Put a Positive STEM on It – Elementary Lesson for Sustainability

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Wisconsin Center for Environmental Education

The WI Center for EE is located in the College of Natural Resources at UW-Stevens Point
Thinking About The Future

What do you think the world will look like in 2050?
Thinking About The Future

What do you want the world will look like in 2050?
Defining Sustainability

“Meeting our own needs without limiting the ability of future generations to meet their needs”

*World Commission on Environment & Development, 1987*
Defining Education for Sustainability

Education for sustainability (EfS) provides people with the knowledge, skills, ways of thinking, and opportunities to promote a healthy and livable world. It is a holistic and systems-based approach to teaching and learning that integrates social justice, economics, and environmental literacy. The ultimate outcome of EfS is to sustain both human and natural communities. (WCEE)
Creating Thinkers

Cognition (how we think)
Systems (how systems work)

Information ≠ Knowledge
Information & Thinking = Knowledge
# FTF Activity-Based Lesson:

**“Is It Sustainable?”**

<table>
<thead>
<tr>
<th></th>
<th>Apple A</th>
<th>Apple B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price to consumer</td>
<td>$1.00</td>
<td>$0.50</td>
</tr>
<tr>
<td>Taste</td>
<td>Slightly sweet</td>
<td>Slightly tart</td>
</tr>
<tr>
<td>Farmer’s profit</td>
<td>$0.50</td>
<td>$0.25</td>
</tr>
<tr>
<td>Miles traveled</td>
<td>10,000</td>
<td>200</td>
</tr>
<tr>
<td>Pesticides used</td>
<td>None</td>
<td>Some</td>
</tr>
<tr>
<td>Soil health</td>
<td>Good quality</td>
<td>Poor quality</td>
</tr>
</tbody>
</table>

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FTF Activity-Based Lesson:
“Is It Sustainable?”

**Society**
1. Are individuals and communities involved in making fair and democratic decisions about the activity?
2. Is it an equitable activity (i.e., does it offer more options or opportunities to some groups over others)?
3. Does the activity contribute to people’s quality of life?
4. Does it positively affect different cultures?

**Environment**
1. Can the activity be done without damaging plants or animals?
2. Does it help or harm air, water, and soil quality?
3. Does it use resources at a rate that allows the resource to be renewed or regenerated?
4. Is the waste created by the activity recyclable?
5. Does the activity generate a limited amount of waste?
6. Does this activity contribute to the conservation of natural resources?

**Economy**
1. Does the activity have a positive economic impact?
2. Does it create meaningful and satisfying work for individuals?
3. Does it contribute to a community’s economic development?
4. Do all people receive equal economic benefits from the activity, rather than some people benefiting at the expense of others?

**Sustainability**
1. Can the activity be done without causing damage in the 3 areas (economy, environment, and society)?
2. Can this activity be done so that people in the future will have the same opportunities to do this activity as people today?
Interconnections
The Global Wombat

http://www.globalcommunity.org/flash/wombat.shtml
“Community” or “Place”
Stages of Environmental Education

Empathy
Ages 4-7
Cultivate connection
Animal relationships
Home is their world

Exploration
Ages 8-11
Asking “How”
Science investigations
Expanding boundaries

Social Action
Ages 12+
Asking “How can I”
Place-based efforts
Social boundaries

AWARENESS – KNOWLEDGE – ETHICS – SKILLS - ACTION
Cultivate Joy, Wonder, & Exploration

• Sense of Wonder - Rachael Carson

• Inquiry
  – I notice...
  – I wonder...
  – This reminds me...

• Systems Thinking

• Locus of Control
A Hamburger’s Food Web

Me, My Food, and My Environment
Forest – Stream Habitat

- Interrelationships
- Connections
Facing the Future

• Seattle-based 501(c)3 founded in 1995
• Interdisciplinary global sustainability curriculum for K-12
• Over 1,000,000 students reached each year
• All 50 states and over 100 countries

www.facingthefuture.org
Facing the Future Resources

**Teacher Lesson Plan Books**
Over 25 lessons available for free at [www.facingthefuture.org](http://www.facingthefuture.org)

**1-2 week Curriculum Units**
All available online, many for free

**Student Textbooks**
Preview chapters available online
WI Center for Enviro Ed

- Est. 1991
- Advancing environmental education statewide through teachers and students
- www.uwsp.edu/wcee
“We must teach our students that they can be architects of the future, rather than its victims.”

~ Buckminster Fuller, Architect and Philosopher

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