NEVADA CLIMATE CHANGE PORTAL

Electricity Generation

Grade: 10th

Objective:
The purpose of this activity is to determine measurements of electricity generation.

Materials:
Pen/pencil
Paper

Key Terms:
Watt
Electricity
Energy
Carbon dioxide

Introduction:
Electricity is measured in watts. **Watts** describe how much electricity a device uses in an hour and is often indicated by the letter "W." Different bulbs and devices use different amounts of energy, just as different cars or vehicles require differing amounts of energy to make them move.**1000 watts = 1 kilowatt. Watt-hours** describes how much electricity is consumed over a period of time. To calculate the light bulb's watt-hours multiply its watts by the amount of time it is turned on.

Procedure:

Using this information, now answer the questions below. Be sure to write units for all answers.

1. How many watts (W) of electricity are needed by the light bulb ?

_____

2. If a 60W light bulb was on for one hour, how much energy does it consume?

_____=_____watt hours

3. What if we turned on twenty 60W light bulbs at the same time, how many watts are we using?

_____= _____ watt hours

4. If one 60W light bulb was on for 20 hours how much energy does it consume?

_____= _____ watt hours

5. If twenty 60W light bulbs are on for 20 hours, how much energy is consumed?

_____=_____

6. How many kilowatts are used?

One 60 W bulb for 20 hrs. _____ = _____
Twenty 60W bulbs for 1 hr. _____=_____

7. An average home in the California uses 16 kilowatts of energy per day. How many kilo watt hours will the home use in a year?
8. In California, 0.8 pounds carbon dioxide, CO_2 ,are emitted from a power plant for each kilowatt-hour of electricity used in the home. How many pounds of CO_2 are emitted per day for the average home? How many pounds of CO_2 are emitted each year?