

MICHIGAN ALLIANCE FOR ENVIRONMENTAL AND OUTDOOR EDUCATION (MAEOE)

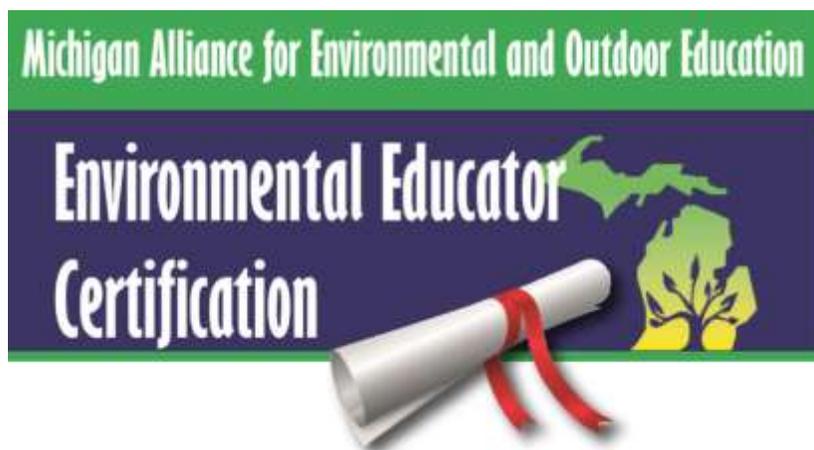
Environmental Educator Certification

Requirements for formal and nonformal educators
seeking certification in Michigan

MAEOE Environmental Educator Certification Committee

September 2019

While environmental educators come with a variety of backgrounds and work in a variety of settings, there is a core set of characteristics that all qualified environmental educators should possess. The tasks and requirements of the certification process are designed to assess and ensure that all candidates demonstrate aptitude in areas outlined in this document.



MAEOE's Environmental Educator Certification

MAEOE launched the Environmental Educator Certification (EEC) program in 2016 after at least four years of research and planning by Michigan environmental educators. The scholars and practitioners, who contributed their time and knowledge to help develop the program, were from various backgrounds in formal and nonformal education. The EEC Committee, currently consisting of graduates of the program helps move the certification initiative forward by continuously improving this meaningful endeavor based on their experience and research. You will find the rigor of the EEC challenging at times yet attainable and rewarding. Completing the certification may provide opportunities for you that never before existed in Michigan.

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The Environmental Educator Certification (EEC) Requirements for Michigan

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Introduction

The Environmentally Literate Michigander

The air, water, land, and organisms of this planet make human life possible. It is imperative that society works toward growing a citizenry of environmentally literate individuals. Michiganders who are thoughtful, critical, and interested in learning about nature and how it functions can make informed decisions that improve the quality of life in their societies. They are able to assess values, evaluate issues, predict consequences, and make positive changes to the world around them.

An environmentally literate person understands ecological systems and how natural processes are interconnected. They strive toward sustainable outcomes for the future and express themselves as citizens of their country and planet through voting, civic action, service, and conscientious choices. A world full of environmentally literate individuals can ultimately lead to societies with sustainable habits fueled by creative alternatives and a common respect for the resources that sustain us.

In the high tech, fast-paced world we live in, the role of the **environmental educator** is increasingly important. The role of an environmental educator is to create more environmentally literate citizens. Environmental educators do not tell their audience what to think, but rather guide them to understand the world around them. They will reveal the wonders of this planet and the processes behind it to their students. Environmental educators expose others to the joy of nature, and humanity's place in it. An environmental educator demonstrates best practices in teaching about the environment in an inclusive, experiential, and engaging manner.

Who should get certified?

Anyone who currently teaches about the environment, or who has an interest in teaching about the environment could benefit from becoming a certified environmental educator. You may consider yourself a formal, non-formal, or informal educator. You may teach, or want to teach in public or private sectors of education. Examples of professions that may be interested in the certification include, but are not limited to, PreK-12th grade school teachers, nature center employees, state park naturalists, museum educators, zoo employees, community educators, and college professors.

With such a diverse field, how can we categorize environmental educators into one group, and why would we want to? The answer lies in the benefits that come through certification.

Why should we have a certification processes?

The benefit of an established certification process extends to the individual, the public, and the profession itself. People we rely upon for their knowledge – such as medical assistants, plumbers, firefighters, legal aides – have certification processes within their respective fields. Having the Environmental Educator Certification (EEC) legitimizes the profession and builds a uniform foundation in teaching about the environment effectively. Based on the North American Association for Environmental Education's (NAAEE), *Guidelines for Excellence: Professional Development of Environmental Educators*, the EEC in Michigan ensures proficiency in interdisciplinary content and pedagogy to deliver high quality environmental education (EE).

Should I get certified?

The process of certification allows the individual environmental educator to further their understanding of key environmental topics. As candidates go through the certification process, they will find opportunities for personal growth and learning while building professional contacts and experiences.

Stretching into new comfort zones, learning new skills, developing interdisciplinary thinking, and sharing with others will inherently transition to becoming a better educator in whatever role a candidate holds or aspires to achieve. You will work toward becoming an expert in your chosen local environmental topic in which you take action to help remedy.

As part of a like-minded group of motivated individuals, networking with other environmental educators around the state can also lead to new and exciting opportunities. Upon certification, candidates will be recognized for their accomplishments and experience increased marketability. The EEC will provide a credential valued by potential employers. Certified environmental educators will be viewed as leaders in the profession and will be better equipped to make a positive impact in their communities.

How is the EEC good for Michigan?

For the public, having a certification process allows someone from outside, or within the field of EE to recognize that a certificate bearer has met a uniform set of standards and has a known set of skills and experiences. This uniformity of standards can satisfy a potential employer or other community member that the certificate holder can be expected to have a common set of skills and experiences regardless of their educational or work background. Certification has the goal of intentionally fostering community leaders who can integrate science fields in a teachable method, which benefits the community in innumerable ways.

For the profession, a certification process with predictability and high standards establishes the field of EE as a true profession. As the cadre of certified environmental educators grows, public awareness will lead to increased respect and appreciation for the field as a whole.

Description of a Certified Environmental Educator in Michigan

While environmental educators come with a variety of backgrounds and work in a variety of settings, there is a core set of characteristics that all inquiring environmental educators should possess. The tasks and requirements of the certification process is designed to assess and ensure that all candidates demonstrate aptitude in the following areas:

A Certified Environmental Educator in Michigan...

- **has an awareness of significant events in EE history, current and historical environmental issues, and EE resources in the state of Michigan**
- **understands basic knowledge and environmental facts and processes**
- **teaches and communicates effectively with an audience**
- **exhibits the skills and ability to critically analyze current environmental issues**
- **distinguishes between education and advocacy**
- **demonstrates leadership and collaboration in the EE community**
- **continually strives to improve his or her skills and knowledge**

The characteristics of a certified environmental educator were formulated by the MAEOE Environmental Educator Committee and derived from the Core Competencies published by NAAEE: <https://naaee.org/eepro/resources/certification-based-individuals>. Assess your level of knowledge and skills in EE by completing the self-assessment in Appendix A before beginning and at the end of MAEOE's EEC program.

Requirements for Certification

To attain the EEC, candidates must successfully complete all of the following components in Strands 1-5. Ideally, candidates will begin with Strand 1 and move through accordingly. Strand 1 ensures fundamental environmental education philosophies and practices are learned in-person and through the online portal. Having an online presence ensures easy communication with the EEC Coordinator, reference to materials, interaction with other candidates, and a place to upload and track requirements.

However, you do not need to wait for a Strand 1 workshop to begin the program. It is plausible for past accomplishments to be used toward certification if they were completed within 5 years of the Capstone (Strand 5). Therefore, completion of the Strands may occur in any order except the Capstone requirement. The Capstone will culminate the EEC after MAEOE has approved all other requirements.

Strand 1: Environmental Awareness, Basic Knowledge, and Skills in EE

The onset of the EEC process occurs after Strand 1 registration. Potential workshop dates are listed later in this document and will be advertised on the MAEOE website. *Upon receipt of the Strand 1 payment, the candidates will attend a 3-hour in-person workshop and gain access to the EEC online portal.*

Strand 1 is based on NAAEE's *Guidelines for the Professional Development of Environmental Educators*. Candidates will demonstrate proficiency in the following areas:

- Environmental Awareness and Basic Knowledge
Key topics will include:
 1. Michigan natural history
 2. Natural resource health and management in Michigan
 3. History of EE, with an emphasis in Michigan EE

- Building Skills in EE
Key topics will include:
 1. Locating and evaluating trustworthy, scientific EE resources
 2. Advocacy vs. education
 3. Analyzing relevant local environmental concerns
 4. Teaching toward different learning styles
 5. Best practices when teaching outdoors
 6. Assessment and evaluation in EE

The aforementioned topics will be introduced in the 3-hour Strand 1 workshop, reinforced in the online environment, and demonstrated throughout the EEC program. Refer to the EEC online portal, the MAEOE website (www.maeoe.com), and MAEOE Facebook page often for EEC opportunities such as Strand 1 workshop dates and other EE professional developments. Strand 1 may occur 1-3 times per year based on demand.

Assessments of Strand 1 may include, but are not limited to the following: open dialogue, question and answer session, written reflections, possible short presentation, class demonstration or activity during the workshop. Online, you will have readings and brief videos, short assessments and activities, and discussions with fellow EEC candidates. The completion of Strand 1 online also includes a variation of the Environmental Educator Self-assessment (Appendix A), agreement to the Environmental Educator Code of Ethics (Appendix B), and application information for our records (Appendix C).

Strand 2: Planning and Implementing EE Lessons

Candidates will complete at least two environmental education professional development workshops. The candidates will seek out these workshops on their own time - many of which will be advertised to MAEOE members and EEC participants. However, past workshops attended within 5 years from the intended Strand 5 Capstone, may be utilized toward this requirement. When in doubt regarding the applicability of Strand 2 workshops, please contact the EEC Coordinator for approval.

Examples of acceptable professional development workshops are listed below:

- One option must include a Michigan-based program, such as one of the Michigan Environmental Education Curriculum Support (MEECS) tracks or the Academy of Natural Resources (ANR).
- For the second EE professional development workshop, other options include, but are not limited to Project WILD, Project WET, and Project Learning Tree. Check these workshops' websites for further information.

Candidates must (1) plan, (2) execute, and (3) reflect on the teaching of one lesson (based from one of the attended EE workshops) that has also been (4) evaluated by their audience (Appendices F and G). You will create and utilize a lesson plan that directly relates to the following Strand 3 Informational Paper and Strand 4 Action Project. This alignment will make the experience more cohesive and hopefully build a meaningful project and experience for all involved.

All materials will be submitted within the online portal for further review by the EEC Committee. The completion and approval of these documents are required prior to Capstone.

Strand 3: Environmental Literacy and Action through Education – An Informational Paper

The Strand 3 Informational Paper will help inform the Strand 4 Action Project. In Strand 3, candidates will identify and research a current or ongoing local or regional environmentally-related issue on a social and/ ecological scale. The issue identified must also have an element that can be acted upon to potentially make a positive difference within a specified audience and habitat – this is Strand 4's Action Project. Linking research of a concern or local issue to taking action could provide a deep understanding of the problem, needs, and potential resolutions. Additionally, the

lesson created for Strand 2 would ideally apply to the environmental issue and subsequent action. Linking the three strands will be an efficient and meaningful approach to meeting requirements.

- Preferred issues will have some presence in the media, are under debate, or have an educational concern.
- Utilizing acceptable resources, the candidate must analyze elements and various perspectives of the issue, including environmental, economic, and social impact to stakeholders.
- Candidates will then identify and justify how they intend to act on the issue – this leads into Strand 4.

Examples of issues suitable for research include – but are not limited to: environmental literacy concerns in your school, an invasive species identified nearby causing/potentially causing a disturbance in the ecosystem, sulfide mining in a specific region of the Upper Peninsula, fracking in a defined area in Michigan, excessive stormwater runoff in your area, the oil pipeline leak in the Kalamazoo River, water withdrawal near you, concerns of lead used in fishing gear, Michigan regulations on septic systems, etc. Your considerations must try to make a positive change and help remediate the matter through environmental education, your knowledge, activities, and the Strand 4 Action Project.

Strand 3 is a written component that identifies and summarizes a local and relevant environmental concern to the candidate. The assignment will also include the proposal of how to educate the public and raise their awareness regarding the topic. See Appendix H for details of exactly what to include.

Strand 4: Professionalism, Leadership, and Community – The Action Project

Strand 4 executes a plan to help improve the environmental concern or issue identified in Strand 3. Candidates will implement an original action project within their community to help encourage positive social and/ ecological change.

Examples of action projects may include:

- Developing and executing a community service event or project
- Leading a workshop for the community or for other educators
- Conducting research on an environmental or environmental education topic or similar activity approved by MAEOE with at least a pilot program executed.

All projects should involve the candidate assessing a local need and the existing resources available for use prior to pursuing the project. Utilizing the research used in Strand 3 will be essential to building an effective project. Incorporating your personally designed lesson plan to utilize in the Action Project is also desirable. Additionally, we strongly recommend candidates work with a local partner organization (e.g. a nature center or conservation/watershed organization) in developing the Action Project. In so doing, work may be lessened yet experiences for all audiences enhanced by including professionals. See Appendix I for more details.

Strand 5: Sharing and Celebrating - The Capstone

As a capstone to certification, candidates will share their learning with the broader EE community at MAEOE's Annual Fall Conference or other approved MAEOE venue to be determined if necessary. The EEC candidate will present a brief presentation emphasizing their research and project while demonstrating best practices in EE. Details will be provided upon approval of all required materials submitted in the online portal.

The candidate must complete and submit Strands 1-4 requirements to the online portal by February 1 of the intended year of presenting the Capstone. The intention to present the Capstone must be submitted in the online portal. The candidate's request and materials will be reviewed by the EEC Committee prior to approval to present.

As the summative assessment component, the presentations will be an opportunity for participants to organize their growth and learning, showcase successes and model leadership to an audience of their peers. Certifications will be granted at the MAEOE's Awards Ceremony during the Annual Conference. It will be a time to celebrate and feel good about a job well done!

Fees, Timeline, and Administration

Fees: The cost, or tuition, of completing the EEC is \$150 - paid in full or in two installments. At the time of your Strand 1 workshop registration, \$75 is due. This payment will cover the in-person, 3-hour workshop and materials; and the online access provides us with additional administrative information, provides the remaining Strand 1 resources, activities, and networking possibilities with your cohort. The remaining \$75 is due upon the final review of your online portfolio and prior to your Capstone project.

EEC Timeline: A candidate has *up to five years to complete the EEC process*. For example, identify when you want to complete the program entirely, and work back from that end date. From another perspective, add five years to the year you took the in-person Strand 1 workshop.

To formally enter the EEC program, you must participate in a *Strand 1 workshop*. This 3-hour workshop helps define the program and lays the foundation for a successful and efficient certification process. Your attendance at a Strand 1 workshop functions as your commitment to the program. With the registration and attendance of Strand 1, you will gain *access to the EEC online portal*. Strand 1 culminates with your completion of the online experiences. Online, you will also provide your application, check your understanding of each NAAEE Theme, complete self-assessments, upload Strands 2-4 requirements, and evaluate the EEC program.

Strand 1 workshops *may* be offered during the following times to meet the demand for the program:

March: as a pre-conference workshop at/near the MSTA Conference (Michigan Science Teachers Association) - location rotates between Grand Rapids, Lansing, and Detroit areas. Often times during this conference, there are workshops offered to help fulfill EEC's Strand 2.

July: as a pre-Academy of Natural Resources (ANR) workshop at the RAM Center on Higgins Lake in Roscommon. Typically, you do not need to be registered for ANR to attend (however, ANR does fulfill a portion of Strand 2).

September/October: as a MAEOE conference workshop (location varies around the state). Also, Strand 2 workshops are always offered at the conference.

Actual dates for Strand 1 this calendar year are posted on the MAEOE webpage under the EEC tab.

Strands 1-4 MUST be completed within 5 years from your Strand 5 Capstone (e.g. if you completed the in-person Strand 1 in 2019, then you have until 2024 to complete all requirements and present your Capstone).

Once you feel you have completed Strands 1-4 and are ready to present your Capstone at the annual MAEOE Fall Conference, the following timeline applies:

Feb. 1st	Letter of Intent and all Strand 1-4 requirements are submitted in the online portal for review by the EEC Committee.
April 1st	Notification provided from the EEC Coordinator as to your status.
June 1st	If granted Capstone clearance, the \$75 fee balance is due online (if not already paid).
Sept./Oct.	Strand 5 - Capstone Project presented at MAEOE's Annual Conference (location varies). Certification given during the MAEOE Awards Ceremony at the Conference.

Recertification Process

Renewing certification will require similar tasks and evidence as the original certification process.

You must complete the following requirements for recertification:

- Evidence of **EE best practices** demonstrated in a professional setting such as at a conference, speaking to a community group, workshop, nature center program, or formal classroom. Evaluations from participants required.
- Service with the EEC Committee** in some capacity to help with the sustainability and advancement of the program.
- Documentation of **30 hours** or equivalent of additional coursework, certification, or professional development (e.g. ANR, additional curricula certification, conference attendance, SCECHs, formal coursework/credit hours).
- Publish an article in the **MAEOEgram** prior to seeking recertification status. It is encouraged to continue to submit articles to the MAEOEgram, and also other related publications.
- Capstone: **Present at the MAEOE Conference** or other approved conferences.

*To ensure recertification, it is encouraged to work toward and document the aforementioned requirements in an **electronic portfolio** as an ongoing process and record of your career as an environmental educator.*

APPENDIX A

MAEOE's Environmental Educator Self-Assessment

At the beginning and at the end of your EEC journey (Strand 1 and after Strand 4), you will complete the following questions. Once accepted into the program, you will submit a similar assessment in the EEC online portal. Appendix A serves as an orientation to the expectations of every environmental educator.

Self-Assessment for Environmental Educators is based on the *Guidelines for the Preparation and Professional Development of Environmental Educators* from the North American Association for Environmental Education (NAAEE).

Purpose: Use the scores on this self-assessment to help you determine which areas you need to emphasize in your professional development experiences toward earning MAEOE's EEC. This document is for your own records. You will complete an other self-assessment online as part of your requirements.

Scoring: Score yourself based on your current perception of your abilities for each guideline using the following rating system:

- 4 = exemplary**
- 3 = proficient**
- 2 = needs improvement**
- 1 = no knowledge of this guideline**



Self-Assessment Averages: After completing the self-assessment on the following pages, place your averages for each theme on the corresponding lines below to provide your advisor with a quick reference to your results. Spaces are provided for your averages before beginning the EEC program and the averages at the end.

NAAEE Theme #	Topic	Self-Assessment Averages	
		Pre:	Post:
Theme 1:	Environmental Literacy		
Theme 2:	Foundations of Environmental Education		
Theme 3:	Professional Responsibilities of the Environmental Educator		
Theme 4:	Planning and Implementing Environmental Education		
Theme 5:	Fostering Learning		
Theme 6:	Assessment and Evaluation		

For the NAAEE themes described below, enter your score (1-4) for each guideline on the line provided. Calculate your average for each section to determine an overall score for that particular theme topic. You will then place the average for each theme on page one for the advisor's easy reference to your self-assessment results.

4 = exemplary 3 = proficient 2 = needs improvement 1 = no knowledge of this guideline

Theme 1: Environmental Literacy

Guideline 1.1: Questioning, analysis and interpretation skills

- Willingness and ability to ask questions about the surrounding world, speculate and hypothesize, seek and evaluate information, and develop answers to questions.
- Familiarity with some basic modes of inquiry, a mastery of fundamental skills for gathering and organizing information, and an ability to interpret and synthesize information and communicate explanations.
- Pre-Score ____ Post-Score _____

Guideline 1.2: Knowledge of environmental processes and systems

- Understand the processes and systems that comprise the environment, including human systems and their influences.
- Knowledge synthesized from across the traditional disciplines (especially the natural and social sciences) and includes knowledge about the Earth as a physical system and living environment.
- Pre-Score ____ Post-Score _____

Guideline 1.3: Skills for understanding and addressing environmental issues

- Able to learn about, evaluate, and act on environmental issues.
- The skills and knowledge outlined in the first two guidelines (1.1, questioning, analysis, and interpretation skills; and 1.2, knowledge of environmental processes and systems) are applied and refined in the context of these issues—the real-life dramas where differing viewpoints and interpretations of data about environmental problems and their potential solutions are played out.
- Pre-Score ____ Post-Score _____

Guideline 1.4: Personal and civic responsibility

- Environmental literacy is activated by individual commitment.
- Motivated and empowered to act on their own informed conclusions about what should be done to ensure environmental quality.
- In developing and applying concept-based learnings and skills for inquiry, analysis, and action, an understanding exists that what is done as individuals and in groups makes a difference.
- Pre-Score ____ Post-Score _____

Theme 1 Pre-Average ____ Post-Average _____

Theme 2: Foundations of Environmental Education

Guideline 2.1: Fundamental characteristics and goals of environmental education -

Educators understand environmental education as a distinct field and know its defining characteristics and goals.

- Identify the goals and objectives of environmental education as laid out in founding documents of the field such as the Belgrade Charter (UNESCO-UNEP, 1976) and Tbilisi Declaration (UNESCO, 1978), as well as in more recent definitions such as Agenda 21 (UNCED, 1992).
- Describe the broad view that environmental education takes of “environment,” incorporating concepts such as systems, interdependence, and interactions among humans, other living organisms, the physical environment, and the built or designed environment.
- Discuss environmental education as an interdisciplinary field and provide examples of ways in which it draws on and integrates knowledge from across academic disciplines.
- Identify major components of environmental literacy. Discuss influences that have contributed to the evolution of these concepts, such as work done by Charles Roth, Harold Hungerford, R. Ben Beyton, and Rick Wilke.
- Relate environmental education’s focus on environmental literacy and citizenship with the need to provide opportunities for learners to enhance their capacity for independent thinking and effective, responsible action.
- Pre-Score ____ Post-Score ____

Guideline 2.2: How environmental education is implemented - Educators understand that environmental education takes place in a variety of settings and that sources of support, program requirements, and other factors vary from context to context.

- Identify a range of individuals, organizations, and agencies delivering environmental education programs, including formal and non-formal programs.
- Identify efforts to link formal and non-formal programs through partnerships and other collaborations.
- Discuss how school policies, state or local mandates for environmental education, and federal legislation influence environmental education efforts.
- Describe a variety of national, regional, state, and local environmental education programs and support services, including funding sources and resources.
- Pre-Score ____ Post-Score ____

Guideline 2.3: The evolution of the field - Educators are familiar with how the field of environmental education has changed over time and continues to change.

- Discuss how educational movements, including progressive education, nature study, outdoor education, conservation education, and ecology education, contributed to the development of environmental education and how they differ from environmental education.
- Discuss how the work of bodies such as the Brundtland Commission (Brundtland, 1987), the United Nations Conference on Environment and Development (UNCED, 1992), the International Conference on Environment and Society (UNESCO 1997), and the World

Summit on Sustainable Development (2002) has influenced—or might influence—environmental education.

- Describe specific findings from environmental education research and discuss their effect on how environmental education might be perceived, defined, or practiced.
- Identify current and emerging issues in the field of environmental education. For example, evaluate assertions that environmental education focuses more on advocacy rather than education and discuss how these assertions are affecting environmental educators and education programs.
- Describe how specific environmental education research findings have informed the educator’s own perspective.
 - Pre-Score ____ Post-Score ____

Theme 2 Pre-Average ____ Post-Average ____

Theme 3: Professional Responsibilities of the Environmental Educator

Guideline 3.1: Exemplary environmental education practice - Educators understand their responsibility to provide environmental education that is appropriate, constructive, and aligned with the standards of the field.

- Identify ways in which environmental education can be used as a tool for meeting curriculum standards and addressing education reform goals. Identify and practice ways in which educators can enhance these links in their work.
- Assess the role of partnerships with community members and organizations, government agencies, businesses, the formal and nonformal education systems, and others in providing environmental education that is appropriate and helpful to the community.
- Model responsible, respectful, and reasoned behavior during instruction.
- Model the process of inquiry and application of environmental investigations in instruction.
 - Pre-Score ____ Post-Score ____

Guideline 3.2: Emphasis on education, not advocacy - Educators understand that their commitment as environmental educators is to provide accurate, balanced, and effective instruction—not to promote a particular view about environmental conditions, issues, or actions.

- Identify and implement instructional techniques for presenting differing viewpoints and theories in a balanced manner and identifying potential sources of bias in information.
- Differentiate among instructional materials on the basis of their factual accuracy. Select and use materials that together present a range of differing viewpoints, ethical positions, and interpretations where there are differences of opinion or competing scientific explanations. Weigh evidence regarding environmental problems based on validity of data (e.g., from scientific societies or reputable journals).
- Identify and implement instructional strategies and techniques that encourage learners to explore different perspectives, form their own opinions, and explain their beliefs.
- Pre-Score ____ Post-Score ____

Guideline 3.3: Ongoing learning and professional development - Educators are aware of the need to be active learners in their professional lives.

- Identify and practice ways of continually updating information about the environment and issues, current research, environmental education materials, and instructional methods. For example, critically read scientific journals or join and actively participate in local, state, national, or international organizations associated with environmental education, or participate in a professional certification program.
- Identify and develop relationships with mentors, advisors, and others who challenge educators to expand and upgrade their knowledge and skills and expand their firsthand understanding of different points of view about environmental issues.
- Reflect on and learn from personal practice as an environmental educator, both individually and with other professionals and colleagues. Use tools such as peer coaching, portfolios, and journals.
- Seek out opportunities to learn essential content and skills in real-world environmental settings or contexts, especially within the communities and ecosystems in which one lives and teaches.
- Learn and use research and analytical skills to expand existing knowledge about the environment, related issues, and environmental education.
- Pre-Score ____ Post-Score _____

Theme 3 Pre-Average ____ **Post-Average** _____

Theme 4: Planning and Implementing Environmental Education

Guideline 4.1: Knowledge of learners - Educators know how to tailor instructional approaches to meet the needs of, yet challenge, different learners.

- Identify and model methods for presenting the environment or environmental issues in appropriate and engaging ways for learners of different ages, backgrounds, levels of knowledge, and developmental abilities. (This range may include adults, especially for educators in nonformal settings.)
- Select environmental education materials and strategies that are developmentally appropriate for a designated age or level of knowledge. Adjust these to respond to individual differences among learners.
- Demonstrate an understanding of learning theories such as multiple intelligences and learning styles. Organize environmental education instruction to accommodate different approaches to learning.
- Apply theories of cognitive and moral or social development in creating an environmental education instructional plan for a particular grade level, class, or group.
- Recognize and acknowledge the validity of varying cultural perspectives present in groups of learners. Tailor instructional approaches to respond to these perspectives and use them as an educational resource.
- Pre-Score ____ Post-Score _____

Guideline 4.2: Knowledge of instructional methodologies - Educators are familiar with and can employ a range of instructional methods that are particularly suited to environmental education.

- Select among relevant environmental topics and issues for study based on learners' interests and their ability to construct knowledge to gain conceptual understanding.
- Use a variety of teaching methods and strategies appropriate for the environmental education content and context.
- Select instructional methodologies based on learning objectives, learner characteristics, time requirements, involvement of community members, community dynamics and policies, available resources, and the instructional setting.
- Pre-Score ____ Post-Score _____

Guideline 4.3: Planning for instruction - Educators are able to plan age-appropriate environmental education instruction and programs that meet specific instructional goals.

- Produce a plan for environmental education instruction and demonstrate how the overall plan and specific elements (such as plans for units of instructional or daily activities) enhance coordination or integration across disciplines or help meet specific goals of environmental education.
- Develop a plan for a coherent, focused environmental education program that is consistent with the content outlined in *Excellence in Environmental Education—Guidelines for Learning (K–12)* or comparable expectations for adults.
- Demonstrate how plans for environmental education instruction will help learners meet relevant national, state, and local educational standards for learning performance in specific disciplines.
- Pre-Score ____ Post-Score _____

Guideline 4.4: Knowledge of environmental education materials and resources - Educators are aware of a range of materials and resources for their environmental education efforts and understand how to access, evaluate, and use these resources.

- Identify and evaluate materials and education resources using criteria such as those suggested in *Environmental Education Materials: Guidelines for Excellence*.
- Demonstrate ways in which the community can be a resource for environmental education, identifying local businesses, service organizations, government agencies, nonprofit organizations, and others that may participate in and support instructional programs.
- Identify and use sources of information about instructional materials and other resources including training offered by national, state, and local environmental education programs and professional organizations.
- Use the internet to identify and access sources of information about the environment, particular issues, and educational resources. Critically evaluate the usefulness of resources found on the internet.
- Pre-Score ____ Post-Score _____

Guideline 4.5: Technologies that assess learning - Educators are familiar with a range of technologies available to assist student learning.

- Use a variety of tools for environmental observation, measurement, and monitoring (e.g., magnifying glasses, chemical tests, hygrometers, surveys and interview techniques, traffic counts) and instruct learners in their safe and proper use.
- Demonstrate proficiency with technologies used to display, analyze, and communicate environmental information.
- Identify sources of expertise about unfamiliar learning technologies and learn from them or incorporate this outside expertise into instruction.
- Pre-Score _____ Post-Score _____

Guideline 4.6: Settings for instruction - Educators understand the importance of a safe and conducive learning environment both indoors and outside.

- Demonstrate a concern for learner safety in designing, planning, and implementing instruction, especially experiences that are hands-on or that take place outside the classroom. Attend to the physical layout and maintenance of the learning facility or center so learners can use it safely and effectively.
- Identify, create, and use diverse settings for environmental education, appropriate to different subject matter and available resources. These may include the school yard, laboratory, field settings, community settings, museums, zoos, demonstration sites, and other places.
- Identify or develop and implement responses to real or perceived barriers to using expanded settings (such as outdoor settings) in educational and safe ways.
- Plan and implement instruction that first links content to learners' immediate surroundings and Self-Assessment for Environmental Educators experience, then expands learners' horizons as appropriate to larger environmental issues and contexts.
- Pre-Score _____ Post-Score _____

Guideline 4.7: Curriculum planning - Educators are familiar with ways of including environmental education in the curriculum.

- Describe basic approaches to creating a developmentally appropriate scope and sequence for environmental education curricula.
- Develop an environmental education program designed to meet the educational goals of an agency or other institution using criteria such as those outlined in *Nonformal Environmental Education: Guidelines for Excellence*.
- Develop a plan for integrating environmental education into the formal school curriculum, either across the curriculum or as a separate course or emphasis within one or more areas of study.
- Demonstrate links between environmental education curricula (or plans for integrating environmental education into an existing curriculum) and national, state, or local standards in disciplines such as science, mathematics, social studies, geography, and language arts.
- Correlate environmental education with state education standards in a particular discipline or grade level.
- Pre-Score _____ Post-Score _____

Theme 4 Pre-Average _____ **Post-Average** _____

Theme 5: Fostering Learning

Guideline 5.1: A climate for learning about and exploring the environment - Educators understand how to create a climate in which learners are intellectually stimulated and motivated to learn about the environment.

- Relate the idea of lifelong learning to instructional practices that engage learners in taking responsibility for their own learning and expectations for achievement. Demonstrate proficiency with these practices in instructional settings.
- Imbue instruction with a sense of the importance and excitement of the content.
- Provide opportunities for experiences that increase learners' awareness of—and enthusiasm for—the natural and human-designed environment.
- Incorporate opportunities for learners to have firsthand experiences exploring the world around them.
- Discuss why fostering clear and independent thinking is important in light of environmental education's goal of developing environmentally literate citizens.
- Identify and use instructional techniques that encourage learners to ask questions and explore a variety of answers.
- Pre-Score ____ Post-Score _____

Guideline 5.2: An inclusive and collaborative learning environment - Educators know how to maximize learning by fostering openness and collaboration among learners.

- Identify and use ways to encourage flexibility, creativity, and openness, considering the assumptions and interpretations that influence the conclusions that learners and others draw about the environment and environmental issues.
- Relate learners' capacity for collaborative work to their ability to function as responsible and effective citizens. Describe and implement management techniques that foster independent and productive group work.
- Include diverse cultures, races, genders, social groups, ages, and perspectives with respect, equity, and an acknowledgment of the value of such diversity. Use diverse backgrounds and perspectives as instructional resources.
- Pre-Score ____ Post-Score _____

Guideline 5.3: Flexible and responsive instruction - Educators know how to augment proper planning with the flexibility that allows them to take advantage of new instructional opportunities.

- Modify instructional plans and approaches, when appropriate, to take advantage of unexpected opportunities (e.g. new developments in community issues, recent events or phenomena that are in the news, or breakthroughs in scientific understanding) and learner questions and interests.
- Blend a variety of instructional methods and activities to meet instructional objectives. Make smooth transitions from one to another.
- Work collaboratively with other instructors and discipline areas, adapting instructional approaches as needed to blend or complement instructional styles and to meet shared environmental education goals.
- Pre-Score ____ Post-Score _____

Theme 5 Pre-Average ____ **Post-Average** _____

Theme 6: Assessment and Evaluation

Guideline 6.1: Learner outcomes - Educators understand the importance of tying assessment to learning.

- State expected learner outcomes that are tied to the goals and objectives of environmental education.
- Identify national, state, and local standards that apply to stated learner outcomes and link assessment of environmental education learnings to these.
- Develop and use a variety of strategies for assessing learning outcomes that reflect both subject area standards and environmental education goals and objectives.
- Describe and use means for engaging learners in setting their own expectations for achievement. Discuss the importance of these abilities in light of environmental education's emphasis on learner-centered education and lifelong learning.
- Pre-Score ____ Post-Score ____

Guideline 6.2: Assessment that is part of instruction - Educators are familiar with ways of incorporating assessment into environmental education.

- Make objectives and other expectations clear to learners at the outset of an environmental education activity or instruction.
- Provide examples of and implement specific performance-based assessments such as portfolios, open-ended questions, oral reports, group or independent research, or other projects appropriate to environmental education instruction.
- Identify and use techniques that assess learners' baseline understandings and skills at the beginning of environmental education programs, lessons, units, and other segments of instruction such as school terms.
- Develop formative and summative assessment tools appropriate to specific environmental education instructional segments or projects.
- Discuss the importance of and identify techniques for encouraging learners to assess their own and others' work. Use these assessments to improve their learning experiences.
- Pre-Score ____ Post-Score ____

Guideline 6.3: Improving instruction - Educators know how to use their instructional experiences and assessments to improve future instruction.

- Organize, interpret, and use the results of differing kinds of assessment to help modify and improve future instruction.
- Demonstrate a willingness and ability to collect additional information from and about learners to help modify and improve future instruction.
- Seek out opportunities to reflect, individually and with colleagues, on their own instructional practices and the broader practice of environmental education within the field.
- Pre-Score ____ Post-Score ____

Guideline 6.4: Evaluating programs - Educators understand the importance of evaluating environmental education programs and are familiar with basic evaluation approaches.

- Discuss how program evaluation, including needs assessment, formative evaluation, and summative evaluation, contributes to program design and implementation.
- Differentiate among program outputs, outcomes, and impacts and explain how they relate to program goals and objectives.
- Describe reasons for evaluating environmental education programs.
- List a variety of data collection methods used in environmental education program evaluation.
- Develop a plan for integrating evaluation into the overall program design process using criteria such as those suggested in *Nonformal Environmental Education Programs: Guidelines for Excellence*.
- Pre-Score _____ Post-Score _____

Theme 6 Pre-Average _____ Post-Average _____

For your records, provide the theme averages scored on the first page of Appendix A.

APPENDIX B

MAEOE's Environmental Educator Certification Code of Ethics

As a practicing and future certified environmental educator in Michigan, you are agreeing to accept the following code of conduct. By pursuing the EEC and completing all the requirements, you are thereby agreeing to the statement of purpose and standards set forth below.

Statement of Purpose

The environmental educator shall comply with standard practices and ethical conduct toward students, professional colleagues, school officials, parents, program participants, members of the community, whatever their age or development level, and shall safeguard academic freedom. The Michigan environmental educator, in maintaining the dignity of the profession, shall respect and obey the law, demonstrate personal integrity, and exemplify honesty at all times. In exemplifying ethical relations with colleagues and professional organizations, the Michigan environmental educator shall extend just and equitable treatment to all members of the profession. In accepting a position of public trust, the Michigan environmental educator shall measure success by the progress of each student toward the realization of his or her potential as an effective citizen. In fulfilling responsibilities in the community, the Michigan environmental educator shall cooperate with parents and other community members to improve the educational opportunities throughout the community.

Standards

(1) Ethical Practices and Intellectual Responsibility

- a. The educator shall strive to avoid situations where a conflict of interest may arise
- b. The educator shall work towards promoting competence in the field of Environmental Education by supporting high standards of education, performance, and employment practices
- c. The educator shall subscribe to the highest standards of integrity and conduct
- d. The educator shall strive to increase knowledge and skills towards involvement in resolving environmental issues
- e. The educator shall subscribe to the highest standards of integrity and conduct
- f. The educator shall facilitate the communication of facts relating to the environment and environmental issues
- g. The educator shall accurately and adequately represent facts and research results, refraining from basing decisions on personal beliefs, political pressures, or client/supervisor pressures
- h. The educator shall provide the most balanced and factual information possible about the environment
- i. The educator shall make an effort to become familiar with new research in field of environmental education and keep informed of new trends within the field as they arise
- j. The educator shall make it a priority to promote education while refraining from advocating personal views and beliefs

(2) Professional Performance and Conduct

- a. The educator shall submit only honest and accurate requests for reimbursement, expenses, and/or pay
- b. The educator will use monies, personnel, property, and/or equipment committed to his or her charge according to accepted ethical standards
- c. The educator shall maintain accurate and honest records
- d. The educator shall comply with all state regulations, written school board policies, and other applicable state and federal laws
- e. The educator shall apply for, accept, offer, or assign a position or a responsibility only on the basis of professional qualifications
- f. The educator shall not knowingly engage in deceptive practices regarding official policies of the local school district or institution
- g. The educator shall put forth maximum effort in the best interest of each client/employer, regardless of the degree of remuneration
- h. The educator shall uphold the dignity and integrity of the environmental education field by endeavoring to avoid even the suspicion of dishonesty, fraud, deceit, misrepresentation, or unprofessional demeanor
- i. The educator shall cooperate fully with other professionals in the best interests of environmental education
- j. The educator shall refrain from injuring the reputation of another environmental educator or environmental organization through the use of false, biased, or otherwise undocumented claims
- k. The educator shall not make false, misleading, or deceptive statements regarding personal qualifications
- l. The educator shall constantly remain aware of how personal belief systems may affect professional activities
- m. The educator shall accept responsibility for all behavior and decisions
- n. The educator shall possess an adequate basis for professional judgment
- o. The educator shall respect fundamental rights, dignity, and worth of program participants, staff, colleagues, etc.
- p. The educator shall not accept nor offer gifts, gratuities, tokens, or favors that may impair professional judgment or serve to obtain special advantage
- q. The educator shall use institutional or professional privileges only in the appropriate context and not for personal or partisan advantage
- r. The educator shall work to encourage the use of sound environmental education principles in management decisions

(3) Ethical conduct towards professional colleagues

- a. The educator shall maintain confidentiality concerning matters of health and/or personnel information concerning colleagues unless disclosure serves a lawful purpose or is required by law
- b. The educator shall adhere to written policies and state and federal laws regarding hiring, evaluation, and dismissal of personnel
- c. The educator shall insure that a colleague's exercise of political, professional, or citizenship rights and responsibilities are not restricted

- d. The educator shall not discriminate against or coerce a colleague on the basis of race, color, religion, national origin, age, sex, disability, or family status
 - e. The educator shall not use coercive means or promise of special treatment in order to influence colleagues or professional decisions
 - f. The educator shall support fair and uniform standards of employment and treatment of those professionally engaged in environmental education
 - g. The educator shall not retaliate against any individual who has filed a complaint under these standards
- (4) Ethical conduct towards students and the learning environment
- a. The educator shall maintain confidentiality concerning students unless disclosure serves lawful professional purposes or is required by law
 - b. The educator shall not knowingly treat a student in a manner that adversely affects the student's learning, physical health, mental health, or safety
 - c. The educator shall not deliberately or knowingly misrepresent facts regarding a student
 - d. The educator shall not exclude a student from participation, deny benefits to a student, or grant advantages to a student on the basis of race, color, sex, disability, national origin, religion, or family status
 - e. The educator shall not furnish alcohol or illegal/unauthorized drugs to any student or knowingly allow any student to consume alcohol or illegal/unauthorized drugs in the presence of the educator
 - f. The educator shall not engage in physical mistreatment of a student
 - g. The educator shall not solicit or engage in sexual conduct or a romantic relationship with a student
 - h. The educator shall be sure that students remain safe
 - i. The educator shall make sure that students follow directions and use appropriate equipment when necessary
 - j. The educator shall stay within boundaries, ask property owners before taking students on sites off of school/institution property, and ask property owners before taking anything from the land
 - k. The educator shall be sure supervision is adequate for the number of students and for the particular study site
- (5) Social and Environmental Responsibility
- a. The educator shall strive to be sensitive to cultural and individual differences of those they interact with professionally
 - b. The educator shall recognize education about the environment and human interaction with the environment as their primary goal
 - c. The educator shall disseminate information to promote understanding of, and appreciation for, the human relationship with the natural environment
 - d. The educator shall accurately represent the capability of science to resolve environmental problems

- e. The educator shall promote EE as positive but realistic manner so as to encourage involvement by other professionals
- f. The educator shall obey all laws protecting plants and animals; all living things are to be respected and not injured in any way
- g. The educator shall collect a plant/animal only if it can be kept alive during the process of learning from it and if it is then returned it to its natural habitat
- h. The educator shall not collect things that may harm program participants
- i. The educator should only collect something if there are a lot of them in that place; minimize the number of organisms collected; never collect a rare or endangered species or in a state or national park
- j. The educator shall collect something only if something very important and can be learned from it
- k. The educator shall avoid making collection the main focus of outdoor activities and should instead focus on the understanding of ecological concepts
- l. The educator shall respect fundamental rights, dignity, and worth of the environment

**REFER TO THE CODE OF ETHICS AS A REMINDER OF
STANDARD PRACTICES AND ETHICAL CONDUCT OF AN
ENVIRONMENTAL EDUCATOR.**

APPENDIX C LETTER OF INTENT - Sample

*A version of this letter will appear in your EEC online portal. If all your required materials (Strands 1-4) are uploaded into your online portfolio by February 1st, then you will notify the EEC Coordinator through the submission of your intent to present your Capstone that year. You will simply review this document in your online portal, and submit your acknowledgement of the content of this letter where indicated in the Strand 5 section online. Once all your materials have been reviewed by the EEC Committee, then you will be notified by June 1st to hopefully present your Capstone at the MAEOE Conference that fall. **To ensure your understanding of the process, please read the following letter before indicating your readiness to pursue the Capstone.***



Dear MAEOE EEC Committee,

In anticipation of MAEOE's Fall Conference presentations of EEC Capstones, I am submitting this letter to indicate my achievement of Strands 1-4 according to the most recent MAEOE EEC document. To my knowledge, I ensure that all completed materials are uploaded on the EEC online portal and have met acceptable standards.

I understand you will acknowledge you received this request to advance to Strand 5. If there are incomplete components in Strands 1-4, then you will also inform me of these insufficiencies. Minor adjustments or edits may be likely, but it is understood if I cannot pursue my Capstone at this time if a major component is missing or poorly done.

I understand that I will know by April 1st if changes need to be made to my online portfolio. I will make any edits or complete requirements within two weeks of the notification. I realize that the MAEOE EEC Committee will inform me by June 1st if I can pursue Strand 5 this year. The remaining balance, \$75 (of the \$150) is due by June 1st.

I look forward to presenting my capstone project to the broader Environmental Education community at this year's MAEOE Conference, thus allowing me to complete Strand 5. I will expect an email response from the committee within the month. Thank you for considering my EEC accomplishments.

Sincerely,

[Your Name]



APPENDIX D PERSONAL WORK PLAN

Name: _____ Date: _____

Use this as a personal guide to help determine your progress through the EEC. Strands 1-5 align with NAAEE Guidelines for a certified environmental educator. You will upload all of your accomplishments into the EEC online portal by February 1 of the intended year of presenting the Strand 5 Capstone.

Current Date	Strand / Requirement	Proposed Completion Date	Completion Recommendation	Actual Completion Date	Notes
	EE Self-assessment (review in this document, and complete online once registered)		Complete immediately		
	Strand 1: Environmental Awareness, Basic Knowledge, and Skills (in-person workshop)		Complete immediately		
	Strand 1: Environmental Awareness, Basic Knowledge, and Skills (online)		Begin immediately before/following workshop; Complete within 6 months		
	Strand 2: Planning and Implementing Environmental Education Lessons		Within 12 months		
	<i>Workshop/Class Title:</i>				
	<i>Workshop/Class Title:</i>				
	<i>Strand 2 Lesson Implementation (relate to Strands 3 and 4)</i> <i>Title:</i>				
	<i>Strand 2 Evaluations</i>		Immediately following lesson implementation		
	<i>Strand 2 Reflection</i>		Immediately following lesson and review of evaluations		

	Strand 3: Environmental Literacy and Action through Education – An Informational Paper <i>Proposed Topic Ideas:</i>		12-14 months into program		
	Strand 4: Professionalism, Leadership, and Community: The Action Project - <i>Proposed Topic Ideas:</i>		14-20 months into program		
	<i>Strand 4 Evaluations</i>		Before, during and/ after project (dependent of type of project) – see App. D & E		
	<i>Strand 4 Reflection</i>		Before, during and/ after project – see App. D & E		
	Strand 5: Sharing and Celebrating - The Capstone		20-23 months into program (complete and upload all Strands 1-4 requirements by Feb 1 of intended Capstone year at MAEOE Conference)		
	EE Self-Assessment		Complete online after presenting Capstone		

Tip: To help keep the EEC in mind, keep a copy of your Personal Work Plan accessible so you can modify, update, and refer to your progress easily.

APPENDIX E

Strand 2: Lesson Plan Template

Your lesson plan will be unique to your setting. Although you will have completed two EE professional development workshops in preparation and may have received completed lesson plans, you will tailor a lesson to your audience and needs. The lesson should somehow relate to your ultimate Action Project (Strand 4).

Follow the headings and descriptions in either document provided to create a thorough lesson/activity. Feel free to utilize your own style for the lesson plan, but ensure main elements of the headings listed in the examples are covered. Completeness is partly how the EEC Committee will evaluate you, along with depth and appropriateness of application. Remember to tie your lesson to something relevant to your potential Strand 3 Informational Paper and Strand 4 Action Project.

The lesson plan will exhibit an environmentally-related topic that is experiential and appropriate for your target audience. **Refer to the templates provided below and the subsequent page to create a thorough lesson plan.**

Ensure that the lesson includes the minimum of:

- a title with clarification of topic focus
- learning outcomes
- alignment to NGSS or other standards
- a creative way to pique the audience's interest
- enough information to duplicate the lesson
- means for assessment

MEECS Ecosystem Lesson Plan Sample

Michigan Ecosystems: What Have They Done for YOU Lately?

<https://www.cmich.edu/colleges/se/Geography/Michigan%20Geographic%20Alliance/Environmental%20Education/Documents/MEECS%20EcoBio%20sample%20lessonwm.pdf>

SAMPLE LESSON PLAN

1. **Title** of Lesson/Project Proposal (attention grabbing).
2. **Topic** - a one-sentence introduction to what the lesson will entail
3. **Learning outcomes** listed (3-4). Tip: use terms from Bloom's taxonomy to begin each statement.
4. **Duration** of lesson? How long will it take to prepare, implement, and discuss?
5. Intended **audience/grade level**?
6. Align with applicable **Michigan Academic Standards** (K-12) – **at least three standards written in their entirety** (http://www.michigan.gov/mde/0,4615,7-140-28753_64839_65510--00.html), **Next Generation Science Standards** (<https://www.nextgenscience.org/search-standards>), **OR indicate other formal guidelines or standards addressed.**
7. **Materials** needed to complete lesson.
8. **Prior knowledge** students have learned need to be listed or described.
9. **Pre-survey/Pre-assessment** questions (given pre- and post- lesson); this is an assessment of the students' knowledge, attitude, behavior, etc. regarding the topic about to be presented then given to students again or derivation of at the culmination of the lesson. Must be audience appropriate.
10. **Engage** – how will you pique the interest of the intended audience?
11. **Explore** – discuss ways you can help students guide student inquiry of the topic
12. **Presentation** of the lesson/project. Bullet your discussion points of the topic from beginning to the end of lesson – what you expect them to know. Provide details of specific content separately.
13. Age-level appropriate **activity** for audience to partake. Provide a step-wise (numbered) format to explain the relevant, experiential activity for students to conduct to help understand material.
14. **Summary/closing** of lesson/proposal; this is how you will summarize or have students demonstrate understanding.
15. **Teacher notes** to help with setup, discussion, answers, or other things to help with streamlining the lesson.
16. **Post-survey/Post-assessment** – Methods to assess students' knowledge, skills, attitude, behavior, etc. regarding the topic presented to students at the culmination of the lesson. Must be audience appropriate. Indicate how much time has lapsed for post-assessment; you may separate survey/assessment into stages or types (self, graded, formative, summative, etc.); provide on a separate page.
17. **Assignment/extensions/guidelines for further learning** for students/participants; this is something for students to do after the lesson is finished or to do as homework or to extend learning beyond the classroom; provide this idea on a separate page.

APPENDIX F

Lesson Plan & Action Project - The Evaluation & Reflection

Provide a sample of the evaluative type(s) used for your lesson plan. Do not send the results of all evaluations completed. However, you may want to share some of them during your Capstone presentation (Strand 5).

Based on the nature of your evaluation used, submit a template online of what you used or provide a description.

The Evaluation - The **template on the next page provides elements of what your evaluation must use**. Tailor it to meet your needs as long as what you change addresses the main aspects in our template. The type of lesson and audience will be taken into consideration when considering the appropriateness of the assessment or evaluation. You are encouraged to incorporate various means to assess and evaluate your lesson/program. **Use materials and resources given in NAAEE's Theme 6 for other assessment and evaluation ideas.**

- At least **10 members of the audience** who participated in the activity should complete the evaluation.
 - Have at least one supervisor and one colleague evaluate you. This is always good practice and will hold credibility to your performance review. The more you can have assess your instruction, the better.
 - If your audience consisted of *young children*, be sure to explain how you assessed for learning (e.g. drawings, KWL charts, video interviews, etc.). Include your rationale for selecting your assessment method in your reflection.
- It is *unnecessary to submit every completed assessment/evaluation*. However, submitting examples with good and complementary feedback will help create a marketable portfolio for your future use. An effective environmental educator will score at or above the 80% rating on evaluations.
- **Submit an example of your assessment/evaluation(s) used for the lesson plan implemented. If you did not use an actual form for your audience to complete, then describe the process you used.**
- For *recertification*, and to exhibit best practices in teaching, it is encouraged to experiment with various methods of assessment and evaluation.

The Reflection – You will reflect on the Strand 2 Lesson Plan and Strand 4 Action Project.

In 250 words for each of your reflections, discuss the: (1) setting for learning, (2) your audience (age, observations, etc.), (3) how did you assess or evaluate your audience, (4) what were the results and themes of the evaluations, (5) what did you think was good or effective, and (6) describe ways to improve in the future.



PARTICIPANT EVALUATION

MAEOE
Environmental
Educator
Certification

Thank you for your interest in today's topic. The sponsors and others working with this project would like to ask your assistance in providing the following information. Your responses will help us evaluate the project's effectiveness and improve its services. Your name is not required if you prefer to remain anonymous.

Name of Participant (optional)	EEC Candidate/Project Leader/Facilitator	Location	Date
Name of Session/project:			

CONTENT

1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree

The project/session covered useful material	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
The project/session was well organized	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
This project/session needed to be longer	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
The activities were covered effectively	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
The visual aids were appropriate	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I was satisfied with the project/session	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

PRESENTATION

1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree

The facilitator knew the material	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I enjoyed the facilitator's teaching style	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
The facilitator covered the material clearly	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
The facilitator responded well to questions	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I will recommend this project/session to others	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

How could this project/session be improved?

Which information are you most likely to use/apply? Why/How?

Which information are you least likely to use? Why?

What advice would you give this facilitator for improvement or encouragement?

Comments and/or Testimonials

How would you rate this project/session overall?

Useless Poor Average Good Excellent

APPENDIX G

Strand 3: Environmental Literacy and Action through Education – The Informational Paper REQUIREMENTS

This is a great opportunity to become an expert in a local issue. Perhaps you will focus on something you currently work with or you can use this exercise to pursue something new that piques your interest and has great social-ecological concern.

You will research a specific, current, or ongoing local or regional environmental issue that deals directly with Michigan's ecological well-being. Preferred issues will have some presence in the media and/ be under debate.

Utilize reputable resources to identify key elements of the issue. Consider using primarily unbiased, peer-reviewed sources and try Google Scholar for easy searching for the latest research.

You will articulate why citizens should care about the topic by including the potential social-ecological impacts on the stakeholders. The paper will also provide a proposal for an environmental education action project to help remediate the environmental concern or topic. **This paper is the foundation for your Strand 4 Action Project.**

Requirements for issue selection:

- Location must be a *specific* site in Michigan
- Directly relates to Michigan's environment and/ social-ecological well-being
- Issue/topic must have a specific timeframe or date (when did the issue or trend begin, is it resolved, does it continue)

It is **highly encouraged to work with area partners** to help identify local environmental concerns and to help with the execution of the Action Project in Strand 4. Contact your local watershed council, conservation district, or college for potential partnerships, ideas, and/ support.

Examples of possible subjects:

- Present, proposed, or past concerns/events such as students with a low environmental literacy level, audiences with a lack of exposure to the outdoors and/ local environmental issues, or regional environmental issues such as the building of a wind farm, invasive species concerns, problems with stormwater runoff or erosion, construction of a pipeline or authorization of drilling or mining. The topic must be specific.

Structure of Paper

The paper will have four sections: *Issue Synopsis*, *Social-Ecological Perspectives*, *Plan for Action through Education*, and *References*. Use these headings in the construction of the paper. Answer or address the following requirements in each section.

Review the scoring rubric to also help guide your writing. You will essentially tell the reader: *what* you plan to do, *why* you want to do it, *how* you plan to do it and how you will know you have accomplished your objectives.

Use the following descriptions of the sections and the rubric as your guides to write the paper. It will make it easier to organize your thoughts and research, and will help ensure you cover all important parts for the Strand 3 requirements.

Section 1: Issue Synopsis

Identify the local, environmental concern. *Clearly identifying the problem is the most crucial step in the process.* Why should citizens care about this topic? Describe the *basic facts* of the issue and the *parties involved*. Include the *location, time frame* of the concern, and a *general summary* of the issue. The purpose of the synopsis is to orient the reader to the key facets of the issue. Gathering information from a variety of reputable resources on your topic is essential to helping identify and analyze the topic and its viewpoints thoroughly. All claims need to be supported by evidence – educate not advocate.

Section 2: Social-Ecological Perspectives

In this section, address the various *potential social-ecological impacts of your topic*. Your claims need to be supported by what you have researched in current literature.

Social Perspectives

Social perspectives of any environmental topic exists and are *critical to helping solve the problem*. Consider the *local culture, economy, history, decision makers, etc.* The following questions are to be considered when writing this section, but other views can be considered. Select those that apply to your topic. Learning about the varied perspectives can help realize further concerns and help identify potential solutions.

Questions to help guide the organization and content of your paper: Who are the interested parties of the environmental issue identified? How are they affected by the problem? How do they perceive the issue? What do they value? How would they want the issue resolved? What are any conflicting interests among those parties? What are the underlying reasons behind their values and interests? How do members of the affected community feel about the event or proposed event? What are the dominant values of the various parties? Who is for or against the event or, in the case of a disaster such as an oil spill, what stand do the various parties take? What are the decision makers' interests? What are the motivations, stakes, and interests of the actors? What resources (financial, political, and cultural) do they have and what action channels can they access to

influence decision making? Are there conflicting interests among those parties? What are the economic issues associated with the topic?

Ecological Impacts

Discussion of *how the topic affects the environment* will occur in this section. What have been the short-term impacts or what could be the potential short-term impacts of the environmental issue identified? What are/could be the long-term impacts? Consider all possible impacts of the issue selected - what spheres (geosphere, hydrosphere, atmosphere, biosphere) are the impacts felt? What are the direct and indirect environmental costs and benefits of this issue?

Section 3: Plan for Action through Education

In this section, you will *reflect* on the information learned from the research to recommend actions toward and *propose a plan for action through environmental education*. Appendix H provides examples of potential Action Projects for Strand 4. While your position is not judged as right or wrong, whichever position is taken must be *supported with evidence* from the research and an acknowledgement of personal values. This practice follows the EEC Code of Ethics (Appendix B). Justify the action proposed by *identifying how the social and ecological factors previously identified may be positively impacted*. Also address *how you will evaluate* whether you accomplished *your objectives* of the Action Project. Be sure that your *Action Project aligns with what was addressed in this Informational Paper*. Realize not all problems can be solved with one action, and this message will be relayed in the paper with *suggestions for future ideas* to help with the environmental issue addressed.

Questions to ponder while determining a plan for action (Strand 4):

- What are the values and interests served by the plan?
- What possible outcomes does the plan hold?
- What are the barriers that might stand in the way of the desired outcome?
- Does the solution directly relate to the problem?
- Does the plan provide a meaningful contribution?
- What resources and time would be required?
- Is the plan a "win-win" or a "win-lose"?

 - What parties are affected by the plan and how are they impacted?
 - What are the chances of getting this plan permanently adopted?
 - Are the resources available adequate for implementing this plan?

Section 4: References

A list of the sources and references used in the research of the paper needs to be included. Citations may use any appropriate format – just as long as titles, authors, dates, website addresses are presented and the resources can be retrieved by the reviewer if necessary. However, using APA formatting is preferred. For assistance, see Purdue University's Online Writing Lab for APA use.

Papers must have at least 4 unique references. Of note, while some sources for the human element/stakeholders may be biased, it is important that the facts of the issue be from reputable sources which have been evaluated for bias and veracity. Scholarly sources for consideration include, but are not limited to the *Journal of Environmental Education*, *International Journal of Environmental and Science Education*, and the *Journal of Environmental Science*. Conducting a search on the topic through Google Scholar can be very effective in acquiring current, peer-reviewed sources.

Other requirements:

- Paper must be typed, in 12-point Times New Roman font with 1-inch margins.
- There is no page minimum or maximum. All required information should flow in a comprehensible, yet concise and complete format. Following the prompts above for each section offers the guidelines for content.
- Sections should be labeled with the headings in this template.
- Plagiarism will result in no credit earned for the essay. Papers submitted without the minimum number of four reputable references will not be considered for scoring.
- SEE SCORING RUBRIC ON THE FOLLOWING PAGE** - Knowing what you will be evaluated on will help ensure you included all pertinent information. Your rubric results should rate at or above the 80% effective rating. Any score less than that value will require editing and resubmission of the paper according to the EEC Committee's indicated timeline.

Follow the guidelines and answer the questions in this template, while also reviewing the scoring rubric can lead you toward the completion of a well, thought-out paper required for Strand 3.

Strand 3 Scoring Rubric for Paper				
Grading Rubric	3-Exemplary	2-Commendable	1-Acceptable	0-Poor
Introduction	Powerfully introduces a topic and its importance to Michigan.	Clearly introduces a topic and its importance to Michigan.	Introduces a topic relating to Michigan.	Unclear of topic importance to Michigan.
Issue Synopsis	Describes accurately the facts surrounding the issue and its importance to Michigan with several sources, addresses biases, and demonstrates critical thinking of consequences.	Describes the facts surrounding the issue and its importance to Michigan with several sources, addresses biases, and demonstrates consequences.	Describes the facts surrounding the issue with one source, some biases were addressed, touches on consequences.	Does not describe facts surrounding the issue and its importance to Michigan, biases & consequences were not addressed.
Social-Ecological Perspectives	The issue and its importance to Michigan is described in detail, focused on pros and cons experienced by various stakeholders and the environment itself, provided specific examples.	The issue and its importance to Michigan is described, pros and cons experienced by various stakeholders and the environment itself were addressed, provided general examples	The issue related to Michigan, some pros and cons were listed, some examples were addressed.	Does not describe an issue or how it related to Michigan, pros and cons were not included, examples were not addressed.
Plan for Action through Education	Critically thought about the information learned and made a meaningful plan for action, evidence is used to support plan, acknowledgment of personal values were addressed, evaluation idea included that aligns with this paper, future recommendations made for plan's sustainability.	Thought about the information learned and made a plan for action, evidence is used to support plan, acknowledgment of personal values were addressed, evaluation idea included that aligns with this paper, future recommendations made for plan's sustainability.	Thought about the information learned and made a plan with a weak correlation to the research in the paper, no evaluation was proposed, no future recommendations	Does not make a plan with evidence, and acknowledgement of personal values was lacking, no evaluation was proposed, no future recommendations.
References	Provided a list of sources and references using an appropriate format, 4 or more unique references were included.	Provided a list of sources and references using an appropriate format, less than 4 unique references were included.	Provided a list of sources and references using an appropriate format, at least 1 unique reference was included.	Does not include a list of sources and references using an appropriate format.

Conclusion	Ends with strong reasons and evidence about the topic and its importance to Michigan.	Concludes with evidence about the topic and its importance to Michigan.	Concludes without reviewing topic and its importance to Michigan.	No concluding statements to stress topic and its importance to Michigan.
Information	All information is accurate and relevant to Michigan, addresses all sections of the paper requirements, valid details and examples chosen to make paper worthwhile	Information is accurate and relevant to Michigan, addresses sections of the paper requirements, details and examples are used.	Information is accurate and relates to Michigan, sections of the paper requirements are addressed, some evidence used to address the topic.	Information is inaccurate &/or insignificant, missing information on the sections of the paper requirements, examples not based on evidence.
Organization and Focus	Focused, logical & put in a well-organized sequence. <i>Other requirements</i> were included.	Logical with a clear focus. <i>Other requirements</i> were included.	Clear introduction and conclusion. Attempts to include <i>other requirements</i> .	No logical sequence & the focus is unclear. Few &/or no <i>other requirements</i> .
<u>Name of Writer:</u>		<u>Paper Title:</u>		
<u>Positive aspects of paper:</u>		<u>Area(s) that could use improvement:</u>		
<u>Questions to ask:</u>		<u>TOTAL SCORE:</u>		

APPENDIX H

Strand 4: Professionalism, Leadership, and Community - The Action Project

The Action Project is a continuation of the research conducted for Strand 3. Through the environmental education, you will execute the plan you proposed in your paper to help resolve the environmental concern you had identified. **In Strand 4, you will produce a document describing the process you followed for the Action Project you conducted.** Provide enough information to demonstrate critical thinking skills in the development and evaluation of the project.

Address each of the following topics listed in the outline below as part of the paper. The format provided will also help construct the project. Additionally, you will present the Action Project as the main part of your Capstone, Strand 5. Using this Appendix as a template during the development and implementation phases can help ensure all required details are covered.

- You will develop, execute, evaluate, and reflect on an EE Action Project based on your Plan for Action through Education idea proposed in Strand 3's paper.**
- Project ideas for consideration (you are not limited to what is listed here):*
 - Place-, project-, action-, or problem-based learning opportunity
 - EE event that you coordinate (e.g., workshop, festival, conference, etc.)
 - **Habitat restoration** for terrestrial or aquatic organisms (e.g., native plantings, prairie burns, natural/manmade animal home structures, exotic species removal, etc.)
 - An innovation for **storm water management** (e.g., rain garden, rain barrels, drain identification, buffer strips to reduce runoff into aquatic systems, etc.)
 - **Citizen science** (e.g., water quality monitoring, biodiversity/species inventory, etc.)
 - **Outreach**
 - i. Development of an EE program to raise awareness (not advocating) about an environmental topic or issue relevant in our state (e.g., ways to reduce runoff, fracking, water use, water quality, air quality, alternative energy, sustainable agriculture, invasive species, habitat fragmentation, biodiversity, etc.)
 - ii. Why should people care about your topic?
 - iii. Include plans that involve at least two methods of how to reach and educate a large audience
 - iv. Execute the plan
 - v. Examples: brochures, flyers, presentations, bulletin board/kiosk, Facebook

I. Requirements of the Action Project - *this outline will guide you through the write-up of Strand 4 and the presentation you provide for your Strand 5 Capstone*

- A. A description with local examples of **why people should care** about your topic.
- B. An explanation of your action plan that involves:
 - 1. Project **objectives**
 - 2. **Your role**
 - 3. The **audience** you are educating and working with to implement the project
 - 4. Identification of all **partners**, and their roles in the project
 - a. A recommendation, not a requirement. Learning the needs and interests of local organizations, schools, and businesses can help identify and help solve environmental issues.
 - 5. Steps of the project
 - a. Enough information so that the project could be **replicated**
 - b. Include how the activities address **knowledge, skills, attitudes, and behaviors**
 - c. Create a **survey for participants** to take pre- and/ post-project (include in document)
 - 6. An outline of the **educational delivery**
 - 7. An **analysis and reflection** of the project
 - a. Provide results of the survey conducted
 - b. What worked, and what did not work with your project?
 - c. Make recommendations for future similar projects. What happens next to sustain your project, or to educate others?

II. Project evaluation

- A. The MAEOE EEC Committee will evaluate the candidates' EE Action Project based on: relevance to EE, accuracy of information, extent of requirements followed, detail of action steps, level of richness and excitement of activities, potential impact of project, and educational elements.
- B. Ensure you have captured the following: *what* you did, *why* you did it, *how* you executed it, and *what* came of it and may come of it in the future – reflect on the experience, results of evaluation, and future recommendations. See Appendix F.
- C. Prior to advancing to Strand 5 – the Capstone presentation, you must complete Strands 1-4 and submit materials in your EEC online portal for review by the MAEOE EEC Committee. Upon approval, you will be ready to move to Strand 5. If the MAEOE EEC Committee determines you are not ready, they will make recommendations for completion and the candidate will get the opportunity to re-propose or may need to postpone until the following year.

APPENDIX I

Strand 5: Sharing and Celebrating – The Capstone

STRANDS 1-4 MUST BE COMPLETED AND APPROVED PRIOR TO APPLYING FOR YOUR CAPSTONE. The capstone activity for all EEC candidates involves presenting Strand 3 (the research) and Strand 4 (the Action Project) at MAEOE’s Annual Conference. The EEC Action Project will be presented to demonstrate knowledge and skills in EE. Examine the guidelines of how this capstone project will be assessed to help create a good quality presentation. *Plan for a 10-minute presentation.* More details will be provided to you upon acceptance of your capstone presentation request.

Presentation evaluation guidelines:

- Introduction** – Powerfully introduces presentation importance
- Coverage of the topic** - Details capture the important information about the topic to increase the audience’s understanding. All required aspects of Capstone included (see Appendix G). Tell us *what* you did, *why* you did it, *how* you executed it, and *what* came of it and may come of it in the future – reflect on the experience, results of evaluation, and future recommendations.
- Use of graphics/design** - All graphics are related to the topic and make it easier to understand; all graphics/text is visible from the farthest point in the room
- Information** – All information is accurate and relevant to EE, addresses all points for the EE Action Project requirements, valid and convincing evidence, details and examples are relevant
- Creativity** – Visuals are effectively incorporated, skillfully executed, and make the presentation more meaningful
- Delivery** – Speaks clearly; maintains eye contact uses appropriate volume and pacing, and seems to hold audience’s attention
- Organization and focus** – Focused, logical, and presented in a well-organized sequence
- Conclusion** – Ends with strong reasons and evidence about the benefits of implementing the project.
- Sources** - All sources (information and graphics) are accurately documented
- Mechanics** - No grammatical, spelling, or punctuation errors
- Presentation** - The presentation of material was presented clearly and distinctly, and established eye contact with the audience
- Appearance and rapport with audience** – Presenter seems confident, at ease, appropriately dressed, enthusiastic, and engages audience
- Ability to answer questions** – Recognizes questions from audience and answers them thoroughly with evidence

Grading Rubric	3 – Exemplary	2 - Commendable	1 - Acceptable	0 - Revisit
Introduction	Powerfully introduces presentation importance.	Clearly introduces the importance of the topic.	Introduces the topic.	Unclear of topic importance.
Information	All information is accurate & relevant to EE, addresses all points for the project requirements, valid & convincing evidence, details & examples carefully chosen to make presentation more meaningful and age appropriate.	Information is accurate & relevant, addresses points of the project requirements and additional pertinent topics with valid evidence, details & examples are used, age appropriate.	Information is accurate & covers the major issues surrounding the topic with some evidence, may not be age appropriate.	Information is inaccurate &/or significant information is missing; examples not based on evidence, does not consider age level.
Creativity	Visuals are effectively incorporated, skillfully executed, & make the presentation more meaningful.	Visuals are competently executed, used to complement the information & make the presentation more interesting.	Visuals can be seen clearly & convey relevant & accurate information about the topic.	Visuals are sloppily executed &/or contain information not relevant or meaningful to the topic.
Delivery	Presenter speaks clearly; maintains eye contact, uses appropriate volume & pacing, & seems to hold audience's attention.	Presenter(s) speak clearly & loud enough to be heard; maintains frequent eye contact.	Presenter(s) can be heard; some eye contact with the audience is made.	Presenter(s) difficult to hear/understand. Little eye contact made, and seems to be reading presentation.
Appearance & Rapport with Audience	Presenter(s) seem confident, at ease, appropriately dressed, enthusiastic, & engages audience.	Presenter(s) seem confident, dressed appropriately, & somewhat engaging.	Presenter(s) appropriately dressed; one attempt at engaging audience.	Presenter(s) appearance, dress &/or gestures distract from presentation; does not engage group.
Organization & Focus	Focused, logical, & presented in a well-organized sequence. Presents approximately 10 minutes (or TBD)	Presented logically & with a clear focus. Presents 10 minutes (or TBD).	Presentation has a clear introduction & conclusion. Presents 10 minutes (or TBD).	Presentation has no logical sequence & the focus is unclear. Presents less/more than allotted time.
Conclusion	Ends with strong reasons and evidence about the benefits of implementing the project.	Concludes with reasons to care & implement project.	Closing statements are not strong or do not review topics.	No concluding statements to stress importance of the project or review of topics.
Ability to Answer Questions	Recognizes questions from audience & answers them thoroughly with evidence.	Presenter(s) recognize the thrust of questions & answers them clearly.	Questions are recognized and presenter(s) attempt to answer them.	Presenter(s) unable to answer question(s).
Presenter's Name:		Presentation Title		
<i>Positive aspects of presentation:</i>		<i>Area(s) that could use improvement :</i>		
Questions to ask:		TOTAL SCORE:		