Electrical Power

- Electrical ______ is the rate at which electrical energy is ______ or consumed in a given time.
- Unit of measurement =
- The ______ the power rating value, or "wattage", the more ______ a device produces (or uses to operate).
- Power (watts) =
- One watt is the equivalent of one joule per second (J/s)

Measuring Electrical Energy Usage

- Electrical energy is usually measured in _____. The use of one kilowatt of power for _____.
- A watt hour is ______ greater than a joule.
- A kilowatt hour is ______ greater than the watt hour
- 1 kilowatt hour runs a ______ for ______
- 10 kilowatt hours power 5 loads of ______.

Types of Electricity Meters

- keep track of how much electrical energy is used in homes, schools, and businesses in units of kW⁻h.
- Older meters have a turning disc with a black band
- Newer meters called smart meters record electricity usage hour by hour and send the information directly to the utility company





The Cost of Electricity

Cost to operate = (power used) x (time) x (cost of electricity)

= $kW \cdot h x$ cost of electricity

Sample Problem: Calculating the Cost of Electricity

A laptop computer uses a 75 W adapter when it is plugged in. Electricity costs 7.8 cents/kW·h.
Calculate how much it would cost to operate the laptop for the month of December for 24 hours per day.

Solve Using GRASSS:

<u>Given</u>:

Required:

Appropriate Formula :

Substitute:

Solve:

Statement:

Go to the following website which will help you complete the table below:

http://energy.gov/energysaver/estimating-appliance-and-home-electronic-energy-use

Device	Power Rating (W)	Daily Use (h)	Energy Use (kW∙h)	Cost of Electricity (\$/kW∙h)	Cost per Day (\$)	Cost per Month (\$)	Cost Per Year (\$)
Hair dryer							