



# Environmental Literacy & STEM

Chesapeake Bay Program

Maryland Update

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# What is environmental literacy?

- Ideas?
- Definitions?
- Images?
- Qualities?
- Knowledge?



# Maryland E-Lit Standards

1. Environmental issues
2. Interactions of Earth's Systems
3. Flow of Matter and Energy
4. Populations, Communities, and Ecosystems
5. Humans and Natural Resources
6. Environment and Health
7. Environment and Society
8. Sustainability

# So, what is environmental literacy?

An environmentally literate person is someone who, both individually and together with others,

- makes informed decisions concerning the environment;
- is willing to act on these decisions to improve the well being of other individuals, societies, and the global environment; and,
- participates in civic life.



<http://www.naaee.net/sites/default/files/framework/EnvLiteracyExeSummary.pdf>



Those who are environmentally literate possess, to varying degrees:

- the knowledge and understanding of a wide range of environmental concepts, problems, and issues;
- a set of cognitive and affective dispositions;
- a set of cognitive skills and abilities; and
- the appropriate behavioral strategies to apply such knowledge and understanding in order to make sound and effective decisions in a range of environmental contexts.

# Next Generation Science Standards

## NGSS

- Three “Dimensions”
  - Scientific and engineering practices
  - Core disciplinary ideas
  - Cross cutting concepts



## E-Lit

- Three Dimensions
  - problem- or inquiry-based investigations
  - Core disciplinary ideas
  - Environmental Issues as a context for learning
- + One
  - Action component

# E-Lit and STEM

## E-Lit

- Three Dimensions
  - problem- or inquiry-based investigations
  - Core disciplinary ideas
  - Environmental Issues as a context for learning
- + One
  - Action component



## STEM

- Science, Technology, Engineering, and Mathematics
  - Problem-solving as a context for learning
  - Application of core disciplinary ideas in science and mathematics
  - Problem- or inquiry-based investigations
  - Technology used as a tool



# Maryland MSP Grants



## River to Bay Partners

- Washington College (Chestertown, MD)
- Kent County Public Schools
- Queen Anne's County Public Schools
- MSDE

## E-Lit & STEM

- Identify a problem through direct observation
- Devise a method to address the problem
- Build devices to collect data
- Deploy devices to collect data
- Analyze data
- Develop possible solutions to the problem



# Teacher Professional Learning

## Building Sensors



## Testing Aquabots



# Green STEM Governor



# Explore & Restore Your “Schoolshed”

- Governor announced legacy project during MAEOE Youth Summit in May 2013
- Convened educators in Annapolis in July
- Teachers selected to participate in August
- Governor’s office, DNR, MSDE, CBT, EE partners worked collaboratively to design and implement teacher workshops in October
- Stream sites selected and approved
- School-based implementation by June 2014

# Maryland State Department of Education

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