To our teachers:

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Name: *_____

Date: *____ / ____ / ____ Class Hour: *____

Wisconsin Public Service
SolarWise for Schools
and the
Center for Renewable Energy
Advanced Technological Education

MY SCHOOL'S ENERGY REPORT CARD

Student Lesson & Response Guide

Introduction:

You, your classmates, and your teacher are all energy managers in a *big* energy enterprise. Your school is a *big* building. It carries a *big* energy price tag and has a *big* environmental impact. How you—and all of the other occupants of your building—use the school determines how much energy will be used within the building. How you use energy will translate into money spent on energy (or not), natural resources used (or not), and air emissions released (or not). The opportunity for improvements in each of these areas is always available in a big building and everyone has a part to play.

In this lesson, you will look at the energy management of your whole school building. The centerpiece of this lesson is a professionally-led building energy tour. This involves walking through your school building and highlighting how energy is used and can be saved. Before you perform the energy tour, you will carefully consider how your school is actually used. You will develop questions you want to have answered during the tour. Also, before the tour, you will learn how your school is billed for the energy it uses. Understanding this is one of the keys for determining how the school should manage its energy use. After the tour, you will report on what you have learned.

What you will undoubtedly learn is that you, your classmates, your teacher, and each of the other occupants of your building are all energy managers in a *big* energy enterprise. How each person uses the building—manages energy—determines the magnitude of the building's energy cost and environmental impact.

Materials: Word-processing device with Internet access
One big school building—yours

Procedure:

1. *Understand how your school pays for its energy.* It is difficult to come to grips with the energy dynamics of your building until you understand how—and how much—your school pays for its energy. Your teacher will distribute handouts that graphically show how many schools (and many other buildings like them) are billed for energy. Consult these handouts (and take notes on them) during the presentation you view, called **School Energy Management Basics.**

2. *Prepare for your energy tour.* Your energy tour is a less formal version of an energy audit. Energy audits often involve engineers and focus specifically on equipment, appliance, technology, and management changes that save energy and money. You will prepare for your energy tour by performing internet research. Several websites have been provided for you to review here.

Using the hyperlinks below, review what is normally covered on an energy audit and how an energy audit is conducted. This will help you to visualize how your energy tour will proceed. Use your research to answer your **Pre-tour** questions on the **Building Energy Tour** handout. Between your research and what you learned about how your school pays for its energy, develop questions to ask during your energy tour. Write them down on your **Pre-tour** handout as well.

Energy Audit Checklist – Boston Latin School Youth CAN

Energy Audits an Assessment Tools – Iowa Economic Development:

School Operations and Maintenance: Best Practices for Controlling Energy Costs

Energy Audit Workbook – Washington State University Energy Program

3. *Preview the **Building Energy Management Brief** assignment you will be required to complete at the conclusion of this lesson.* Previewing it will help you view your school building critically and develop useful questions during your energy tour. Previewing will also help you understand what you will need to know to be successful in completing your **Building Energy Management Brief**.

4. *Actively participate in your building energy tour.* Use what you have learned to ask useful questions and take useful notes on the **Building Energy Tour Notes** pages prepared for that purpose. You will use these notes later to complete your **Building Energy Management Brief**.

5. *Demonstrate what you have learned by writing a quality **Building Energy Management Brief.*** Your preparation and participation in the energy tour will enable you to develop your ideas. Carefully follow the instructions on the **Building Energy Management Brief** handout and your teacher's directions.

Name: *_____

Date: *____ / ____ / ____ Class Hour: *____

	Wisconsin Public Service **SolarWise for Schools** **and the** **Center for Renewable Energy** **Advanced Technological Education**	

MY SCHOOL'S ENERGY REPORT CARD

Building Energy Tour

Pre-tour Questions:

1a. Compare the use of your school building to other large buildings (like retail and commercial establishments, industrial buildings, apartment complexes, condominiums) you know of. How is energy used in your school building compared to other buildings similar in size? Consider the amount of energy used for heating, cooling, lighting, and hot water.

*** Answer**

1b.Compare the use of your school building to other school buildings you know of. How is energy used in your school building compared to other school buildings? Consider physical differences in your school building compared with others as well as differences in the student population that govern what goes on in the school.

*** Answer**

2. How is your building used differently *during different times of the year?* How do these differences affect building energy use?

*** Answer**

3a. How is your building used differently during *different days of the week?* How do these differences affect building energy use?

*** Answer**

4a. How is your building used differently during *different hours of the day?* How do these differences affect building energy use?

*** Answer**

List questions you have thought to ask during the building energy tour below. Write in answers as you establish them.

*** Question**

*** Answer**

*** Question**

*** Answer**

*** Question**

*** Answer**

*** Question**

*** Answer**

*** Question**

*** Answer**

*** Question**

*** Answer**

Building Energy Tour Notes:

1. General	Observations	Issues / Questions / Suggestions
Space **H**eating		
Ventilation		
Air **C**onditioning		
Water Heating		

2. Ofc./Lounge	Observations	Issues / Questions / Suggestions
Lighting		
Office Equipment		
Vending Machines		
Refrigerator		
Microwave		
Coffee Maker		

3. Hallways	Observations	Issues / Questions / Suggestions
Lighting/Motion Sensors		
Vending Machines		
Exit Lights		

4. Classrooms	Observations	Issues / Questions / Suggestions
Lighting		
Computer		
Media Equipment		
Other Equipment		

5. Restrooms	Observations	Issues / Questions / Suggestions
Lighting/Motion Sensors		
Water / Hot Water Use		

6. Cafeteria	Observations	Issues / Questions / Suggestions
Food Preparation Equipment		
Ventilation		
Dishwashing		
Refrigerator		
Freezer		
Vending Machines		

7. Physical Ed.	Observations	Issues / Questions / Suggestions
Gym & Gym Lighting		
Locker Rooms		

8. Pool	Observations	Issues / Questions / Suggestions
Pool Facilities		

9. Outside	Observations	Issues / Questions / Suggestions
Building Entrances		
Windows		
Night/Security Lighting		
Athletic Facilities		
Landscaping		

Additional Notes:

STUDENT INSTRUCTIONS
My School's Energy Report Card
Building Energy Management Brief

By now you've become knowledgeable about many ways to save and manage energy in your school. You will review the best of what you have learned in a two-pages (front and back of each) Brief on the topic. You are to describe the three best actions that each of four different groups of people within the building can take to save, conserve, or manage energy. The four groups of people are:

Custodians Administrators Teachers Students

1. Content and Organization--you will develop your thinking and recommendations in your Brief this way:

1-1. Give your Brief a short, appropriate title. Place your name and date just below it.

1-2. Write an opening paragraph before you describe your actions and recommendations. In this paragraph:
   a. Introduce your topic to your readers
   b. Gain your reader's interest
   c. Describe why your topic is important to them

1-3. Make a listing of the three <u>best</u> actions each of the four groups of people within the building can realistically take to conserve or manage energy. You may place the groups in any order that makes sense to you. Then, for each group:
   a. Label the group.
   b. Number your actions, 1-3.
   c. Put your actions in order starting with the most important action that group can take.
   d. Describe each action and underline the action. Then tell what the action will affect and why it is important. An example is given, below:

Custodians

1. <u>Custodians should continue to improve programming for heating, cooling, and lighting in school for energy savings.</u> Without this, our school will waste energy and money during times when energy isn't needed. Custodians should do their best to program the school to use energy when it is the cheapest, trying to avoid using energy when it is expensive, while maintaining a safe, comfortable school environment.

1-4. Conclude your Brief with three paragraphs:
   a. Title this section **Conclusion**
   b. In the first paragraph of this section review what the school is already doing well to save, conserve, or manage energy.
   c. In the second paragraph summarize what the school can do to better save, conserve, or manage energy. This paragraph is a very general summary of what you described above in 1-3.

d. In the final paragraph of this section recap your thoughts and persuade your readers that it is important for the school to do the things you have described.

2. Grading--your Brief will be graded by the quality of your ideas, and how well you communicate them within the structure of this assignment:

2-1. Demonstrate what you have learned during this lesson in what you write.

2-2. Follow the directions given in this assignment guide.

3. General Directions for the completion your Brief:

3-1. The entire Brief is to be word-processed and is to be no more than four pages (two pages, front and back) in length.

3-2. You will submit 2 copies of your Brief for grading. One will be a hard copy submitted by hand to your instructor. Another will be a digital copy submitted according to your teacher's instructions.

3-3. If needed…**save your assignment on a flash drive or your hard drive each and every time you work on it, and in its final form.**

3-4. Use a conservative font for the part of the assignment where you are describing your actions. You may use other font styles, sizes, and colors for titles, subtitles, etc. Be creative, if you like, but tasteful.

3-5. Single space between lines, double space between paragraphs (like this handout is spaced). You may use a two-column format if that is what you prefer.

3-6. Use a larger type size for your title. Make it stand out. Place your name and date just below the title.

3-7. Naturally, you are to do your own work in your own words. Use "quotations marks" as needed to avoid plagiarism, or even the suspicion of plagiarism.

3-8. You will submit draft notes showing how you will approach the Brief before word processing. You are welcome to use the template provided for this purpose. The draft notes will be graded.

3-9. You are welcome and encouraged to do something (or several things) to make your finished product stand out (in a tasteful way).

Some ideas: colored paper; border; clip art, adding photos taken during your school energy tour, or making this assignment into a brochure. See your teacher about other ideas.

If any of these ideas require you to add an extra page to the Brief, talk with your teacher about it first for approval.

However, be clear on this point....you are not required to do any of these "extra" things! It is the quality of your ideas, their written expression, and your ability to follow directions that will determine your grade.

Your **Building Energy Management Brief** is due: _____