



# Supporting Environmental Literacy at All Levels: Maryland's Environmental Literacy Standards and Framework

Office of Teaching and Learning  
Instructional Programs and Services

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PRESENTED BY

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## Presentation Outline

1. Introduction
2. History of Environmental Education in Maryland
3. Creation of Maryland's Environmental Literacy Standards Framework
4. Features and Applications of the Framework
5. Questions

## Outcomes

By the end of the session, participants will be able to:

- Communicate the Maryland Environmental Literacy Standards and their history;
- Describe the Environmental Literacy Standards Framework and the richness of the Framework's elements (essential questions, objectives, standards); and
- Discuss applications of the Environmental Literacy Standards Framework.

MCCC ECO Environmental Literacy Standards and Framework  
Presentation

# Welcome and Introductions

# Introductions

## Office of Teaching and Learning Instructional Programs and Services (OTLIPS), Science Branch

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# MSDE Science Branch

## Vision

All students will become **scientifically and environmentally literate** individuals who are skilled, reflective, and empowered to **make informed decisions** that benefit themselves, their families, and their local and global communities within an increasingly complex and continually changing world.

# History of Environmental Education in Maryland

# What is Environmental Literacy?



# Defining Environmental Literacy

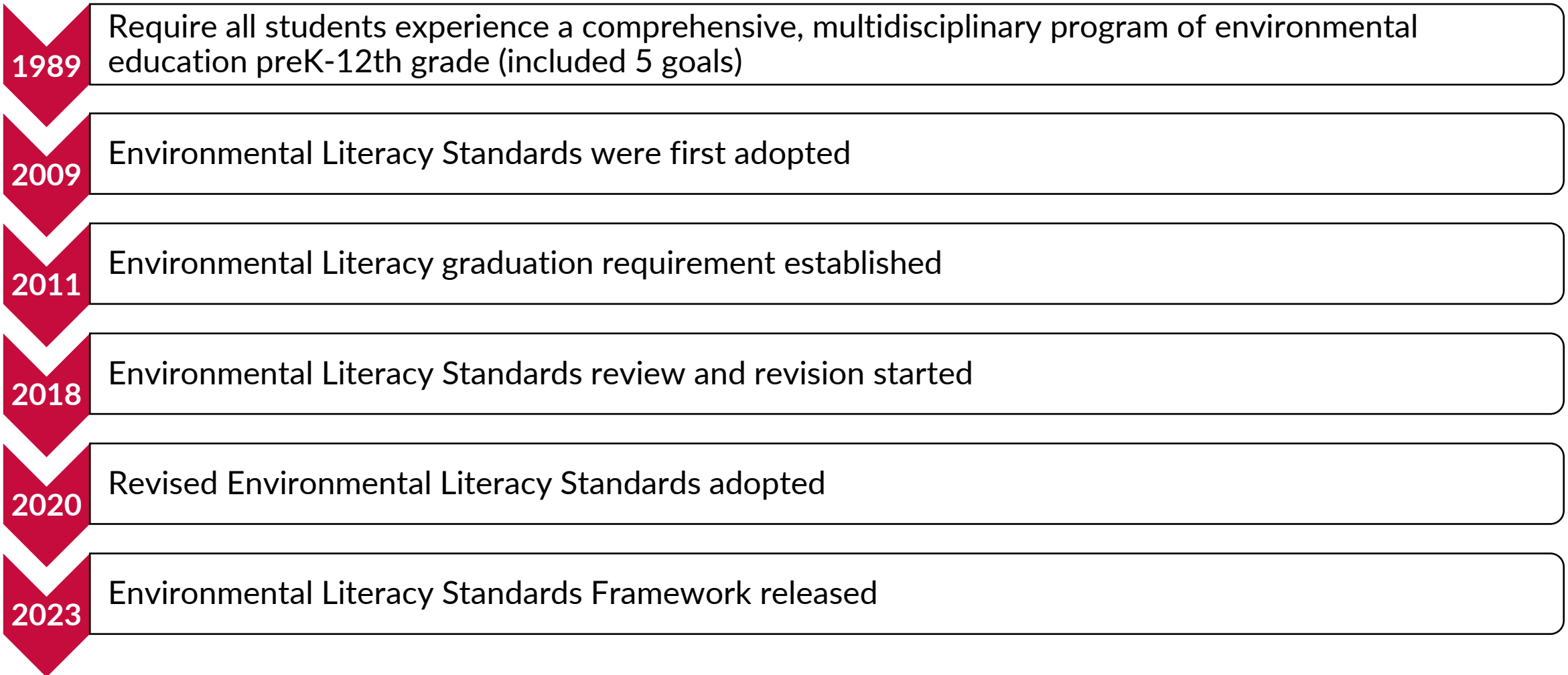
## MSDE's Environmental Education in Maryland Public Schools (2010) states that

Environmentally literate students understand environmental and physical processes and systems, including human systems. They are able **to analyze global, social, cultural, political, physical, economic and environmental relationships**, and **weigh various sides of environmental issues to make responsible decisions** as individuals and as members of their community and citizens of the world.

[https://news.maryland.gov/msde/wp-content/uploads/sites/12/2015/01/Environmental-Education-Guide\\_FINAL.pdf](https://news.maryland.gov/msde/wp-content/uploads/sites/12/2015/01/Environmental-Education-Guide_FINAL.pdf)



# Timeline



# Maryland's Environmental Literacy Standards

## 1. Environmental Issue Investigation & Action

Environmentally literate students investigate environmental issues in order to develop and implement local actions that protect, sustain, or restore the natural environment.



# Maryland's Environmental Literacy Standards

## 2. Human Dependence on Earth Systems and Natural Resources

Environmentally literate students construct and apply understanding of how Earth's systems and natural resources support human existence.



# Maryland's Environmental Literacy Standards

## 3. Environmental Impact of Human Activity

Environmentally literate students construct and apply understanding of the environmental impact of human activities on Earth's systems and resources.



# Maryland's Environmental Literacy Standards

## 4. Consequences of Environmental Change on Human Health and Well-Being.

Environmentally literate students construct and apply understanding of the consequences of human induced environmental change on individual and collective health and well-being.



# Maryland's Environmental Literacy Standards

## 5. Individual and Collective Responses to Environmental Change.

Environmentally literate students construct and apply understanding of individual, collective, and societal responses to human-induced environmental change.



# What is Required?

## Environmental Literacy Instructional Programs (COMAR 13A.04.17.01)

- A. Each local school system shall provide in public schools a **comprehensive, multi-disciplinary** environmental literacy program **infused within** current curricular offerings and aligned with the Maryland Environmental Literacy Standards.
- B. The Maryland Environmental Literacy Program shall:
  - 1. Provide a developmentally appropriate instructional program with opportunities for outdoor learning experiences;
  - 2. Advance students' knowledge, confidence, skills, and motivation to make decisions and take actions that preserve and protect the unique natural resources of Maryland, the Chesapeake Bay, and its watershed; and
  - 3. Provide for the diversity of student needs, abilities, and interests at the early, middle, and high school learning years and shall include all of the Maryland Environmental Literacy Standards as set forth in §C of this regulation.

[COMAR13a.04.17.01](#)

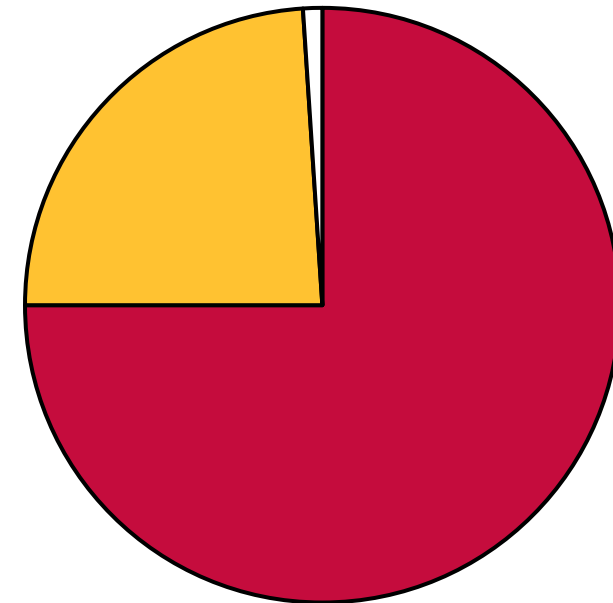


# Creation of Maryland's Environmental Literacy Standards Framework

## Phase I—Framework Development

- Once the Maryland State Board of Education adopted the revised standards, work started on developing the Environmental Literacy Standards Framework.
- Workgroup created with 5-6 participants from each grade band (PreK-2, 3-5, 6-8, 9-12).
- Workgroup composed of environmental educators, 72% from formal education, 23% from informal education, and 1% from higher education.

Workgroup I Participants

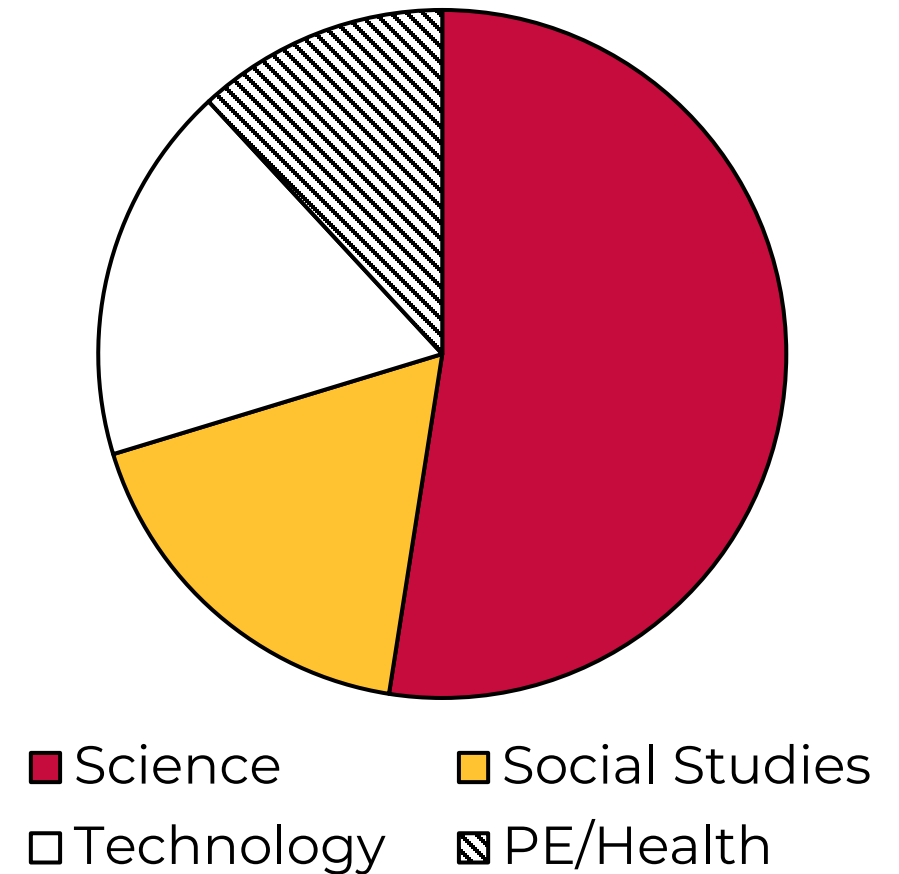


- Formal Education
- Informal Education
- Higher Education

## Phase II—Refinement, Feedback, & Appendix Development

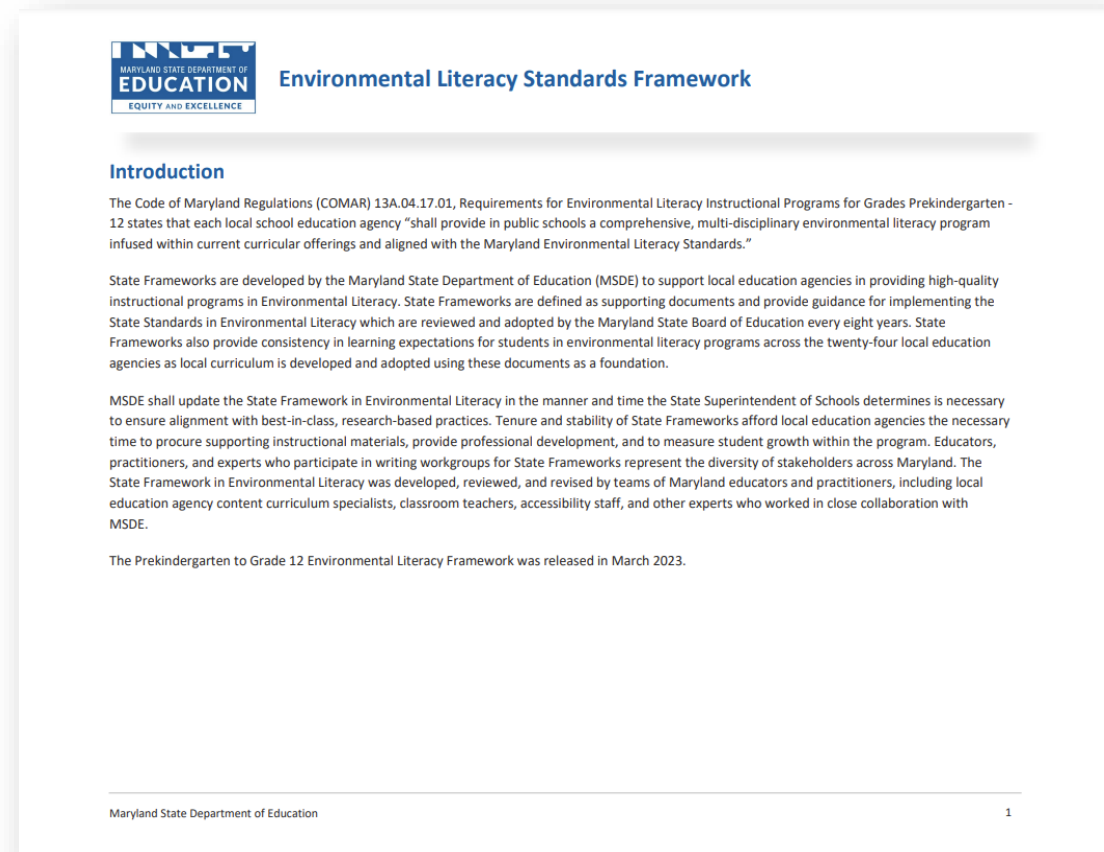
- National Geographic Grant used to collect resources and to provide professional learning/feedback.
- Workgroup for each grade band (PreK-2, 3-5, 6-8, 9-12), each with 4-5 participants.
- Composed of formal educators and content supervisors from science (53%), social studies (18%), technology (18%), and physical education/health (12%).

Workgroup II Participants



## Phase II—Refinement & Feedback

- After completion of the Environmental Literacy Standards Framework, MSDE held three feedback sessions in October and November of 2022.
- Over 70 people across various disciplines attended these sessions and provided feedback on the Framework.
- LEA Environmental Literacy Coordinators were also asked to review and provide feedback.

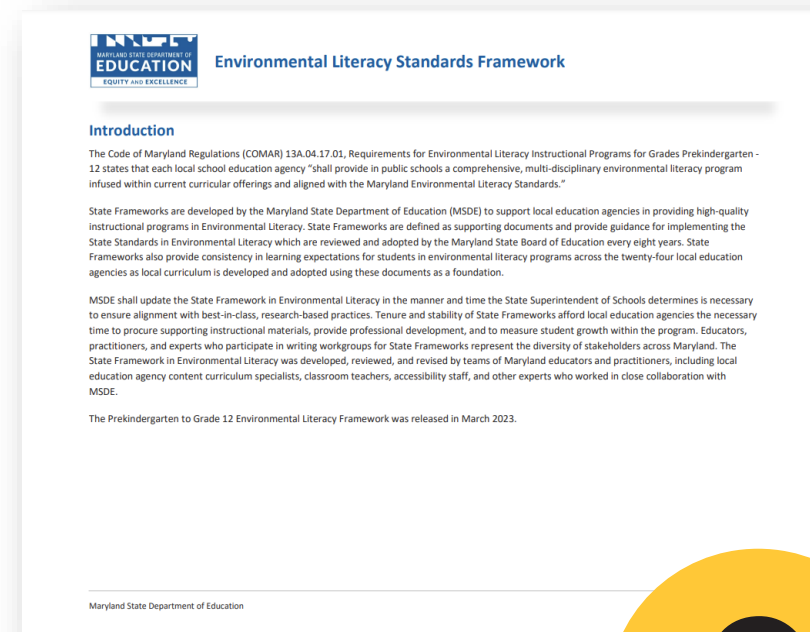


# Features and Applications of the Maryland Environmental Literacy Standards Framework

# Purpose of the Framework

The Environmental Literacy Standards Framework is intended to connect interrelated core concepts for student learning in environmental literacy by:

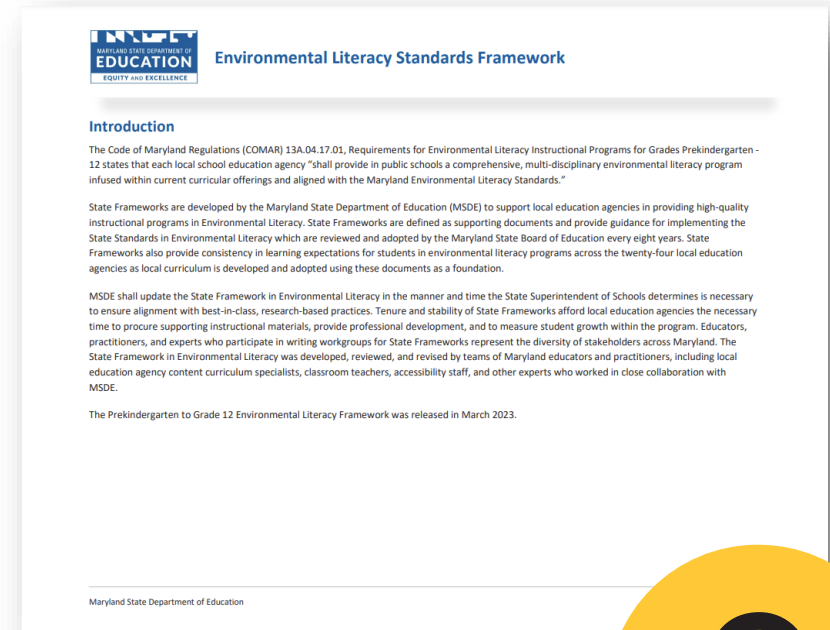
- Providing conceptual understandings to guide teacher instruction and student learning; and
- Identifying relevant learning outcomes associated with specific grade bands;



# Purpose of the Framework

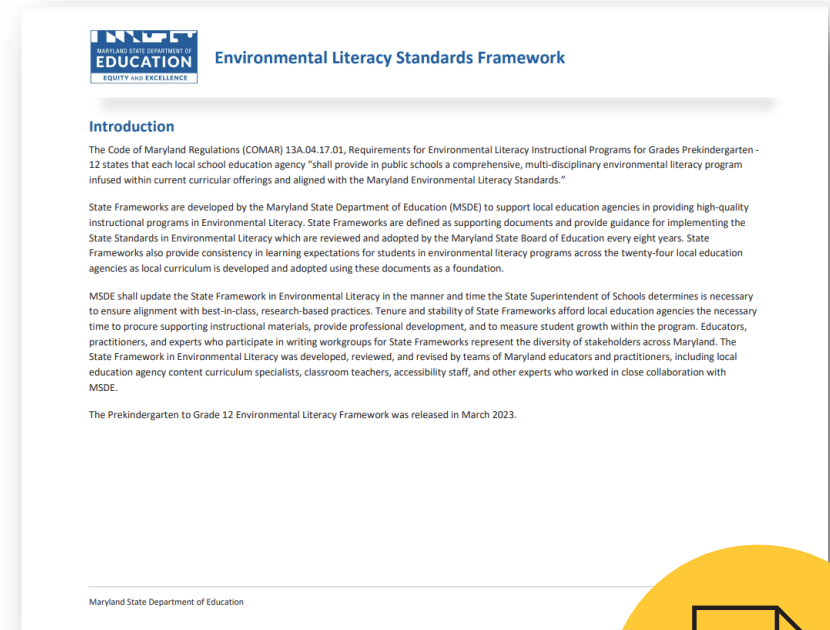
The Framework is:

- **Not a curriculum;**
- A way to **promote multiple methods** by which environmental literacy can be implemented; and
- Intended to support **interdisciplinary approach** to fostering environmental literacy.



# Contents of the Framework

- Five Environmental Literacy Standards
- For each of the five standards, at each grade band (PreK-2, 3-5, 6-8 and 9-12):
  - Enduring Understanding;
  - Objective Statements;
  - Essential Questions; and
  - Content Standards;
- Appendices
  - A: Grade Band Progressions;
  - B: Phenomena for Environmental Literacy;
  - C: Instructional Resources for Environmental Literacy; and
  - D: Research Supporting Environmental Literacy.

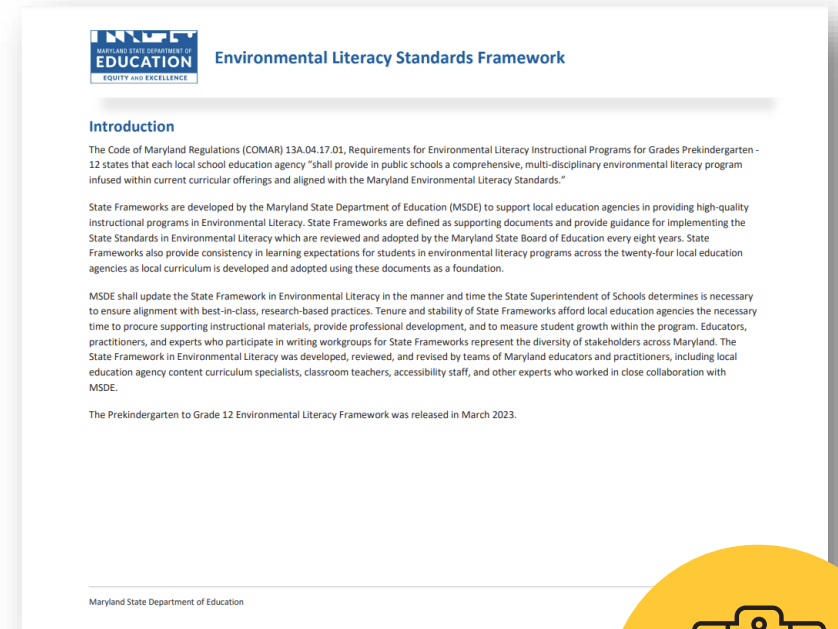




# Features and Applications of the Environmental Literacy Standards Framework

## Features we are going to highlight today:

- Content Standard Connections;
- Grade Band Progressions;
- Student Action; and
- Environmental Justice.



## Key Feature of the Framework: Content Standards

The Environmental Literacy Standards Framework facilitates comprehensive, multidisciplinary environmental literacy by providing examples of standards connections at each grade band in the following contents:

- Science
- Social Studies
- ELA/Literacy
- Mathematics
- Health Education

### **What are the applications of multiple content standards connections?**

- Establishes broader context for environmental literacy educators
- Facilitates interdisciplinary nature of environmental literacy instruction

# Key Feature of the Framework: Content Standards

Standard 2: Environmentally literate students construct and apply understanding of how Earth’s systems and natural resources support human existence.

Science	Social Studies	ELA/Literacy	Mathematics	Health
<ul style="list-style-type: none"> <li>Earth/Space Science (ESS): HS-ESS2-2; HS-ESS2-4; HS-ESS2-5; HS-ESS2-7; HS-ESS3-1; HS-ESS3-2; HS-ESS3-3; HS-ESS3-4; HS-ESS3-5; HS-ESS3-6</li> <li>Life Science (LS): HS-LS2-1; HS-LS2-2; HS-LS2-6; HS-LS2-7; HS-LS4-5</li> <li>Engineering, Technology, and the Application of Science (ETS): HS-ETS1-1; HS-ETS1-2; HS-ETS1-3; HS-ETS1-4</li> </ul>	<ul style="list-style-type: none"> <li>High School American Government, Unit: Domestic Policy, Unit: Executive Branch, Unit: Economics, Standard 6.0</li> <li>Modern World History (1970 – Present), Unit: Globalization, Standard 6.0</li> <li>High School United States History, Unit: Economic, Political, and Social Reorganization (1974-1992), Unit: Globalization, Terrorism, and Political Polarization (1992- Present), Standard 6.0</li> </ul>	<ul style="list-style-type: none"> <li>Writing (W): W.9-10.1; W.9-10.2</li> <li>Reading Informational Texts (RI): RI.9-10.1; RI.9-10.2</li> <li>Reading in Science &amp; Technical Subjects (RST): RST.9-10.7; RST.9-10.8; RST.9-10.9; RST.11-2.1; RST.11-12.8</li> </ul>	<ul style="list-style-type: none"> <li>Mathematical Practices (MP): MP.2</li> </ul>	<ul style="list-style-type: none"> <li>Mental and Emotional Health: 1a.HS1.2; 1a.HS2.2; 1a.HS2.3; 1a.HS2.4</li> </ul>

# Key Feature of the Framework: Grade Band Progressions

Appendix A includes grade band progressions in each standard for:

- Enduring Understanding
- Objective Statements
- Essential Questions

## **What are the applications of the grade band progressions?**

Practitioners can:

- Compare developmentally appropriate examples at various levels; and
- Self-assess the rigor of their own instruction, programs, or curricula.

In this session, we will use a few grade band progressions to highlight other features of the framework.

## Key Feature of the Framework: Student Action

The Framework facilitates student action and draws from the Meaningful Watershed Educational Experience (MWEE) model.

- Standard 1: Environmental Issue Investigation and Action
- Standard 5: Individual and Collective Responses to Environmental Change

### What is special about the MWEE model?

- **Learner-centered experience:** Students use the inquiry process and conduct **investigations** into local environmental issues that lead to informed **action and civic engagement**.
- **Classroom Integration:** Infused into the scope and sequence of the curriculum and anchored to standards.
- The **Local Context** (i.e., schoolyard, neighborhood, town, or community): establishes the life-relevancy of the issue, problem, or phenomenon being studied.
- **Sustained Activity:** A MWEE is different from a stand-alone field trip because it involves a variety of rich learning opportunities spread over a unit or multiple units.

# Appendix A: Objective Statements Grade Band Progressions

Standard 1: Environmentally literate students investigate environmental issues in order to develop and implement local actions that protect, sustain or restore the natural environment.

By the end of grade 2	By the end of grade 5	By the end of grade 8	By the end of grade 12
<ul style="list-style-type: none"> <li>A. Explore and experience the environment.</li> <li>B. Confirm a local environmental issue.</li> <li>C. With guidance, develop an action plan to address the issue.</li> <li>D. Implement the action plan.</li> </ul>	<ul style="list-style-type: none"> <li>A. Identify a local environmental issue through observation and/or research.</li> <li>B. Use evidence to construct explanations and generate possible solutions to the environmental issue.</li> <li>C. Develop an action plan to protect, sustain, or restore the natural environment.</li> <li>D. Implement the environmental action plan and reflect on the impact and effectiveness of the plan.</li> </ul>	<ul style="list-style-type: none"> <li>A. Identify and investigate a local or global environmental issue that impacts a variety of stakeholder groups.</li> <li>B. Research and explore the perspectives of the various stakeholder groups.</li> <li>C. Analyze evidence to construct explanations and use data to form conclusions.</li> <li>D. Develop an action plan to protect, sustain, or restore the natural environment and weigh the impact on various stakeholder groups.</li> <li>E. Implement the environmental action plan and reflect on the impact of the plan on the various stakeholder groups.</li> </ul>	<ul style="list-style-type: none"> <li>A. Examine an environmental issue in the context of the local and global environment and human behaviors that contribute to it.</li> <li>B. Evaluate evidence-based solutions to mitigate or prevent the environmental impacts associated with the environmental issue.</li> <li>C. Formulate individual and collective actions that can be undertaken to address local environmental issues considering cultural, social, economic, and political factors as they relate to the development of solutions.</li> <li>D. Critique the feasibility of the plan including the economic requirements, and the willingness/ability of stakeholders to participate in the plan.</li> <li>E. Implement the plan based on the environmental issue investigation and evaluate the success of actions taken.</li> </ul>

# Appendix

**Student action is possible at all levels of education with appropriate levels of support, and scaffolding. Additionally, it is vital to employ student action at appropriate level of rigor.**

# Band Progressions

Standard 1: Explore and understand environmental issues in order to protect and improve the natural environment.

Standard 1: Explore and understand environmental issues in order to protect and improve the natural environment.

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By the end of grade 2	By the end of grade 5	By the end of grade 8	By the end of grade 12
<ul style="list-style-type: none"> <li>A. Explore and experience the environment.</li> <li>B. Confirm a local environmental issue.</li> <li>C. With guidance, develop an action plan to address the issue.</li> <li>D. Implement the action plan.</li> </ul>	<ul style="list-style-type: none"> <li>A. Identify a local environmental issue through observation and/or research.</li> <li>B. Use evidence to construct explanations and generate possible solutions to the environmental issue.</li> <li>C. Develop an action plan to protect, sustain, or restore the natural environment.</li> <li>D. Implement the environmental action plan and reflect on the impact and effectiveness of the plan.</li> </ul>	<ul style="list-style-type: none"> <li>A. Identify and investigate a local or global environmental issue that impacts a variety of stakeholder groups.</li> <li>B. Research and explore the perspectives of the various stakeholder groups.</li> <li>C. Analyze evidence to construct explanations and use data to form conclusions.</li> <li>D. Develop an action plan to protect, sustain, or restore the natural environment and weigh the impact on various stakeholder groups.</li> <li>E. Implement the environmental action plan and reflect on the impact of the plan on the various stakeholder groups.</li> </ul>	<ul style="list-style-type: none"> <li>A. Examine an environmental issue in the context of the local and global environment and human behaviors that contribute to it.</li> <li>B. Evaluate evidence-based solutions to mitigate or prevent the environmental impacts associated with the environmental issue.</li> <li>C. Formulate individual and collective actions that can be undertaken to address local environmental issues considering cultural, social, economic, and political factors as they relate to the development of solutions.</li> <li>D. Critique the feasibility of the plan including the economic requirements, and the willingness/ability of stakeholders to participate in the plan.</li> <li>E. Implement the plan based on the environmental issue investigation and evaluate the success of actions taken.</li> </ul>

## Think & Share: Environmental Justice

Reflect on the following questions:

**How would you define environmental justice?**

**How does environmental justice connect to environmental literacy and/or your current practice?**

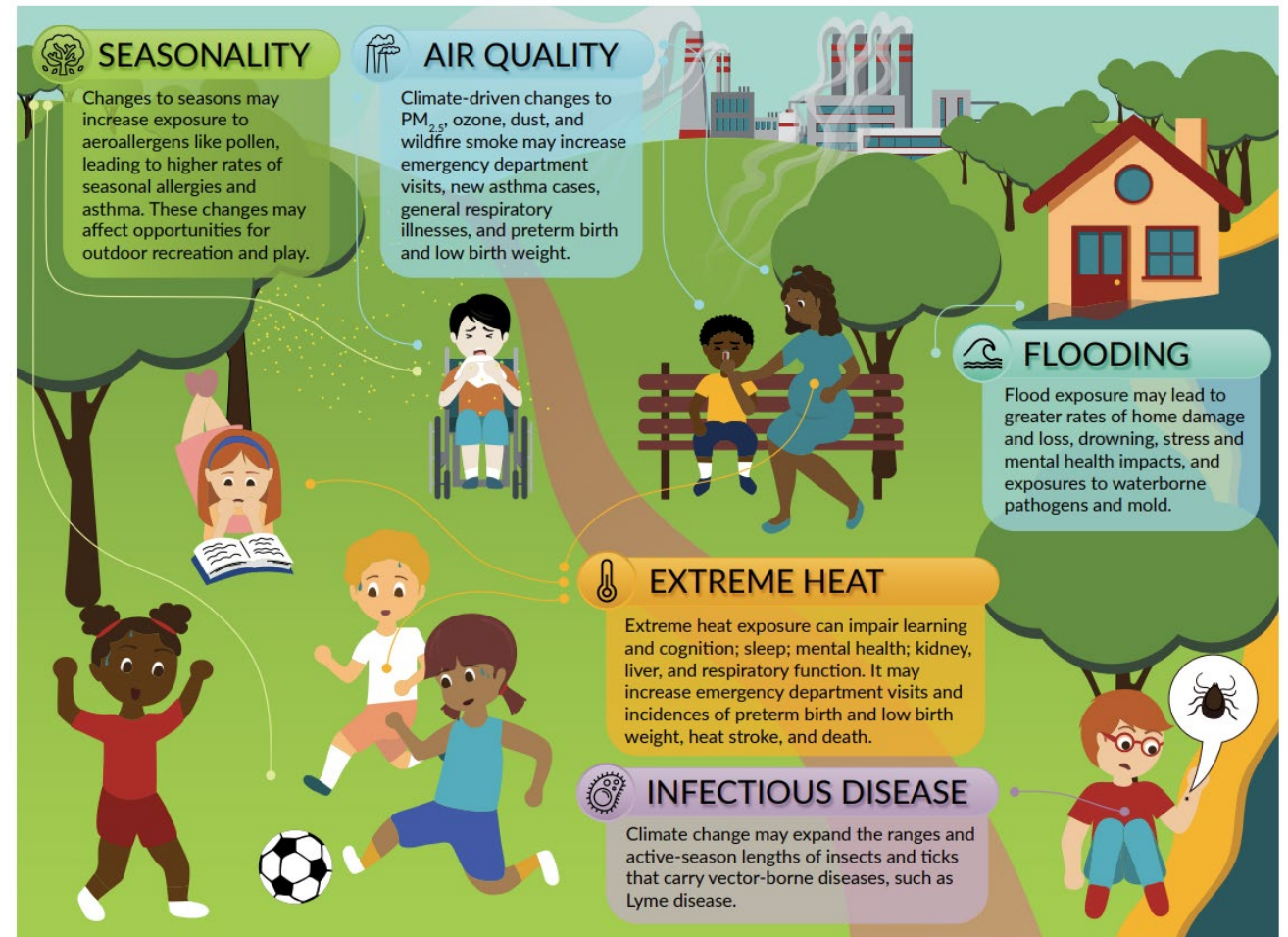
INDIVIDUAL THINK TIME

TYPE IN THE CHAT



# Essentials of Environmental Justice

- The Maryland, Environmental Justice is defined as “**equal protection from environmental and public health hazards** for all people regardless of race, income, culture, and social status.”
- The environment is inclusive of where people **live, play, learn, and grow.**



[Maryland General Assembly §1-701.](#)  
Image from [EPA's Climate Change and Children's Health and Well Being in the U.S.](#)

## Key Feature of the Framework: Environmental Justice

The Framework embeds Environmental Justice throughout grade bands 6-8 and 9-12 in several standards, particularly:

- Standard 4: Consequences of Environmental Change on Human Health and Well-Being
- Standard 5: Individual and Collective Responses to Environmental Change

### **Why Education for Environmental Justice?**

- Empowers educators to facilitate deeper discussion, learning, and action
- Reflects authentic learning about current environmental issues that matter to students

# Appendix A: Essential Questions Grade Band Progressions

Standard 5: Environmentally literate students construct and apply understanding of individual, collective, and societal responses to human induced environmental change.

PREK-GRADE 2	GRADES 3-5	GRADES 6-8	GRADES 9-12
<ul style="list-style-type: none"> <li>• What are our roles and responsibilities in caring for our planet?</li> <li>• What positive actions can we take to protect people and the environment?</li> <li>• In what ways can an individual’s local actions impact human-induced environmental changes?</li> </ul>	<ul style="list-style-type: none"> <li>• What role do policies and laws play in protecting the environment?</li> <li>• Why might individuals choose impact-reducing behaviors while others may not?</li> <li>• How effective are policies and laws in changing individual and community behaviors?</li> </ul>	<ul style="list-style-type: none"> <li>• In what ways do my personal actions impact the environment?</li> <li>• Why are some environmental issues controversial, and how might this affect approaches to addressing them?</li> <li>• In what ways do environmental justice issues exist in the local community?</li> <li>• What is the relationship between environmental issues and civil rights?</li> </ul>	<ul style="list-style-type: none"> <li>• How do societal norms influence our response to environmental change?</li> <li>• What strategies could be implemented by individuals and by communities to reduce their ecological footprint and/or address issues of environmental justice and environmental racism?</li> <li>• How do current policies and laws address environmental justice and environmental racism?</li> </ul>

# Appendix B: Standards and Progressions

Standard 5:  
individual, c

**Much like the NGSS, students in elementary school do not address topics like climate change or environmental justice explicitly, and instead learn essential approaches and background knowledge to support their later learning.**

... understanding of  
environmental change.

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PREK-GRADE 2	GRADES 3-5	GRADES 6-8	GRADES 9-12
<ul style="list-style-type: none"> <li>• What are our roles and responsibilities in caring for our planet?</li> <li>• What positive actions can we take to protect people and the environment?</li> <li>• In what ways can an individual's local actions impact human-induced environmental changes?</li> </ul>	<ul style="list-style-type: none"> <li>• What role do policies and laws play in protecting the environment?</li> <li>• Why might individuals choose impact-reducing behaviors while others may not?</li> <li>• How effective are policies and laws in changing individual and community behaviors?</li> </ul>	<ul style="list-style-type: none"> <li>• In what ways do my personal actions impact the environment?</li> <li>• Why are some environmental issues controversial, and how might this affect approaches to addressing them?</li> <li>• In what ways do environmental justice issues exist in the local community?</li> <li>• What is the relationship between environmental issues and civil rights?</li> </ul>	<ul style="list-style-type: none"> <li>• How do societal norms influence our response to environmental change?</li> <li>• What strategies could be implemented by individuals and by communities to reduce their ecological footprint and/or address issues of environmental justice and environmental racism?</li> <li>• How do current policies and laws address environmental justice and environmental racism?</li> </ul>

## MCCC ECO Environmental Literacy Standards and Framework Presentation

# Questions?

# Contact Information

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**Maryland's Environmental Literacy  
Program Webpage**  
[tinyurl.com/MSDE-ELit](https://tinyurl.com/MSDE-ELit)

