

SAVE THE SCHOOL, CONVINCING THE BOARD: TEACHER GUIDE

Subject: Earth Science

Grade Level: Middle School

Last Updated: July 31, 2007

Case Summary

PTSA board has voted to shut down the local middle school. The board has decided that it costs too much to remain open based on annual energy costs. Students have decided to try and stop the decision from taking place. Students are going to try and persuade the District School Board of Education to deny the PTSA request.

Credits

This case was written by Yasmine M McKenzie (teacher, Bethune Middle School) and Jennifer J. Pokorny (PhD. student, Psychology, Emory University, Atlanta, GA) fellows of the Emory University PRISM program (<http://www.prism.emory.edu>). Authors may be contacted at jpokorn@emory.edu

Learning Objectives

1. Students will be able define what energy is in their own words.
2. Students will be able to identify renewable and non-renewable sources of energy
3. Students will be able to relate the sun's energy to wind and water energy
4. Students will be able to explain why fossil fuels are considered to be non-renewable sources of energy
5. Students will be able to list advantages and disadvantages of using different energy sources.
6. Students will be able to create a flow chart of energy conversions.
7. Students will be able to compare/contrast fission and fusion reactions.
8. Students will be able to create an argument for energy conservation

Georgia Performance Standards

S6CS1: Importance of curiosity, honesty, openness, skepticism, etc

S6CS6: Communication

S6CS7: Question scientific claims/knowledge achievement

S6CS9: Scientific inquiry

S6E6 (a& b): Students will describe various sources of energy and their uses and conservation

Assessment

Students will be assessed during this case by completing a web quest obtained from the Energy Kid's Page of the U.S. Department of Energy's Energy Information Administration (see Resources section below). Students will use <http://www.eia.doe.gov/kids/energyfacts/sources/whatsenergy.html> as their source of information.

Students will turn in a completed box chart at the end of the case. Students will turn in an authentic product in which to defend their argument to allow the school to remain open based on rubric requirements.

Implementation Strategy

Day 1 (60 minutes)

- Have students brainstorm what they know about energy (the students in this case have been studying energy (5 minutes)
- Print out and distribute *Energy scavenger hunt* [PDF] (see Resources section for citation and URL). Have students complete online web quest on energy sources and types (40 minutes)

Day 2 (60 minutes)

- Have students complete online web quest on energy sources and types (40 minutes)
- Review web quest results (5 minutes)

Day 3 (60 minutes)

- Students will read scene 1 (5 minutes)
- Students in groups will complete box chart (10 minutes)
- As a class discuss facts & learning issues
- Hand out roles
- Divide learning issues among groups, create action plan and begin on library research (45 minutes)
- Discuss learning issues research results and review what needs to be completed.

Day 4 (60 minutes)

- Students will read articles on innovative ways to conserve energy (10 minutes)
- Class discussion on whether or not conserving energy is important. (10 minutes)
- Hand out rubric
- Students research and work on creating final product (30 minutes)

Day 5 (60 minutes)

- Students research work on creating final product (50 minutes)

Day 5 (60 minutes)

- Class presentations (20 minutes)
- Self/peer evaluations

Case Notes

Next time it would be easier to have all students present PowerPoint presentations if computer time is available. This way they could all use the same medium when presenting different energy sources. Typically when the students use PowerPoint they make sure to include all the information and when they have other products, they tend not to put all the relevant information into the product.

During presentations it would be good to have facilitators write down questions from the presentations that everyone should be able to answer after hearing the presentation. This is to make sure students are paying attention. This is the greatest issue that we have found – students typically do not listen to the other presentations and therefore miss information that they need to know.

We initially had 1 day scheduled for the webquest, but students needed 2 days to complete it. The webquest is included as an extra document (pdf) and can be completed by going to:
<http://www.eia.doe.gov/kids/energyfacts/index.html>

Resources

American Council for an Energy-Efficient Economy (2009). *Consumer guide to home energy savings: Online guide*. Retrieved August 19, 2009 from <http://aceee.org/consumerguide/index.htm>

Energy Information Administration. (n.d.). *Energy scavenger hunt*. Retrieved August 24, 2009 from [http://www.eia.doe.gov/kids/classactivities/EIA Scavenger Hunt color.pdf](http://www.eia.doe.gov/kids/classactivities/EIA_Scavenger_Hunt_color.pdf)

Joseph D. Exline, J. M. Pasachoff, B. B. Simons, C. G. Vogel, T. R. Wellnitz. (2002). *Earth Science*. Nedham, MA: Prentice Hall