**Meaningful Watershed Educational Experience (MWEE)**

**Guide to Designing and Implementing Systemic Meaningful Watershed Educational Experience (MWEE)**

The purpose of this guide is to assist school districts, schools, and community partners in creating Meaningful Watershed Educational Experiences (MWEEs). MWEEs increase student achievement, engagement, and stewardship, preparing future decision makers to participate as thoughtful and well-informed citizens. MWEEs for students are critical for supporting the Environmental Literacy Goal of the Chesapeake Bay Watershed Agreement.

2014 Chesapeake Bay Watershed Agreement http://www.chesapeakebay.net/chesapeakebaywatershedagreement/page

**MWEE Guide Contents**

**Overview of the MWEE Meaningful**

* **Goals**
* **Essential Elements and Supporting Practices**
* **Key Roles** of School Districts, Schools, and Community Partners

**Designing YourMWEE**

* **Think:** establish the “big picture” from your perspective; district, school or teacher?
* **Plan:** use the Environmental Literacy Model (ELM)
* **Implement:** make a timeline and a plan of action
* **Evaluate:** assess the process and the product

**Sustaining Your MWEE**

* **Support:** gather support from other local stakeholders and share your experiences
* **Connect:** to education reform initiatives *Education is different than training*
* **Educate:** professional learning that supports MWEE methodology
* **Fund**

**Appendices**

* **Examples**
* **Glossary**

**Meaningful Watershed Educational Experiences (MWEEs)**

***This section introduces the goals of a MWEE, describes its elements, and defines the roles of key stakeholders in planning, conducting and supporting MWEEs.***

**Goals**

The goal of a MWEEis to connect students with their watershed and develop the knowledge and skills of responsible citizenship. State and Federal Agencies recognize that participation in high quality, watershed-based environmental education provides a vital foundation for student stewardship. Meaningful Watershed Educational Experiences are the established method to promote stewardship through educational best practices and principles.

**Well Designed MWEEs:**

* Develop stewardship ethic for 21st century citizenship
* Support best practices for learning disciplinary skills and content
* Comply with State Environmental Literacy Standards and Graduation Requirement
* Meet Next Generation Science Standards performance expectations

**Essential Elements and Supporting Practices**

Meaningful Watershed Educational Experiences encourage student exploration of local environmental issues through sustained, teacher-facilitated investigations. MWEEs encourage observation, foster critical thinking, develop problem-solving skills, and instill confidence in students. Students participating in MWEEs take positive action for their environment and develop the environmental literacy necessary to responsibly participate in the social, economic, and political decisions that shape the future health of our ecosystem and its inhabitants.

Quality MWEEs include the following essential elements and supporting practices working together and building upon each other to foster stewardship and encourage civic engagement:

**Essential Elements**

* Issue Definition
* Outdoor Experiences
* Action Projects
* Synthesis and Conclusions

**Supporting Practices**

* Active Teacher Support
* Curriculum Integration
* Local Context
* Sustained Activity

**Issue Definition**

**Outdoor Field Experiences**

**Action Projects**

**Synthesis and Conclusions**

**Local Context**

**Curriculum Integration**

**Sustained Activity**

**Active Teacher Support**

**MWEE Essential Elements**

* **Issue Definition:** Students define an environmental question, problem, or issue and ask questions requiring background research and field investigations. Students may refine and expand these questions in response to findings throughout the MWEE.
* **Outdoor Field Experiences:** Students plan and conduct field-based investigations and actions integral to defining, researching, communicating, and remedying an environmental issue.
* **Action Projects:** Students design solutions and implement actions as a result if their investigations. Action projects are opportunities for student empowerment and civic engagement.
* **Synthesis and Conclusions:** Students analyze and communicate the results of their investigations and actions throughout the MWEE. Student constructed claims, student designed solutions and student implemented actions drive each phase of a MWEE.

**MWEE Supporting Practices**

* **Active Teacher Support:** Teachers facilitate all phases of the MWEE, including issue definition, field experiences, action projects, and synthesizing and communicating the information.
* **Classroom Integration:** Successful MWEEs are anchored in/across the curriculum and provide authentic, engaging content to address national academic standards and educational initiatives. E.g. Science, Technology, Engineering and Math (STEM) and Service Learning.
* **Local Context:** The local community/environment is the platform for MWEEs, offering students and teachers the opportunity to explore how individual and collective decisions impact their immediate surroundings and how their immediate surroundings impact the larger environment.
* **Sustained Activity:** A quality MWEE is a sustained student experience including classroom preparation, field investigations, action projects, and the communication of conclusions. A single component may be a valuable instructional tool but by itself does not constitute a MWEE.

The Chesapeake Bay Program uses the *North American Association for Environmental Education (NAAEE) Excellence in Environmental Education: Guidelines for Learning(K-12)* to define the level of skill or knowledge appropriate for different grade levels of students.

https://naaee.org/our-work/programs/guidelines-excellence

**Key Roles of School Districts, Schools, and Community Partners**

**Successful MWEEs involve the support of multiple stakeholder groups.** The different roles these groups have in planning, delivering, and sustaining MWEEs is discussed here.

**School Districts**

State departments of education and local education agencies play an important role in establishing expectations, guidelines, and support for MWEEs. System-wide plans for providing MWEEs including community outreach and professional learning for teachers and administrators have been effective in establishing a culture of environmental literacy. School districts create the space within curricular scopes and sequences to provide MWEEs to every student in the district.

* Superintendents
* District-wide content specialist
* Curriculum Offices
* Offices of Facilities and Maintenance

**Schools**

People in the school building make the MWEE happen for students, ensuring they enhance learning and stewardship. Parents often play a valuable role in motivation and support. MWEEs can be part of a larger school strategy to address educational initiatives such as service learning, STEM, and vertical articulation.

* Teachers and Specialists
* School Administration: Principals, Assistant Principals, Department Chairs, etc.
* Building services/grounds and maintenance/facilities
* Parents

**Community Partners**

Community partners provide much needed capacity and support for MWEEs. Environmental education organizations, natural resource agencies, universities, businesses, and other organizations can offer time, expertise, and supplies. Environmental education professionals can assist schools and local education agencies with all aspects of MWEE implementation, including teacher professional development, student MWEEs, and environmental action projects. Additionally, environmental professionals can serve as important role models for career choices and stewardship actions.

* Nonformal Education Partners
* Institutes of Higher Education
* Government agencies
* Businesses
* Nonprofits
* Funders

**Designing Your MWEE**

This section discusses the process of developing and implementing successful curriculum-based MWEEs

There are four stages to designing a MWEE:

* THINK: establish the big picture
* PLAN: complete the Environmental Literacy Model
* IMPLEMENT: organize your logistics
* EVALUATE: reflect and record

**THINK**

*Use this section to establish the “big picture” for the Meaningful Watershed Education Experience.*

Before you start, ask yourself…

* What issues, problems, or phenomena do you want to include in the MWEE?
* What are the disciplinary core ideas and concepts?
* How can you use the outdoors for local investigations/explorations?
* What kinds of locally-relevant actions could students take to address the issue?

**DESIGN**

*Use the Environmental Literacy Model (ELM) Planning Document to design your MWEE.*

**The Environmental Literacy Model** **(ELM)**is a method for integrating environmental issues investigations and civic engagement into academic curricular programs. ELM is a product of the Maryland Environmental Literacy Partnership, a formal partnership between school systems, and environmental education stakeholders, including several Chesapeake Bay Program partners (State of MD, NOAA, UMCES, CBT).

The Environmental Literacy Model features three primary components:

* **Curriculum Anchor:** Identifies academic standards and establishes life-relevant contexts for learning
* **Issue Investigations:** Students construct knowledge through field-based inquiry
* **Civic Engagement:** Students apply the knowledge that they’ve constructed in authentic situations.

***Insert the MWEE Cover Sheet and ELM Planning Document Here and also link to it as an individual downloadable and editable document so it’s easy to access and share.***

**Where to Start?**

Depending upon the instructional goal and teacher preference, the starting point for a MWEE may be either a curriculum connection or a local issue. Use the ELM Planning Document to connect both to field-based investigations, civic engagement, and community action.

The ELM Planning Document ***and MWEE Cover Sheet***

http://www.cbf.org/document.doc?id=2484

**IMPLEMENT**

Organize your logistics, gather support, and celebrate progress.

* Timeline/scope and sequence
* Resources, partners, budget, funding, permission, etc. building support like facilities

***Do we need to introduce or link to a model timeline or tool for developing one here?***

**EVALUATE**

Evaluating your MWEE is an important step to ensure long term success. A thoughtful evaluation will improve the project's effectiveness, guide judgments about its impact, and/or inform decisions about its future.

* As you implement your MWEE, use the ELM evaluation tool to track (note: a template will be developed that asks these questions for each component of ELM (curriculum anchor, issues investigation, and stewardship/civic engagement):
* What is going well?
* What is not going well?
* What should be changed next time?
* For information about evaluations or to assist you in planning a comprehensive evaluation visit [My Environmental Education Evaluation Research Assistant (MEERA)](http://meera.snre.umich.edu/)

**Sustaining Your MWEE**

*The purpose of this section is to highlight best practices in sustaining and building capacity for MWEEs.*

**SUPPORT**

Support and acknowledgement from a variety of stakeholders and decision makers is important to build community support.

* Buy-in from principals, curriculum supervisors, and school district superintendents is essential
* Things that could be important to convey:
  + Showing student evaluation results from MWEE project
  + Student engagement/excitement through them communicating with leaders
  + Research showing academic achievement
* Board of Education
* Media
* PTAs

**CONNECT**

Create an intentional connection to federal, state, and local education initiatives and content standards

* NGSS, C3, Common Core
* Environmental Literacy Plans
* Service learning
* STEM

**EDUCATE**

In order to support MWEEs, teachers need knowledge of environmental issues, skill in connecting these issues to their curriculum, and competency in environmental education pedagogy, including the ability and confidence to teach outdoor lessons and to lead students in critical thinking about environmental issues. In order to gain and maintain these competencies, teachers need access to sustained, high quality professional development in the field of environmental education that includes ongoing support and feedback.

* Professional Learning regarding your MWEE may need to be provided for a variety of audiences: teachers, non-formal educators, principals
* <https://naaee.org/our-work/programs/guidelines-excellence> **does this belong here?**

**FUND**

* Start-up funds are available through grants: B-WET, EPA, CBT, Business/Community Partnerships
* Ensure intermittent and/or longer-term funding is embedded into school system budgets or find other long-term solutions (e.g. endowments, partnerships, PTAs, etc.)
* Identify low cost/no cost options on school grounds or within walking distance of school (CBT mini grants)

**Appendices**

**APPENDIX 1: MWEEs in Action**

Examples of successful implementation at different scales (district, cluster, school, etc. from different perspectives, those of nonformals)

* Montgomery County
* VA Beach/CBF
* Frederick County/UVA

**APPENDIX 2: Bibliography**

* Nicola Ardoin
* Trudi Volk and William McBeth: focuses on variables involved in environmentally responsible behavior
* Stern and Zint: research and literature reviews that establish what is known about effective instruction that can lead to increased knowledge, gains in stewardship characteristics, confidence in teaching about watersheds, and more
* Lieberman and Hoody

**GLOSSARY**

* Environmental Literacy
* Stewardship
* Civic Engagement
* Watershed
* Chesapeake Bay Program
* School District
* Professional Learning
* Systemic Implementation
* Stakeholders
* Abbreviations:
  + NOAA
  + CBF
  + ELP