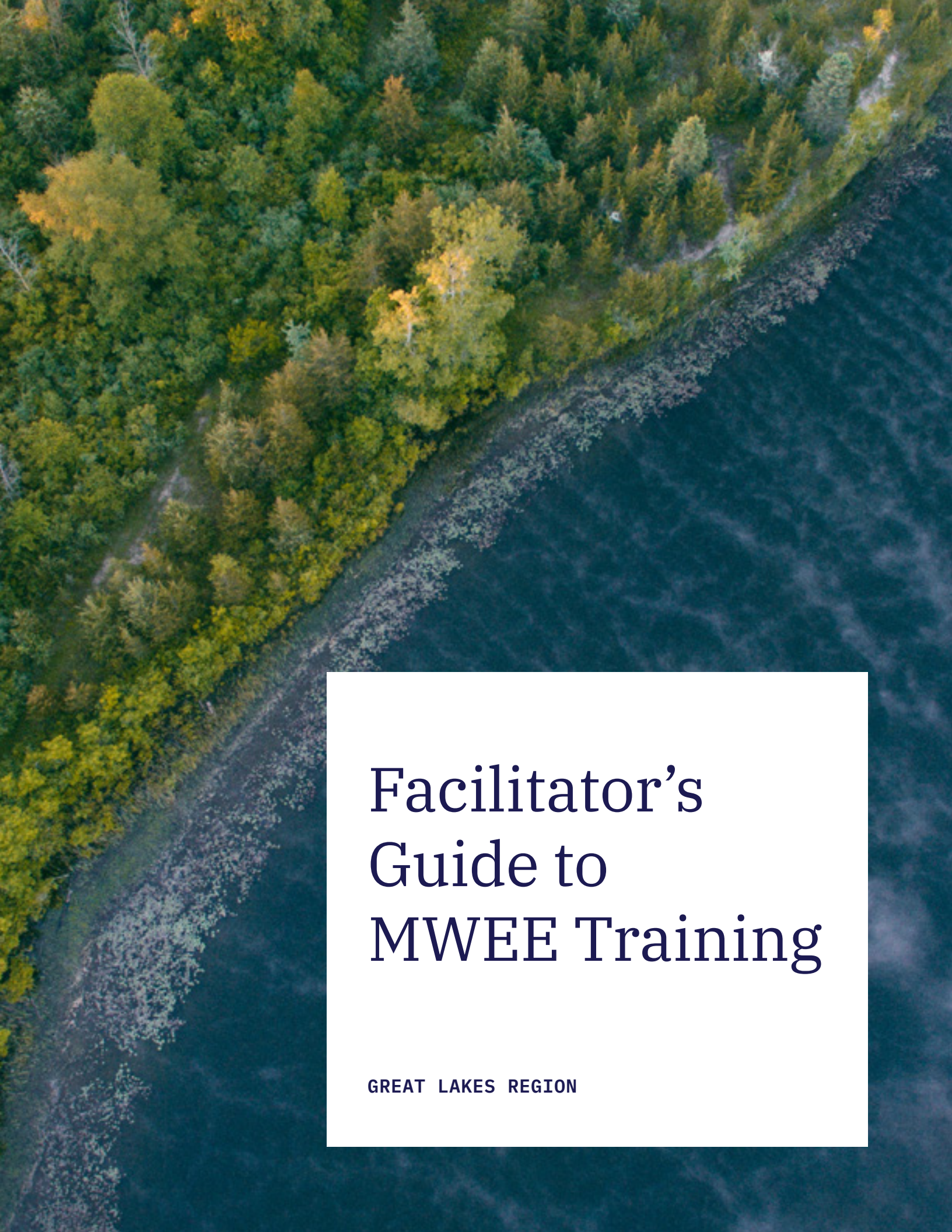


Facilitator's Guide to MWEE Training

GREAT LAKES REGION

Acknowledgements

This guide was produced by Improved Insights in partnership with the National Oceanic and Atmospheric Administration (NOAA) Great Lakes Bay Watershed Education and Training (B-WET) program, through funding provided by the Great Lakes Restoration Initiative.

We would like to thank the NOAA Chesapeake B-WET program team, the Center for Great Lakes Literacy team, and our many collaborators from the Great Lakes region for their input in this guide.

PUBLISHED IN 2023

COVER IMAGE: AARON BURDEN, UNSPLASH

How to Use This Facilitator's Guide

This MWEE Facilitator's Guide has been designed for practitioners who are deeply familiar with the Meaningful Watershed Educational Experience (MWEE) and who will be training other educators on how to apply the tools and resources found in An Educator's Guide to the Meaningful Watershed Educational Experience (MWEE Guide) to their own classrooms and programs.

The MWEE Guide offers in-depth training for educators on how to design and implement a MWEE. This MWEE Facilitator's Guide provides guidance and easy-to-use training resources to promote consistency in MWEE professional development across the region. The activities are modular and can be adapted to support your local context. You can find all planning tools and worksheets, more information about the MWEE, and additional resources on the NOAA Bay Watershed Education and Training (B-WET) website.

All text that is underlined is clickable for link access.

GETTING STARTED

Whether this is your first time hosting a professional development workshop focused on MWEEs, or you are looking to incorporate new activities to support your existing MWEE workshop, you should start by considering the workshop logistics. Read through this guide before hosting your workshop — you'll notice there is some pre-planning that you need to complete, like creating a driving question for the workshop or scoping out field site(s) you'll visit with your workshop participants. There are callout boxes throughout the guide that highlight this pre-workshop planning.

➔ Here are some ideas of how you might approach parts of the workshop logistics:

Length of Workshop

This guide includes activities for about three days (approximately 17 hours) of programming. There are many different ways of structuring professional development workshops. You might have educators for three or four consecutive days in the summer, during which you can use much of what is included in this guide plus additional components of your existing programming. Or, you might have educators for a single day followed by shorter after-school meetings, where the time between meetings can create an opportunity for participants to process and reflect on how they're introducing elements into their practice. No matter how you structure your workshop, use this guide to cover the fundamental components of the MWEE. The guide is designed to be modular so you can choose to apply the entire suite of activities or pick and choose activities that best support the needs of your participants. Each activity has an estimated time listed.

Workshop Location

It is ideal for your MWEE professional development workshop to take place in a location that has an easily accessible outdoor space where you can model what an outdoor field experience looks like with your participants. It is highly recommended that, as a facilitator, you visit this space beforehand so you know what some of the opportunities are for talking about local environmental issues. You'll also want to make sure that there is a sheltered or indoor space to bring participants back together to reflect on experiences and engage in other activities outlined in this guide. Other considerations when selecting a workshop location include access to restrooms, internet connectivity, accessibility, and audio visual equipment.

Workshop Partners

Parts of this guide (particularly Parts 2 and 3) recommend bringing participants outdoors to explore local issues and engage in hands-on investigations. Because of this, consider bringing in a partner or expert in environmental education if you (the facilitator) are not comfortable leading these components. In addition to providing this expertise, partners can also help with access to field sites, equipment/tools, and much more. In Part 1 there is also a significant focus on standards, curriculum, and environmental literacy plans. If you are not as familiar with these elements, consider bringing in the subject supervisor or curriculum writer to speak to these aspects. It is recommended to involve partners in the planning process so they fully understand your goals and objectives for the workshop.

Other Considerations

There is an abundance of research and information on best practices for professional learning. The following conceptual framework demonstrates how this guide includes components of developing a shared understanding of tools and resources, models what students are expected to experience, and provides ample time for reflecting from both a student and educator perspective, in addition to dedicated time for implementation planning. You might also consider methods for supporting educators in their professional development journey by encouraging the use of journals, story maps, or collective bulletin boards to easily track and reflect on the experience. All professional development workshops should have a strong evaluation component that will help you as the facilitator to know if concepts, practices, and content are understood. This can be a combination of both formative and summative evaluation. You can use the objectives outlined in each part to help create these benchmarks. Because this workshop includes aspects where participants are planning a new MWEE or refining an existing one, it's highly recommended that they bring any pertinent curriculum documents or unit plans to work from.

Conceptual Framework of This Guide

This guide is modular so facilitators can use the parts or activities that are most beneficial and relevant to their participants.

➔ **You will notice that each part tends to follow the same basic structure:**

Activities: This is where you as a facilitator will lead participants through the elements of a model MWEE. For the most part, your workshop participants should be wearing their student hat during the model MWEE. However, there are engagement questions that ask participants to reflect on their experience to consider how they might approach the investigation with their own students. Throughout the process of modeling, participants will partake in activities and engage with tools and resources specific to the Great Lakes region.

Background & Objectives: These sections, often at the beginning of an activity, provide the facilitator with pertinent background details, like definitions or rationale, that are essential for carrying out the associated activity. Facilitators might find it helpful to share this information with participants during the introduction of the activity.

Example: A MWEE case study from Lake Superior Stewardship Intiative is threaded throughout this guide. If you have an example developed

for a project that is more relevant to your participants, we encourage you to use it. It is important that the tools model what you hope to see in your participants' work.

Additional Resources: Most additional resources are extensions for activities. These components are not included in the estimated time for the activities and overall parts, but are helpful if participants need more practice.

Plan It: Most parts conclude with a Plan It section, where workshop participants apply what they have learned to design their own MWEE using MWEE tools and worksheets, including the Environmental Literacy Model (ELM). If there is already a MWEE in place that you are training participants on, this might be an opportunity for reflection and fine-tuning rather than planning.

What is a MWEE?

A Meaningful Watershed Educational Experience (MWEE) consists of four Essential Elements and four Supporting Practices.

ESSENTIAL ELEMENTS describe "what students do": **Issue Definition** (i.e., researching, developing a driving question, and investigation thereof), **Outdoor Field Experiences** (i.e., multiple experiences on school grounds, at parks, or in natural areas), **Synthesis and Conclusions** (i.e., iterative practice and communicating findings to the appropriate audiences), and **Environmental Action Projects** (i.e., restoration or protection, everyday choices, community engagement, and civic engagement).

SUPPORTING PRACTICES describe "what teachers do": **active teacher support, learning integration** (i.e., connected to what is already happening in the classroom), **local context** (i.e., using your local environment and community as the basis for learning), and **sustained experience** (i.e., multiple experiences that build on each other).

Saginaw Bay Watershed Lake Sturgeon Release, Flint River

TODD MARSEE, MICHIGAN SEA GRANT

BEFORE YOU BEGIN:

An Educator's Guide to the MWEE

This Great Lakes Facilitator's Guide picks up where An Educator's Guide to the MWEE leaves off. If you need more direction on what MWEEs are and how to identify them, reference that Guide first. The MWEE Guide is a companion text to this MWEE Facilitator's Guide. It is a manual for constructing MWEEs for students and explains more about the importance of MWEEs and the Essential Elements and Supporting Practices of a MWEE. It also provides educators with a Planning Toolbox of resources that they can use to design and implement a MWEE with their students.

Posen, Michigan High School Students walk through Thompson's Harbor State Park to gather data for their MWEE action project

GREAT LAKES OUTREACH MEDIA

Depending on your group's experience with MWEEs, you may wish to engage them in an activity to create a shared understanding of each of the Essential Elements and Supporting Practices at the start of the workshop. For example, many facilitators have had success reviewing the MWEE first by first splitting participants into four groups and assigning each group one of the Essential Elements. Ask participants to become "experts" in this element by reading the "Understanding the MWEE" section of the MWEE Guide. Have participants consider why their element is called out as essential, what it looks like from a student perspective, what it looks like from an educator perspective, and how the Supporting Practices fit within the element.

Bring the four groups back together and ask them to present on each element and have their peers ask questions and challenge their understanding. You might also consider showing some of the B-WET videos that demonstrate how teachers across grade bands and geographies have approached the MWEE in their classrooms. Examples from other B-WET regions can be found on the NOAA Office of Education B-WET video series page. You might also consider showing some of these videos to demonstrate how teachers across grade bands and geographies have approached the MWEE in their classrooms.

Table of Contents

Framing the MWEE

OBJECTIVE

- Participants will develop an understanding of the Great Lakes state policies, education standards, and planning efforts that support MWEEs.

ESTIMATED TIME FOR THIS PART

45 minutes

SUGGESTED LOCATION

Indoors

Reflecting on the MWEE

TIME: 15 MINUTES

This activity is designed to have participants reflect on what they know about the MWEE, thus far.

Print sheets of paper with one of the MWEE Essential Elements and Supporting Practices written in big font on each page. Ask participants to work in small groups to organize the sheets and use arrows to illustrate how they imagine the MWEE "flow" to happen. Ask participants to reflect on any experience they have had with MWEEs and how the elements and practices worked together, perhaps in a non-linear way, to create a comprehensive learning experience for students. Use this time and space to ensure that the whole group has the foundational understanding of each of the Essential Elements and Supporting Practices necessary for meaningfully engaging with the rest of the workshop. This is also an appropriate time to remind participants about the importance of supporting youth voice throughout the MWEE and to consider introducing the idea of action early in the process.

ACTIVITY OBJECTIVE

- Participants will recall their knowledge and understanding of the MWEE Essential Elements and Supporting Practices and how they work together to create a comprehensive learning experience for students.

State Policies & State Education Standards

TIME: 20 MINUTES

BACKGROUND There are many different state policies and education standards that relate to environmental literacy. While most policies and standards vary by state, a few examples that may be relevant to participants include the Next Generation Science Standards, the Great Lakes Literacy Principals, and state environmental literacy plans. Take a moment to familiarize yourself with these policies and standards, and to determine if there are any others that may be a good fit for your participants.

RESOURCES FOR THIS ACTIVITY

Next Generation Science Standards

Great Lakes Literacy Principals

Environmental Literacy Plans

ACTIVITY OBJECTIVE

- Participants will review state policies and education standards and discuss how they support MWEEs.

BACKGROUND INFORMATION FOR THIS ACTIVITY

Next Generation Science Standards | Great Lakes Literacy Principals | Environmental Literacy Plans

Next Generation Science Standards

The Next Generation Science Standards (NGSS) use a three-dimensional approach to K-12 science instruction. The three dimensions of Science & Engineering Practices, Crosscutting Concepts, and Disciplinary Core Ideas are meant to be integrated and support students in meeting the performance expectations.

> **Science & Engineering Practices** describe the behaviors scientists undertake to investigate our world. This dimension supports model building, theory development, and acquiring the knowledge needed to understand each practice.
>
> **Crosscutting Concepts** provide students a way to link the various domains of science and highlight areas of interconnectedness with other learning domains as well.
>
> **Disciplinary Core Ideas** are the fundamental ideas that are necessary for understanding a given science discipline. They are the "content" pieces of the science curriculum and provide the knowledge base to build upon.
>
> Together, these three dimensions help realize a vision for education in science and engineering in which students, over multiple years of school, actively engage in scientific and engineering practices and apply crosscutting concepts to deepen their understanding of the core ideas in these fields and connect this to their own lives and communities.
>
> Search the standards by dimension, keyword, or grade level.
>
> *Next Generation Science Standards, 2022*

Next Generation Science Standards | Great Lakes Literacy Principals | Environmental Literacy Plans

Great Lakes Literacy Principles

In the Great Lakes watershed, MWEEs should be aligned to the Great Lakes Literacy Principles, a collection of principles that support the development of one's understanding of the Great Lakes' influences on you and your influence on the Great Lakes.

1. The Great Lakes, bodies of fresh water with many features, are connected to each other and to the world ocean.
2. Natural forces formed the Great Lakes; the lakes continue to shape the features of their watershed.
3. The Great Lakes influence local and regional weather and climate.
4. Water makes Earth habitable; fresh water sustains life on land.
5. The Great Lakes support a broad diversity of life and ecosystems.
6. The Great Lakes and humans in their watersheds are inextricably interconnected.
7. Much remains to be learned about the Great Lakes.
8. The Great Lakes are socially, economically, and environmentally significant to the region, the nation and the planet.

Center for Great Lakes Literacy, 2022

Environmental Literacy Plans

Many states have developed environmental literacy plans (ELPs) for students, designed for formal and informal educators. The Indiana Environmental Literacy Guidelines describe being environmentally literate as having "the knowledge, tools, and balanced perspective to weigh various sides of environmental issues to make responsible decisions as individuals and as members of their community." It's important to note that every state is different and the following ELPs are just one set of examples from the state affiliates of the North American Association of Environmental Education (NAAEE). There may be others that are relevant to your state.

MWEEs are supported by a number of Great Lakes policies and standards. Educators often come with mixed background knowledge of the policies and standards that support and guide their work. Some might be most familiar with their district curriculum guidelines while others only know of the state-wide standards. This activity provides a brief background on what the Great Lakes region has in place to support environmental literacy efforts, and how they relate to each other, so that all workshop participants are starting with the same background knowledge.

Take a moment to identify the ELP for your state:

Environmental Literacy for **Illinois**

Indiana Environmental Literacy Guidelines

Michigan Environmental Literacy Plan

Minnesota Environmental Literacy Plan

Environmental Literacy Plan for **New York**

Ohio Environmental Literacy Plan

Pennsylvania Environmental Literacy Plan

Wisconsin Standards for Environmental Literacy and Sustainability

ENGAGEMENT QUESTION

→ **What are the core elements (i.e., policies, standards, and efforts) that guide the way you approach teaching environmental literacy in the Great Lakes region?**

STEPS

1. Divide participants into three groups and assign them one of the standards or policies that support environmental literacy in the Great Lakes region. Standards or policies assigned may be from those listed above, or from regional or district-specific standards that apply to your audience. Ask each group to familiarize themselves with the standards or policy by using the information in the background section and by researching the policy or standard on an associated website.

2. Each group will report out on what the policy or standard is and any initial impressions or experiences with it.

3. Engage all groups in a discussion around these questions:

To what extent are the educators that you work with aware of these policies or standards?

What sort of learning experiences are supported by these policies or standards?

How do these initiatives build on each other to provide a structure for helping students become environmentally literate?

4. Review the other state education standards in the Great Lakes state in which you're hosting this workshop (including NGSS, ELPs, and any other relevant standards or policies).

5. Engage workshop participants in a discussion around how MWEEs can help to meet multiple policies and standards and what that could look like in the grade band in which they work.

ACTIVITY 1.2 ADDITIONAL RESOURCES

Place-Based Stewardship Education

You may also wish to explore the Guiding Principles for Exemplary Place-Based Stewardship Education, developed by the Great Lakes Stewardship Initiative, which offers educators tools for developing and assessing place-based stewardship education efforts. On the site, you can access the principles, a rubric for assessing the principles, a user guide and glossary, as well as case studies of place-based stewardship projects.

The MiSTEM Network has developed this Network Playbook to help educators, administrators, and community members develop place-based education strategies for freshwater literacy and stewardship. It walks readers through important steps of the process, like scanning the community, developing partnerships, and sharing results.

Marblehead Lighthouse State Park on Lake Erie, Ohio

PAUL MOODY, UNSPLASH

District Environmental Literacy Plans

TIME: 10 MINUTES

School districts in the Great Lakes region have been conducting planning efforts to determine where MWEEs — among other things like annual Outdoor Field Experiences, service learning, etc. — happen across a student's academic career. We call these efforts ELPs. You reviewed the Great Lakes state ELPs in Activity 1.2. Now, let's dive into more local efforts.

ACTIVITY OBJECTIVE

- Participants will examine a district or county-wide ELP and discuss how one of these plans could support the implementation and continuation of a MWEE.

BEFORE THE WORKSHOP:

Determine the school district your participants work in and research whether there is an ELP for that district or county.

Every school system is different so if you are unsure of where to find this information, you might be able to contact the person who oversees all curricula in the district and they can point you in the direction of the person who oversees environmental literacy. If the plan is available you'll want to share it with participants during this activity.

ENGAGEMENT QUESTION

→ **How do you see a district or county-wide ELP helping the implementation and continuation of a MWEE?**

STEPS

1. If the district or county has an ELP, you can focus on that. Engage participants to discuss their familiarity with this plan, what they currently do to support activities or experiences identified on this plan, and how the plan supports MWEEs.

2. If the district or county does not have a plan available, use an example from the state ELPs listed previously. Ask participants what they think should be a part of the plan and how it connects to MWEEs.

Curriculum Anchor

OBJECTIVES

- Participants will identify and describe one or more local issues affecting environments and communities in the Great Lakes region.
- Participants will explain ways in which one or more local issues affecting environments and societies in the Great Lakes region can be contextualized for classroom learning.
- Participants will explain why informed student action is critical to the MWEE, and ultimately, to their student's future stewardship.
- Participants will identify resources available for information on issues and learning standards.

ESTIMATED TIME FOR THIS PART

4 hours / half-day

SUGGESTED LOCATION

Combination of indoors and outdoors

Exploring Local Issues

TIME: 30 MINUTES

This activity is designed to engage teachers in thinking about environmental issues in the Great Lakes region that are connected to learning objectives and suitable to explore through a MWEE.

The Center for Great Lakes Literacy (CGLL) is a collaborative effort led by Sea Grant educators throughout the Great Lakes watershed. CGLL fosters informed and responsible decisions that advance basin-wide stewardship by providing hands-on experiences, educational resources, and networking opportunities that promote Great Lakes literacy among an engaged community of educators, scientists, and citizens.

In this activity, participants will use the CGLL Great Lakes Literacy Education Exploration curricular repository to explore environmental key issues pertaining to the Great Lakes and consider the human and natural systems connected to these issues. You'll want to set up a big pad of paper, whiteboard, or chalkboard in a space with enough room for participants to get up and move around.

1. Ask each participant to locate and read about an environmental issue pertaining to the Great Lakes. These might include issues like fisheries, beach litter, climate change, or invasive species, among others.

ACTIVITY OBJECTIVE

- Participants will create a mind map illustrating the connections between Great Lakes region issues and systems, both human and natural.

2. On the big writing pads, whiteboard, or chalkboard, create a mind map with "Great Lakes Watershed Issues" at the center. Ask participants to list the issue they read about, and draw a connection to the center and to any related issues that others have listed. Participants may also identify what parts of the ecosystem that issue may impact, and note if the issue is a human-made issue or a natural issue, in the mind map. Encourage participants to list any details or connections they see on the mind map itself to create a collaborative conceptual diagram.

3. Facilitate a group discussion considering the following questions:

   What environmental issue(s) are particularly relevant to where you work/live?

   Were you surprised by any of the issues?

   Are there any major issues missing that are important in your community?

   How else might you identify locally relevant issues?

   Can you take a couple of the issues, natural systems, human systems, and values to create a driving question that is locally relevant? If practical, note that environmental issues are often the result of tensions between groups and or natural and human/social systems.

Seeding wild rice (manoomin), part of the Wild Rice Initiative restoration outreach and education efforts

TODD MARSEE, MICHIGAN SEA GRANT

Building the Mind Map: Opportunity to Include More Perspectives

As participants build their mind maps, consider using this exercise as an opportunity to look at environmental issues through a different lens than your own. You might think about what local issues others are struggling with (but may not be at the forefront of your mind). Or, perhaps you could take a look at language from another perspective. For example, check out this story map, entitled *Bimaadiziwin Nibi - Water is Life: A look into what Indigenous communities in the upper Midwest are doing to conserve & protect water*, produced by the Great Lakes Indian Fish & Wildlife Commission in partnership with the Center for Great Lakes Literacy and the University of Wisconsin Sea Grant. This work explores the way that the term "invasive species" has negative connotations and does not recognize the impact that humans have played in bringing those species to non-native areas. For that reason, the term "nonlocal beings" has been proposed by Indigenous communities instead, as it allows for greater respect and consideration for these beings. This is just one example of how you might incorporate honoring different perspectives into the mind map exercise as well as your entire MWEE.

Connecting Issues with Questions & Standards

TIME: 60 MINUTES

This activity takes a deeper, interactive look at a single environmental issue and how driving and supporting questions can be used to connect issues to standards and learning objectives.

Determine a driving question and a single environmental issue that you will use throughout the rest of the workshop. You may wish to pre-select an issue that is locally relevant and can be explored at the outdoor field location you've chosen for this workshop. It's also important to pre-identify which standards will support the inquiry throughout the workshop.

ACTIVITY OBJECTIVES

- Participants practice identifying environmental issues in a place (e.g., schoolyard, park, or location of workshop).
- Participants will investigate an issue and develop supporting questions that will guide the inquiry for this workshop which will serve as a model for what MWEEs can look like in their given classes or programs.

1. Break participants into groups to research the selected issue and talk about the discussion questions. You may provide resources such as relevant articles, podcasts, or social media posts related to the issue. For example, you may wish to use a podcast episode from the Wisconsin Sea Grant, such as one on climate change, aquatic invasive species, or water quality.

NOTE: Requiring participants to do research on their own will require internet connectivity and a laptop or other device.

2. Discuss the questions below as they pertain to the issue you selected for this workshop. When addressing these questions, consider capturing notes on a whiteboard, chalkboard, or big notepad. Questions can be discussed in participant groups, or as a whole group.

   Why is this issue important and how does it affect the health of the Great Lakes region and the watershed?

   How might this issue connect to your teaching standards? Where does it fit into the scope and sequence? The existing curriculum? Are there opportunities for interdisciplinary learning (i.e., social studies, language arts, mathematics, art, reading)?

   Does this issue provide an actionable opportunity for students? How can students help advance some of the potential solutions?

3. Bring participants to your outdoor field location, and plan time for travel if necessary. Ask participants to explore the ecosystem or community and consider what problems or issues they can observe or imagine that relate back to the larger issue they just examined. This can be done through a brief walkabout where participants informally explore an area for a set period of time and reflect on the experience via journaling or peer-to-peer dialogue. Remember that during this investigation teachers are wearing the student hat and will be going through the process as a learner.

If more time is available, you may model a schoolyard report card or another environmental inventory which are more structured approaches to identifying issues. The Chesapeake Bay Foundation shares its Schoolyard Report Card and the U.S. Fish & Wildlife Service provides Schoolyard Habitat Project Guide that offers a set–by–step guide to a school grounds site assessment. This is also an opportunity to collect some baseline data about the environment or to examine other resources like maps, management plans, etc.

ENGAGEMENT QUESTIONS

→ **How did your perceptions of the local environmental issue change after you went outside?**

→ **How do you see this difference benefiting your students?**

4. After participants have engaged with the local issue through background research and hands-on experience, introduce the workshop's driving question. Remind participants that the driving question is often pre-determined by the teacher so they can ensure the MWEE supports and satisfies standards and fits their curriculum. At this point be prepared to articulate which standards or learning objectives the question can support.

This driving question should be created in advance of the workshop and should align with the local environmental issue you had participants investigate. Remember that the driving question should be open-ended, provoke further inquiry, and provide opportunities for stewardship and civic action.

5. Using a whiteboard or chart paper, ask participants what sort of supporting questions they can generate from the driving question after their outdoor field experience. Supporting questions are typically more focused and help to provide context and understanding around the pieces of knowledge needed to answer or address the driving question. Keep these supporting questions hanging up in the room throughout the workshop so participants can refer back to them as needed.

6. Engage participants in a discussion around these questions:

   What standards/learning objectives can be addressed with these supporting questions?

   What sort of investigations might you do to answer these questions?

   Which questions are best explored indoors? Which are best explored outdoors?

ACTIVITY 2.2 ADDITIONAL RESOURCE

Identifying Public Policies, Private Policies, and Community Practices

All environmental issues are affected by some combination of public policies, private policies, and community practices. This Earth Force resource defines the difference between policy and practice and offers examples. A public policy is created by a government (i.e., federal, state, tribal, or local). Private policies are written by businesses, organizations, or other groups. Community practices are the habits and behaviors of people. An important early step to understanding the environmental issue covered in a MWEE is defining how policies and practices impact the issue. This knowledge will be especially helpful when students start brainstorming effective action projects — will the project support a policy or practice change?

ENGAGEMENT QUESTION

→ **Why is it important for students to understand the policies and practices that underpin the issue they are investigating?**

Introducing Action Early

TIME: 30 MINUTES

BACKGROUND There are several factors that can have positive or negative influences on an individual's choices and actions regarding environmental stewardship. These include internal factors such as environmental knowledge, motivation, values, attitudes, sense of control, perceived responsibilities, and priorities. They also include external factors such as institutional and cultural influence.

If MWEEs are to have lasting impacts on the stewardship behaviors of students, they must go beyond simply engaging students in restoration activities and consider other factors that may influence behaviors. It is important to empower students throughout the MWEE to give voice to their thoughts about, feelings toward, and understandings of the core ideas underpinning the environmental topics under investigation as they define "the issues" for themselves and each other. These thoughts, feelings, and understandings should directly connect to and guide the process of developing action projects. Furthermore, students should be actively engaged in identifying and evaluating strategies and solutions that they can influence and/or implement.

ACTIVITY OBJECTIVES

- Participants develop a collective understanding of some of the motivators behind action.
- Participants acknowledge their own experiences engaging in action and can identify how those experiences line up with aspects of the MWEE.

Authentic, student-driven engagement is critical for supporting students' perceptions that they can bring about change. In other words, it is important for helping students develop a strong internal locus of control. When students only learn about the actions of others or participate in environmental action project activities developed by someone else, they are at risk for developing a sense that the locus of control for affecting environmental change resides exclusively with external sources (particularly adults). Furthermore, it risks the assumption that the students have little personal responsibility for affecting change. *(Designing Effective MWEEs: Common Challenges and How to Address Them, 2019)*

A MWEE is a learner-centered framework that focuses on investigations into local environmental issues and leads to informed action. This activity is designed to engage participants in thinking about their own experiences taking action, what motivated them to do so, and the importance of considering action throughout the MWEE framework.

Ask participants to think about examples where they have been involved in informed action. It could be back during their childhood, during college, or in their adult life. Ask a few participants to describe what the action was, how they became involved in it, what it meant to them at the time, and what it means to them now. Or, what would motivate them now to take action?

When recalling their experiences with action, people often describe common themes like having an understanding of the issue at hand and using that knowledge as motivation to act. Perhaps there is a personal or emotional connection that might have inspired their action. Sometimes an opportunity to act presents itself. Maybe you seized on one that had already been created (like an organized climate march or a community event) or you saw a gap that needed to be filled and created something yourself. Social networks often encourage us to participate in actions. These empowerment themes line up well with some of the Essential Elements and Supporting

Practices of the MWEE. Ultimately, what we are trying to do through the MWEE is facilitate these authentic experiences right in our own classrooms and programs.

While action is most effective when taken after students engage with in-depth inquiry, it is often helpful to get them thinking about the action well before they actually do it. By foreshadowing the action, learners are primed to be thinking in a solutions-oriented way.

ENGAGEMENT QUESTIONS

→ **What are the benefits to engaging students in action?**

→ **What are some successes and/or challenges to engaging students in action?**

Saginaw Bay Watershed Lake Sturgeon Release, Flint River

TODD MARSEE, MICHIGAN SEA GRANT

MWEE Planning Tools

TIME: 60 MINUTES

This activity provides participants with an example of how others have contextualized an issue within a MWEE for their students. This example models how to use the planning tools, including the Curriculum Anchor section of the Environmental Literacy Model (ELM), from the MWEE Guide's Planning Tools Toolbox.

→ If there is an existing MWEE that you would prefer to use in place of the provided example, feel free to include it here.

ACTIVITY OBJECTIVE

- Participants will become familiar with the ELM, the planning tools for implementing MWEE with students, and the MWEE Audit Tool.

CASE STUDY

Lake Superior Stewardship Initiative at Washington Middle School in Calumet, Michigan

This case study focused on an environmental action project conducted at Washington Middle School in Calumet, Michigan as part of the Lake Superior Stewardship Initiative. Seventh grade students identified an environmental issue in their community (the presence of the nonlocal being — or invasive species — spotted knapweed), developed a plan to address the issue, and implemented the plan.

In this activity, participants will explore this example MWEE, then refer to the ELM, student worksheets, and the Audit Tool as resources to support the development of curriculum anchor, driving and supporting questions, identifying solutions, and evaluating the MWEE.

1. Distribute (digitally or printed) the ELM planning tool and the worksheets from the Student Worksheet Toolbox. Give participants a few moments to look over these documents, which help educators think about the different aspects of the ELM and see that the ELM is a planning tool for articulating the arch of the MWEE as a whole. Ask participants to review these materials and consider the following questions in regards to the example MWEE:

    How does this MWEE provide opportunities to explore the impacts of local environmental issues?

    Which characteristics of an effective Issue Investigation are embodied in this example?

    How are core ideas and practices of multiple disciplines defined and integrated into the MWEE?

    Did exploration of this issue culminate in a meaningful and relevant environmental action project?

2. In pairs, ask participants to apply the Audit Tool to the ELM planning tool.

3. Engage the group in a discussion around what is working really well in the ELM and where there are opportunities for improvement.

Middle School students plant native riparian plants along the Flint River for their MWEE action project

KELLY SANBORN

PLAN IT

TIME: 60 MINUTES

Now participants will identify a local environmental issue that is relevant to the community they serve and connect it with learning objectives. This can be as specific as an NGSS standard or as basic as "understand cause and effect." The product of this activity is to develop driving and supporting questions that connect the two by situating the learning of the objective in the context of the issue.

Ask participants to complete the Asking Questions and Planning Investigations worksheet from the MWEE Guide's Student Worksheet Toolbox and the ELM planning tool. Invite them to reference the Audit Tool as appropriate and take advantage of the in-person setting to share their ideas.

If this professional development is specifically for teachers in a single district that already has a MWEE, use this time for participants to explore the existing ELM and engage them in more specific planning around what this looks like in their classroom. You'll want to have the ELM ready and available for participants to review.

ACTIVITY OBJECTIVE

- Participants will complete the ELM planning tool.

Issue Investigation

OBJECTIVES

- Participants will identify and describe a variety of Outdoor Field Experiences and supporting question investigations used to identify, explore, define, and draw conclusions about local environmental issues.
- Participants will identify opportunities to support students in synthesizing evidence gathered during the Outdoor Field Experiences and Issue Investigations.
- Participants will make connections between the local issues, the Outdoor Field Experiences, and the educational standards.
- Participants will identify resources available in the Great Lakes region to support the planning and implementation of Outdoor Field Experiences.

ESTIMATED TIME FOR THIS PART

6 hours / full-day

Additional time may be needed to travel to your outdoor field experience location

SUGGESTED LOCATION

Outdoors, or combination of outdoors and indoors.

Youth Voice

TIME: 15 MINUTES

BACKGROUND Youth voice (also sometimes referred to as student voice) refers to the concept of supporting young people in taking a leading role in their own education through inquiry and applied learning.

There is a continuum of youth voice where "student choice" is on one end and "student-led" is on the other. Encouraging youth voice during a MWEE is important for increasing student engagement and fostering a lasting environmental stewardship ethic in students. Giving students the opportunity to make decisions throughout the MWEE helps them to foster a belief in their own abilities, realize that their voices matter in the community, and apply innovation and creativity to tackle real issues. There are many instructional methods that help to support youth voice. The "Understanding the MWEE" section of the MWEE Guide outlines a few ways that youth voice can be supported in each of the Essential Elements. The environmental action project component is particularly suited to supporting youth voice, as action projects are ideally developed, selected, and implemented by students with support from teachers and partner organizations. This reframing of power dynamics in the classroom is called Youth-Adult-Partnerships, where young people are valued partners in the shared decision-making.

ACTIVITY OBJECTIVES

- Participants recognize spaces where youth voice is supported and the benefits and challenges to supporting it.
- Participants reflect on their own practice to identify areas where they are already supporting youth voice and areas where they can improve.

This activity is designed to engage participants in thinking about what youth voice is, in what spaces it is supported, and how they can support it in their own classrooms and programs.

Use the background information to introduce the topic of youth voice. Engage participants in a conversation about youth voice to recall their experience supporting it in their classrooms and programs.

As a group, review the supporting questions from Part 2 and discuss how you could best support youth voice in the development of these questions. If there are other questions that participants make the case for, add them to the list now.

ENGAGEMENT QUESTIONS

- → **What do you think or when you hear the phrase "youth voice" or "student voice?"**
- → **What does it mean to support youth voice?**
- → **In what spaces is youth voice supported?**
- → **In what spaces is youth voice *not* supported?**
- → **What are you doing in your classroom or programs to support youth voice (e.g., instructional methods, activities, and framing)?**
- → **What are the biggest *benefits* for supporting youth voice?**
- → **What are the biggest *challenges* in supporting youth voice?**

Modeling an Investigation

TIME: 3 HOURS + TRAVEL TIME IF NEEDED

BACKGROUND Outdoor Field Experiences are an essential element of the MWEE. It's important to recognize that these experiences can be an integral part of many aspects of the MWEE, from supporting the identification of an environmental issue, to completing background research and data collection, to taking action. Engaging students in meaningful outdoor investigations is critical to developing the future stewardship of our natural resources. Outdoor Field Experiences, whether they occur on sidewalks or schoolyards in downtown Chicago, or on Lake Erie beaches in Presque Isle State Park in Pennsylvania, provide the critical context that drives meaning for the questions, investigations, and student action projects that comprise the MWEE.

This activity is intended to engage participants in a way that allows them to explore how Outdoor Field Experiences are employed to investigate and draw conclusions about local issues, phenomena, or problems in order to make claims that inform action.

ACTIVITY OBJECTIVE

- Participants will experience a hands-on, outdoor field experience where they investigate one or more supporting questions by designing an investigation, collecting and synthesizing data, and sharing their conclusions with the group.

As explored in Part 2, Outdoor Field Experiences can be used to support the identification of environmental issues in a number of ways including through community walkabouts, schoolyard report cards, and other environmental inventories. During this activity, we will build off of the supporting questions created in Part 2 to dive into another field investigation. Remember that during this activity, participants are wearing their "student" hat and will be going through the process as a learner.

1. Initiate Investigation: Remind the group of the driving question for the workshop and the supporting questions previously developed. As a group put a star by the supporting questions that can be investigated through this outdoor field experience. If there are additional questions that the group would like to add to the list, this is a great time to do so. Additionally, supportive questions might need to be refined to become investigative questions. The Fish & Wildlife resource Field Investigations is great for thinking about question types.

Ask participants to break into groups of three to five based on mutual interest in an investigative question. Remind them that they will be actively involved in planning and conducting the investigation. Each group will work together to create a procedure for conducting their investigation before going outside.

Prior to planning, introduce participants to the tools and equipment available. These will vary depending on your resources and investigation focus. Discuss and demonstrate how to use the tools as needed. Ask participants to share stories of use and provide space for asking questions. Examples of resources you might use include:

- Refractometers
- Turbidity tubes
- Probeware
- Quadrats
- Profiling rods
- Field guides

This is an ideal opportunity for participants to use the same or similar tools their students will be using to develop comfort as both the user and the facilitator.

BEFORE THE WORKSHOP:

Scope out the field site you'll be using for this investigation. Think about the driving question and possible supporting questions for the workshop and choose tools appropriate for those questions.

As the groups start to plan and design their investigation, you might provide them with the following questions to guide their discussion:

What information and/or data closely related to this question currently exists and how could it inform your investigation (consider environmental data, scientific articles, web resources, etc.)?

What prior knowledge and skills might you need to help make your investigation successful? How can you obtain that information?

What tools will you need to answer your investigative question?

Describe your study site. How will it help you to address your investigative questions?

How will you collect the information/data? What are the protocols and procedures? What are the roles of each group member?

How will the data be physically collected and organized?

What contingencies can we make for any safety or logistical concerns?

ENGAGEMENT QUESTION

→ Before we go outside, what do we (as educators) need to consider to make this a safe, effective, and manageable experience?

Invite participants to brainstorm different considerations and classify them into categories like safety, class management, logistics, pre-trip/ classroom prep, and so forth. Keep the list readily available so more can be added after the outdoor field experience.

2. Collect Data: Each group will collect the data that they have pre-determined as significant to the investigative question. You can structure this more or less by asking groups to create their own tools for recording data or you can provide them with a standard data sheet so that everyone is recording similar information.

Logistically, during this part you will want to put some constraints on where participants can go, what time and where the group will reconvene, and any other safety considerations. You might set some expectations for the group including the importance of working as a team, the need to focus on accomplishing the task in the time provided, and the need to conduct multiple trials.

3. Synthesis and Conclusions: After conducting the investigation, ask each small group to spend some time analyzing and interpreting their data. You might have them report out on the following questions to the bigger group:

What supporting question did you focus on?

Briefly describe how your field work went.

What conclusions can be drawn based on the information and data you collected and synthesized?

Communicate what your conclusions were via data analysis (e.g., pictures, charts, and graphs) and how they relate to the driving question and local environmental issue.

What more do you need to know? Were there new questions that popped up? What additional research and/or data do you now need?

Next, engage the full group in a discussion around the following:

What information did we learn?

How sure are we of our results (did we encounter any unusual data points or outliers? Why might that be? What should we do about them?)

What conclusions can we draw, based on the information and data collected and synthesized by all the groups?

Consider if there are other data points or observations that we might need to collect before moving forward.

What more do we as a group need to know? What is the next step in our investigation of this issue?

Using a whiteboard, chalkboard, chart paper, or digital tool, have the group design a graphic representation that they think represents the collective data. This can be a chart, graph, model, or anything else that provides information on the investigative question and ties it back to the driving question. It can be improved upon and enhanced back in the classroom.

ENGAGEMENT QUESTIONS

→ **What challenges do you foresee when bringing your students outdoors, and what strategies can you employ to get ahead of them?**

→ **What opportunities do you see for supporting student-led inquiry during Outdoor Field Experiences?**

→ **Back in the classroom, what are some opportunities to connect this outdoor field experience with the other pieces of the MWEE?**

→ **How might this field experience look different if it took place in other locations (e.g., on school grounds, in a park, by a stream, or at a farm)?**

→ **What are some best practices that you can share about working with students outdoors, based on this modeled experience?**

→ **How can you assess student learning during and after Outdoor Field Experiences?**

→ **How can this experience be scaffolded across grade levels?**

→ **What other considerations can we add to the list you created during the previous Engagement Question section?**

Outdoor Field Experiences in the Great Lakes Region

TIME: 30 MINUTES

This activity will introduce participants to a number of resources in the Great Lakes region for planning and implementing Outdoor Field Experiences. Participants will consider how they can apply some of these resources within the workshop's modeled MWEE.

ACTIVITY OBJECTIVE

- Participants will complete the Incorporating Outdoor Field Experiences planning tool (MWEE Guide's Planning Tools Toolbox) that supports the Issue Investigation section of the ELM for the workshop's modeled MWEE.

1. Break participants into groups of two to four. Each group will be assigned a different resource or tool (listed to the right) for planning and implementing Outdoor Field Experiences. As groups explore the resources, ask them to choose at least one new field experience, partner, or opportunity that they didn't know about before and how they might be able to use it within the context of their own classroom or program. Consider both experiences that are hyper-local (i.e., on or around school grounds) as well as those that might be a bus trip away. Groups will share out resources after adequately researching them.

RESOURCES

- Field Scope
- Find Your Park
- BayBackPack
- Watershed Address

2. Each group should now fill-in the Incorporating Outdoor Field Experiences planning tool that supports the Issue Investigation section of the ELM for additional sites that could support the workshop's modeled MWEE. Participants may not be able to complete every question in detail but should take notes on questions or concerns they might consider while planning an outdoor field experience.

3. Wrap up the discussion with an overview of some of the key resources in each of these categories. This can be an overview of what is available in the Great Lakes region as a whole, or showcase resources in the city or town that your participants are working in. Categories that you might consider elaborating on include:

    - Partners (for both field-based instruction and access to tools and equipment)
    - Field sites (schoolyard and off-site)
    - Funding for Outdoor Field Experiences

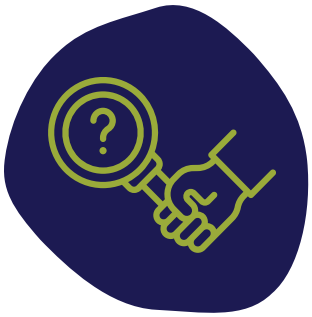
Issue Investigation — More Than Outdoor Field Experiences

TIME: 30 MINUTES

This activity will engage participants in connecting the local issues, Outdoor Field Experiences, in-class experiences, and the educational standards by examining the Lake Superior Stewardship Initiative example MWEE. In this activity, participants will consider how this example uses Outdoor Field Experiences to address questions and how in-class components support the overall Issue Investigation.

ACTIVITY OBJECTIVES

- Participants become familiar with the Issue Investigation section of the ELM.
- Participants will use the Audit Tool to evaluate a MWEE example.



→ If there is an existing MWEE that you would prefer to use in place of the provided example, feel free to include it here.

Use the example to demonstrate what the full Issue Definition portion of the MWEE looks like. Participants will have already seen the Issue Investigation and Curriculum Anchor sections of the ELM planning tool. Now, with their practice identifying Outdoor Field Experiences that support the Issue Investigation from the previous activity, participants will be able to see the bigger picture of where standards, issues, Outdoor Field Experiences, and classroom activities come together to support a comprehensive investigation guided by a locally-focused driving question. Ask participants to apply the Audit Tool to the Lake Superior Stewardship Initiative ELM to consider the strengths of the program and the opportunities for improvement.

Then, discuss the following questions:

How do Outdoor Field Experiences help to answer, or look more deeply at, the driving and supporting questions?

Which learning objectives or standards do the Outdoor Field Experiences help to address?

How was each Outdoor Field Experience contextualized to give it more meaning?

How do indoor lessons and components support the overall Issue Investigation?

How might the indoor components provide students the opportunity to translate existing knowledge to the investigation?

PLAN IT

TIME: 60 MINUTES

Now it's time to re-engage participants in the development of their own MWEE.

With the driving and supporting questions they developed in the Part 2 "Plan It" section, have participants use the Incorporating Outdoor Field Experiences planning tool and the resources you explored during Part 3 to identify and evaluate possible field sites for their own MWEE. They should consider opportunities both on and off school grounds.

After they identify what these experiences could be, participants will complete the Issue Investigation section of the ELM, outlining the Outdoor Field Experiences and in-class investigations that will build off of each other.

ACTIVITY OBJECTIVES

- Participants will complete the Incorporating Outdoor Field Experiences planning tool for their own MWEE.
- Participants will complete the Issue Investigation section of the ELM for their own MWEE.

Environmental Action Projects

OBJECTIVES

- Participants will develop actionable claims based on conclusions drawn throughout the Issue Investigation to address the driving and/or supporting question.
- Participants will use tools for generating action project ideas based on the evidence-based claim, using the Claim–Evidence–Reasoning (CER) tool.
- Participants will identify opportunities to actively incorporate youth voice through student claims, student action project ideas and planning, student communication with partners, and student communication with the public.
- Participants will identify resources and support (e.g., partners, funding, volunteers, supply donors, etc) for the implementation of action projects.

ESTIMATED TIME FOR THIS PART

4 hours / half-day

SUGGESTED LOCATION

Indoors

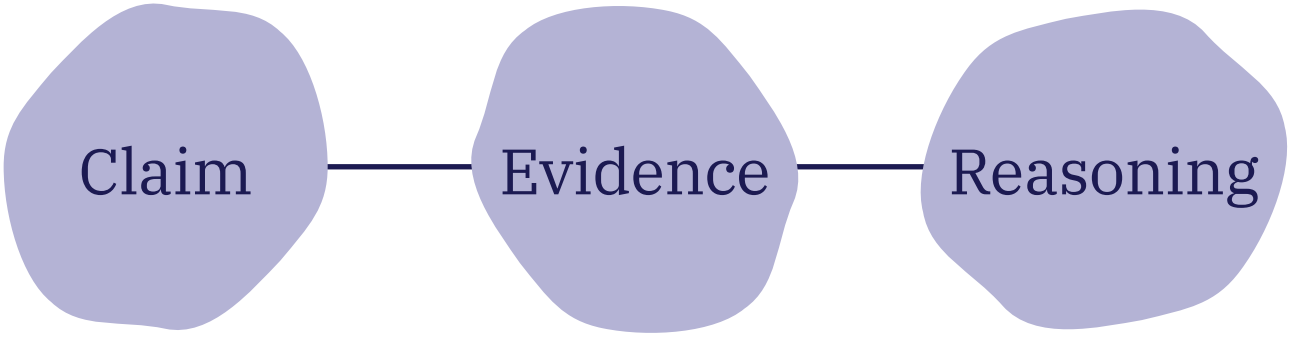
Claim–Evidence–Reasoning (CER)

TIME: 45 MINUTES

BACKGROUND The Claim–Evidence–Reasoning (CER) tool, which derives from Common Core ELA Standards, engages students in two NGSS Science & Engineering Practices: (1) engaging in argument from evidence, and (2) obtaining, evaluating, and communicating information. CER helps students align their conclusions to the purpose of the investigation, using their evidence to create reasoning that then provides an avenue for taking action on the issue at hand.

ACTIVITY OBJECTIVES

- Participants will practice CER using the workshop's driving/supporting questions and discuss how to use the method with students in support of a MWEE.
- Participants will complete the Moving from Claims to Informed Action worksheet from the MWEE Guide's Student Worksheet Toolbox using the workshop's modeled MWEE.



Claim

A statement of a student's understanding of a phenomenon or about the results of an investigation.

- A one-sentence answer to the question you investigated
- It answers: what can you conclude?
- It should not start with yes or no
- It should describe the relationship between dependent & independent variables

Evidence

Scientific data used to support the claim. The evidence must be:

Sufficient: use enough evidence to support the claim

Appropriate: use data that supports the claim, leave out information that doesn't support the claim

Qualitative, quantitative, or both

Reasoning

Ties together the claim and the evidence.

- Shows how or why the data count as evidence to support the claim
- Provides the justification for why this evidence is important to this claim
- Includes one or more scientific principles that are important to the claim and evidence

---

Actionable: The claim provides students a springboard for identifying action to address the issue at hand. Actions must be directly connected to the investigation and students should be able to use CER to describe why they are taking such action.

This activity is designed for participants to practice CER as a means to connect the Issue Investigations (Part 3) to the action (Part 4). Choosing an action that directly relates to the issue can be a challenge. CER provides a framework for thinking through the connections. If participants are unfamiliar with CER, do a practice activity together (see Activity 4.1 Additional Resources).

1. Hand out a blank CER worksheet to each participant and ask them to fill in the workshop's driving question or one of the supporting questions. Participants will use their research, observations, and data collected to develop a claim backed by evidence and a reasoning statement.

U.S. Fish & Wildlife Service staff work with students to identify macroinvertebrates

TRANSIT MIDDLE SCHOOL

ENGAGEMENT QUESTIONS

→ **Has anyone used CER with students?**

→ **What other approaches have you used for developing evidence-based claims?**

2. Rubrics are an easy and effective way to assess student conceptual understanding. Here is an example rubric designed by a teacher to evaluate a CER. Ask participants to exchange their CER worksheet with a partner and practice using this rubric.

ENGAGEMENT QUESTIONS

→ **What do you think of this rubric?**

→ **Would you make changes based on the grade that you work with?**

→ **For those that have used CER, how have you assessed student work?**

3. Now that participants are familiar with CER, ask them to use this structure to create a statement (or series of statements) that follow the Issue Investigations modeled throughout this workshop. Use the Moving from Claims to Informed Action worksheet in the MWEE Guide.

ACTIVITY 4.1 ADDITIONAL RESOURCES

CER Additional Practice

If the participants require additional practice with CER, try this quick CER Practice Activity (10-15 minutes). Distribute blank CER worksheets and a picture of your choice. The picture can be anything — a photo of a local landscape, an image of a current event, etc. Participants will use only the picture provided to fill in the worksheet. They must develop a claim, backed by evidence they can gather from the picture alone, as well as thought-out reasoning for their claim.

This activity offers an example of how to develop a reasoning statement with little evidence. Students might be tempted to use their imagination to create a story around the picture but any statement they include as evidence must be directly referenced in the picture. Time restraints or weather conditions during an outdoor field investigation may result in fewer data points than you originally planned for but, like this CER practice, students must learn to use what they have to make conclusions.

If you don't use this activity during the workshop, you might share it with your participants to use with their students as a way to introduce and practice CER.

Lake Superior North Shore, Minnesota

LUCAS LUDWIG, UNSPLASH

Bolstering Youth Voice in Action

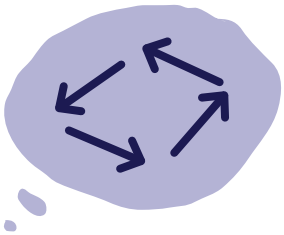
TIME: 45 MINUTES

BACKGROUND Supporting students in creating novel actions that relate directly to their Issue Investigations can be challenging. As educators, we know the importance of having a few ideas for action in our back pocket in case students revert to actions that don't necessarily address the issue at hand. For example, if students identify an issue with water runoff after looking at pervious and impervious surfaces on their schoolyard, a trash clean-up would not be an appropriate action. But how do we practically foster innovative thinking? Cultivating Creativity in Standards-based Classrooms, an article from Edutopia, outlines both the importance of this idea as well as some strategies for fostering student creativity in the confines of a classroom.

ACTIVITY OBJECTIVES

- Participants will practice supporting youth voice during action project brainstorming.
- Participants will complete the Choosing an Action Project worksheet from the MWEE Guide using the workshop's modeled MWEE.

This section includes two activities that can bolster youth voice while brainstorming action projects — choose whichever one fits your context best. The Divergent / Convergent Thinking activity can help to inspire innovative thinking and provide opportunities for all students to be heard. The Modeling Action Throughout the MWEE activity summarizes methods used to help prepare students to come up with relevant and actionable projects.



Divergent / Convergent Thinking

To encourage everyone's participation in action project brainstorming, this activity starts with individuals then builds up to the larger group. Project a CER statement from the workshop-modeled MWEE on the screen (or write it on the whiteboard, chalkboard, notepad, etc.) so that participants can reflect on it as they move through the activity.

1. Ask participants to look at the "Understanding the MWEE" section of the MWEE Guide to review the Types of Environmental Action Projects listed. This will get them thinking about the full range of possibilities available to them.

2. Set a timer for two minutes. Ask participants to "solo-storm" — jotting down as many actions to address this issue as they can. At this point, all ideas are welcome, even if they might seem a little far-fetched! This is the time for creativity and unique ideas.

3. Ask participants to share their ideas with their table groups. There are likely a number of commonalities and similar ideas, but perhaps there are some unique ones, too.

4. Now that all ideas are on the table, groups might already be naturally coalescing around a single action or set of actions. Ask participants to work together to identify an action project that builds on one or more of the ideas. Each group should be able to describe what the action is, how it will address the issue, and the basic steps needed to make it happen. At this point, groups need not dive deep into specific logistics.

5. Ask each group to share the action they selected and give a quick summary.

ENGAGEMENT QUESTIONS

- → **How was your experience of first thinking of projects on your own?**
- → **How did your ideas compare to the ideas of others?**
- → **Do you think this method would work with your students?**
- → **What adjustments would you make?**

Modeling Action Throughout the MWEE

When asking students to develop Environmental Action Projects, a challenge that educators come up against is that sometimes students don't know what it means to "take action." One way to alleviate this gap in understanding is to model what action could look like throughout the MWEE. This approach sets students up with examples of action.

1. Review the "Raising Voices, Taking Action" video with your participants. This community forum, developed by the Southeast Michigan Stewardship (SEMIS) Coalition, empowers youth to explore and communicate environmental issues, using principles of place-based education. In the video, you'll see examples of actions that youth took, as well as the importance of grounding place-based education in relevant issues within your community.

   Another example of modeling action is seen in the "Wave of Plastic" MWEE (a B-WET funded project). Here, a cohort of teachers followed each of their five lessons with a "modeled action" so by the end of their MWEE, students were more prepared to design their own student-directed action.

   It's important to note that the modeled action pieces were not student-created, rather they were prescribed activities and assignments created by the teachers. The teachers were careful to select modeled actions that were low-to-no cost, could be completed in one class period or as homework, and that may also function as an assessment of understanding. The modeled actions are different than the student-directed action that takes place in the Wave of Plastic's lesson 5, which is where students take the lead in identifying, planning, and carrying out the action.

2. Ask participants to consider the investigations that they've undertaken so far in the workshop model MWEE (both outdoors and indoors) and identify if there are any opportunities where they could have modeled action the way the SEMIS Coalition or Wave of Plastic project did. What are the opportunities or challenges of employing this method?

Apply It

1. Have participants return to the CER tool they started in Activity 4.1 based on the workshop's driving and supporting questions. They will brainstorm three action projects as a group and update their CER.

2. As a group, choose one action idea and use the Project Goal and Strategy template (created by Earth Force) to summarize the chosen action. Back in the classroom, this template could be used with students as they prepare to present their ideas to the larger group, class, or other partners.

3. Have participants complete the bottom section of Moving from Claims to Informed Action in the MWEE Guide using the workshop's modeled MWEE. You will review needed resources for action projects during Activity 4.4 but at this stage, participants can jot down initial ideas.

Educators participating in a professional development opportunity at a local natural area where they model MWEEs for their students

DISCOVERING PLACE

ENGAGEMENT QUESTIONS

→ **It may seem like we're spending a lot of time practicing action project brainstorming. This is often one of the more challenging aspects of the MWEE. Of the activities that we've practiced or discussed, which could you imagine working best with your students?**

→ **What other approaches are you currently taking with your students?**

ACTIVITY 4.2 ADDITIONAL RESOURCES

Building on Local Priorities and Initiatives

Activity 4.2 lays a framework for engaging students in brainstorming and developing new and unique ideas for action. There may be times when educators want to bring in experts to showcase some of the existing efforts that your community is engaged in to identify synergies with their action project.

Bringing in experts can happen at the Environmental Action Project stage or perhaps it's already happened during Issue Definition. Providing students an understanding of what is going on in their community does a couple of important things:

1. It demonstrates that there is momentum behind the effort and that they're a part of something important;
2. It may provide opportunities for students to parlay their work with that of another organization or municipality, which can lead to different kinds of support like funding, press, volunteers, and other resources;
3. It can provide unique opportunities for students to gain insights into careers related to these fields.

Connecting with outside efforts can be very beneficial but approach this method with caution. Students sometimes lose interest and drive after they learn they aren't the "first and only" ones working on an issue or problem, or that someone else is taking care of the issue or problem and their work is not as important or needed.

ENGAGEMENT QUESTION

→ **If you were to organize outside experts to talk with students about similar work, what steps would you take to ensure the students recognize the uniqueness and importance of their own work?**

During this part, you might consider spending time diving into local efforts that could connect with Environmental Action Projects (e.g., green business certifications, local festivals, climate task forces, youth summits, afterschool clubs, etc.).

Seeding wild rice (manoomin), part of the Wild Rice Initiative restoration outreach and education efforts

TODD MARSEE, MICHIGAN SEA GRANT

Choosing an Environmntal Action Project

TIME: 30 MINUTES

By this point, students have generated many ideas as possible actions that will directly address the issue at hand. In most cases, having one Environmental Action Project for a single class or group of students is the most manageable for educators. While this isn't always the case — some educators will choose to facilitate small groups of students taking on different action projects and sometimes an action project is large enough for multiple classes — it is critical that every student is meaningfully engaged in deciding on the action project and carrying it out. This activity will help participants consider how they can best accomplish this goal.

ACTIVITY OBJECTIVE

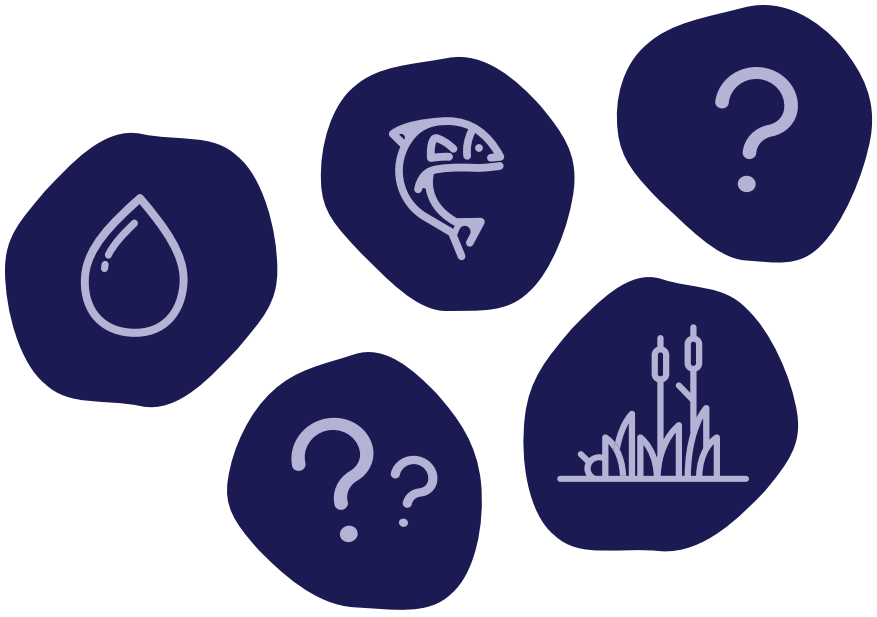
- Participants will choose one action project idea for the workshop's driving question using the strategy selection grid.

If all of the projects on the list seem doable given the constraints (e.g., time, funding, and resources), dot voting or digital polling could be an easy way to democratically choose an action project.

In other cases, criteria-based decision-making tools, like this Strategy Selection Grid developed by Earth Force, help to balance student interest with teacher goals and other constraints. Use the Strategy Selection Grid with the whole group to model this activity using the workshop's model MWEE.

1. Identify five possible actions that participants selected in Activity 4.2. Before writing them on the grid, double-check to make sure that the actions are directly related to the driving question. Participants should be able to use their CER statement to explain how each of the proposed actions will impact the issue. Once this is confirmed, write the action options under the strategy section of the grid.

2. As a group, decide on criteria for choosing a strategy (action).



ENGAGEMENT QUESTION

→ **As an educator, it's important that you list the criteria that you know to be limiting factors for the Environmental Action Projects. At the same time, you still want to support youth voice in the selection process. What can you do to make sure that both the students and your criteria are recognized in this process?**

EXAMPLES OF POSSIBLE CRITERIA ARE:

Can be completed in two class periods

Costs less than $50

Requires participation from every student

Criteria may be specific or general. Some considerations when identifying criteria for selection strategies are:

Realistic: Will students be able to carry out the strategy with the available resources?

Precedent: Have others used this strategy before, and how well did it work?

Relevance: How much does the strategy actually address the project goal?

Simplicity: How easy or difficult will the strategy be to carry out?

Impact: How likely is it that the strategy will have a lasting impact? Will it be sustainable?

Providing the time and space for educators to actually experience taking action during a workshop can be very powerful. If you plan to do this, be sure to add appropriate criteria to the strategy grid that reflects the parameters that they'll need to stick within.

3. Ask participants to write the criteria on the shared grid. Then, apply the criteria, rating each strategy against each criterion. Tally the results using the grid. After each strategy is ranked against the criteria, one may stand out as the clear winner. If one does not emerge, participants may need to establish additional criteria to apply to each possible strategy or have a group discussion about the frontrunners to see if there is a way for the ideas to be combined in a meaningful way to ensure class buy-in. In the end, the group should come to a conclusion to advance one action project.

ENGAGEMENT QUESTIONS

→ **How do you see this grid working with students to select an action project?**

→ **Would you make changes to the activity?**

ACTIVITY 4.3 ADDITIONAL RESOURCES

Pre-Determined Action

Sometimes there are elements of action that are pre-determined for a number of reasons — perhaps your school has already acquired funding to install a rain garden or there is an initiative in which your Parent Teacher Association is counting on your class to participate. This is not an ideal situation, as we previously discussed the importance of students identifying and developing their own ideas for action. However, sometimes this situation is unavoidable and there are ways to ensure that this is a truly meaningful action project. It's important to find ways for students to make the project their own and to facilitate the learning so that they feel invested in the action.

ENGAGEMENT QUESTIONS

→ **Has anyone been in a similar situation? How did you handle it?**

→ **Does anyone anticipate this being the case for their MWEE? If so, what could you do to ensure that youth voice is authentically incorporated?**

Environmental Action Project Planning

TIME: 60 MINUTES

This activity is designed to engage participants in thinking about how to involve all students meaningfully in the execution of an Environmental Action Project.

ACTIVITY OBJECTIVES

- Participants will create a work plan for setting the workshop's shared action into motion that identifies opportunities for all students to be meaningfully involved.
- Participants will use the Audit Tool from the MWEE Guide to review the extent to which students identify, explore, and implement solutions that address the conclusions and claims drawn through investigation and consider the effectiveness of these solutions.
- Participants become familiar with the Informed Action section of the ELM.
- Participants will use the Audit Tool to evaluate the Lake Superior Stewardship Intiative MWEE example.

Once an action project has been identified, students engage in the process of planning how to make their vision a reality.

This part is all about the logistics — from timelines, to who's doing what, to acquiring appropriate supplies, and communicating about the project. Because the MWEE is student-led, these tasks should not fall onto the shoulders of the educator. Rather, the educator should give the students agency in taking on tasks and support them through the process.

One way to ensure that all students feel empowered and find meaning in the action project is by harnessing student talents and interests. Educators can help students organize into different teams or roles that leverage their strengths. Examples of student talents and interests may include writing and storytelling; public speaking and networking; graphic design, photography, and filmography; social media and website development; decision-making, logistics and project management; budgeting and mathematics; foreign language/ASL; music; and so on.

1. Project the action project strategy that participants selected during the previous activity on the screen (or write it on the whiteboard, chalkboard, notepad, etc.). Workshop participants will work in small groups to create a work plan for setting this action in motion. They may use the Lake Superior Stewardship Initiative as a model or start from scratch. Allow participants time to brainstorm and discuss with each other how they would run this step with their students.

ENGAGEMENT QUESTION

→ **Did your group come up with a question or activity in your work plan that you would like to share with others that can help encourage and embrace youth voice and participation?**

2. Provide the time, space, and resources for workshop participants to bring their actions to fruition. Examples of projects that could be accomplished in a small period of time might include writing a collective letter to a public official, creating a short video for a social media account with a call to action, or signing up to present the topic at a local meeting.

3. After participants take action, it's important for them to have adequate time to reflect and process the experience. This can occur through many forms — journaling, reflective essays, guided conversation, etc.

A few important pieces to consider include:

Recommendations for sustainability or future adaptation. What would you change if you had to start over? What do you wish you had known from the outset? How could you adapt your approach to action for future impact? If the project is to be sustained, who are the next stewards of making sure it lives on? What information will you pass on to them and what form will it take?

Impact data. Was this action successful? How do we know? If we don't know yet, what is the method for tracking this and what are the indicators for success?

Plan for sharing and communicating results. How will you communicate the success of the action? Who are the key stakeholders that will care about the action? What does this form of communication look like (e.g., presentation, newspaper article, or social media post)?

ENGAGEMENT QUESTION

→ **What assessment methods have you used in the past that would lend themselves well to guiding students through reflecting on the MWEE experience, particularly around the action project?**

4. Have participants evaluate the process they just practiced of selecting, designing, and evaluating the action project against the Audit Tool.

   Review the last section of the ELM — Informed Action. Sometimes participants misinterpret this section of the ELM and think they need to complete it with an action project in mind. Use the Lake Superior Stewardship Initiative example to show how they should use the planning tool to sketch out how they will guide action project selection, design, and implementation. Ask participants to apply the Audit Tool to the ELM to consider the strengths of the program and the opportunities for improvement.

PLAN IT

TIME: 60 MINUTES

Now that you're an expert in student-led action, it's time to consider how this applies directly to your MWEE. Complete the Moving from Claims to Informed Action worksheet, then the Informed Action section of the ELM from the MWEE Guide's Student Worksheet Toolbox and Planning Tools Toolbox, giving consideration to the activities and approaches that have been modeled during this workshop. Remember, this is a student-led action project, so instead of listing out your action ideas, list out the methods and strategies you would use throughout the process to encourage youth voice and participation.

ACTIVITY OBJECTIVES

- Participants will complete the Moving from Claims to Informed Action worksheet for their own MWEE.
- Participants will complete the Informed Action section of the ELM for their own MWEE.

Auditing Your MWEE

OBJECTIVES

- Participants will review their ELM and evaluate it against the Audit Tool. They will identify areas that need improvement or more detail.
- Participants will use the Audit Tool to evaluate another participant's ELM and offer suggestions.
- Participants will share their MWEE plan with the larger workshop group to collect feedback and suggestions.

ESTIMATED TIME FOR THIS PART

2 hours

SUGGESTED LOCATION

Indoors

Auditing Your MWEE

TIME: 45 MINUTES

At this point, all participants should have completed the ELM from the MWEE Guide. Everyone should now open the Audit Tool. This tool can be used to strengthen an existing MWEE or help plan a new MWEE to ensure the Essential Elements (i.e., Issue Definition, Outdoor Field Experiences, Synthesis and Conclusions, and Environmental Action Projects) and Supporting Practices (i.e., teacher facilitation, learning integration, local context, and sustained experience) are all meaningfully included.

ACTIVITY OBJECTIVES

- Participants will use the Audit Tool to critique their own ELM.
- Participants will exchange their ELM with another participant and use the Audit Tool to review their partner's ELM.

1. Ask participants to review their ELM with the Audit Tool. Encourage them to be honest with their evaluation so they can better identify areas needing improvement. Encourage them to write notes as they work through the tool.

2. Next, participants should exchange their ELM with another workshop participant. Using a new Audit Tool, each reviewer should score the ELM and include suggestions. Participants should use any remaining time to review each other's notes and brainstorm together on how to improve each other's MWEE.

ENGAGEMENT QUESTIONS

→ **How was your experience working through the Audit Tool?**

→ **Did you find it helpful? Why or why not? What changes would you make to your MWEE after using the Audit Tool?**

→ **After exchanging your ELM with another participant, do you have any insights you'd like to share about the experience?**

The Audit Tool is designed to be used more than once. Use the tool as you create a new MWEE, at the completion of a MWEE to guide you through a reflection on the program, before repeating a MWEE with a new group of students, and anytime you feel a section needs to be strengthened.

Sharing Your MWEE

TIME: 30–60 MINUTES

This is a designated time for participants to share their MWEE idea and collect feedback and suggestions from the larger group. The length of this activity is dependent on how many participants you have in your workshop and how engaged they are in the activity. However, be careful not to cut this activity short. For many participants, this might be a rare opportunity to receive feedback about new ideas and share experiences with their peers. A new MWEE partnership might even develop!

ACTIVITY OBJECTIVE

- Each participant will share their MWEE idea with the larger group and provide feedback to others.

Ask each participant to summarize their MWEE for the group. You may want to set a time limit of five minutes for each summary. MWEE summaries should not be limited to sharing the general MWEE plan, but also include lesson ideas, outdoor field locations, methods for integrating youth voice, potential partners, and identified resources so that others might learn of ways to strengthen their own MWEE.

As each participant shares their MWEE summary, the other participants should be thinking through the Audit Tool and be ready with questions and constructive feedback.

ENGAGEMENT QUESTIONS

→ **After listening to everyone's MWEE ideas, what observations can be made about the group as a whole?**

→ **How has your MWEE idea evolved from the beginning of this workshop to this point?**

PLAN IT

TIME: 45 MINUTES

Use the remaining workshop time to take advantage of this shared learning environment. Participants should go back through their ELM and make changes based on the feedback they received, and add any new ideas they may have learned while listening to the other MWEE summaries.

Participants should use this informal time to continue brainstorming with other workshop participants on how to strengthen each other's MWEEs, make connections, and possibly create collaborations.

ACTIVITY OBJECTIVE

- Participants will make adjustments to their ELM based on feedback and conversations with other workshop participants.

Facilitator’s Guide to MWEE Training

PUBLISHED IN 2023