



Appliance Card Sort Teacher Notes

A few notes about using the card set *This set of cards contains pictures of electrical appliances typically used in the home. Described below are activities that students can do using these cards. Examine the card set carefully. You may wish to add or delete appliances to the card set before distributing to students to adjust the level of complexity of a particular task. For instance, included in the set are both generic and specific names for certain appliances (e.g. TV). Leaving the TV's description ambiguous may invite a conversation about the efficiency of different technologies; including the specific TV types may prove confusing or frustrating, as there are many makes, models, and sizes that affect electricity use. Consider asking students to invite their parents or other community members to try the activities as well.*

Preassess students' knowledge about "energy hogs."

Have students, working in pairs, examine each of the appliances in the set, one at a time. Instruct students to discuss with their partner, in general terms, how much electricity they think each appliance uses and why. As students talk about each appliance, have them group the appliances according to which ones they think use a lot of electricity and which ones they think use smaller amounts of electricity. Students may sort appliances in a variety of ways; they may make distinct piles of big and small users, arrange the cards in some sort of continuum, or come up with some other configuration. It is not expected that students identify a particular range of watts or kilowatts a particular appliance draws, but rather that they can identify generally, which appliances use more electricity than others. Regardless of how students arrange the cards, the key to this exercise as a preassessment activity is to provide a catalyst for engaging students in thinking and talking about the electricity use of various household devices. Listen carefully to how students characterize each appliance and justify their choices. Students may raise questions about the appliances which indicates their knowledge about what devices are big energy users and which are not. For example, students may ask if the TV is a flat screen/LCD model or if the washing machine is using hot, warm, or cold water. Consider asking students to record the results of their card sort and their thinking about their choices/categories in their notebooks so that they may access and reflect on their thinking as the unit progresses.

Research the number of watts each appliance uses.

As students learn more about electricity and begin investigations to find the actual number of Watts different appliances use (see Energy for Maine, Lesson 7 Watt's in a Nameplate?), have them add this information to the cards. They may also wish to add information that gives more detail about each appliance's electricity use. For example, students may wish to indicate that a refrigerator cycles on and off, which explains

why often a range of or average Wattage is given; an oven has different settings so the number of Watts it uses changes according to the setting selected. Students can also add an appliance of their choice to the set using one of the blank cards. As an extension, students can use the card set to learn how to convert the number of Watts each appliance uses to kilowatts. This is a particularly useful exercise to do before engaging students in the Kilowatt hour Scavenger Hunt.

Quick Reference Appliance Wattage Guide Teacher Reference

Note: *There are many ways to find out how many watts a particular appliance uses. While this number is listed on an appliance's nameplate or found in its users guide, values can be measured using Kill A Watt meters and/or often looked up online. (See Energy for Maine, Lesson 7, Student Handout 7.1: Kill A Watt Challenge for additional details.) The list below is to be used as a guide, as there is often great variability depending on make, model and year of the appliance and how it's used.*

Blender: 300 watts	Incandescent light bulb: 60 watts
Cable TV Box: 20 watts	Iron: 1000 watts
Cathode ray tube TV: 90 watts	Laptop: 50 watts
Ceiling fan: 60 watts	LCD TV: 110 watts
Central AC: 6000 watts	Light emitting diode (LED) bulb: 0.5 watts
Clothes washer: 425 Watts	Microwave oven: 1440 watts
Coffee maker: 1200 watts	Mixer: 200 watts
Compact florescent bulb: 25 watts	PC monitor: 150 watts
Computer: 95 watts	Plasma TV: 300 watts
Dishwasher: 200 watts	Toaster: 1000 watts
DVD player: 25 watts	Toaster oven: 1200 watts
Electric blanket: 250 watts	Refrigerator: 188 watts
Electric clothes dryer: 4400 watts	VCR: 11 Watts
Electric oven: 2000 watts	Vacuum: 1100 watts
Freezer: 273 Watts	Water heater: 3800 Watts
Hair dryer: 1800 watts	Window AC: 1300 watts
Humidifier: 90 watts	

A fun online reference for kids Energy Use Looker Upper: <http://www.southerncompany.com/>

Resources:

<http://www.brighthub.com/engineering/electrical/articles/79500.aspx>

<http://reviews.cnet.com/green-tech/tv-power-efficiency/>

<http://michaelbluejay.com/electricity/howmuch.html>

learningpower/energyuse.aspx