



Natural Inquirer Lesson Plan- Bioenergy Edition



Switching From Oil To Biomass Wood Energy

Time Required: One class period

Materials Needed: Hand outs for each student (see attachment)

Overview

- This FACTivity is about the challenges in determining if a community should switch the heating system at a school from oil to a biomass based energy heating system.
- Appropriate for science, language arts and social studies classes.

Introduction

“Thank you all for coming here today. I really appreciate your interest and passion for our community of “Heatville” and the surrounding forest. Today we are all gathered here to determine if we should switch from heating our school with oil to using wood biomass. There are points that need to be considered on both sides of the issue and I know that within the community we have varying viewpoints on this topic. So, I have asked all interested community members to come here today and take part in helping to decide how we should heat our school.”

Task

Your task will be to assume the role of one of the community members. You will then bring your unique viewpoint on the school heating system to the group. You will be presenting to the community as a whole your thoughts and justifications as to why we should or should not switch to heating the school with oil to biomass wood energy. Use the concerns of the community members as outlined below to develop your arguments.

Process

1. You will be assigned a role as one of the community members. In this role, you must present and defend your point of view even though you personally may not agree with it. Please take your role seriously.

The following interested community members are:

- School Board Member
- Timber Worker
- School Parent
- Natural Resource Agency Personnel
- Natural Resource Advocate

2. Review the background information below about the role/individual you have been assigned.

3. As an individual write from your unique viewpoint, an essay to share with the community in order to persuade/convince them to switch or not to switch over to a biomass heating system to heat the school.

4. Meet and share your essay with others in your class representing the same viewpoint and summarize your thoughts, i.e. all the School Board Members gather together and discuss thoughts from their essays. Each group selects a spokesperson and the spokesperson shares the most important points and justifications with the other community members (Notes Page-use this page to gather important information for the group presentation). Then all viewpoints (4 groups) must work together as a team and create a persuasive presentation that addresses the pro's and con's of switching from an oil heating system over to a biomass wood energy system. This presentation would be presented to the entire community.

Conclusion

You have worked as a team with differing viewpoints to come to consensus on the type of heating system to put in your school. You have acknowledged that each individual has their own unique viewpoint on this project based on their personal life experiences, values and ethics. Is one right and the other wrong, or does it all depend on perspective?

Background Information To Be Used For Role Play Exercise

Assumptions To Be Used For the Role Play Justifications:

- We will not use the construction cost of the biomass heating system as a decision criteria. But do use the annual operating costs of the two systems as an important factor.
- Use the information and costs identified in the lesson.
- The community of "Heatville" is surrounded by a National Forest. A large percent of the forest is made up of insect infested and diseased trees that are dying.

There is a high unemployment rate in the community.

Community Member Concerns to Be Addressed in Justifications:

School Board Member- Which heating system will work better? Which heating system will be more cost effective?

Natural Resource Advocate- Where does/will the oil/biomass come from to heat the school? What impacts will this have on natural resources both locally and afar?

Timber Worker- What jobs are there now for operating the heating system? Will new jobs be lost or created? Will local suppliers gain or lose business?

School Parent-Which heating system is safer? Which heating system will keep my child warmer? What is and/or will be the air quality conditions?

Natural Resource Agency Personnel-Will there be any impact to the local forest? Will wildfire risk be altered? Will wildlife be affected?

Research Links Which May Be Helpful:

www.biomasscenter.org

www.firewise.org

www.fuelsforschools.org

www.energyquest.ca.gov

<http://www.timberweb.com/Jobs/>

<http://www.ttf.co.uk/industry/careers/>

<http://www.ext.vt.edu/pubs/forestry/420-160/420-160.html>

<http://www.dnr.state.mi.us/publications/pdfs/huntingwildlifehabitat>

[/Landowners_Guide/Habitat_Mgmt/Forest/Timber_Harvesting.htm](http://www.dnr.state.mi.us/publications/pdfs/huntingwildlifehabitat/Landowners_Guide/Habitat_Mgmt/Forest/Timber_Harvesting.htm)

<http://www.fs.fed.us/r6/nr/fid/wid.shtml>

<http://dnrc.mt.gov/forestry/assistance/pests/default.asp>

<http://fwp.mt.gov/wildthings/livingwildlife/default.html>