

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

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NEASTE Presentation
October, 2009

ELI 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 else
- 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
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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
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REVISITING THE AUDIT: APPLICATIONS/ ASSESSMENT

Student

- Recalculate personal energy uses based on current practices
- Self-evaluation: comparing new audit results to old audit results
- Attribute change or lack of change to personal behaviors
- Attribute reasons for behavioral change
- Identify new conservation practices

Teacher

- Evaluate student awareness and knowledge
- Emphasize reasons for changes in energy use based on personal behavior
- Identify areas of misunderstanding to address prior to final project
- Encourage reflection

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

