



Workshop Resources

Guidelines for Excellence K-12 Environmental Education

Workshop Resources

K-12 Environmental Education: Guidelines for Excellence

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NAAEE is the professional association for environmental educators in North America and beyond.

Education We Need for the World We Want

Workshop Resources

K-12 Environmental Education: Guidelines for Excellence

Workshop Overview

In this workshop, participants will be introduced to a set of competencies for environmental literacy. The environmental literacy framework is benchmarked at the fourth, eighth, and twelfth grade levels. Participants will have the opportunity unpack the environmental literacy framework and explore how environmental literacy links with national and state standards. In addition, they will complete a self-assessment against the appropriate benchmarks. If you follow the module as outlined, the workshop will take approximately 5.5 hours to complete, not counting breaks and lunch.

Workshop Background

This workshop introduces participants to [*K-12 Environmental Education: Guidelines for Excellence*](#) which provides students, parents, educators, home schoolers, administrators, policy makers, and the public a set of common, voluntary guidelines for environmental literacy. The guidelines support state and local environmental education efforts in this way:

- ✓ Set expectations for achievement in fourth, eighth, and twelfth grades
- ✓ Suggest a framework for effective and comprehensive environmental education programs and curricula
- ✓ Demonstrate how environmental education can be used to meet standards set by the traditional disciplines and give students opportunities to synthesize knowledge and experience across disciplines
- ✓ Define the aims of environmental education

Workshop Objectives

- Participants will describe the learning framework used in *K-12 Environmental Education: Guidelines for Excellence*
- Participants will compare the *K-12 EE Guidelines* to national and state academic standards
- Participants will correlate the *K-12 EE Guidelines* to curriculum materials

Materials Needed

- ✓ Projector and PowerPoint presentation (optional)
- ✓ Chart paper, markers, tape
- ✓ Copies of [*K-12 Environmental Education: Guidelines for Excellence*](#)
- ✓ Copies [*K-12 Environmental Education: Guidelines for Excellence Executive Summary*](#)
- ✓ One environmental education activity guide (e.g., Project Learning Tree, Project Wild, Project Wet) for every two participants.
- ✓ One set of state or national standards for science, math, social studies, and English language arts for every two participants.

- ✓ Journals for each participant (e.g., blue books, notebooks, sheets of paper stapled together)
- ✓ Copies of handouts:
 - Handout #1: Correlating Guidelines to Curriculum Materials
 - Handout #2: Linking Environmental Education and Curriculum Standards
 - Handout #3: Self-Assessment: *K-12 Environmental Education: Guidelines for Excellence*
 - Handout #4: Workshop Evaluation

Sample Workshop Agenda

Welcome, Introductions and Logistics

Icebreaker

Project Background

Getting Started—Jumping into Environmental Literacy

A Walk through the Guidelines

Digging into Environmental Literacy

Exploring Environmental Literacy and Instructional Materials

Linking Environmental Literacy and the Standards

Pulling it All Together—Self-Assessment

Wrap-Up, Questions, and Workshop Evaluation

Welcome, Introductions, and Logistics

15 minutes

Icebreaker

45 minutes

Use the Brainstorm Carousel (below) or pick one of your favorite icebreakers. If possible, use the icebreaker as both an opportunity for participants to get to know one another and to begin the process of thinking about what it means to be environmentally literate, especially for school-aged students.

Activity: Brainstorm Carousel

This activity gets participants talking about environmental literacy. It can be used as an icebreaker activity, needs assessment, or as an engagement activity. In small groups, participants are asked to brainstorm key components of environmental literacy.

Materials

- ✓ Several sheets of chart paper, tape, and a variety of colored markers

Procedure

1. In preparation, position pieces chart paper on the walls around the room with one prompt printed on each. These prompts, the title of the strands or substrands from the *K-12 EE Guidelines*, serve as stations during the activity.
2. Divide the participants into roughly equal teams (approximately three to five participants per group); one team for each station or prompt.

3. Give each team a colored marking pen and assign them to one of the stations. Depending on the size of your group, you will want to adjust the number of stations (a minimum of four stations and a maximum of seven stations). Each station is labeled with one of the strands or one to two of the substrands, depending on the number of stations. For example, if there are 24 participants, you might set up six stations labeled:
 - Questioning, Analysis and Interpretation Skills (1)
 - Earth’s Physical and Living Systems (2.1)
 - Human Systems (2.2) and Environment and Society (2.3),
 - Skills for Analyzing and Investigating Environmental Issues (3.1),
 - Decision-Making and Action Skills (3.2), and
 - Personal and Civic Responsibility (4).
4. Tell the participants that their job is to brainstorm, as a small group, the concepts or skills included in the title of their piece of chart paper. They should think about what key concepts or skills someone would be developing if they were learning about Earth’s Physical and Living Systems or Decision-Making and Action Skills.
5. Tell the participants that after about 90 seconds, they will be asked to finish recording their answers and move to the next station.
6. You will want to give the groups a little more time at their first station so that they can become oriented to the task and make introductions.
7. When time is up (or most of the groups are off task) ask the groups to rotate (clockwise) to the next station. At their new station, participants should continue to brainstorm the concepts or skills that could be included under this strand or substrand. There is no need to repeat previously recorded answers. They can simply place a checkmark next to concepts or skills they would also suggest including.
8. Continue the rotations until each group has visited all the stations. With the final rotation, groups should return to their initial station.
9. Ask the participants to take a minute to look at the responses added to their initial station during the subsequent rounds by the other participants.
10. The whole activity should take no more than 10–15 minutes.

Wrap-Up

1. Tell the participants that they will discuss each of these strands throughout the workshop.
2. Ask the groups to sit back down, but to stay in their groups.

Project Background

15 minutes

Provide a short overview of NAAEE, the National Project for Excellence in Environmental Education, and the purpose behind the *K-12 Environmental Education: Guidelines for Excellence*. What is NAAEE? What is the National Project for Excellence in EE? Why were the *Guidelines for Excellence* series developed? How were they developed? Why was *K-12 Environmental Education: Guidelines for Excellence* developed?

Activity: A Walk through the Guidelines

In this activity, take a few minutes to orient participants to the *K-12 Environmental Education: Guidelines for Excellence*.

Materials

- ✓ Copies of for each participant *K-12 Environmental Education: Guidelines for Excellence*
- ✓ Copies of for each participant *K-12 Environmental Education: Guidelines for Excellence Executive Summary*

Procedure

1. Hand out a copy *K-12 Environmental Education: Guidelines for Excellence* and *K-12 Environmental Education: Guidelines for Excellence Executive Summary*. If possible, have a copy available for each participant. If that isn't possible, participants can share or use a downloaded version on their computers.
2. Walk the participants through the guidelines and how they are organized. Give participants 1–2 minutes to become familiar with the publication.
3. Point out that the guidelines have four strands. Some strands are further subdivided into substrands and each strand is described by a set of guidelines or learning expectations. Explain that today they will spend time exploring each strand.
4. Be sure to mention that the guidelines are environmental education's national student standards. They were modeled after other national standards and try to describe what a student should know and be able to do if they are on the road to environmental literacy.

Activity: Digging into Environmental Literacy

In this activity, participants will dig deeper into the component parts of the learner guidelines and teach the other participants about their assigned strand or substrands.

Materials

- ✓ Chart paper and a variety of colored markers

Procedure

1. Tell the participants that they will be responsible for learning more about one of the strands or substrand, and for teaching the whole group about that strand or substrand.
2. Make sure each group is clear about which strand or substrand is assigned to them.
3. Give teams about 15–20 minutes to investigate their strand or substrand and plan a short (two minute) presentation (elevator speech). They should include some explanation of the strand or substrand and why it is important to environmental literacy.

4. Ask each group to present their assigned strand or substrand in numerical order (e.g., strand 1, substrand 2.1, substrand 2.2). Stress key points on each or clarify information after each group has finished.
5. Create new groups, making sure that there is at least one member of each strand or substrand group in each of the new groups.
6. Ask the new groups to create a way of communicating the strands (the entire framework) to others. Encourage their creativity. Give groups 30 minutes to prepare their presentations. Presentations should be limited to four to five minutes each.

Reflective—Journaling

Using their journals, participants should reflect on this environmental literacy framework: How might you use the environmental literacy framework in your practice? What excites you most about environmental literacy? What do you feel is missing or underrepresented in the environmental literacy framework?

Exploring Environmental Literacy and Instructional Materials **45 minutes**

Activity: Connecting the Guidelines to Curriculum Materials

Now that participants have a greater understanding of the environmental literacy framework outlined in the guidelines and how it progresses from fourth grade to eighth grade to twelfth grade, this activity asks them to see what the *K-12 EE Guidelines* look like in curriculum materials.

Materials

- ✓ Handout #1: Connecting Guidelines to Curriculum Materials
- ✓ One environmental education activity guide (e.g., Project Learning Tree, Project Wild, Project Wet) for each small group. Note that you can use a variety of different activity guides for comparison, or you can assign each group the same guide.

Procedure

1. Ask the participants to think about the activity guides that they typically use or suggest that others use. Do they use just one guide to build their programs and curriculum or do they select from a variety of sources? When they select activities and activity guides, what are they looking for? You'll want to find out to what extent they think about specific learning objectives, goals, and overall fit with environmental literacy.
2. Tell participants that they will be looking at curriculum guides with an eye toward building environmental literacy.
3. Ask participants to work in pairs (two participants per group).
4. Distribute an activity guide for review and a copy of Handout #1: Correlating Guidelines to Curriculum Materials to each group. If all the participants are reviewing the same activity guide or multiple groups are reviewing the same activity

guide, you may want to ask some groups to start their review at the beginning, in the middle, or at the end of the guide. This will ensure that a wide variety of activities are reviewed.

5. Review Handout #1: Correlating Guidelines to Curriculum Materials with the group. To use the grid, participants write the title of an activity contained in the curriculum in the far-left hand column and state which guidelines are addressed well, addressed minimally, or whether it depends on how you interpret the guideline and the activity.
6. Ask groups to take the next 30–40 minutes to review their assigned activity guide, looking for specific ways that lessons support the development of environmental literacy.

Wrap-Up

1. Ask each group to share some of their findings.
2. As different groups share what they found, ask them to reflect on which components of environmental literacy are most often represented in the activities they reviewed. What seems to be missing?

Reflective—Journaling

Using their journals, participants should reflect on this environmental literacy framework: How might you use the environmental literacy framework when you select instructional materials? How might you use the environmental literacy framework when you create instructional materials? Are there components of the environmental literacy framework that you typically wouldn't include in your instruction? Why?

Finding Environmental Literacy in the Standards

60 minutes

Activity: Linking the Guidelines to Curriculum Standards

In this activity, participants will analyze the relationship between the guidelines and various state or national student standards.

Materials

- ✓ Copy of Handout #2: Linking Environmental Education and Curriculum Standards for each group.
- ✓ Copies of state science, English-language arts, social studies, and mathematics standards or national standards, if that is more appropriate. You will need enough copies so that two participants can share. You may want to ask participants to bring their own copies or, if you have Internet access and computers available, use the online versions.

Procedure

1. Tell the participants that we will be turning our attention to how environmental education connects to a standards-based curriculum.
2. Lead a short discussion about state or national standards. Ask the participants about how they use standards in the development of their programs and materials. Ask them if there are specific subjects that environmental education seems to support best. Now, ask them if there are specific subjects that seem to support environmental education best.
3. Form four to eight small groups (two to four participants per group). Assign each group a set of standards (e.g., science, social studies, math, English-language arts) and a specific grade level or grade level grouping. For example, the first four groups would all examine middle school. The second four groups would examine high school level standards.
4. Distribute Handout #2: Linking Environmental Education and Curriculum Standards and explain their task.
5. Explain how the handout is organized. Tell them that they will be trying to find places where the guidelines are like the standards and visa versa.
6. After the groups have completed their task, create a matrix on a white board or a couple of pieces of newsprint:

	Science	Math	English	Social Studies
Strand 1				
Strand 2.1				
Strand 2.2				
Strand 2.3				
Strand 3.1				
Strand 3.2				
Strand 4				

7. Ask each group to tally (on the matrix) the number of linkages they found for each strand or substrand for each grade level. You can use hash marks or colored dots. If colored "dots" are available, give each group a different color and ask them to put the number of dots in the appropriate boxes on the chart. If dots are not available, use hash marks or some other mark so that the relative number of instances is obvious to the group. Use different colors for different grade levels.
8. After the table is completed, lead a discussion about any patterns that they see. Ask them:
 - o How can environmental literacy instruction best support the implementation of a standards-based curriculum? What is missing? Where are the gaps?
 - o How can the implementation of a standards-based curriculum support the development of environmental literacy? What is missing? Where are the gaps?
 - o What does this tell you about the implementation of environmental education?

Reflective—Journaling

Using their journals, participants should reflect on the relationship between curriculum standards and this environmental literacy framework: How might you use the environmental literacy framework when you are developing standards-based instruction? Given your understanding of curriculum standards, are there components of the environmental literacy framework that really don't fit? If so, how might you address them?

Pulling It All Together

20 minutes

Activity: Self-Assessment for Environmental Educators

As a culminating exercise, ask participants to reflect further on the environmental literacy framework and their own capacities as an environmental educator.

Materials

- ✓ Handout #3: Self-Assessment: *K-12 Environmental Education: Guidelines for Excellence*

Procedure

1. Now that the participants have explored the environmental literacy framework throughout the workshop, they will have the opportunity to self-assess their own environmental literacy, using the 12th grade benchmarks.
2. Distribute copies of Handout #3: Self-Assessment: *K-12 Environmental Education: Guidelines for Excellence*
3. Give participants about 20 minutes to complete the self-assessment.
4. When most of the participants have completed the self-assessment, discuss their reactions. You may want to focus on any insights into the creation of a professional development improvement plan.

As an alternative culminating exercise, ask the participants to conduct a program assessment.

Wrap-Up, Questions, and Workshop Evaluation

20 minutes

Materials

- ✓ Handout #4: Workshop Evaluation



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Handout #2

Linking Environmental Education and Curriculum Standards

EE Learner Guidelines	Grade level:
Strand 1: Questioning, Analysis, and Interpretation Skills	
Strand 2: Environmental Process and Systems	
2.1 Earth's Physical and Living Systems	
2.2 Human Systems	
2.3 Environment and Society	
Strand 3: Skills for Understanding Environmental Issues	
3.1 Skills for Analyzing and Investigating	
3.2: Decision-Making and Action Skills	
Strand 4: Personal and Civic Responsibility	



Handout #3

Self-Assessment K-12 Environmental Education: Guidelines for Excellence

Using the 12th grade benchmarks of *K-12 Environmental Education: Guidelines for Excellence* reflect on your own environmental literacy.

Key: L...Lacking B...Basic P...Proficient D... Distinguished

Strand 1—Questioning, Analysis and Interpretation Skills	L	B	P	D
A. Develop, modify, clarify, and explain questions that guide environmental investigations of various types. Describe criteria that influence the questions posed and explain reasoning.				
B. Design investigations to explore environmental questions, problems, issues, phenomena, and models.				
C. Use established protocols to locate and collect information for environmental investigations of many types. Use sophisticated methods and technology to access, gather, store, and display information collected.				
D. Apply logic and reasoning skills to evaluate the completeness and reliability of a range of environmental information and information sources.				
E. Organize, analyze, and display data and information from environmental investigations for a variety of audiences and purposes.				
F. Create, use, test, and evaluate models to analyze environmental questions, problems, issues, or phenomena.				
G. Propose explanations that address environmental questions using quantitative and qualitative data and evidence that has been collected and analyzed.				
Strand 2 - Environmental Processes and Systems				
2.1—Earth as Physical and Living Systems	L	B	P	D
A. Describe the major processes and systems that form Earth and relate these processes, especially those that are large-scale and long-term to characteristics of Earth. Explain how changes in one system (hydrosphere, atmosphere, lithosphere, and biosphere) result in changes to another. Describe how human sustainability depends on Earth systems.				
B. Describe basic population dynamics, genetic mechanisms behind biological evolution, and the importance of diversity in living systems. Explain how changes in the hydrosphere, atmosphere, and lithosphere affect the biosphere. They Describe how human sustainability is dependent on the biosphere.				
2.2—Humans Systems	L	B	P	D

A. Observe and describe ways that individual and group action affects the environment, and how each can work to promote the common good. Analyze differing beliefs and values within the same community and the larger society and explain how sustainable solutions rely on reconciling diverse perspectives.				
B. Recognize and describe examples of different cultural perspectives and dynamics and apply these understandings to current and historical environmental situations.				
C. Analyze how political systems and political decision-making, from the local to international levels, impact environmental quality and long-term sustainability.				
D. Analyze how economic systems and economic decision-making affect environmental quality and long-term sustainability at local, tribal, national, and global levels.				
2.3—Environment and Society	L	B	P	D
A. Analyze ways that humans interact with their environment and how these interactions change with technological developments. Determine costs and benefits to different groups in society as well as unintended consequences.				
B. Analyze ways that the perceived value and use of natural resources change over time and vary under different economic, political, social, and technological systems.				
C. Describe “place” as humans endowing a location with meaning and that this meaning can be created through individual and group interactions with that environment.				
D. Analyze the functioning of public processes for promoting and managing change and conflict. Evaluate your effects on the environment, society, and the economy.				
Strand 3—Analyzing, Investigating, and Addressing Environmental Issues				
3.1—Skills for Analyzing and Investigating Environmental Issues	L	B	P	D
A. Apply research and analytical skills to systematically investigate environmental issues ranging from local issues to those that are regional or global in scope.				
B. Evaluate the consequences of a broad range of environmental changes, conditions, and issues on environmental, social, and economic sustainability. Identify environmental justice and social equity implications.				
3.1—Skills for Analyzing and Investigating Environmental Issues (continued)	L	B	P	D
C. Identify and propose environmental action plans, including design				

solutions, and evaluate their likely effectiveness in specific environmental, cultural/social, and economic contexts. Identify ways that these action plans and design solutions might affect different groups of people, including possible environmental justice and social equity implications.				
D. Engage with others in evidence-based peer review and work collaboratively and cooperatively in the spirit of open deliberation, especially in contexts that bring to the surface deeply held priorities and values.				
3.2—Decision-Making and Action Skills	L	B	P	D
A. Evaluate, justify, and communicate your own views on environmental issues and possible ways to address them.				
B. Apply research and analytical skills to systematically determine whether action is needed in specific environmental, cultural/social, and economic contexts and whether you should be involved.				
C. Develop action strategies and design solutions based on research and analysis of an environmental issue. If appropriate, implement plans that are within the scope of your rights and consistent with your individual abilities and responsibilities as members of the community.				
D. Evaluate the intended and unintended consequences of design solutions, your own civic actions and actions taken by other individuals and groups, including implications for long-term environmental, social, and economic sustainability.				
Strand 4—Personal and Civic Responsibility	L	B	P	D
A. Describe the relationships between exercising your individual rights and responsibilities and addressing environmental, social, and economic sustainability.				
B. Exhibit personal agency by working independently and making choices to bring about change in your community that addresses environmental, social, and economic sustainability.				
C. Evaluate the broad environmental, social, and economic consequences of your actions. Accept responsibility for recognizing those effects and changing your actions when warranted.				

Self-Assessment Part II

Now that you have completed the first checklist, what do you know? Take a few minutes to tally the results of your self-assessment in the table provided below. This should provide you with an overview of the results of your self-assessment.

Self-Assessment Summary —Starting with Strand 1 on the first checklist, add up the total number of check marks for each of the four columns: Lacking, Basic, Proficient, and Distinguished. Enter the total number in the appropriate column of this chart.				
Key: L = Lacking / B = Basic / P = Proficient / D = Distinguished				
	L	B	P	D
Strand 1—Questioning and Analysis Skills (seven guidelines)				
Strand 2—Environmental Processes and Systems				
2.1—Earth’s Physical and Living Systems (two guidelines)				
2.2—Human Systems (four guidelines)				
2.3—Environment and Society (four guidelines)				
Strand 3—Analyzing, Investigating, and Addressing Environmental Issues				
3.1—Skills for Analyzing and Investigating Environmental Issues (four guidelines)				
3.2—Decision-Making and Action Skills (four guidelines)				
Strand 4—Personal and Civic Responsibility (three guidelines)				

Self-Assessment Part III

Self-Assessment—Part III

Now that you have summarized your self-assessment, what can you say about the strengths and weaknesses of your own environmental literacy? Begin to outline a professional development plan.

Areas of Strength	Areas that Need to be Enhanced or Strengthened	Specific Actions to Address Self-Assessment

Handout #4
Workshop Evaluation

*Thank you for your interest in the National Project for Excellence in Environmental Education!
Your responses will be used to improve this and other programs supported by NAAEE.*

What grade do you give this workshop?

A B C D F

Why did you give it that grade?

How strongly do you disagree or agree with the following? *Circle one for each.*

	Strongly Disagree		Unsure			Strongly Agree		
I will recommend this workshop to colleagues or other professionals.	1	2	3	4	5	6	7	NA
This workshop was much better than other workshops I have participated in.	1	2	3	4	5	6	7	NA
Within the next year, I intend to								
... improve my EE efforts by using the <i>Guidelines</i>	1	2	3	4	5	6	7	NA
... share what I learned with colleagues and other professionals.	1	2	3	4	5	6	7	NA

Describe three ways you can use the *Guidelines* to improve your own or others' EE efforts:

How can this workshop be improved to better meet your EE, professional, or other needs?

What is your current profession? *Check all that apply.*

- | | | |
|---------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------|
| <input type="checkbox"/> Pre-K-12 teacher | <input type="checkbox"/> College or university Instructor | <input type="checkbox"/> Conservation or natural resource professional |
| <input type="checkbox"/> Preservice teacher | <input type="checkbox"/> Resource developer | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Nonformal educator | <input type="checkbox"/> Program director | |

Who do or will you teach? *Check all that apply.*

- | | | | |
|------------------------------------|---------------------------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------------|
| <input type="checkbox"/> Preschool | <input type="checkbox"/> 9-12 | <input type="checkbox"/> Nonformal educators | <input type="checkbox"/> Conservation or natural resource professionals |
| <input type="checkbox"/> K-2 | <input type="checkbox"/> Teachers | <input type="checkbox"/> College or university Instructors | <input type="checkbox"/> Families |
| <input type="checkbox"/> 3-5 | <input type="checkbox"/> Preservice teachers | <input type="checkbox"/> Program directors | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> 6-8 | <input type="checkbox"/> Other college or university students | <input type="checkbox"/> Resource developers | <input type="checkbox"/> Not applicable |

Number of years you have been an environmental educator: About _____ years

Number of students or participants you typically teach or reach per year: About _____ NA

The students or participants you primarily work with come from: *Check one.*

- Urban Suburban Rural Tribal Mix of areas

THANK YOU!