

Pennsylvania Environmental Literacy Plan (ELP)

The Pennsylvania Advisory Council represents all of the state's environmental agencies, organizations and associations. For this initiative, vital partners were invited to participate in the development of the state's Environmental Literacy Plan (ELP).

The ELP PA examines eight areas of magnitude for both formal and non-formal educators in the areas of environmental education. Those include:

- A. School System (state regulations and laws pertaining to formal education)
- B. Life-Long Learners (meaningful learners and civic engagement)
- C. Sustainable Practices, Healthy Living and the Environment
- D. Funding and Implementation
- E. Partnerships
- F. Early Childhood Education
- G. Pre-Service Education
- H. Professional Development (formal and non-formal)

Each of these areas is directly connected to the four goals and their associated outcomes and strategies as outlined in the interdependent actions the Mid-Atlantic education community developed as the Mid-Atlantic Elementary and Secondary Environmental Literacy Plan. Those goals and outcomes include:

1. Goal 1: Every student in the region graduates with the knowledge and skills to make informed environmental decisions.
2. Goal 2: All educators in the region, responsible for instruction about or in the environment, have access to sustained professional development opportunities, tools, and resources that support their efforts to provide students with high-quality environmental education.
3. Goal 3: Every school in the region maintains its buildings, grounds and operations to support sustainable environmental and human health outcomes.
4. Goal 4: The education community in the region functions in a unified manner and coordinates with key national, regional, and state programs to represent the full suite of information and opportunities available for PK-12 and other audiences.

For each of the eight areas of the state's Environmental Literacy Plan, a listing of recommendations, action steps and suggested providers has been created. Each recommendation addresses a very specific topic and the steps necessary to meet the recommendations focusing on both formal and non-formal education. The council has also identified multiple partners/stakeholders who we felt would hold the primary responsibility in ensuring that actions would be taken to meet the recommendations. They each cross disciplines and sectors at the local, state, regional and federal levels.

An appendix appears at the end of the document outlining the types of community and professional organizations which may be able to assist in carrying out the intention of the following ELP.

A. School System (state regulations and laws pertaining to formal education)

Pennsylvania’s Chapter 4 Curriculum and Assessment regulations outline what must be taught in the public and charter schools in the commonwealth. Pennsylvania has a separate set of Environment and Ecology academic standards that must be taught at the primary, intermediate, middle and high school levels. At both the primary and intermediate levels, environment and ecology must be taught to every student, every year in a planned unit of study. At the middle and high schools levels every student must have a planned course of study at least one in each of these levels. To assure content knowledge associated with the environment and ecology standards, students will be tested through the mandated Science & Technology & Engineering standard as well as the Environment and Ecology PA System of School Assessment (PSSA) test and the Biology Keystone exam. The three recommendations for this area are driven by the regulations and laws that govern the schools.

The area of “School System” relates to the following Mid-Atlantic Goals and Outcomes:

Mid-Atlantic Goal 1: Every student in the region graduates with the knowledge and skills to make informed environmental decisions, Outcomes 1.1, 1.2, 1.3, 1.4 write out all of the outcome statements.

Mid-Atlantic Goal 2: All educators in the region responsible for instruction about or in the environment are provided with sustained professional development, tools, and resources that support their role in providing students with high quality environmental education, Outcome 2.1.

Recommendations	Action Steps	Providers
<p>Recommendation 1 – Use of the K-12 mandated Environment and Ecology Standards (Science and Technology and Engineering Education standards) as the educational framework as well as the PA “Common Core” for language arts and math.</p>	<p>1. Ensure that school districts are meeting the Chapter 4 curriculum requirements that address required content standards to be taught at the primary, intermediate, middle and high school levels.</p> <p>2. Correlate curriculum work in environment and</p>	<p>PA Department of Education (PDE), U.S. Department of Education (as appropriate)</p> <p>PDE, individual school districts,</p>

	<p>ecology to the state common core standards and encourage the use of the national science framework.</p> <p>3. Formative assessment reflects achievement at each grade level to proficiency in relationship to all standard areas in Chapter 4 including environment and ecology.</p> <p>4. In addition to the opportunities that exist within the school system to meet these standards attention will be given to partnering with outside entities to provide initial and additional experiences for students to address the environment and ecology standards.</p>	<p>environmental partners at the local, state, regional and federal levels, STEM groups, PA Association of Environmental Educators (PAEE), professional organizations</p> <p>Individual school districts, environmental partners at the local, state, regional and federal levels</p>
<p>Recommendation 2 – Using Standards Aligned System (SAS) [and Keystone Anchors] to promote all aspects of student achievement through standards, curriculum framework, assessment, materials, resources, instruction and safe and supportive schools.</p>	<p>Identify how the SAS and Keystone Anchors can be used for the implementation of the Environment and Ecology standards through the following:</p> <ol style="list-style-type: none"> 1. School district curriculum development. 2. Development of formative assessments for classroom use. 3. Incorporate strategies that would ensure student success on the mandatory PSSA tests for Science and Technology and Engineering, and Environment and Ecology. 4. Identify strategies for success on the Biology Keystone exam to graduate. 5. Identify instructional 	<p>PDE</p> <p>Individual school districts, charter schools and private schools</p> <p>Environmental federal and state agencies, conservation organizations, associations, environmental/science centers and museums</p>

	<p>strategies for differentiated learning.</p> <p>6. Identify, evaluate and implement lesson and unit plans housed on the SAS.</p>	
<p>Recommendation 3 – Use meaningful outdoor experiences to teach real world solutions to local, state and national environmental issues as required by the Environment and Ecology Standards.</p>	<p>1. Utilize environmentally-oriented service learning and citizen science projects throughout the K-12 continuum to solidify students’ environmental literacy.</p> <p>2. Work to encourage environmental related after-school and summer enrichment programs for students.</p> <p>3. Promote the use of real world environmental concerns to meet the graduation project requirements.</p> <p>4. Incorporate meaningful outdoor experiences at the primary, intermediate, middle and high school levels.</p>	<p>Individual school districts, community organizations, environmental partners at the federal, state, regional and local levels</p> <p>Individual school districts, charter schools and private schools, community organizations, Environmental partners at the federal, state, regional and local levels</p> <p>Individual school districts, charter schools and private schools</p> <p>Individual school districts, charter schools and private schools, community organizations, environmental partners at the federal, state, regional and local levels</p>

B. Life-Long Learners

A *meaningful learner* is engaged in comprehensive experiences that explore concepts and issues resulting in increased environmental literacy. This is achieved through the integration of project-based activities that enhance problem solving and critical thinking skills motivating personal and civic responsibility. Civic engagement is an essential principle of all environmental programs. Students learn that individuals working alone or together can make a change in their community. The environmental program helps them develop the combination of knowledge, skills, values and motivation to make that difference.

Civic engagement is promoting the quality of life in a community using both political and non-political processes. The students plan individual or collective actions that are designed to identify and address issues of public concern. They become pro-active members of their community who understand the importance of caring for the earth's limited resources. They are able to use civic actions to accomplish their goals.

The area of "Life-Long Learners" relates to the following Mid-Atlantic Goal and outcomes:

Mid-Atlantic Goal 1: Every student in the region graduates with the knowledge and skills to make informed environmental decisions, Outcomes 1.1, 1.2, 1.3, 1.4.

Recommendations	Action Steps	Providers
<p>Recommendation 1 – Provide learners with experiences that address environment and ecology concepts and real world issues at the local, state, and national levels.</p>	<ol style="list-style-type: none"> 1. Involve learners in experiences that are place-based, STEM, hands-on, project-based, service learning and/or citizen action. 2. Provide opportunities for learners to review all available information on local environmental issues, to deliberate, to share in the decision-making process and to practice personal and civic action. 3. Provide experiences that empower learners and encourage individual voice. 	<p>School districts, higher education facilities, conservation districts, Penn State Cooperative Extension, environmental non-profit organizations, informal education providers, governmental agencies (local, regional, state and federal), STEM groups, businesses, industries, parks and recreation programs and/or families.</p>

<p>Recommendation 2 – Learners will have opportunities for skill development in order to enhance environmental stewardship and civic engagement.</p>	<p>1. Deliver indoor and outdoor learning experiences to enhance problem solving and critical thinking skills to understand and address local, state and relevant national environmental issues.</p> <p>2. Offer professional development experiences for civic leaders that highlight environmental concepts enabling them to engage their constituents in broad-based local, state and national decision-making.</p>	<p>School districts, higher education facilities, conservation districts, Penn State cooperative extension, environmental non-profit organizations, informal education providers, governmental agencies (local, regional, state federal), businesses, industries, parks and recreation programs and/or families.</p>
<p>Recommendation 3 – Civic engagement provides the learner the opportunities to understand and recognize that for communities to exist there needs to be rules, regulations and guidelines which directly affect the environment with citizens having roles and responsibilities.</p>	<p>1. Provide opportunities to understand how local, state, and federal environmental laws and regulations affect individuals and communities.</p> <p>2. Provide opportunities for individuals to understand their role in establishing, changing and/or supporting laws, regulations, etc.</p> <p>3. Provide opportunities that empower individuals to take conservation action within their homes and communities.</p>	<p>Public officials, school districts, higher education facilities, conservation districts, Penn State Cooperative Extension, environmental and other non-profits, informal education providers, governmental agencies, businesses, industries, and/or families.</p>
<p>Recommendation 4 – Provide learners with mentorship opportunities.</p>	<p>1. Utilize a train-the-trainer model using students, volunteers, civic leaders and/or business professionals and others to serve as the basis for providing environmental experiences that reach multiple audiences and provide real-world relevance to learn about environmental careers.</p>	<p>School districts, higher education facilities, conservation districts, cooperative extensions, environmental non-profits, informal education providers, governmental agencies, businesses, industries, and/or families.</p>
<p>Recommendation 5 –</p>	<p>1. Engage diverse</p>	<p>School districts, higher</p>

Provide environmental learning opportunities to a diverse population.	communities so that stakeholders have equal access to environmental education.	education, conservation districts, environmental non-profits, governmental agencies, businesses, industries, Penn State Cooperative Extension and/or families.
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C. Sustainable Practices, Healthy Living and the Environment

A healthy environment goes beyond the walls of a school building to providing outdoor learning experiences for students but also looks at what can be done in a community to provide for a healthy lifestyle that will have a positive impact on the environment. Many avenues are addressed through the use of physical activities, gardening, composting, energy efficiency, green initiatives and healthy life choices.

As schools move toward a more sustainable environment their curriculum most reflect not only the green content but also having students use both the indoor outdoor environments as learning opportunities. As new technologies become part of the school buildings and grounds every effort must be made to have the students use these technologies as teaching tools dealing with real-life solutions to a changing world.

The area of “Sustainable Practices, Healthy Living and the Environment” relates to the following Mid-Atlantic Goal and Outcomes:

Mid-Atlantic Goal 3: Every school in the region maintains its buildings, grounds, and operations to support sustainable environmental and human health outcomes, Outcomes 3.1, 3.2

Recommendations	Action Steps	Providers
<p>Recommendation 1 – School buildings, grounds and operations are models of sustainability for the community, making continual progress towards net-zero environmental impacts, including air quality, waste management, composting, wildlife habitat and water resources and management. (Goal 3, Outcome 3.2 Mid-Atlantic Literacy Plan)</p>	<p>1. Enhance students’ ability to learn by providing an environment with natural light, high indoor air quality, good acoustics, good nutrition, and other sustainable practices.</p> <p>2. Incorporate environment and ecology lessons throughout the curriculum using the building as a tool for illustrating how man-made environments interact</p>	<p>PDE, schools (public/private), DEP, DCNR, community leaders sustainable businesses contractors/architects, DOH, county and local health departments, Department of Transportation (PennDot), Pathways for Green Schools, green building councils</p>

	with natural systems.	
Recommendation 2 – Promote parks, outdoor facilities, public lands and waters as resources for healthy living.	<p>1. Provide environmental learning opportunities in outdoor recreation through partnerships with parks and recreation agencies and providers.</p> <p>2. Development of integrated standards-based curriculum and assessment using outdoor physical activities with students such as canoeing, fishing, hiking, rock climbing, biking, archery etc.</p>	<p>Parks and recreation organizations, PA Fish and Boat Commission (PFBC), PDE, DCNR, DEP, Game Commission (PGC), federally-held lands and conservancies, parks, colleges and universities, environmental education centers, outdoor outfitters, businesses, outing clubs</p>
Recommendation 3 – Agencies, organizations and businesses that have specified funding for outdoor physical activities partner with schools and communities.	<p>1. Agencies, organizations and businesses with funding will reach out to schools and communities with program opportunities.</p>	<p>DCNR, PFBC PDE, PGC conservation districts DEP Businesses, PA Dept. of Agriculture (Ag), PA DOH, non-governmental organizations, county and local health departments</p>
Recommendation 4 – Foster a connection between growing food, healthy eating and the environment.	<p>1. Integrate school/community gardens into the K-12 curriculum through hands-on approaches using school gardens, instructional kitchens, lunch rooms and classrooms.</p> <p>2. Integrate healthy living choices into the K-12 curriculum and public programming.</p>	<p>Schools, farms/orchards, Future Farmers of America, supermarkets, Community-Supported Agriculture (CSAs), Master Gardeners, Ag, Penn State Cooperative Extension, DOH, non-governmental organizations, county and local health departments, health education organizations, college and universities’ agricultural programs</p>

D. Funding and Implementation

Funding will serve as a necessary component to the PA Environmental Literacy Plan (ELP). Investment in programs that foster environmental literacy is critical. PA's Environmental Education Act of 1993 notes that five percent of the fines and penalties collected annually by the state DEP are to be earmarked for environmental education. Environmental education grants are awarded to school districts, charter schools, private schools, colleges and universities, intermediate units, environmental education centers, non-profit conservation and education organizations, businesses, and county conservation districts.

Additional funding is made available by DEP to PDE's Office of Environment and Ecology through a Memorandum of Understanding (MOU). This partnership between DEP and PDE has been in place for 26 years. The purpose of this unique and sustained partnership is to address common educational goals as they relate to environmental education across the commonwealth.

Recommendations will be made and actions will be taken to identify new sources of funding to support environmental education and literacy programs.

Implementation through the use of model programs is essential for success. These programs have been identified through PDE's Environmental Education Exemplary Program and Green Ribbon Schools Initiative. These models are examples of what a school district or charter school curriculum would look like as it exemplifies alignment with the Environment and Ecology (E&E) Standards and assessment anchors and eligible content. These schools will work with any other school to help them move their curriculum, units of study and lessons to address and meet the E&E Standards at the proficiency level.

The area of "Funding and Implementation" relates to the following Mid-Atlantic Goals and Outcomes:

Mid-Atlantic Goal 1: Every student in the region graduates with the knowledge and skills to make informed environmental decisions, Outcome 1.1.

Mid-Atlantic Goal 2: All educators in the region responsible for instruction about or in the environment are provided with sustained professional development, tools, and resources that support their role in providing students with high quality environmental education, Outcome 2.1 and 2.2.

Mid-Atlantic Goal 4: The education community in the region functions in a unified manner and coordinates with key national, regional and state programs to represent the full suite of information and opportunities available for PK-12 audiences, Outcomes 4.2 and 4.3.

Recommendations	Action Steps	Providers
<p>Recommendation 1 – Existing state fund will be allocated for the purpose of quality environmental education along with federal education funds that will be reviewed for the purpose of determining how funding can be integrated into an implementation plan.</p>	<p>1. Review Title II, Title IV, Title V, IDEA, STEM, and other sources of federal funding.</p> <p>2. Continue with the Environmental Education Council and its role with the PA Environmental Education Grants Program administered by DEP</p>	<p>PDE, all state and federal agencies, STEM organizations, DEP</p>
<p>Recommendation 2 – New sources of funding will be identified and implemented to ensure the continuation of support for environmental education and literacy programs at the local, regional and state levels.</p>	<p>1. Identify environmental education stakeholders and facilitate a stakeholder summit with the intent to increase endowments and associational funding.</p> <p>2. Network with other states and learn the type of strategies they implement to identify available funding.</p> <p>3. Seek local, state and/or federal funding.</p> <p>4. Seek additional grant opportunities.</p>	<p>State agencies, nonprofit, organizations, associations, conservancies, conservation districts</p>
<p>Recommendation 3 – Identify additional model programs and ensure support for replication.</p>	<p>1. Outreach to school districts to have them share their successes with other districts.</p> <p>2. Look to the environmental education community for submission of model programs.</p>	<p>School districts, charter schools and private schools, state agencies and organizations</p>

E. Partnerships

In an increasingly complex world, collaboration is a 21st century essential skill. With that said, partnerships are critical to the success of all student learning and critical thinking. The complicated issues of today demand a collaborative approach to get the skills, support and knowledge needed for solving issues. Partners come in many shapes and forms: formal to informal organizations, young and old, amateurs to experts. These partners not only build a sense of community but combine their time, resources and expertise to empower communities to make positive change.

Pennsylvania's ability to form high quality partnerships to address extremely important issues is an essential aspect when it comes to success. From the writing of the first set of stand-alone environment and ecology standards to the writing of this literacy plan, consensus for the betterment of children and ultimately the adults they will become has always been the leading force in everything accomplished in our state.

The area of "Partnerships" relates to the following Mid-Atlantic Goals and Outcomes:

Mid-Atlantic Goal 2: All educators in the region responsible for instruction about or in the environment are provided with sustained professional development, tools, and resources that support their role in providing students with high quality environmental education, Outcome 2.1, 2.5.

Mid-Atlantic Goal 3: Every school in the region maintains its buildings, grounds, and operations to support positive environmental and human health outcomes, Outcome 3.2.

Mid-Atlantic Goal 4: The education community in the region functions in a unified manner and coordinates with key national, regional, and state programs to represent the full suite of information and opportunities available for PK-12 audiences, Outcomes 4.2, 4.3.

Recommendations	Action Steps	Providers
Recommendation 1 – To sustain current partnerships to appropriately and effectively foster environmental literacy.	1. Incorporate the appropriate recommendations and action steps from the PA ELP when planning, revising or developing new initiatives. 2. Utilize all current technology and	Environmental and science education groups, conservancies, conservation districts, county parks and recreation groups, social organizations, communities, businesses including utility companies and local, state and federal agencies.

	<p>communication tools to sustain current partnerships.</p> <p>3. Create networking opportunities to foster partnerships.</p> <p>4.Utilize the PA grant system to assist in funding of partnership actions – (Act 71)</p> <p>5. Encourage partners to provide the needed resources to offer environmental education opportunities to teachers, students and general audiences (conferences, seminars, workshops, courses, etc.)</p> <p>6. Recognize (via awards, showcase, press releases, newsletters, etc.) existing successful partnerships and their programs.</p>	
<p>Recommendation 2 – To develop new partnerships to appropriately and effectively foster environmental literacy.</p>	<p>1.Utilize all current technology and communication tools to seek and develop new partnerships</p> <p>2.Create networking opportunities to bring potential partners together</p> <p>3. Promote partnerships to help reach underserved communities</p> <p>4.Utilize the PA grant system to encourage establishment of partners – (Act 71)</p> <p>5. Encourage partners to provide the needed resources to offer</p>	<p>Environmental and science education groups, conservancies, conservation districts, county parks and recreation groups, social organizations, communities, businesses including utility companies and local, state and federal agencies.</p>

	environmental education opportunities to teachers, students and general audiences.	
Recommendation 3 – Establish a process/program to help environmental education organizations and agencies build partnerships.	<ol style="list-style-type: none"> 1. Offer professional development opportunities to learn how to find, create and sustain partnerships. 2. Model existing successful partnerships and their programs. 3. Provide mentoring opportunities to build successful partnerships. 	Environmental and science education groups, conservancies, conservation districts, county parks and recreation groups, social organizations, communities, businesses including utility companies and local, state and federal agencies.

F. Early Childhood Education

All young children are naturally curious about their environment and the world around them, learning best when allowed to actively explore. Students diligently involved in these experiences are utilizing scientific practices that are essential for environmental education. For the young learner environment, scientific concepts and an understanding of natural systems can be incorporated throughout the key areas of early learning. For example, children use play to explore and manipulate materials, creative arts to express their ideas, and literacy and language arts to research answers to questions. There is nothing more real to a young child than the world they live in. The opportunities are endless and the experiences will let them become environmentally literate lifelong learners.

The area of “Early Childhood Education” relates to the following Mid-Atlantic Goals and Outcomes:

Mid-Atlantic Goal 1: Every student in the region graduates with the knowledge and skills to make informed environmental decisions, Outcomes 1.1, 1.2, 1.4.

Mid-Atlantic Goal 2: All educators in the region responsible for instruction about or in the environment are provided with sustained professional development, tools, and resources that support their role in providing students with high quality environmental education, Outcomes 2.1, 2.2, 2.5.

Recommendations	Action Steps (i.e. Incorporate STEM, use scientific tools)	Providers
<p>Recommendation 1 – Use of the PreK-3 Environment and Ecology standards as the educational framework.</p>	<ol style="list-style-type: none"> 1. Ensure all PreK-3 programs address environment and ecology standards. 2. Follow the strategies for teaching delineated in the PreK-3 environment and ecology standards. 	<p>PAPDE and the Office of Child Development and Early Learning (OCDEL), local educational agencies (LEA), nature/environmental centers, home-school organizations, non-governmental organizations, STEM groups, professional organizations</p>
<p>Recommendation 2 – Use of Standards Aligned System to promote all aspects of student achievement through both the Environment and Ecology, Science & Technology & Engineering, Social Studies standards, curriculum framework, assessment, materials and resources, instruction</p>	<p>Identify how the SAS can be used for the implementation of the Environment & Ecology early childhood standards through following:</p> <ol style="list-style-type: none"> 1. Use of PreK-3 of both the Environment and Ecology, Science and Social Studies Standards 2. Appropriate teaching strategies and assessments 3. Materials and resources aligned to the PreK-3 standards 	<p>PAPDE and OCDEL, school districts, charter schools, private schools, early childhood centers</p>
<p>Recommendation 3- Use of meaningful outdoor experiential learning using appropriate age level strategies.</p>	<ol style="list-style-type: none"> 1. Incorporate meaningful outdoor experiences using the local environment. 2. Identify instructional strategies for differentiated learning. 	<p>PAPDE and OCDEL, DCNR, PFBC, other local and state agencies, school districts, charter schools, private schools, early childhood centers</p>

G. Pre-service Education

It is critical that new teachers enter the classrooms with a full understanding of the Environment and Ecology standards. Beyond being proficient in content, teachers need to have experience in hands-on, scientific practices and meaningful outdoor strategies.

Under Chapter 49, colleges and universities are accountable for the teaching of environmental standards in the elementary and secondary programs. Our next generation of teachers will have the responsibility of preparing their students for current and future technologies and challenges that will impact the environment. As such, it is important for pre-service students to have in-school experiences which explore the use of the needed strategies for solving real-world environmental problems.

The area of “Pre-service Education” relates to the following Mid-Atlantic Goal and Outcomes:

The Mid-Atlantic Goal 2: All educators in the region responsible for instruction about or in the environment are provided with sustained professional development, tools, and resources that support their role in providing students with high quality environmental education, Outcomes 2.1, 2.3, 2.5.

Recommendations	Action Steps	Providers
Recommendation 1 – Use of certification regulations which mandate the incorporation of environmental education into every pre-service elementary and secondary program.	1. Ensure that colleges and universities that certify teachers in PA meet the requirements of Chapter 49 incorporating environmental education into their required course teachings.	PDE, colleges and universities with teacher preparation programs
Recommendation 2 – Pre-service students enter the classroom with knowledge and experiences provided by their course work and experiences.	1. Make available to college professors the opportunities to use state and national environmental education programs with their students. 2. Encourage pre-service students and existing teachers to add the K-12 environmental education certification to their credentials.	State and national environmental agencies environmental centers, museums, colleges and universities, science centers, PDE, professional organizations

	<p>3. Support the inclusion of environment and ecology standards, assessments and resources available on the Standards Aligned System and pre-service coursework.</p> <p>4. Encourage meaningful outdoor experiences as a part of every pre-service program at the elementary, middle and secondary levels.</p>	
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H. Professional Development

Professional development is a necessary component to the PA Environmental Literacy Plan (ELP). This plan will include delivery through traditional and non-traditional educational settings and serve pre-service, in-service, non-formal, youth development organizations, etc.

Professional development as described will target all educators in all disciplines regardless of where components of the Environmental Literacy Plan are implemented. This plan will promote partnerships between and among schools, agencies and organizations to provide expertise and venues for professional development.

Through the implementation of an Environmental Literacy Plan, educators will have access to high quality, hands-on environmental education professional development, based upon PA Academic Standards, STEM, outdoor education, civic engagement and service learning.

The area of “Professional Development” relates to the following Mid-Atlantic Goals and outcomes:

Mid-Atlantic Goal 2: All educators in the region responsible for instruction about or in the environment are provided with sustained professional development, tools, and resources that support their role in providing students with high quality environmental education, Outcomes 2.1, 2.2, 2.4, 2.5.

Mid-Atlantic Goal 4: The education community in the region functions in a unified manner and coordinates with key national, regional and state programs to represent the full suite of information and opportunities available for PK-12 audiences, Outcome 4.2.

Recommendations	Action Steps	Providers
<p>Recommendation 1 – Determine needs and identify barriers to participation in professional development</p>	<p>1. Conduct needs assessments</p> <p>2. Based on results of the needs assessment, align strategies for delivering professional development.</p>	<p>Audience-specific/environmental educators Council/PDE/Providers</p> <p>Providers/ Facilitators based on outcome of the evaluation (PDE/Professional Development Providers)</p>
<p>Recommendation 2 – Provide professional development for educators to improve their content knowledge and instructional strategies in environment and ecology, science and social studies as it pertains to environmental content and strategies for delivery.</p>	<p>1. Identify sources of and provide funding for professional development workshops</p> <p>2. Ensure the professional development is: standards-based, cross-curricular, experiential in nature, provides opportunities for meaningful-learner engagement, and includes an evaluation and assessment component.</p> <p>3. Promote professional development that builds capacity, is community based and addresses real-world issues.</p> <p>4. Ensure sustainability of professional development through models such as train-the-trainer, webinars, professional learning communities, critical friends groups, and the use of emerging technologies.</p> <p>5. Support and implement recommendations and guidelines established for</p>	<p>State agencies, federal agencies, Environmental Education Council, businesses and industries, foundations, etc.</p> <p>Environmental Education Council, PDE, Professional Development Providers at the local, regional, state and federal levels</p> <p>Environmental Education Council, PDE, Professional Development Providers at the local, regional, state and federal levels</p> <p>Environmental Education Council, PDE, Professional Development Providers at the local, regional, state and federal levels</p> <p>PA PDE</p>

	<p>professional development by PDE.</p>	
<p>Recommendation 3 – Provide professional development opportunities for anyone working with teachers and/or students in the areas of environment and ecology (especially in the areas of watersheds, wetlands, aquatic and terrestrial systems, renewable and non-renewable resources, environmental health, agriculture, natural resources, environmental law and civic responsibilities and biodiversity).</p>	<ol style="list-style-type: none"> 1. Use current research as a means of ensuring that best practices are implemented in both the classroom and all professional development. 2. Promote the integration of the common core standards for language arts and math in all professional development. 3. Encourage and support the use of the national science framework in the revision or development of professional development. 4. Encourage non-formal environmental educators to obtain EE certification, as available. 	<p>Local, regional, state and federal agencies, environmental centers, museums and science centers, conservation districts</p> <p>Local, regional, state and federal agencies, environmental centers, museums and science centers, conservation districts, PDE, Natural Resources Conservation Service (NRCS)</p>

10/16/2013

Appendix A: Organizations Which Can Assist with Implementation