



Common Qualities of Effective Environmental Literacy Programs for Local Education Agencies

This guide is intended to provide local school systems and their non-formal environmental education providers with information and resources to aid in the development and implementation of high quality environmental literacy programs as required by [COMAR](#) regulations [13A.03.02](#) and [13A.04.17](#). This guidance reflects input from a variety of formal and non-formal educators, specialists, the research community, and others, and will be updated as programs develop and promising practices emerge. These common qualities reflect research-supported practices and pedagogies that are most effective in developing high performing, environmentally literate students. Local education agencies (LEAs) can use this guidance to evaluate existing activities and guide development of new or expanded programs as part of their efforts to continuously improve environmental literacy programs within schools. Each Section of COMAR, A-E, is outlined below including supporting information and links to additional resources.

(COMAR 13.A.04.17)

A. Each local school system shall provide in public schools a comprehensive, multi-disciplinary environmental education program infused within current curricular offerings and aligned with the Maryland Environmental Literacy Curriculum.

B. The Maryland Environmental Education Program shall:

(1) Provide a developmentally appropriate instructional program;

(2) Advance students' knowledge, confidence, skills, and motivation to make decisions and take actions that create and maintain an optimal relationship between themselves and the environment, and preserve and protect the unique natural resources of Maryland, particularly those of the Chesapeake Bay and its watershed.

(3) This comprehensive instructional program shall provide for the diversity of student needs, abilities, and interests at the early, middle, and high school learning years, and shall include all of the standards from the Maryland Environmental Literacy Curriculum as set forth in §C of this regulation.

[C. Environmental Literacy Curriculum](#)

Common Qualities of Effective Programs

Program development and curriculum infusion

- Identify an environmental literacy point of contact for the LEA with appropriate skills, authority and knowledge to coordinate development of the program and monitor implementation.
- Establish curriculum integration committees to map environmental literacy standards with local curriculum by grade band and subject area.
- Utilize a gap and opportunity analysis on the use of the environment as a context for learning and the extent of outdoor learning experiences. These results should guide the development of multi-disciplinary curriculum strands and supporting lessons and activities as well as expanded outdoor learning opportunities for students.
- Identify opportunities to integrate environmental literacy with STEM, service learning, career and technology education and other LEA initiatives.
- Inventory environmental education service providers and other community partners who can support schools, assist in the development of the LEA program, and develop a framework that will effectively merge the resources by grade band and subject area. Online resources such as the Baybackpack.com site can assist with this research.
- Communicate the environmental literacy program plan to MSDE, community partners, funding agencies, and others to better serve the needs of all students.

Environmental education instruction and methodology

- Include pedagogy across grades and disciplines that utilizes the following instructional strategies: a problem-based inquiry (PBI), project based science (PBS), or the issues investigation and action approach, such as the [Hungerford-Volk IEEIA model](#) using local environmental issues and action planning and projects. [\[Environmental Literacy Standard \(1\)\(a\)\]](#)
- Emphasize student action projects that address local or regional environmental problems. Student projects may be integrated with service learning requirements, MAEOE Maryland Green School activities, or the culmination of a student-led environmental issues investigation and/or a STEM project. [\[Service Learning Projects\]](#)
- Set a goal to provide at least one outdoor/field based environmental education experience for all students annually at the school, in the community or off-site in a natural setting. Research shows that outdoor instruction is critical to achieving environmental literacy goals

with students. Established programs may include more than one outdoor experience per student per grade band. A working definition of what constitutes an outdoor learning experience is as follows. [[Meaningful watershed educational experience](#)]

- Delivers standards-based instruction through hands-on, outdoor field investigations;
- Includes a local context and connects to larger ecological systems;
- Utilizes inquiry instruction and cooperative learning;
- Involves students in investigative and/or action projects that include preparation, action, and reflection to address environmental issues; and , most importantly,
- Is offered to all students

Professional Development and School Support System

D. Each local school system shall establish a support system to enable teachers and administrators to engage in high quality professional development in content and knowledge, instructional materials, and methodology related to environmental education (COMAR 13.A.04.17))

- Assess and plan appropriate, [high quality professional learning](#) for teachers expected to implement the integrated curriculum, as well as administrators and others involved in the program. Professional learning should increase knowledge of environmental literacy content as well as the instructional approaches referenced above, as appropriate.
- Establish a support network for environmental literacy that includes environmental lead teachers at each school and/or other appropriate venues to model high quality instruction, connect teachers with community resources, and assess ongoing professional learning and resource needs.
- Utilize existing programs and frameworks, such as the MAEOE [Maryland Green School Program](#) to support, sustain, celebrate and monitor environmental education efforts within schools.
- Establish formal or informal networks to communicate with and convene environmental education partners to ensure maximum support for schools. Consider including an evaluation of community service providers as part of this support system to ensure their programs are aligned with the State curricula, and provide high quality student experiences, professional development, and project support to teachers.
- Engage leadership teams and community partners in an assessment of funding and resource needs to support continued enhancement of the program. When possible utilize existing grants and general funds to advance these goals in addition to identifying public and private partnerships that will provide funding and/or in kind support to implement the program.

Monitoring and Evaluation

E. Student Participation. All students shall have the opportunity to participate in the comprehensive environmental education program required by this regulation to meet their graduation requirement in environmental literacy. (COMAR 13A.04.17)

- Identify in the Program Planning Tool and program certification how the environmental literacy standards are integrated into the high school program as well as in pre-K – 8 curriculum.
- Develop and pilot mechanisms to document student participation in, and their reflection on, outdoor environmental experiences and action projects to determine the effectiveness of the program, and the achievement of environmental literacy standards.