Environmental Issues Instruction

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Environmental Issues Instructional (eii) Model

Water Connects Us All

• Level I: What is an environmental issue?

• Level II: What content is necessary to understand this environmental issue?

• Level III: What are the environmental issues related to this theme?

• Level IV: What responsible environmental action will be taken?
How do we use NGSS 3-D Learning in Environmental Issues Instruction?

1. Disciplinary Core Ideas:

5-ESS2-1 Earth’s Systems
Students who demonstrate understanding can:

Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. [Clarification Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.][Assessment Boundary: Assessment is limited to the interactions of two systems at a time.]
2. Engineering Practices

Developing Models

What are models?

According to the Next Generation Science Standards, scientific models can include diagrams, physical replicas, mathematical representations, analogies, and computer simulations if they are used to predict or explain phenomena.
3. Cross-Cutting Concepts

Systems and system models

- Systems and system models. Defining the system under study—specifying its boundaries and making explicit a model of that system—provides tools for understanding and testing ideas that are applicable throughout science and engineering.
Level I: What is an environmental issue?

What is the difference between a problem and an issue?
Level II: Ecological Foundations

- Why are soil and water important?
- How are water and soil connected?
- What problems and issues are associated with water and soil?
- What effect does climate change have on the quality of water and soil?
Level III: What are the issues?

- Who is responsible for water pollution?
- What can we do about water pollution?
- Nitrates in Iowa rivers and streams
- The Red Tide in Florida
- The Dead Zone
Level IV: Responsible Environmental Action

- Teachers and their students create a plan of action based on the learning about Water Connects Us All.
- Personal Actions
- Class Actions
- School Projects
- Community Projects
Using a Game Model to Facilitate Discussion of Environmental Issues
In Your Group

- Based on your data, what is the problem with the water in Iowa?
- Who might be the people (players) involved in this problem?
  
  **Level 1 and Level 3**

- What caused the water to have changes in the nutrients it carried?
  
  **Level 2**

- How could you impact Iowa’s water quality?
  
  **Level 4**
2019-2020 Professional Development Environmental Issues Instruction (eii) Presents: Water Connects Us All

Two separate workshop dates and locations are available:

Iowa Lakeside Lab, Milford, Iowa

• June 25-27, 2019 and April 3-4, 2020
• Upper Iowa Quad Cities Center-Bettendorf
• November 15-17, 2019 and March 27-28, 2020

Contact Dr. Barbara Ehlers for more information

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• Funded by EPA, REAP-CEP, Iowa Farm Bureau, Izaak Walton League and Upper Iowa University

► Additional workshops- UIU Campus- Fayette- to be announced
Questions?

Thank You!!!!