

## Lesson Plan 2 – Calculating electricity costs

### Focus:

- Learn how a utility company charges customers for electricity use.
- Discover the relationship between people’s energy usage and energy cost.
- Calculate the cost of using common electrical appliances.

### Supplies Needed:

- Electric Devices – Cost to Operate worksheet (attached)
- Watt’s Up meters (recommend 5-8 meters per classroom)
- Various appliances, same as previous class period
  - Hair dryer\* (a must-have for Lesson Plans 1 & 2)
- Calculators
- Online resources:
  - Video: Watt’s Up – Measuring Energy from SMUD, <https://www.youtube.com/watch?v=RkgH6Ba8s9A>
  - Images: Search for generic images of electric utility meters, <https://www.google.com/search?q=electric+utility+meter+images>
  - Sample Utility Bill
    - Generic bill from KEEP, <https://www.uwsp.edu/cnr-ap/KEEP/Pages/Resources/Utility-Bill.aspx>
    - Sample bill from Madison Gas and Electric (attached)
    - Bring your own personal monthly utility bill (with personal information removed).

### Teacher Prep:

- Set-up watt meter stations around the classroom plugged into the same appliances as the previous class period.
  - Add a table tent for each appliance showing estimated minutes on per week. For example, for a coffee maker you might write 1200 minutes on per week.
- Students can work in the same groups as the previous class period.
- Reproduce on the board the saved “Plug Load” list of electrical appliances and their wattages from the previous class period.
- Reproduce on the board the saved list of energy-saving suggestions from the previous class period.
- Find out the name of your electric utility company and the residential cost per kilowatt-hour for electricity they charge.
  - Optional: Invite a representative from your local electric utility to your classroom to share information about how schools and homes are billed for energy use.
  - Optional: Ask your District Buildings & Grounds or Facilities department for your school building’s average annual energy costs (\$ spent per year on electric and gas utility bills),