



PLANNING
TOOLS
TOOLBOX



MWEE PLANNING TOOLBOX

MWEE Think Cloud Planning Tool

This tool can help you with some initial brainstorming about program ideas, collaborators, and resources and can be used to facilitate planning conversations with partners and team members.

Incorporating Outdoor Field Experiences Planning Tool

This tool can be used to evaluate potential sites for your Outdoor Field Experiences, including exploring how these sites can support the Issue Definition and Environmental Action Projects essential elements.

Environmental Literacy Model (ELM) Planning Tool

This tool is designed to help situate the MWEE within the scope and sequence of the curriculum and to ensure that Environmental Action Projects are in direct response to the learning that took place during the earlier phases of the MWEE.

Meaningful Watershed Educational Experience (MWEE) Audit Tool

This tool is designed to support the iterative planning and revision of new and existing MWEEs to meet the full definition of a MWEE including the essential elements (Issue Definition, Outdoor Field Experiences, Synthesis and Conclusions, and Environmental Action Projects) and supporting practices (Teacher Facilitation, Learning Integration, Sustained Experience, and Local Context).



The MWEE Audit Tool references several tools and worksheets that may be helpful to you. These tools and worksheets can be found on this webpage:

www.noaa.gov/office-education/bwet/resources/mwee-guide.

MWEE THINK CLOUD

What are the overall goals and/or objectives for learning?

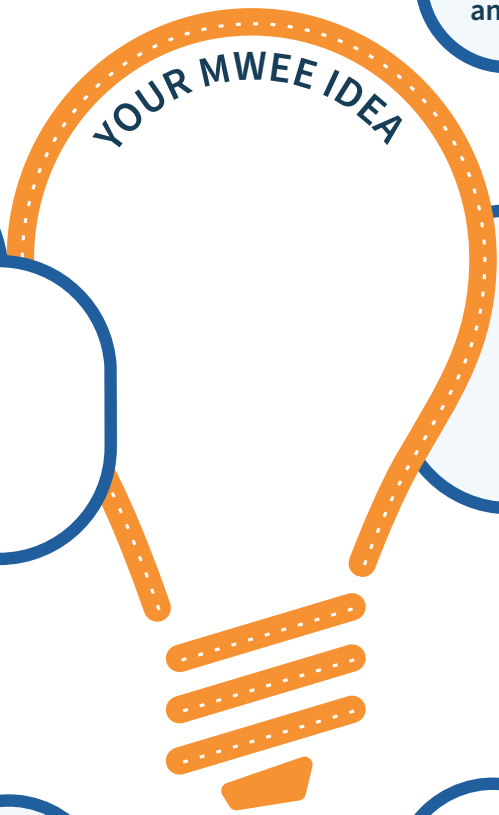
What environment-related field trips can occur off-site? What outdoor assets and resources exist at these sites?

What are the local issues, problems, or phenomena to explore?

What outdoor assets and resources exist on the school grounds?

Who can I work with on this project at my school and/or in the community?

What else do I need to consider?





INCORPORATING OUTDOOR FIELD EXPERIENCES

How will field experiences be used to make observations, collect data, or otherwise help answer the driving/supporting questions?

How can field experiences be used to explore solutions as part of Environmental Action Projects?

| | Possible Site #1: School Grounds | Possible Site #2: | Possible Site #3: |
|---|-------------------------------------|-------------------|-------------------|
| Site location and description | | | |
| What do the field experiences contribute to your MWEE (learning objectives, science and engineering practices, etc.)? | | | |
| What will the teacher do to facilitate learning? | | | |

| | Possible Site #1: School Grounds | Possible Site #2: | Possible Site #3: |
|--|-------------------------------------|-------------------|-------------------|
| What natural features, facilities, and/or programs are available at the site? | | | |
| Are there costs associated with this site (transportation, program fees, etc.)? | | | |
| What permissions and/or permits need to be secured? | | | |
| Does the site provide adequate access for students of all abilities? This may include technology mediation, boardwalks, guide ropes, braille signs, etc. | | | |
| What resources would you need to make it happen? | | | |



ENVIRONMENTAL LITERACY MODEL (ELM)

Title: _____ Author: _____

School/district: _____ Audience (grade/course): _____

CURRICULUM ANCHOR

DEFINING THE LEARNING OBJECTIVES AND CURRICULUM CONNECTION

What are the curriculum indicators, performance expectations, and/or student learning objectives?
Are there opportunities to meet academic standards in multiple disciplines or content areas?

DESCRIBING THE LOCAL CONTEXT

What is the local and life-relevant environmental issue, problem, or phenomenon that will serve as the context for learning?

IDENTIFYING THE DRIVING QUESTION

What is the open-ended, life-relevant question that meets academic standards/learning objectives?
Reminder: It should guide inquiry for the investigations and provide opportunities for environmental action.

ISSUE INVESTIGATION

ASKING QUESTIONS AND DEFINING ISSUES

What are supporting questions that students may investigate to further explore the driving question? List the supporting questions that cover your required curriculum content and lessons, but leave at least one Issue Investigation open for those developed or co-developed by your students. Use the space to describe how you will guide them through this student-directed process. After completing your MWEE, add in the student-directed investigations.

| Issue Investigation 1 Who is involved in developing this investigation? <i>teacher and/or students?</i> | Issue Investigation 2 Who is involved in developing this investigation? <i>teacher and/or students?</i> | Issue Investigation 3 Who is involved in developing this investigation? <i>teacher and/or students?</i> |
|--|--|--|
| | | |

PLANNING AND CONDUCTING INVESTIGATIONS

How could students plan and conduct indoor and outdoor investigations to actively address the supporting questions? What kinds of data could be collected to draw conclusions and make actionable claims?

| Issue Investigation 1 Is this investigation occurring <i>indoors and/or outdoors?</i> | Issue Investigation 2 Is this investigation occurring <i>indoors and/or outdoors?</i> | Issue Investigation 3 Is this investigation occurring <i>indoors and/or outdoors?</i> |
|--|--|--|
| | | |

ISSUE INVESTIGATION (CON'T)

ANALYZING AND INTERPRETING DATA

How could students analyze data (graphs, models, etc.) to reveal patterns and relationships? What could the process of synthesizing evidence look like?

| Issue Investigation 1 | Issue Investigation 2 | Issue Investigation 3 |
|-----------------------|-----------------------|-----------------------|
| | | |

CONSTRUCTING AND COMMUNICATING A CLAIM

How could you guide your students through the process of developing claims based on their evidence?
How may they communicate these evidence-based claims to internal and/or external audiences?

| Issue Investigation 1 | Issue Investigation 2 | Issue Investigation 3 |
|-----------------------|-----------------------|-----------------------|
| | | |

INFORMED ACTION

IDENTIFYING SOLUTIONS

How could you encourage your students to identify and explore a variety of solutions that could directly address the issue? How could students make decisions about which solution(s) to implement?

DESIGNING A PLAN AND TAKING INFORMED ACTION

What resources or frameworks will students use to create their plan of environmental action? During what time period will they execute their action project?

EVALUATING ACTION

In what ways could students reflect on the action project and determine the extent to which it successfully addresses the issue?



MWEE AUDIT TOOL

MWEE ESSENTIAL ELEMENTS

ISSUE DEFINITION

Evaluate the extent to which the MWEE supports student learning about a locally relevant environmental issue, problem, or phenomenon. Driving and supporting questions anchor learning about the issue, which is explored through background research, investigations, and reflection on values and perspectives. The student learning and investigations should have the potential to result in student-centered environmental action.

The driving question has the following characteristics (check all that apply). Aspire to create a driving question that includes all of these characteristics:

Supports learning objectives (i.e., knowledge, skills, and attitudes)

Serves as a context for both increasing content knowledge and practicing inquiry and methodological skills

Open-ended (i.e., arguable, with no single, final, or correct answer)

Relevant and related to students' lived experience

Anchored in real-world environmental and social problems

Affords the opportunity for continuity and coherence across the MWEE




Provides the opportunity for students to develop and explore supporting questions as knowledge and understanding evolve




Allows students to design and enact investigations that yield answers

Provides opportunities for environmental action

Calls for higher-order thinking, including analysis, inference, prediction, and evaluation

Allows for the exploration of both natural and social systems

| |  MISSING MWEЕ COMPONENTS |  NEEDS IMPROVEMENT |  GREAT JOB! |
|---|--|---|---|
| The inquiry and investigations of the defined issue will logically culminate in environmental action. | <i>It is unclear if there is a solution students could implement to effect change related to the issue.</i> | <i>There is only one obvious solution students could implement to effect change related to the issue.</i> | <i>There are multiple solutions (including some that address root causes) that students could implement to effect change related to the issue.</i> |
| Students conduct background research sufficient to explore the driving question. | <i>Teachers find and provide all of the background information to students and/or background information may not be sufficient for students to fully understand the issue.</i> | <i>Teachers find and provide most of the background information for students to conduct the background research. The background research is sufficient to explore the driving question.</i> | <i>Students are actively engaged in finding and critiquing the information needed for conducting background research to explore the driving question. Teachers facilitate students exploring gaps in their understanding.</i> |
| Students are actively involved in developing or co-developing supporting questions based on their background research. | <i>All supporting questions are developed by the teacher.</i> | <i>Supporting questions are developed by the teacher with some opportunity for student input and/or co-development.</i> | <i>Students develop or co-develop their own supporting questions.</i> |

| |  MISSING MWEЕ COMPONENTS |  NEEDS IMPROVEMENT |  GREAT JOB! |
|--|--|--|--|
| Students explore the driving question and supporting questions during classroom investigations. | <i>Intent and activities of the classroom investigations are not related to exploring the driving and/or supporting questions.</i> | <i>Intent and activities of the classroom investigations are somewhat, generally, or in large part related to exploring the driving and/or supporting questions.</i> | <i>Classroom investigations are designed to purposefully explore the driving and supporting questions. Teachers look for opportunities to include students in planning investigations.</i> |
| Students explore personal, stakeholder, and societal values, perspectives, and root causes related to the driving question. | <i>There are no activities to explore values, perspectives, or root causes incorporated into the MWEЕ.</i> | <i>There are activities to explore values, perspectives, and/or root causes but not all are explored during the MWEЕ.</i> | <i>There are meaningful activities to explore values, perspectives, and root causes during the MWEЕ.</i> |

How will you incorporate missing MWEЕ components?

How will you improve Issue Definition?

What are the best aspects of Issue Definition? How can they be strengthened or expanded?

For help, check out the Asking Questions and Planning Investigations student worksheet and the Issue Investigation section of the Environmental Literacy Model (ELM) planning tool.

OUTDOOR FIELD EXPERIENCES

Evaluate the extent to which students participate in multiple Outdoor Field Experiences sufficient to explore the driving question. Students are actively involved in planning and conducting the field investigations, as appropriate.

| |  MISSING MWEE COMPONENTS |  NEEDS IMPROVEMENT |  GREAT JOB! |
|---|--|---|---|
| Students participate in Outdoor Field Experiences. | <i>Students do not go outdoors.</i> | <i>Students have one field experience during the course of their MWEE.</i> | <i>Students have multiple field experiences during the course of their MWEE.</i> |
| Outdoor Field Experiences are accessible to all students, including students with a range of physical, cognitive, emotional, and social abilities. | <i>Accommodations have not been considered, or no accommodations made to make outdoor learning spaces accessible to students with a range of physical, cognitive, emotional, and social abilities.</i> | <i>Accommodations have been considered and some accommodations made to make outdoor learning spaces more accessible to students with a range of physical, cognitive, emotional, and social abilities.</i> | <i>Accommodations have been considered and all reasonable accommodations have been implemented to make outdoor learning spaces accessible to students with a range of physical, cognitive, emotional, and social abilities.</i> |
| Students explore the driving question and/or supporting questions during field investigations. | <i>Intent and activities of the field investigations are not related to exploring the driving and/or supporting questions.</i> | <i>Intent and activities of the field investigations are somewhat, generally, or in large part related to exploring the driving and/or supporting questions.</i> | <i>Field investigations are designed to purposefully explore the driving and/or supporting questions.</i> |
| Students are actively involved in planning and conducting field investigations. | <i>Students are not involved in planning and conducting field investigations.</i> | <i>Teachers and/or partners plan field investigations with little input from students.</i> | <i>Students are actively involved in the planning including creating/ co-creating supporting questions that inform field experiences.</i> |

How will you incorporate missing MWEE components?

How will you improve the Outdoor Field Experiences?

What are the best aspects of the Outdoor Field Experiences? How can they be strengthened or expanded?

For help, check out the [Incorporating Outdoor Field Experiences planning tool](#).

SYNTHESIS AND CONCLUSIONS

Evaluate the extent to which students identify, synthesize, and apply evidence from their investigations to make claims, draw conclusions, and communicate about the issue, problem, or phenomenon. Synthesis and Conclusions should happen regularly throughout the MWEE for students to reflect on their experiences and investigations in relation to the issue.

| |  MISSING MWEE COMPONENTS |  NEEDS IMPROVEMENT |  GREAT JOB! |
|--|--|---|---|
| Students have dedicated time to reflect on each experience and investigation in relation to the issue, including opportunities to reflect with their peers. | <i>Students have no time to reflect on each experience and investigation in relation to the issue.</i> | <i>Students have one or two opportunities to reflect on the experiences and investigations in relation to the issue and/or they do the reflection in isolation with no opportunities to reflect with their peers.</i> | <i>Students have structured and intentional ways to regularly revisit their experiences and investigations in relation to the issue with one or more opportunities to reflect with their peers.</i> |
| Students reflect on both environmental and social systems related to the issue. | <i>Students do not reflect on environmental and social systems.</i> | <i>Students reflect on either environmental or social systems but not both.</i> | <i>Students reflect on both environmental and social systems.</i> |
| Students communicate their understanding, conclusions, and/or claims as a result of the investigations to inform or engage in scholarly argument. | <i>Students do not communicate their understanding of the issue.</i> | <i>Students present basic results of their investigations that are not sufficient to demonstrate understanding of the issue.</i> | <i>Students construct coherent explanations of their investigations using evidence and demonstrate their understanding of the issue.</i> |
| Students make a claim about the issue that warrants environmental action. | <i>Students do not make a claim based on the collected evidence.</i> | <i>Students make a claim that warrants environmental action but the claim is not supported by collected evidence.</i> | <i>Students make an evidence-based claim that prepares them to take related environmental action.</i> |

How will you incorporate missing MWEE components?

How will you improve Synthesis and Conclusions?

What are the best aspects of Synthesis and Conclusions? How can they be strengthened or expanded?

For help, check out the Claims, Evidence, Reasoning student worksheet.

ENVIRONMENTAL ACTION PROJECTS

Evaluate the extent to which students identify and implement an Environmental Action Project as a solution that directly addresses the defined issue or problem within their school, neighborhood, or community. Students reflect on the action and determine the extent to which the action successfully addressed the issue.

| |  MISSING MWEЕ COMPONENTS |  NEEDS IMPROVEMENT |  GREAT JOB! |
|--|--|---|---|
| Students explore multiple solutions based on their claim and determine an action project. | <i>Students do not explore solutions and no action project is selected.</i> | <i>Students only explore one solution or they explore multiple solutions, but the action project has been preselected by the teacher.</i> | <i>Students explore multiple solutions and identify an action project to implement.</i> |
| The selected Environmental Action Project directly addresses the defined issue the students are studying. | <i>The action project is not connected to the issue.</i> | <i>The action project is indirectly aligned with the issue; students are unable to make a clear connection to their claim.</i> | <i>The action project is directly aligned with the issue and students can demonstrate this alignment with their evidence-based claim.</i> |
| Students are actively engaged in planning and implementing the selected action project. | <i>Students are not actively engaged in the implementation of an action project.</i> | <i>Students are engaged in the implementation of an action project, but have little or no opportunity to participate in the planning process.</i> | <i>Students are engaged in both planning and implementing the action.</i> |
| Students reflect on the action and determine the extent to which the action successfully addressed the issue. | <i>Students do not reflect on the action.</i> | <i>Students reflect on the action but make no conclusions about the effectiveness of the action on the issue.</i> | <i>Students reflect on the action and make conclusions about the effectiveness of the action on the issue.</i> |

How will you incorporate missing MWEE components?

How will you improve Environmental Action Projects?

What are the best aspects of Environmental Action Projects? How can they be strengthened or expanded?

For help, check out the Moving from Claims to Informed Action, Choosing an Action Project, and Environmental Action Planning student worksheets and the Informed Action section of the Environmental Literacy Model (ELM) planning tool.

MWEE SUPPORTING PRACTICES

TEACHER FACILITATION

Evaluate the extent to which classroom teachers support student learning for the duration of the MWEE within all of the essential elements. Teachers balance roles of facilitation, direct instruction, and coaching to create an experience where the essential elements of the MWEE come together to support goals for learning and create opportunities for students to take active roles in the learning process.

| |  MISSING MWEE COMPONENTS |  NEEDS IMPROVEMENT |  GREAT JOB! |
|---|--|--|--|
| Classroom teachers are involved in implementing each of the MWEE essential elements in the following ways (check one box per row): | <i>Classroom teachers are not involved in the implementation of this MWEE essential element.</i> | <i>Classroom teachers participate in the implementation of this MWEE essential element, but the majority of the facilitation and teaching is conducted by a partner.</i> | <i>Classroom teachers implement or co-implement this MWEE essential element. Partners may support or deliver specific activities or lessons, but classroom teachers are actively involved.</i> |
| Issue Definition | | | |
| Outdoor Field Experiences | | | |
| Synthesis and Conclusions | | | |
| Environmental Action Projects | | | |

How will you incorporate missing MWEE components?

How will you improve Teacher Facilitation?

What are the best aspects of Teacher Facilitation? How can they be strengthened or expanded?

For help, check out the Environmental Literacy Model (ELM) planning tool and look for opportunities for classroom teachers to increase their level of engagement and facilitation.

LEARNING INTEGRATION

Evaluate the extent to which the MWEE is meaningfully embedded into the school curriculum to support goals for learning and student achievement. Keep in mind that the MWEE is not meant to be something extra, but rather a means of enriching lessons for deeper student learning while meeting academic standards.

| |  MISSING MWEE COMPONENTS |  NEEDS IMPROVEMENT |  GREAT JOB! |
|--|--|---|--|
| The learning objectives (knowledge, skills, and attitudes) are clearly defined. | <i>Learning objectives are not present.</i> | <i>Learning objectives are present but there is no or little evidence that MWEE activities will affect the learning objectives.</i> | <i>Learning objectives are present and there is strong evidence that the MWEE clearly and explicitly supports the learning objectives.</i> |
| The MWEE clearly and explicitly supports academic standards and/or curriculum. | <i>Specific standards and/or curriculum are not identified.</i> | <i>Standards and/or curriculum are identified but there is no or little evidence of how the MWEE supports them.</i> | <i>There is evidence that the MWEE clearly and explicitly supports standards and/or curriculum.</i> |
| The MWEE connects learning across multiple disciplines or content areas. | <i>There is no attempt to connect the MWEE to multiple disciplines or content areas.</i> | <i>The MWEE connects to multiple disciplines or content areas, but only supports academic standards for one discipline or content area.</i> | <i>The MWEE supports academic standards in multiple disciplines or content areas. Teachers in other disciplines are included as appropriate.</i> |

How will you incorporate missing MWEE components?




How will you improve Learning Integration?

What are the best aspects of Learning Integration? How can they be strengthened or expanded?

For help, check out the Curriculum Anchor section of the Environmental Literacy Model (ELM) planning tool.

SUSTAINED EXPERIENCE

Evaluate the extent to which the MWEE provides rich learning opportunities, where each essential element builds upon and reinforces the others and each lesson or experience is explicitly connected to the larger learning sequence of the MWEE.

| |  MISSING MWEE COMPONENTS |  NEEDS IMPROVEMENT |  GREAT JOB! |
|--|--|---|--|
| The MWEE includes a variety of rich and connected learning opportunities. | <i>The MWEE does not contain multiple learning opportunities, or it includes multiple learning opportunities but there is no meaningful connection among these learning opportunities.</i> | <i>The MWEE includes multiple learning opportunities, but there are limited connections between these learning opportunities.</i> | <i>There is a clear arc of inquiry in the MWEE where all of the essential elements cohesively come together into multiple, connected learning opportunities.</i> |
| MWEE activities are sustained over time. | <i>MWEE activities occur over three or fewer class periods during one or two school days.</i> | <i>MWEE activities occur over four or five class periods during a week or two.</i> | <i>MWEE activities occur over a unit or multiple units and include a substantial amount of learning time.</i> |

How will you incorporate missing MWEE components?

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How will you improve Sustained Experience?

What are the best aspects of Sustained Experience? How can they be strengthened or expanded?

For help, check out the Curriculum Anchor section of the Environmental Literacy Model (ELM) planning tool.

LOCAL CONTEXT

Evaluate the extent to which the MWEE uses the local environment and community as a context for learning that is relevant to students' lives. The MWEE is situated within local contexts (e.g., students' school, neighborhood, or community). Local resources (e.g., partners, expertise, field sites) should be incorporated. Emphasizing local contexts enables students and teachers to develop stronger connections to, and appreciation for, their local environments and communities.

| |  MISSING MWEE COMPONENTS |  NEEDS IMPROVEMENT |  GREAT JOB! |
|---|--|--|--|
| The MWEE is centered on a local issue, problem, or phenomenon that is directly connected to the lives of the students. | <i>There is no local relevance.</i> | <i>A local issue is explored, but does not directly connect to the students' lives.</i> | <i>A local issue is explored and directly connects to the students' lives.</i> |
| The MWEE provides opportunities to explore the impacts of locally relevant (e.g., school, neighborhood, or community) environmental and social issues. | <i>Students are not exploring their local school, neighborhood, or community.</i> | <i>Students are exploring their local school, neighborhood, or community, but this is not directly, or is only peripherally, related to investigating the issue.</i> | <i>Students are exploring their local school, neighborhood, or community and it is directly related to investigating the issue.</i> |
| The MWEE incorporates local resources (e.g., partners, expertise, field sites). | <i>No local resources are incorporated into the MWEE.</i> | <i>Local resources are minimally incorporated into the MWEE.</i> | <i>Multiple local resources are incorporated throughout the MWEE to provide continuous and intentional connections to the community.</i> |

How will you incorporate missing MWEE components?

How will you improve Local Context?

What are the best aspects of Local Context? How can they be strengthened or expanded?

For help, check out the [Incorporating Outdoor Field Experiences planning tool](#) and the [Environmental Literacy Model \(ELM\) planning tool](#) and look for opportunities to incorporate local resources.