Attachment "2"
Clothes Washers Life Cycle – Cost and Environmental Performance

Curriculum created by Christopher Quarles and Miguel Hernandez,
Everett Community College

Green Purchasing Project

Worksheet for Item II on the Project Outline

Worksheet for Math Students
Meeting with Business Students

Please turn in one page with everyone's name on it.

1. [5 minutes] Introduce yourself & exchange contact info. Make sure everyone has access to this information.

- Remember: While you are the math expert, they are the expert in the business & environmental arenas. Contact them if you have questions about costs of certain things, clothes washers, or the environmental impacts.

- They might also need to get back to you on some information that you need that they don't have (like the purchase price of each washer).

(a) Write your business liaison's name here:_____

2. [10 minutes] Discuss each of the following questions. Put a check mark next to each one after you've discussed it. Below each question in this part, write down anything that you **DON'T** understand that relates to the question.

___(a) What is life-cycle cost?

___(b) What factors should be included in a life-cycle cost for a clothes washer? In other words, what are you *really* spending money on over the course of the life of a washing machine? (Write your list of factors down in #2.)

(more on next page)

*#2 continued (10minutes] Discuss each of the following questions. Put a check mark next to each one after you've discussed it. Below each question in this part, write down anything that you **DON'T** understand that relates to the question.*

___(c) What factors do you think should be included in calculating the greenhouse gas emissions for a clothes washer? In other words, what in the production, operation, and disposal of a clothes washer will emit carbon dioxide (or other greenhouse gases) into the atmosphere?

___(d) What is the Modified Energy Factor (MEF) as defined by Energy Star? Specifically, why did they choose that formula? What does it *mean?*

___(e) What is Water Factor (WF) as defined by Energy Star? Specifically, why did they choose that formula? What does it *mean?*

3. [<5 minutes] Make a list of all the factors that your business liaison & you think should go into calculating the life-cycle cost of a clothes washer. Each factor should be quantifiable, significant, and should represent real money coming out of someone's bank account. Make sure to include: purchase price, cost of disposal, cost of water, and cost of energy. If you can't agree on any others, that's ok.

4. [<5 minutes] Make a list of all the factors that go into greenhouse gas emissions. This is a bit harder than life-cycle cost, since you can go back fairly far in the production process. You and your group need to pick a set of factors that is reasonable and calculable. Make sure to include energy use.

5. [<5 minutes] Make a list of all the *inputs* that are **dependent on which washer you're talking about** that you would need to know in order to calculate the contribution of all the factors listed in #2 and #3. (Ex: WF, capacity, purchase price)

6. [<5 minutes] Make a list of all the *inputs* that are **not dependent on which washer you're talking about** that you would need to know in order to calculate the contribution of all the factors listed in #2 and #3. (Ex: cost of electricity in \$/kWh, cost per gallon of water, amount of CO_2 released per kWh of energy used).

7. [<5 minutes] From your business liaison, get all the data values that you can for the inputs listed in #4 & #5. (Ex: the actual capacity of each washing machine, the actual cost per gallon of water). If they don't have certain values, or if you later realize you need more/different inputs, that's ok. You will need to get that information later.