

# MWEE Think Cloud



# Developing Driving Questions

Driving questions are the “big picture” questions. They are central to the MWEE Essential Element of **Issue Definition**, which aligns with the Environmental Literacy Model’s **Curriculum Anchor** component. Driving questions engage students in meaningful inquiry by focusing on a locally relevant environmental problem, issue, or phenomenon. These questions—often referred to as essential questions, organizing questions, or overarching questions—are important for sparking curiosity and organizing inquiry for the issue investigation. Posed by the teacher to address specific learning standards or leverage existing resources or programming, driving questions provide students with a framework for learning across disciplines.

Supporting questions are generated by the students to help find the missing information needed to answer the driving question. They should uncover the students current knowledge about the issue, create interest, and begin to frame an investigation that addresses the driving question in a local context. Supporting questions provide an opportunity to bring in a variety of subject disciplines, strengthening the life-relevant and authentic contexts for learning.

## Criteria for Effective Driving Questions

- » Support learning objectives
- » Are relevant and related to everyday life
- » Are thought-provoking and intellectually engaging
- » Are open-ended (i.e. typically will not have a single, final, and correct answer)
- » Promote further inquiry (i.e. raises additional questions)
- » Encompass both natural and social systems and topics
- » Require students to revisit the problem frequently as knowledge and understanding evolves
- » Call for higher-order thinking, including analysis, inference, prediction, and evaluation
- » Include concepts and practices from multiple disciplines

MWEE Issue	Driving Question	Supporting Question	Standard(s)
		Supporting Question	Standard(s)
		Supporting Question	Standard(s)

# Identifying MWEE Field Study Sites that Support the Driving Question

Outdoor field experiences are essential elements of the MWEE. Field study sites can be located on school grounds or at locations in close proximity to schools such as streams or city parks. They can also take place at offsite locations like state parks, wildlife refuges, or education centers that are equipped with experts, gear, and facilities. A range of individuals, including teachers, environmental educators, natural resource professionals, or trained volunteers, can facilitate field experiences. The following template is an example of a tool for assessing, recording, and communicating the possibilities.

	Possible Site #1	Possible Site #2	Possible Site #3	Possible Site #4
Site Location				
Accessibility for students and other logistical considerations (safety, transportation, entrance fees).				
How is this site a good match for your students, grade level, curriculum?				
Does this site provide resources to help you (tools, experts, adult helpers)? Are there fees associated with it?				

# Moving from Synthesis and Conclusions to Action

Once students have had the opportunity to investigate their driving and supporting questions and have begun to generate claims from their synthesis and conclusions, they should work in small groups or as a class to brainstorm and evaluate ideas for action. These actions may include traditional restoration activities, but could also include civic action, community engagement, or other types of projects. Throughout this process, teachers play an important facilitation role by forming groups, observing, moderating, answering questions, encouraging the flow of ideas, and synthesizing findings.

## Types of Action Projects

- » **Watershed Restoration or Protection** (e.g., create schoolyard habitat, planting trees or grasses, invasive species removal, community cleanup, stormwater management)
- » **Civic Action** (e.g., town meetings, voting, writing elected officials/decision makers, advocating for policy change)
- » **Community Engagement** (e.g., presentations, social media, event-organizing, messaging at community events/fairs/festivals, mentoring, PSAs, flyers, posters)
- » **Everyday Choices** (e.g., reduce/reuse/recycle/upcycle, composting, energy conservation, water conservation)

Conclusions from Investigations			
	Solution #1	Solution #2	Solution #3
What actions could be taken to address the environmental problem, issue, or phenomenon? See <b>Types of Action Projects</b> above.			
How would this help to address the environmental problem, issue, or phenomenon?			
What resources would you need?			



# Planning Document

Title	
Author	
School, District	
Audience (grade, course)	

Curriculum Anchor	Notes
<p><b>Defining the Learning Objectives and Curriculum Connection</b> Curriculum indicators, performance expectations, and/or learning objectives.</p>	
<p><b>Describing the Local Context</b> The issue that will serve as the context for learning.</p>	
<p><b>Identifying the Driving Question</b> A broad, open-ended, life-relevant question that is based on the standards/learning objectives. Guides inquiry for the investigation(s) and prompts the development of actionable claims.</p>	

Issue Investigation	Notes
<p><b>Asking Questions, Defining Issues and Problems</b> Students define the issue, problem, or phenomenon to be investigated and develop questions that are relevant for investigation.</p>	
<p><b>Planning and Conducting Investigations</b> Students develop plans for collecting, analyzing, and communicating information and/or data to help them answer their questions and understand the problem. Students identify and justify appropriate sources of information and/or data, and determine methodologies for the collection of information and/or data.</p>	
<p><b>Analyzing and Interpreting Data</b> Students present and share information and/or data to reveal patterns that indicate relationships. Students apply disciplinary concepts as they analyze and interpret information and/or data to make sense of the issue, problem, or phenomenon.</p>	
<p><b>Constructing, Communicating, and Refining Explanations</b> Students identify, synthesize, and apply evidence from their investigations (for example, measurements, observations, and patterns) to draw conclusions about the driving question.</p>	

Stewardship and Civic Action	Notes
<p><b>Developing a Claim and Identifying Solutions</b></p> <p>Students develop a claim based on conclusions drawn in the Issue Investigation. The claim should reflect a problem, challenge, or opportunity that warrants informed action. Students identify and explore solutions to address the problem, challenge, or opportunity reflected in their claim.</p>	
<p><b>Designing a Plan and Taking Informed Action</b></p> <p>Students design a plan for implementing solutions through informed action in their classrooms, schools, and/or communities. The plans should include criteria for determining the extent to which the action successfully addresses the problem, challenge, or opportunity reflected in the claim. Students implement their plans.</p>	
<p><b>Evaluating Action</b></p> <p>Students reflect on the action and determine the extent to which it successfully addresses the problem, challenge, or opportunity reflected in the claim. Students share proposals for sustaining or extending the action.</p>	

# MWEE Audit Tool

This audit tool is designed to help you strengthen your planned or existing project to meet the full definition of a MWEE as defined in the 2014 Chesapeake Bay Watershed Agreement. It will help you assess the degree to which your project already contains the MWEE elements. A low score DOES NOT mean that your project is wrong or bad!

Classroom Integration	Score
<p>MWEEs are anchored to formal goals for learning and student achievement. They provide authentic, engaging opportunities for interdisciplinary learning that crosses traditional boundaries between disciplines. Some portions of the experience, such as the outdoor field experiences, may occur off school grounds and/or be facilitated in partnership with external providers, however, the MWEE should be fully integrated into the scope and sequence of the academic program.</p>	
<p><b>The primary academic standards and/or learning objectives are clearly defined. Multi-disciplinary objectives are encouraged.</b> <i>(Score 0 if not clear; Score 2 if clearly defined and connected to the issue.)</i></p>	<p>0 2</p>
<p><b>The MWEE clearly supports the identified academic standards and/or learning objectives.</b> <i>(Score 0—does not support the identified standards and/or learning objectives; Score 2—at least part of the MWEE (i.e. the issue investigation or action projects) clearly supports the identified standards and learning objectives; Score 4—all parts of the MWEE clearly and explicitly support the identified standards and learning objectives.)</i></p>	<p>0 2 4</p>
<p><b>The core ideas and practices of multiple disciplines are clearly defined and integrated into the MWEE.</b> <i>(Score 0 if one discipline is clearly defined; Score 2 if one or more disciplines are clearly defined.)</i></p>	<p>0 2</p>
<b>Subtotal</b>	<p>___/8</p>
<p><b>CRITERIA</b></p> <p><b>Less than or equal to 2:</b> Your project needs to have a clearer connection with academic standards and/or learning objectives to be a MWEE. Don't be discouraged, there are resources and tools to help! We suggest starting with <i>An Educator's Guide to the MWEE</i> to ensure classroom integration in your MWEE.</p> <p><b>Between 3 and 5:</b> There are elements of classroom integration, but it could be stronger with either (1) better support the academic standards and/or learning objectives you defined or (2) connect with other academic standards and/or learning objectives that may be more appropriately met through the MWEE. Review the sections where you did not score highly and see what you might be able to do to earn more points. Check out <i>An Educator's Guide to the MWEE</i> for help.</p> <p><b>Greater than or equal to 6:</b> Congratulations! There are always areas for improvement, but your project strongly supports academic standards and learning objectives.</p>	
<p><b>AREAS FOR IMPROVEMENT</b></p>	

Local Context	Score
<p>MWEEs occur within a local context (i.e. schoolyard, neighborhood, town, or community) to establish the life-relevancy of the problem, issue, or phenomenon being studied. Situating the MWEE within local contexts enables students and teachers to explore how individual and collective decisions affect their immediate surroundings and how their immediate surroundings affect the larger environment.</p>	
<p><b>The project is linked to a locally relevant issue, problem, or phenomenon.</b>  <i>(Score 0 if your issue does not have local relevance; Score 1 if your MWEE is addressing a local issue.)</i></p>	<p>0 1</p>
<p><b>The MWEE provides opportunities to explore the impacts of the locally relevant (i.e. schoolyard, neighborhood, town, or community) environmental issues.</b>  <i>(Score 0 if the MWEE does not relate to the local schoolyard, neighborhood, town, or community; Score 1 if the local context is included, but peripheral to the learning objectives; Score 2 if the local context is integral to achieving the learning objectives.)</i></p>	<p>0 1 2</p>
<b>Subtotal</b>	<p>___/3</p>

**CRITERIA**

**Less than or equal to 1:** Your project needs to occur within a local context to be a MWEE. Don't be discouraged, there are resources and tools to help! We suggest starting with *An Educator's Guide to the MWEE* to ensure your MWEE is linked to a locally relevant issue, problem, or phenomenon.

**Greater than or equal to 2:** Congratulations! There are always areas for improvement, but overall your project is occurring within a local context.

**AREAS FOR IMPROVEMENT**

Issue Definition	Score
<p>Students focus on a locally relevant environmental issue, problem, or phenomenon requiring background research and investigation. Students learn more about the issue through classroom instruction and by making observations, collecting data, conducting experiments, talking to experts, and reviewing credible publications. They also reflect on personal and stakeholder values and perspectives related to the issue.</p>	
<p><b>The problem, issue, or phenomenon that you selected for your MWEE is clearly articulated.</b> (Score 0 if the issue is not clear; Score 2 if the issue is clearly defined.)</p>	0 2
<p><b>The project makes a clear effort to increase environmental stewardship of the Chesapeake Bay and/or its watershed.</b> (Score 0 if there is no focus on Bay-related issues; Score 1 if the driving question addresses an issue only peripherally related to the Bay or its watershed; Score 3 if the driving question addresses an issue directly related to the Bay or its watershed.)</p>	0 1 3
<p><b>The driving question has the following characteristics:</b> (check all that apply)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Supports learning objectives</li> <li><input type="checkbox"/> Is relevant and related to everyday life</li> <li><input type="checkbox"/> Is thought-provoking and intellectually engaging</li> <li><input type="checkbox"/> Is open-ended (i.e. typically will not have a single, final, and correct answer)</li> <li><input type="checkbox"/> Promotes further inquiry (i.e. raises additional questions)</li> <li><input type="checkbox"/> Encompasses both natural and social systems and topics</li> <li><input type="checkbox"/> Requires students to revisit the problem frequently as knowledge and understanding evolves</li> <li><input type="checkbox"/> Calls for higher-order thinking, including analysis, inference, prediction, and evaluation</li> <li><input type="checkbox"/> Includes concepts and practices from multiple disciplines</li> </ul> <p>(Score 0 if you did not check any; Score 1 if one to three are checked; Score 3 if four to five are checked; Score 5 if six or more are circled.)</p>	0 1 3 5
<p><b>Students engage in background research in order to understand the issue and develop supporting questions for further investigation.</b> (Score 0 if no background research is required; Score 1 if some background research is required; Score 2 if background research is required; Score 3 if background research is required and directed by students.)</p>	0 1 2 3
<p><b>Students apply prior knowledge and reflect on personal and stakeholder values and perspectives related to the issue.</b> (Score 0 if this is not incorporated; Score 2 if this is incorporated.)</p>	0 2
<b>Subtotal</b>	___/15
<p><b>CRITERIA</b></p> <p><b>Less than or equal to 5:</b> Your project needs to focus on a locally relevant environmental issue, problem, or phenomenon requiring background research, further inquiry and investigation to be a MWEE. Don't be discouraged, there are resources and tools to help! We suggest starting with <i>An Educator's Guide to the MWEE</i> to ensure issue definition in your MWEE.</p> <p><b>Between 6 and 9:</b> There are elements of issue definition but the identified issue and/or questions could be more comprehensive and complex. Review the sections where you did not score highly and see what you might be able to do to earn more points. Check out <i>An Educator's Guide to the MWEE</i> for help.</p> <p><b>Greater than or equal to 10:</b> Congratulations! There are always areas for improvement, but your project is focused on a locally relevant environmental issue, problem, or phenomenon requiring background research, further inquiry, and investigation.</p>	
<p><b>AREAS FOR IMPROVEMENT</b></p>	

Outdoor Field Experiences	Score
<p>Students participate in one or more outdoor field experiences sufficient to investigate the issue, problem, or phenomenon. Investigations may involve making observations, collecting data, and/or conducting other activities required for answering their questions and informing student actions. To the extent possible, and within appropriate safety guidelines, students should be actively involved in planning the inquiry that occurs during the outdoor field experience(s). These experiences can take place off-site and on the school grounds.</p>	
<p><b>Students participate in one or more outdoor field experiences.</b>  <i>(Score 0 if students do not go outside; Score 3 if students study outdoors once during the course of their MWEE; Score 6 if students study outside more than once.)</i></p>	0 3 6
<p><b>The outdoor field experiences are directly related to the issue and questions the students are studying.</b>  <i>(Score 0 if field experiences are not related to the issue; Score 3 if field experiences are indirectly related to the issue; Score 6 if some of the field experiences are directly related to the issue but some are not directly related; Score 9 if all field experiences are directly related to the issue.)</i></p>	0 3 6 9
<p><b>Students are actively involved in planning the inquiry that occurs during the outdoor field experience(s).</b>  <i>(Score 0 if the students are not involved at all; Score 2 if students are involved but mostly planned by the teacher/external partners; Score 4 if students are actively involved in the planning with some help from the teacher/external partners.)</i></p>	0 2 4
<p><b>Students are actively involved in exploring the driving question and supporting questions during the outdoor field experience(s).</b>  <i>(Score 0 if the questions are not related to the outdoor experience; Score 3 if the outdoor experience is related to the driving and supporting questions; Score 6 if the outdoor experience is designed to purposefully explore the driving and supporting questions.)</i></p>	0 3 6
<b>Subtotal</b>	___/25
<p><b>CRITERIA</b></p> <p><b>Less than or equal to 9:</b> Your project needs to include one or more outdoor field experiences sufficient to investigate the issue, problem, or phenomenon to be a MWEE. Don't be discouraged, there are resources and tools to help! We suggest starting with <i>An Educator's Guide to the MWEE</i> to ensure robust outdoor field experiences in your MWEE.</p> <p><b>Between 10 and 16:</b> Your outdoor field experiences could be more directly connected to investigating the issue and questions being studied and/or student involvement in planning the inquiry could be increased. Review the sections where you did not score highly and see what you might be able to do to earn more points. Check out <i>An Educator's Guide to the MWEE</i> for help.</p> <p><b>Greater than or equal to 17:</b> Congratulations! There are always areas for improvement, but your project has one or more outdoor field experiences sufficient to investigate the issue, problem, or phenomenon.</p>	
<p><b>AREAS FOR IMPROVEMENT</b></p>	

Action Projects	Score
<p>Students identify, explore, and implement solutions for action. The solutions address conclusions and claims drawn through investigation. Students reflect on the action and determine the extent to which the action successfully addressed the issue, problem, or phenomenon reflected in the claim. Students may also share proposals for sustaining or extending the action.</p>	
<p><b>Students participate in an action project.</b> <i>(Score 0 if no, Score 6 if yes.)</i></p>	0 6
<p><b>The action project is directly related to the issue the students are studying.</b> <i>(Score 0 if the action project is not related to the issue; Score 3 if the action project is indirectly related to the issue; Score 7 if the action project is directly related to the issue; Score 10 if the action project is directly related and a proposed solution to the issue investigated.)</i></p>	0 3 7 10
<p><b>Students are actively involved in planning and implementing the action project.</b> <i>(Score 0 if the students are not involved at all; Score 3 if students are involved in implementation, but not design or if they plan a project but don't implement it; Score 6 if students are involved in both, but the teacher chose the action project; Score 9 if students are involved in both and also chose the action project.)</i></p>	0 3 6 9
<b>Subtotal</b>	____/25

#### CRITERIA

**Less than or equal to 9:** Your project needs to include action projects that address conclusions and claims drawn through the investigation of your issue and questions to be a MWEE. Don't be discouraged, there are resources and tools to help! We suggest starting with *An Educator's Guide to the MWEE* to ensure robust action projects in your MWEE.

**Between 10 and 16:** There are action projects but they could be more directly connected to investigating the issue and questions being studied and/or increased student involvement in planning and implementation. Review the sections where you did not score highly and see what you might be able to do to earn more points. Check out *An Educator's Guide to the MWEE* for help.

**Greater than or equal to 17:** Congratulations! There are always areas for improvement, but your project has student-centered action projects that address conclusions and claims drawn through the investigation of your issue and questions.

#### AREAS FOR IMPROVEMENT

Synthesis and Conclusions	Score
<p>Students identify, synthesize, and apply evidence from their investigations to draw conclusions and make claims about the issue, problem, or phenomenon. Students communicate these conclusions and claims to internal and external audiences in venues that may range from the school classroom to the larger public community.</p>	
<p><b>Students have dedicated class time to make conclusions based on their research, outdoor field experiences, and related data analysis.</b></p> <p><i>(Score 0 if no time; Score 2 if students have one in-class opportunity to make conclusions; Score 4 if two opportunities; Score 6 if students regularly revisit their research to make conclusions.)</i></p>	<p>0 2 4 6</p>
<p><b>Students communicate results and conclusions to an audience beyond their classroom.</b></p> <p><i>(Score 0 if none; Score 2 if communicating results to audiences internally within the school [fellow students, other grades within the school, teachers, admin]; Score 4 if communicating results outside of the school [parents, community events, nonprofits, political representatives, conferences, summits]; Score 6 if communicating results to both school and community audiences.)</i></p>	<p>0 2 4 6</p>
<p><b>Subtotal</b></p>	<p>___/12</p>

**CRITERIA**

**Less than or equal to 3:** Your project needs to include synthesis, conclusions, and communication of the claims drawn through the investigation of your issue and questions to be a MWEE. Don't be discouraged, there are resources and tools to help! We suggest starting with *An Educator's Guide to the MWEE* to ensure robust synthesis, conclusions, and communication occur in your MWEE.

**Between 4 and 7:** There is some synthesis, conclusions, and communication of your investigation but it can be more extensive. Review the sections where you did not score highly and see what you might be able to do to earn more points. Check out *An Educator's Guide to the MWEE* for help.

**Greater than or equal to 8:** Congratulations! There are always areas for improvement, but your project has student-centered action projects that address conclusions and claims drawn through the investigation of your issue and questions.

**AREAS FOR IMPROVEMENT**

Active Teacher Support	Score
<p>MWEEs depend on teacher facilitation and ongoing support of student learning. Teachers ensure that the essential elements of the MWEE come together to support academic goals for learning while creating opportunities for students to take active roles in their learning.</p>	
<p><b>Level of classroom teacher’s role in determining the <i>issue definition</i>.</b>  <i>(Score 0 if the teacher is not involved at all; Score 1 if the teacher is involved but mostly facilitated by external partners; Score 2 if teacher facilitated.)</i></p>	<p>0 1 2</p>
<p><b>Level of classroom teacher’s role in the <i>outdoor field investigations</i>.</b>  <i>(Score 0 if the teacher is not involved at all; Score 1 if the teacher is involved but mostly facilitated by external partners; Score 2 if teacher facilitated.)</i></p>	<p>0 1 2</p>
<p><b>Level of classroom teacher’s role in the <i>selection, design, and implementation of the action projects</i>.</b>  <i>(Score 0 if the teacher is not involved at all; Score 1 if the teacher is involved but mostly facilitated by external partners; Score 2 if teacher facilitated.)</i></p>	<p>0 1 2</p>
<p><b>Level of classroom teacher’s role in the <i>synthesis and conclusions</i>.</b>  <i>(Score 0 if the teacher is not involved at all; Score 1 if the teacher is involved.)</i></p>	<p>0 1</p>
<p><b>Subtotal</b></p>	<p>___/7</p>

**CRITERIA**

**Less than or equal to 2:** Your project needs to include more teacher facilitation and ongoing support of student learning to be a MWEE. Don’t be discouraged, there are resources and tools to help! We suggest starting with *An Educator’s Guide to the MWEE* to ensure active teacher support your MWEE.

**Between 3 and 4:** There is some teacher facilitation and ongoing support of student learning but it could be more extensive. Review the sections where you did not score highly and see what you might be able to do to earn more points. Check out *An Educator’s Guide to the MWEE* for help.

**Greater than or equal to 5:** Congratulations! There are always areas for improvement, but your project has active teacher facilitation and ongoing support of student learning.

**AREAS FOR IMPROVEMENT**

Sustained Activity	Score
<p>MWEEs represent sustained activity that engages students from beginning to end. Though a field experience may occur on one day, the total duration leading up to and following the experience involves a variety of rich learning opportunities spread over the course of a unit or multiple units. Experiences such as tours, gallery visits, simulations, demonstrations, and nature walks may be instructionally useful, but alone do not constitute a MWEE.</p>	
<p><b>The MWEE includes multiple opportunities for learning. Outdoor activities are fully supported through sustained classroom experiences both prior to and following the experience.</b></p> <p><i>(Score 0 if the MWEE does not include multiple learning opportunities; Score 1 if the MWEE includes multiple learning opportunities, but there is no meaningful connection among these learning opportunities; Score 3 if the MWEE includes multiple, connected learning opportunities with limited classroom support before and/or after the outdoor experience(s); Score 5 if the MWEE includes multiple, connected learning opportunities with robust and intentional classroom support before and/or after the outdoor experiences.)</i></p>	<p>0 1 3 5</p>
<b>Subtotal</b>	<p>____/5</p>
<p><b>CRITERIA</b></p> <p><b>Less than or equal to 1:</b> Your project needs to be a sustained activity that engages students from beginning to end to be a MWEE. Don't be discouraged, there are resources and tools to help! We suggest starting with <i>An Educator's Guide to the MWEE</i> to ensure sustained activity in your MWEE.</p> <p><b>Greater than or equal to 3:</b> Congratulations! There are always areas for improvement, but your project is a sustained activity that engages students from beginning to end.</p>	
<p><b>AREAS FOR IMPROVEMENT</b></p>	
<b>TOTAL</b>	<p>____/100</p>

For your project to be a MWEE it must incorporate all of the essential elements (issue definition, outdoor field experiences, action project, synthesis and conclusions) and supporting practices (classroom integration, local context, active teacher support, sustained activity) at some level. To determine if your project is a MWEE please follow the criteria below.

**IF YOUR TOTAL SCORE IS:**

**Between 90 and 100—Grade A:** Congratulations! There are always areas for improvement but overall you are running a strong MWEE.

**Between 80 and 89—Grade B:** Your project is meeting the full definition of a MWEE. However your MWEE could be stronger. Review the sections where you did not score highly and see what you might be able to do to earn points. Check *An Educator's Guide to the MWEE* for help in those sections.

**Between 70 and 79—Grade C:** Your project is most likely incorporating all of the components of a MWEE. However your MWEE could be much stronger. Review the sections where you did not score highly, especially if it is an essential element section, and see what you might be

able to do to earn points. Check *An Educator's Guide to the MWEE* for help in those sections.

**Between 60 and 69—Grade D:** Your project does not contain enough components to be a MWEE. Don't be discouraged though, there are resources and tools to help! Review the sections where you did not score highly and see what you might be able to do to earn points. We suggest starting with *An Educator's Guide to the MWEE*.

**Below 60:** Your project is missing the essential elements necessary to meet the full definition of a MWEE. Review the sections where you did not score highly and see what you might be able to do to earn points. We suggest starting with *An Educator's Guide to the MWEE*.