PERSONAL ENERGY AUDIT: HELPING TEACHERS AND STUDENTS
UNDERSTAND THE IMPLICATIONS OF PERSONAL ENERGY CONSUMPTION

Tamara E. Peffer, M.S.
Alec M. Bodzin, Ph.D.
Lehigh University
College of Education

ELE PERSONAL ENERGY AUDIT

- Part of ELI Energy Curriculum
  - 40 Day unit designed for
  - WELIM- Web-enhanced Environmental Literacy and Inquiry Modules (WELIM) for Middle School Learners
  - Toyota Foundation Grant
- Utilized 3 times throughout the unit
MATERIALS

Student
- Scaffolded student guide and worksheet
- Energy Audit Spreadsheet
  - Containing
    - Energy Audit 1
    - Energy Audit 2
- Energy Basics student web page

www.ei.lehigh.edu/eli/energy

Teacher
- Educative curricular materials
  - Teacher Guides
  - Audit FAQ's
  - Energy Teacher Content web page

USING THE AUDIT: BASICS

- Used 3 times during unit
  - Analysis of current energy use practices
  - Pairing of energy fuel sources
  - Review of practices and generation of conservation ideas
EXPLORING THE AUDIT

- Organization
- Sources of Energy Values
- Units
  - Conversions
    - Electricity based values – Typical wattage of appliances
    - Fuel based values – BTU values and personal mileage

EDUCATIVE CURRICULAR MATERIALS

- Improve GS-TPACK across all facets
  - Geospatial Technological Pedagogical And Content Knowledge
- Provide scaffolding for teacher learning and student investigation
- Model thought patterns for teachers as well as students
## Energy Audit - First Visit: Applications/Assessment

**Student**
- Awareness of personal/family energy use
- Introduce energy units and conversions
- Introduce concept of conservation

**Teacher**
- Set benchmark level for student understanding
- Identify student misconceptions about personal energy
- Identify needs for spreadsheet skills
- Highlight areas to focus on in later lessons

## Sources Lesson: Applications/Assessment

**Student**
- Connect personal energy use activities to types of energy used
- Connect types of energy used to energy/fuel sources

**Teacher**
- Assessment tool to review understanding of energy sources
- Highlights connections
## Revisiting the Audit: Applications/Assessment

<table>
<thead>
<tr>
<th>Student</th>
<th>Teacher</th>
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<tbody>
<tr>
<td>1. Recalculate personal energy uses based on current practices</td>
<td>1. Evaluate student awareness and knowledge</td>
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<tr>
<td>2. Self-evaluation: comparing new audit results to old audit results</td>
<td>2. Emphasize reasons for changes in energy use based on personal behavior</td>
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<td>3. Attribute change or lack of change to personal behaviors</td>
<td>3. Identify areas of misunderstanding to address prior to final project</td>
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<td>4. Attribute reasons for behavioral change</td>
<td>4. Encourage reflection</td>
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<td>5. Identify new conservation practices</td>
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## Completing the Audit

- Group Activity
STRATEGIES/ DIFFERENTIATION

- Differentiated instructional materials (teacher vs. student level) can be modified based on students’ needs
- Instructional support range
  - Guided assistance
  - Semi-independent
  - Independent work
- Use as formative or summative assessment tool to guide direction