Environmental Education at Natural Resources Teaching Experience

What is the Environment?

- Physical
- Biological
- Human (social)

{ Static elements
- Processes
- Systems
What is Environmental Education?

- Science? Sometimes
- Outdoors? Sometimes
- Advocacy? No

General Goals for EE:

- Increase awareness of the interdependence of different environmental systems
- Increase knowledge and skills that help protect and improve the environment
- Elicit positive attitude and behavior toward environment….resulting in behavior changes at personal, group and societal levels
“Essential underpinnings”

- Importance of systems
- Interdependence of human and natural world
- Integration of different disciplines
  - and “infusion” across the curriculum
- Roots in the real world
- Begin at home when making connections
- Promote life long learning

Environmental Citizenship Behavior

Entry-level variables → Ownership variables → Empowerment variables → Citizenship Behavior

- Environmental sensitivity
- Knowledge of ecology
- In depth knowledge of issues
- Personal investment
- Environmental Action Strategies
- Locus of Control
- Intent to Act

Hungerford and Volk, 1990
What we know

- Environmental education programs that incorporate classroom and field based instruction are more effective than either one alone.
- Environmental education programs that empower students with action strategies effectively change attitudes and observed behavior.
- Training teachers leads to higher student knowledge retention.

The best environmental ed is:

- Integrative – make connections
- Active – to be part of a student’s life
- Incorporate different perspectives
- Engage students as critical thinkers (problem solvers)
Some EE best practices (organized by themes presented in Guidelines)

**Theme one: Environmental Literacy**
- Have a working knowledge of the content and skills you'll be teaching
- Understand how these fit together into systems-based knowledge

**Theme three: Professional Responsibilities of the Environmental Educator**
- Model responsible, respectful and reasonable behavior
- Model the process of inquiry
- Encourage kids to form their own opinions
- Provide balanced perspective
Theme four: Planning and Implementing Environmental Education

- Link content to the kids’ immediate surroundings and experience — Can then expand to broader context

- Help kids make connections between your station and the broader goals of NR Days

Using Short-term Environmental Education Programs to Increase Student Learning and Elicit Positive Attitude Change

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Do short term environmental education programs meet the goals of environmental education?

- Increase knowledge
- Elicit positive attitude

Water Quality Station

- Investigate aquatic macro-invertebrates
- Learn features and use keys to classify
- Life cycles and adaptations
Assessment Tool

Pre-test mean - 39% (SD - 3.96)
2-week post-test mean - 59% (SD - 5.89)
8-month post-test mean - 55% (SD - 5.11)

Simple paired t-test – Group 1 knowledge

<table>
<thead>
<tr>
<th>Test</th>
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<tr>
<td>Pre-test/2-week post-test</td>
<td>27</td>
<td>-18.12</td>
<td>&lt; 0.0001**</td>
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<td>Pre-test/8-month post-test</td>
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<td>29</td>
<td>5.31</td>
<td>&lt; 0.0001**</td>
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** Significant at the 0.0001 level
Results

- Don’t pollute them
- That rivers and streams are pretty
- Rivers are nice
- They are good
- Keep them clean.

- They should go to Logan canyon to explore the different exciting stuff there are
- How fun it was to learn and you should learn about it to
- To keep rivers clean and healthy because bugs live there and that could destroy their homes
- They have really cool bugs in them and not to litter
- I would tell my friend that it is not good to pollute the water. And that the little water bugs are cool.