeetings/2014/July/6552rulesAsAdopted.pdf

classroom facilities specially designed for laboratory science, or coursework in traditional classrooms, outdoor spaces, or other settings which accommodate elements of laboratory science as identified in this subsection.

School Construction Assistance Program (SCAP) rules – WAC 392-341 through -347.

- WAC 392-343-019[4] (Exhibit 3B–Area Calculations) Definition—Instructional Space
    - The term "instructional space" means the gross amount of square footage calculated in accordance with the American Institute of Architects, Document D101, The Architectural Area and Volume of Buildings, latest edition, for a school facility utilized by a school district for the purpose of instructing students–Provided, that the following areas shall not be included in any calculation of instructional space:
        1. Exterior covered walkways, cantilevered or supported.
        2. Exterior porches including loading platforms.
        3. Space used by central administrative personnel.
        4. Stadia and grandstands.
        5. Bus garages.
        6. Free-standing warehouse space specifically designed for that purpose.
        7. Portable facilities.
        8. Other square footage not otherwise available or related to direct instruction or instructional support of the education program in the district.
        9. The portion(s) of any space(s) constructed from grants made as a gift to a school district by a private entity or a public entity which:
            - Is dedicated by the written terms of the grant to joint use by the school district for educational purposes and by the general public for community activities for the useful life of the space(s), and
            - The school district board of directors has accepted the gift in accordance with the joint use terms of the grant–Provided, that this exception does not apply to space(s) jointly financed by two or more school districts.
            - Note: Calculate covered play areas as one-half of the gross covered area. Other areas shall be calculated as shown on the area diagram on page 15, Exhibit 3D.
- Related to WAC 392-343-019:
    - The covered-play-at-50% rule isn't mentioned in WAC 392-343-019, but has been in effect as a Standard Financial Operating business practice for 30 years or so. It's an interpretation of Form AIA D-101, which WAC 392-343-019 requires OSPI to use as the basis of Gross Instructional SF calculations. AIA D-101 requires certain unenclosed covered areas to be counted at 50%, and WAC 392-343-019 has some language modifying this requirement. Essentially, those modifications remove from the area calculation any kind of covered outdoor area that wouldn't be used for educational purposes. The kind that are used for educational purposes are usually of the covered play variety, but OSPI also counts other types of covered outdoor learning areas, such as a covered outdoor area adjacent to a shop or maker space that's integral to the learning experience in those spaces. Other permanent learning facilities, such as concrete planters and benches, may also be covered to some percentage.

[4] School Facility Manual, Accessed on August 20, 2020 at http://www.k12.wa.us/SchFacilities/pubdocs/SchoolFacilitiesManual2011.pdf#Chapter3

Revised Codes of Washington (RCW): Education and Educational Facilities

RCW 28A.230.020 Common school curriculum.

> All common schools shall give instruction in reading, handwriting, orthography, written and mental arithmetic, geography, the history of the United States, English grammar, physiology and hygiene with special reference to the effects of alcohol and drug abuse on the human system, **science with special reference to the environment**, and such other studies as may be prescribed by rule of the superintendent of public instruction. All teachers shall stress the importance of the cultivation of manners, the fundamental principles of honesty, honor, industry and economy, the minimum requisites for good health including the beneficial effect of physical exercise and methods to prevent exposure to and transmission of sexually transmitted diseases, **and the worth of kindness to all living creatures and the land**. The prevention of child abuse may be offered as part of the curriculum in the common schools. (*Emphasis added*.)

RCW 28A.335.010 (Safe Schools Design)

RCW 28A.300 During the 2020 session, House Bill (HB) 2811 passed adding a new section to RCW 28A.300 that stated

> "The legislature finds that environmental and sustainability education offers a rich and meaningful context for integrated learning and teaching. The legislature also finds that nonprofit community-based organizations are uniquely positioned to strengthen classroom learning by partnering and collaborating with schools and local employers to offer K–12 educators work-integrated learning experiences that address the Washington state science learning standards including next generation science standards. Close collaboration with educational service district's regional science coordinators can optimize learning by helping align next generation science standards implementation with community-based organization initiatives to ensure all students have access to engaging field experiences allowing them to understand the scientific, social, and economic impacts of healthy community resources such as gardens, watersheds and water systems, energy systems, or forests so they can participate in solutions to problems such as ocean acidification, rural economic development, or ecosystems impacted by megafires."

A second section instructed:

The office of the superintendent of public instruction shall provide state leadership for the integration of environmental and sustainability content with curriculum, instruction, and assessment.

- (2)(a) Subject to funds appropriated for this specific purpose, the office of the superintendent of public instruction shall contract on a competitive basis with a Washington state-based qualified 501(c)(3) nonprofit community-based organization to integrate the state learning standards in English language arts, mathematics, and science with outdoor field studies and project-based and work-based learning opportunities aligned with the environmental, natural resources, and agricultural sectors.
- (b) The selected Washington state nonprofit organization must work collaboratively with the office of the superintendent of public instruction and educational service districts to:

    - (i) Build systemic programming that connects administrators, school boards, and communities to support teacher practice and student opportunities for the strengthened delivery of environmental and sustainability education;
    - (ii) Support K–12 educators to teach students integrated, equitable, locally relevant, real-world environmental science and engineering outdoors, aligned to Washington science and environmental and sustainability education standards, and provide opportunities to engage students in renewable natural resource career awareness; and
    - (iii) Deliver learning materials, opportunities, and resources including, but not limited to:
        - (A) Providing opportunities outside the classroom to connect transdisciplinary content, concepts, and skills in the context of the local community;
        - (B) Encouraging application of critical and creative thinking skills to identify and analyze issues, seek answers, and engineer solutions;
        - (C) Creating community-connected, local opportunities to engage students in stewardship projects that enhance their interest in sustaining the ecosystem and respecting natural resources;
        - (D) Providing work-based learning opportunities for careers in the environmental science and engineering, natural resources, sustainability, renewable energy, agriculture, and outdoor recreation p. 2 EHB 2811.SL 1 sectors and build skills for completion of industry recognized certifications; and
        - (E) Providing models for integrating since time immemorial in teaching materials so that students learn the unique heritage, history, culture, and government of the nearest federally recognized Indian tribe or tribes.
- (c) Priority focus must be given to schools that have been identified for improvement through the Washington school improvement framework and communities historically underserved by science education. These communities can include, but are not limited to, tribal nations including tribal compact schools, migrant students, schools with high free and reduced-price lunch populations, rural and remote schools, students in alternative learning environments, students of color, English language learner students, and students receiving special education services.
- (3) For the purposes of this section, a "qualified 501(c)(3) nonprofit community-based organization" means a nonprofit organization physically located in Washington state that:
    - (a) Has multiple years of experience collaborating with school districts across the state to provide high quality professional development to kindergarten through twelfth grade educators to teach students real-world environmental science and engineering outside the classroom;
    - (b) Whose materials and instructional practices align with Washington's environmental and sustainability learning standards and the Washington state learning standards, including the common core standards for mathematics and English language arts;
    - (c) Whose materials and instructional practices emphasize the next generation science standards to support local, relevant, and field-based learning experiences;
    - (d) Delivers project-based learning materials and resources that incorporate career connections to local businesses and community-based organizations, contain

professional development support for classroom teachers, have measurable assessment objectives, and have demonstrated community support.

Washington's Sustainable School Protocol (WSSP)[5]

Criteria for High-Performance Schools: Designing Schools for Student Success

This criterion is applied to state-funded School Construction Assistance Program projects and skill centers and other major projects that are non-SCAP, state-funded projects, receiving full or partial design or construction funding. Projects receiving state capital funds through the School Construction Assistance Program will apply the version in effect as noted.

The WSSP Manual includes sections for:

- Transportation (including bike and walk to school),
- Stormwater management,
- Outdoor learning spaces,
- School gardens,
- Reducing heat islands,
- Irrigation,
- Waste management,
- Environmentally preferable products,
- Energy efficiency,
- Indoor environmental quality, and
- Project or district long-term operations including
    - Green power and carbon offsets,
    - resource conservation and greenhouse gas reduction,
    - Integrated Pest Management,
    - Wasted food reduction program,
    - Fuel efficient bus and maintenance vehicles,
    - Green cleaning policy and program, and
    - Green Schools.

[5] Washington Sustainable Schools Protocol. 2018 edition. Washington Collaborative for High Performance Schools and Office of Superintendent of Public Instruction. Accessed online in July 2020 at: https://www.k12.wa.us/sites/default/files/public/schfacilities/programs/highperformanceschools/2018wssp.pdf

State Budget Provisos Related to Environmental Education

The following citations from the 2021–2023 Gross Enacted Budget, also known as HB 5092, highlight some legislative priorities.

Teacher Professional Learning (ClimeTime)

This project was nicknamed ClimeTime due to the focus of the Proviso on climate science education. It was funded for $4,000,000 in Fiscal Year (FY) 2018–19, and $6,000,000 in FY 2019–21.

HB 5092 Section 522 (4)(c) $3,000,000 of the general fund—state appropriation for FY 2022 and $3,000,000 of the general fund—state appropriation for FY 2023 are provided solely for the office of the superintendent of public instruction to provide grants to school districts and educational service districts for science teacher training in the next generation science standards including training in the climate science standards. At a minimum, school districts shall ensure that teachers in one grade level in each elementary, middle, and high school participate in this science training. Of the amount appropriated $1,000,000 is provided solely for community-based nonprofits including tribal education organizations to partner with public schools for next generation science standards.

FieldSTEM

HB 5092 Section 522(11)(e), p.431 states: $750,000 of the general fund—state appropriation for FY 2022 and $750,000 of the general fund—state appropriation for FY 2023 are provided solely for the office of the superintendent of public instruction to contract with a qualified 501(c)(3) nonprofit community-based organization physically located in Washington state that has at least 18 years of experience collaborating with the office and school districts statewide to integrate the state learning standards in English language arts, mathematics, and science with FieldSTEM outdoor field studies and project-based and work-based learning opportunities aligned with the environmental, natural resource, and agricultural sectors. The office may require the recipient of these funds to report the impacts of the recipient's efforts in alignment with the measures of the Washington school improvement framework.

Bilingual Environmental Education

HB 5092 Sect 522(17), p.424 states: $500,000 of the general fund—state appropriation for fiscal year 2022 and $500,000 of the general fund—state appropriation for FY 2023 are provided solely for the office of the superintendent of public instruction to contract with a Washington based nonprofit organization to promote equitable access in science, technology, engineering, and math education for historically underserved students and communities. The nonprofit shall provide a system of science educational programming specifically for migrant and bilingual students, including teacher professional development, culturally responsive classroom resources that are aligned with Washington state science and environmental and sustainability learning standards, and implementation support. At least 50 percent of the funding provided in this subsection must serve schools and school districts in eastern Washington. The nonprofit organization must have experience developing and implementing science and environmental science programming and resources for migrant and bilingual students.

Salmon Fry

HB 5092 Sect 522(23), p. 425–26 states: $500,000 of the general fund—state appropriation for FY 2022 and $500,000 of the general fund—state appropriation for FY 2023 are provided solely for the office to contract with an organization that works with educators to secure salmon eggs, offer learning opportunities as the fry develop, and assist when students release their fry into local creeks and lakes. Funding may only be used for new programs located in elementary schools that are eligible for high-poverty allocations from the learning assistance program. Of the amounts provided in this subsection, the office may use no more than $35,000 each fiscal year for office administration costs related to the contract.

ESSER Funds for Outdoor School

HB 5092 Sect 522(33)(m), p. 431 states: $10,000,000 of the elementary and secondary school emergency relief III account—federal appropriation from funds attributable to subsection 2001(b), the American rescue plan act of 2021, P.L. 117-2, is provided solely for the office of the superintendent of public instruction to contract with the Washington school principals' education foundation to support pandemic related learning loss through outdoor learning and overnight camp experiences. The association, in consultation with the office, must provide grants to school districts that partner with an accredited residential outdoor school to provide up to 20,000 fifth and sixth grade students with up to five days of outdoor learning at an overnight camp. Prioritization must be given to schools that have been identified for improvement and students who are most impacted by opportunity gaps as determined by measures of the Washington school improvement framework. Outdoor schools must provide curriculum that is aligned to state learning standards and provide opportunities for accelerated learning, including career connected learning in field based environmental science, technology, engineering, and math. Funds may be used by residential outdoor schools for operational activities necessary for reopening.

ESSER Funds for Environmental and Sustainability Literacy Plan Pilot Schools

Of the ESSER funds allocated to OSPI for learning recovery, $1 million is allocated to support implementation in the 2021–2023 school years.

APPENDIX B: GUIDELINES FOR EXCELLENCE IN ENVIRONMENTAL EDUCATION

Early Childhood Environmental Education Programs: Guidelines for Excellence[6]

Environmental education in early childhood includes knowledge of the natural world, along with emotions, dispositions, and skills.

One: Program philosophy, purpose, and development

1.1 Focus on nature and the environment
1.2 Focus on education of young children
1.3 Culturally appropriate goals, objectives, and practices
1.4 Environmental literacy: board, staff, and providers
1.5 Health and safety
1.6 Ongoing evaluation and assessment
1.7 Partnerships
1.8 Interpersonal and intergenerational relationships

Two: Developmentally appropriate practices

2.1 Based on research and theory
2.2 Authentic experiences
2.3 Child-directed and inquiry-based
2.4 The whole child

Three: Play and Exploration

3.1 Use of the natural world and natural materials
3.2 Play and the role of adults

[6] North American Association for Environmental Education. 2016. *Early Childhood Environmental Education Programs: Guidelines for Excellence*. Accessed online on February 24, 2020 at https://naaee.org/eepro/publication/guidelines-excellence-series-set

Four: Curriculum Framework for Environmental Learning

4.1 Social and emotional growth
4.2 Curiosity and questioning
4.3 Development of environmental understandings
4.4 Skills for understanding the environment
4.5 A personal sense of responsibility and caring
4.6 Physical health and development

Five: Places and spaces

5.1 Spaces and places to enhance development
5.2 Natural components
5.3 Comfortable for both children and adults
5.4 Maintenance and usability
5.5 Health, safety, and risk
5.6 Environmental sustainability

Six: Educator Preparation

6.1 Foundations of early childhood environmental education
6.2 Professional responsibilities of the educator
6.3 Environmental literacy
6.4 Planning and implementing environmental education
6.5 Fostering learning
6.6 Assessment and evaluation

Figure 1 Outdoor time in early childhood provides a myriad of benefits that carry into adulthood

K–12 Environmental Education: Guidelines for Excellence[7]

Teaching from the Guidelines

These Guidelines set benchmarks for what environmentally literate students should know and be able to do by the end of fourth, eighth, and twelfth grades. The following principles, quoted from the Guidelines, should inform environmental education instruction:

- **"The learner is an active participant**. If learning is to become a natural, valued part of life beyond school, **instruction should be guided by the learner's interests and treated as a process of building knowledge and skills** appropriate for their developmental level. Using the guidelines and knowledge of all learners' needs, cultures, and backgrounds, educators ensure that environmental education instruction is equitable, inclusive, and relevant.
- Instruction provides opportunities for all learners to enhance their capacity for **independent thinking and effective, responsible action**. Engaging in individual and group work helps learners develop these capacities independently and in collaborative situations that anticipate the ways in which problem solving happens in the community, on the job, and in the family. A **strong emphasis on developing information gathering, analysis, and communication skills** means that learners will be able to both demonstrate and apply their understandings.
- Because environmental issues can prompt deep feelings and strong opinions, educators must take an **equitable approach to instruction**. Educators incorporate differing perspectives and points of view even-handedly and respectfully, and present information fairly and accurately.
- Environmental literacy depends on a personal commitment to apply skills and knowledge to help ensure environmental quality and human well-being. For most learners, **personal commitment begins with an awareness of their immediate surroundings**. Instructors foster learners' innate curiosity and enthusiasm, providing them with **early and continuing opportunities to explore their community and the environment**. Taking instruction out of the classroom and into the local environment is an important instructional strategy for engaging students in direct discovery of the world around them" (page 15).

[7] North American Association for Environmental Education. 2019. K–12 Environmental Education: Guidelines for Excellence. Accessed online on February 24, 2020 at https://naaee.org/eepro/publication/guidelines-excellence-series-set

These four themes guide instruction of K–12 learners. Proficiency at the 12th grade level indicates environmental literacy.

One: Questioning, Analysis, and Interpretation Skills

Two: Environmental Processes and Systems

2.1 – Earth's physical and living systems
2.2 – Human systems
2.3 – Environment and society

Three: Skills for Understanding and Addressing Environmental Issues

3.1 Skills for analyzing and investigating environmental issues
3.2 Decision-making and action skills

Four: Personal and Civic Responsibility

Examples from Theme Four include that students will:

- Recognize rights and responsibilities—Describe the relationships between exercising their individual rights and responsibilities and addressing environmental, social, and economic sustainability.
- Recognize efficacy and develop agency—Learners exhibit personal agency by working independently and making choices to bring about change in their community that addresses environmental, social, and economic sustainability.
- Accept personal responsibility—Learners evaluate the broad environmental, social, and economic consequences of their actions. They accept responsibility for recognizing those effects and changing their actions when warranted.

Environmental Education Materials: Guidelines for Excellence[8]

The key characteristics of the *Materials Guidelines for Excellence* can help educators, administrators, curriculum designers, or materials developers evaluate the quality of environmental education materials.

One: Fairness and accuracy

1.1 Factual accuracy
1.2 Balanced presentation of differing viewpoints and theories
1.3 Openness to inquiry
1.4 Reflection of diversity

Two: Depth

2.1 Awareness
2.2 Focus on concepts
2.3 Concepts in context
2.4 Attention to different scales

Three: Emphasis on skills building

3.1 Critical and creative thinking
3.2 Applying skills to issues
3.3 Action skills

Four: Action orientation

4.1 Sense of personal stake and responsibility
4.2 Self-efficacy

Five: Instructional soundness

5.1 Learner-centered instruction
5.2 Different ways of learning
5.3 Connection to learners' everyday lives
5.4 Expanded learning environment
5.5 Interdisciplinary
5.6 Goals and objectives
5.7 Appropriateness for specific learning settings
5.8 Assessment

Six: Usability

6.1 Clarity and logic
6.2 Easy to use
6.3 Long-lived
6.4 Adaptable
6.5 Accompanied by instruction and support
6.6 Make substantiated claims
6.7 Fit with national, state, or local requirements

[8] North American Association for Environmental Education. 2009. *Environmental Education Materials: Guidelines for Excellence*. Accessed online on February 24, 2020 at https://naaee.org/eepro/publication/guidelines-excellence-series-set

Professional Development of Environmental Educators: Guidelines for Excellence[9]

The six key characteristics of the guidelines are designed to apply to:

- preservice teacher education programs and environmental education courses offered to students with varied backgrounds
- the professional development of educators in formal and nonformal educational settings
- full-time environmental educators and those for whom environmental education will be among other responsibilities or integrated within the curriculum

One: Environmental Literacy

1.1 Questioning, analysis, and interpretation skills
1.2 Environmental processes and systems
1.3 Skills for understanding and addressing environmental issues
1.4 Personal and civic responsibility

Two: Foundations of Environmental Education

2.1 Fundamental characteristics and goals of environmental education
2.2 How environmental education is implemented
2.3 The evolution of the field

Three: Professional Responsibilities of the Environmental Educator

3.1 Exemplary environmental education practice
3.2 Emphasis on education, not advocacy
3.3 Ongoing learning and professional development

Four: Planning and Implementing Environmental Education

4.1 Knowledge of learners
4.2 Knowledge of instructional methodologies
4.3 Planning for instruction
4.4 Knowledge of environmental education materials and resources
4.5 Technologies that assist learning
4.6 Settings for instruction
4.7 Curriculum planning

Five: Fostering Learning and Promoting Inclusivity

5.1 A climate for learning about and exploring the environment
5.2 An inclusive and collaborative learning environment
5.3 Flexible and responsive instruction

Six: Assessment and Evaluation

6.1 Learner outcomes
6.2 Assessment that is part of instruction
6.3 Improving instruction
6.4 Evaluating programs

[9] North American Association for Environmental Education. 2019. *Professional Development of Environmental Educators: Guidelines for Excellence.* Accessed online on February 24, 2020 at https://naaee.org/eepro/publication/guidelines-excellence-series-set

Nonformal Environmental Education Programs: Guidelines for Excellence[10]

The six key characteristics of the guidelines can "offer a way of judging the relative merit of different [nonformal environmental education] programs, a standard to aim for in developing new programs, and a set of ideas about what a well-rounded nonformal environmental education program might be like."

One: Needs Assessment

1.1 Environmental issue or condition
1.2 Inventory of existing programs and materials
1.3 Audience needs

Two: Organizational Needs and Capacities

2.1 Consistent with organizational priorities
2.2 Organization's need for the program identified
2.3 Organization's existing resources inventoried.

Three: Program Scope and Structure

3.1 Goals and objectives for the program
3.2 Fit with goals and objectives of environmental education
3.3 Program format and delivery; and
3.4 Partnerships and collaboration.

Four: Program Delivery Resources

4.1 Assessment of resource needs
4.2 Quality instructional staff
4.3 Facilities management
4.4 Provision of support materials
4.5 Emergency planning.

Five: Program Quality and Appropriateness

5.1 Quality instructional materials and techniques
5.2 Field testing
5.3 Promotion, marketing, and dissemination
5.4 Sustainability.

Six: Evaluation

6.1 Determination of evaluation strategies
6.2 Effective evaluation techniques and criteria
6.3 Use of evaluation results

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[10] North American Association for Environmental Education. 2009. *Nonformal Environmental Education Programs: Guidelines for Excellence*. Accessed online on February 24, 2020 at https://naaee.org/eepro/publication/guidelines-excellence-series-set

Community Engagement: Guidelines for Excellence[11]

For those involved in community partnerships for environmental education, it is important to keep in mind the NAAEE Community Engagement Guidelines, and the five key characteristics of environmental education that successfully engage communities.

One: Community Centered

Anchoring environmental aims within the context of community interests, issues, and capacities puts the community at the heart of environmental education.

Two: Based on Sound Environmental Education Principles

Environmental education engages communities in ways that rely on established principles and proven practices of the field.

Three: Collaborative and Inclusive

Environmental Education works in collaborative and inclusive relationships, partnerships, and coalitions.

Four: Oriented Toward Capacity Building and Civic Action

Environmental education supports capacity building for ongoing civic engagement in community life, contributing to long-term community well-being, sustainability, and resilience.

Five: A Long-Term Investment in Change

Working in communities to create change is typically a long-term initiative, requiring a commitment to relationship building and an ongoing and evolving process of engagement.

[11] North American Association for Environmental Education. 2017. *Community Engagement: Guidelines for Excellence*. Accessed online on February 24, 2020 at https://naaee.org/eepro/publication/guidelines-excellence-series-set

APPENDIX C: LEARNING RESOURCES

A selection of Washington curriculum and place-based learning resource suggestions.

State Government

- Open Education Resources Commons – Washington Hub (OSPI)
    - ClimeTime
    - Pacific Education Institute: FieldSTEM
    - Science Hub
    - Distance Learning Resources
- Since Time Immemorial Tribal Sovereignty Curriculum (OSPI)
- Green Chemistry (Department of Ecology)
- Padilla Bay Research Reserve (Department of Ecology)

University of Washington

- Learning in Places project (National Science Foundation/NSF)
- STEM Teaching Tools (LIFE Center)
- Mathematics, Engineering, Science Achievement (MESA)

Washington State University

- Culturally Responsive Indigenous Science project (NSF)
- Extension Programs

Community-Based Organizations

- County Conservation Districts
- E3 Washington
- Future Farmers of America
- GRuB
- IslandWood
- Pacific Education Institute
- Pacific Science Center
- Mt. Rainier Institute
- Mt. St. Helens Institute
- Museum of Flight
- NatureBridge
- North Cascades Institute
- RE Sources
- SeaDoc Society
- Tilth Alliance
- Washington Green Schools
- Woodland Park Zoo
- Washington State LASER
- Association of Washington State Principals: Cispus and Chewelah Peak Learning Centers
- Washington Nature Preschool Association
- Washington Science Teachers Association

Green Schools Programs and Resources

- Eco-Schools USA (National Wildlife Federation)
- EcoSchools! (Project Learning Tree – Pacific Education Institute is Washington state affiliate)
- Green Strides (US Department of Education and US Green Building Council Collaborative website)
- Green Schools National Network
- King County Green Schools (King County)
- Pacific Education Institute (Statewide ESE provider)
- Earth Gen (formerly Washington Green Schools (Statewide Community Based Organization)

Natural Play Areas Programs and Resources

- Green Schoolyards America
- Children and Nature Network (See Reports, Infographics)

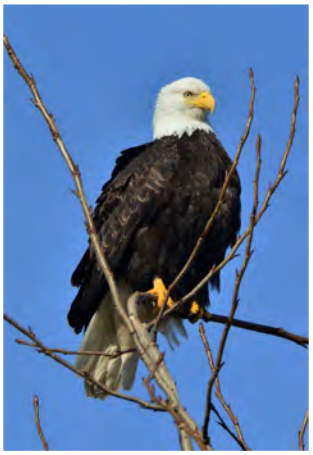
National

- Aspen Institute: K–12 Climate Action Plan 2021
- Association for Learning Environments
- BEETLES Project: Infusing outdoor science programs with research-based approaches and tools to improve science teaching and learning
- Children and Nature Network
- Cloud Institute: Education for Sustainability Standards and Performance Indicators
- North American Association for Environmental Education
    - *Guidelines for Excellence*
    - eePRO
- Project Flying WILD (Washington state affiliate is Pacific Education Institute)
- Project Learning Tree (Washington state affiliate is Pacific Education Institute)
- Project WET (Washington state affiliate is Franklin Conservation District)
- Project WILD and Project WILD: Aquatic (Washington state affiliate is Pacific Education Institute)
- Public Lands: National Forests, Parks, Wildlife Refuges, Monuments

International

- United Nations Educational, Scientific and Cultural Organization: Sustainable Development Goals – Resources for Educators

APPENDIX D: INTASC COMPETENCIES[12] RELATED TO ENVIRONMENTAL AND SUSTAINABILITY LITERACY



The Professional Educator Standards Boards adopted the InTASC standards for residency teachers in 2018. These standards, developed by the Council of Chief State School Officers, were released in April 2011. The following competencies for pre-service teachers provide benchmarks that could be used in teacher preparation programs as a theme for learning and teaching in our education colleges.

InTASC Competencies Related to Environmental and Sustainability Literacy
4(o) The teacher realizes that content knowledge is not a fixed body of facts but is complex, culturally situated, and ever evolving. S/he keeps abreast of new ideas and understandings in the field.
4(p) The teacher appreciates multiple perspectives within the discipline and facilitates learners' critical analysis of these perspectives.
5(a) The teacher develops and implements projects that guide learners in analyzing the complexities of an issue or question using perspectives from varied disciplines and cross-disciplinary skills (e.g., a water quality study that draws upon biology and chemistry to look at factual information and social studies to examine policy implications).
5(b) The teacher engages learners in applying content knowledge to real world problems through the lens of interdisciplinary themes (e.g., financial literacy, environmental literacy).
5(d) The teacher engages learners in questioning and challenging assumptions and approaches in order to foster innovation and problem solving in local and global contexts.
5(f) The teacher engages learners in generating and evaluating new ideas and novel approaches, seeking inventive solutions to problems, and developing original work.
5(g) The teacher facilitates learners' ability to develop diverse social and cultural perspectives that expand their understanding of local and global issues and create novel approaches to solving problems.
5(j) The teacher understands how current interdisciplinary themes (e.g., civic literacy, health literacy, global awareness) connect to the core subjects and knows how to weave those themes into meaningful learning experiences.

[12] Accessed online May 2020 at https://ccsso.org/resource-library/intasc-model-core-teaching-standards-and-learning-progressions-teachers-10

Professional Educator Standards Board

Environment and Sustainability Education – Specialty Endorsement – Endorsement Competencies

Note: Candidates can only add this specialty endorsement to an existing teaching certificate (WAC 181-82A-207).

1.0 Environmental and Sustainability Education Content

Teachers know and critically analyze the historical development, purposes, interdisciplinary nature, defining characteristics, and guiding principles of environmental and sustainability education. As a result, candidates will provide evidence to demonstrate an understanding of:

- 1.A The ecological, economic, and social dimensions of sustainability.
- 1.B The interconnectedness of and significant changes occurring within and among local to global ecological, economic, and social systems.
- 1.C How culture influences people's interactions with the natural and built (human constructed) environment.
    - 1.C.1 Environmental justice, including the causes of inequitable distribution of resources and impacts over time.
    - 1.C.2 The various ways humans perceive, learn, and live in the environment, including those of the Indigenous peoples of our region.
    - 1.C.3 The role of media and technology on environmental and sustainability issues and actions.
- 1.D How to evaluate a variety of natural and human systems for sustainability.
    - 1.D.1 The basic principles and tools of various systems thinking methodologies including ecological and organizational models as they apply to environmental and sustainability education.
    - 1.D.2 Interdisciplinary inquiry methods appropriate for investigating environmental and sustainability issues.
    - 1.D.3 How they are connected to the communities in which they live (place-based learning). They employ geographic understanding to describe and analyze ecological, economic, social, and historical relationships.
- 1.E The need for action on specific environmental and sustainability issues. They identify and facilitate action projects and evaluate potential outcomes of those action projects.
- 1.F How environmental and sustainability related policies are developed, implemented and interrelated.
    - 1.F.1 How local, national, and international cooperation is necessary to address environmental and sustainability issues.
- 1.G Current and emerging career paths in environmental and sustainability fields.

2.0 Environmental and Sustainability Education Instructional Methodology

Teachers use the unique features of environmental and sustainability education in the design and enrichment of curricula and school programs. They teach and assess environmental and sustainability curricula and create stimulating and motivating learning environments. As a result, candidates will provide evidence to demonstrate an ability to:

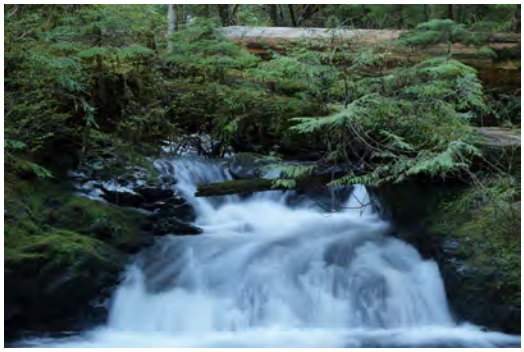
- 2.A Align environmental and sustainability curriculum and instruction with district, state, and national standards.
- 2.B Integrate environmental and sustainability education with standards-based curricula and school programs.
- 2.C Develop and implement curricula, including projects, which are relevant to students' lives and others within local and global communities.
- 2.D Employ effective strategies for environmental and sustainability education inside and outside the classroom.
    - 2.D.1 Teach a variety of inquiry methodologies including place-based learning, field investigation, and action research.
    - 2.D.2 Teach the use of graphs and models to represent data and communicate results of environmental and sustainability investigations.
    - 2.D.3 Teach the basic principles and tools of systems thinking for learning about environmental and sustainability issues.
    - 2.D.4 Use community resources to promote student learning about environmental and sustainability issues.
    - 2.D.5 Facilitate students' acquisition of media literacy to access, analyze, and create messages in a variety of forms.
    - 2.D.6 Create a supportive environment where students are comfortable discussing and debating issues.
    - 2.D.7 Use effective strategies for conducting investigations that are safe and environmentally sound.
    - 2.D.8 Use a variety of formative and summative assessment tools appropriate for environmental and sustainability education.
- 2.E Facilitate students' effective civic engagement for sustainable communities.

3.0 Environmental and Sustainability Education Professional Competencies

Teachers belong and contribute to the environmental and sustainability education professional community and understand that professional development is a life-long endeavor. As a result, candidates provide evidence that they:

- 3.A Identify the benefits and recognize the importance of belonging to a professional community engaged in environmental and sustainability education.
- 3.B Engage in professional development and/or leadership opportunities related to environmental and sustainability education.
- 3.C Provide accurate, balanced, and effective environmental and sustainability education instruction.
    - 3.C.1 Critically analyze the theories and current research in environmental and sustainability education.
- 3D Are able to articulate a rationale for environmental and sustainability education and reflect upon their role in the ongoing development of the field.

APPENDIX E: WASHINGTON COLLEGES AND UNIVERSITIES OFFERING ENVIRONMENTAL SCIENCE OR ENVIRONMENTAL AND SUSTAINABILITY EDUCATION DEGREES[13]



1. University of Washington Seattle (36 environmental programs)
2. Washington State University (7 environmental programs)
3. University of Washington Bothell (4 environmental programs)
4. Eastern Washington University (2 environmental programs)
5. Western Washington University (8 environmental programs*)
6. Antioch University Seattle (1 environmental program*)
7. Gonzaga University (2 environmental programs)
8. Seattle University (4 environmental programs)
9. Seattle Pacific University (1 environmental program)
10. Northwest University (2 environmental programs)
11. University of Washington Tacoma (4 environmental programs)
12. City University of Seattle (1 environmental program)
13. Central Washington University (7 environmental programs*)
14. The Evergreen State College (1 environmental program)
15. Whitman College (2 environmental programs)
16. Pacific Lutheran University (1 environmental program)
17. Walla Walla University (3 environmental programs)
18. Heritage University (1 environmental program)
19. Spokane Community College (3 environmental programs)
20. Clover Park Community College (1 environmental program)
21. Northwest Indian College (2 environmental programs)
22. Green River College (3 environmental programs)
23. Skagit Valley College (7 environmental programs)
24. Cascadia College (1 environmental program)
25. Lower Columbia College (1 environmental program)

*Offers an Environmental Education program

[13] Accessed online September 1, 2020 at https://environmental-colleges.com/environmental-science/washington

APPENDIX F: BUILDING COMMUNITY PARTNERSHIPS IN WASHINGTON

Washington is fortunate to have numerous community partners who support environmental and sustainability learning in the PreK–12 arena. From businesses and industries interested in sustainability to community-based organizations focused on social, ecological, and economic health, these community partners are a critical element in supporting the PreK–12 system. Nurturing these connections and helping partners connect with schools, teachers, and students in mutually beneficial ways is an essential strategy of this plan.

Informal Environmental Education refers to learning opportunities occurring outside of the classroom or standardized school curriculum, taking place in a variety of settings, such as parks, nature centers, museums, or on farms, and at any time. Informal environmental education does not set learning outcomes for students' time. In contrast, credentialed teachers provide formal education and clear learning outcomes during the school day. Nonformal Environmental Educator refers to organizations that provide learning opportunities (often in partnership with formal education) with defined environmental and sustainability learning outcomes.

While community partners and informal educators play a broad role in providing education opportunities to learners of all ages outside of the school day, there are an increasing number of programs offered during the school day, both inside and outside of traditional settings. These programs require collaboration and coordination between schools and community partners but may or may not be aligned with formal teaching standards.

There are opportunities to improve access to environmental education across the state, within specific regions, and for learners from diverse backgrounds and abilities through building partnerships and taking advantage of existing programs.

However, if you encounter a barrier, such as a lack of access to a resource, we encourage you to get creative! Think about how schools can partner with community members or community-based organizations to support more culturally responsive, or even culturally sustaining, pedagogy. Where are the experts in your region or nearby? If you are uncertain, you can contact the OSPI environmental and sustainability education program supervisor for support.

- Environmental and Sustainability Literacy Plan Goal 2 focuses on preparation and professional learning for formal and informal education providers. *The Guidelines for Excellence: Preparation and Professional Development of Environmental Educators* offer benchmarks for best practices in training environmental educators (for formal or informal learning settings), while the *K–12 Environmental Education Guidelines for Excellence:* highlight what learners should know and be able to do by the end of various grade bands, with an emphasis on developmental appropriateness.
- Informal and nonformal educators/programs/organizations that align to the *Guidelines for Excellence* will find that they are better prepared to support learning in a formal classroom environment. Crosswalks are available on the North American Association for Environmental Education website that connects the *K–12 Environmental Education Guidelines for*

Excellence: to the Next Generation Science Standards and the Common Core State Standards.

- Informal and nonformal education programs that are interested in building partnerships with schools might consider contacting the school principal, school district curriculum director, or director of learning and teaching at the school district of interest. At the regional level, educational service districts have regional science coordinators, STEM coordinators, and other positions that can support you in making connections to school districts. In addition, educational service districts may also be willing to support your efforts to deliver quality environmental education professional development through the online system, PD Enroller.
- The Pacific Education institute's FieldSTEM model has regional coordinators that work with local environmental education organizations and school districts to build systemic ESE programming PreK–12 by partnering local organizations to grade levels. Hence, each grade level has field-based experience aligned to the grade-level learning goals as part of the district scope and sequence for all students. Begin by building relationships with potential partners, identifying your common interests, and demonstrating how you can help support and meet the identified needs of schools and districts.
- If you are interested in building relationships with your neighboring tribal nations, please refer to the guidelines provided by OSPI's Office of Native Education on the Since Time Immemorial website: https://www.k12.wa.us/student-success/resources-subject-area/time-immemorial-tribal-sovereignty-washington-state/partnering-tribes.

Community Connections and Informal Learning

This Plan provides guidance to both districts and community partners on building capacity towards improving the quality, relevance, and equity of in-school and out-of-school programs and bridging the gap between formal, nonformal, and informal learning (collaboration between formal, nonformal, and informal educators).

Goal 3 focuses on the importance of encouraging collaborative partnerships and capacity building:

- Support E3 to provide resources and tools to incentivize collaborations among diverse stakeholders (informal educators, agencies, etc.) at the regional level as a forum for professional development activities, knowledge, and resource sharing, creating integrated learning pathways, and responding to regional goals.
- Develop guidelines for school/community partnerships at the district and cross-district levels. What are the pathways to the alliance? What is the process for evaluating new and existing programs? How can schools take a lead role in forming and formalizing these partnerships?
- Support development of regional program directories based on local needs along with a regional coordinator to provide guidance to teachers and educators on program selection and evaluation.
- Encourage partnerships with organizations that can provide guidance on reaching underserved communities.

- Develop a framework for evaluating program distribution across schools and districts in order to identify assets, address gaps and increase equity. Share data with community partners to inform and stimulate program development.
- Encourage data sharing between schools and community partners to aid individual program development, curriculum alignment, coordinating learning pathways, equitable program distribution, and addressing inequities.
- Asset-based community development - a tool to identify diverse stakeholder inclusion in building programs.

Goal 4 discusses the importance of providing informal educators with professional development (and credentialing) for curriculum alignment and best practices.

Adult Learning

Environmental and sustainability literacy does not end at 12th grade. Existing ecological and sustainability literacy opportunities in our state are available through community colleges, government programs, community-based environmental and sustainability organizations, and universities (e.g., WSU Extension, AmeriCorps, EarthCorps, and SeniorCorps).

Adults play an important role in developing and supporting environmental and sustainability literacy in the PreK–12 system. For example, adults can serve as tutors, role models, and mentors for PreK–12 students. An incredibly effective strategy for engaging students from diverse backgrounds is to have adult role models from the same ethnic group as the students they are serving.

Connections Between K–12 Schools and Colleges

- Community connections can support career development pathways through career and technical education.
    - Businesses or industries can connect with the CTE office in your district(s). If you are unsure how to find your local CTE contact, email the Environmental and Sustainability Education program supervisor at OSPI with a request.
    - Community-based organizations can reach out to businesses to build connections with the industry. For example, the Pacific Education Institute's FieldSTEM model engages community-based organizations and local natural resource industries to help learners understand pathways to green careers.
- Civic Engagement - Environmental literacy requires that individuals take personal and community responsibility for environmental sustainability. Please see the *K–12 Guidelines for Excellence in Environmental Education* (Appendix B) and Washington State social studies standards for more detail.

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All students prepared for post-secondary pathways, careers, and civic engagement.

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