NAME: _____ DATE: _____
CLASS: _____

HOME ENERGY AUDIT: MEASURING ENERGY WORKSHEET

Directions: Answer the questions below in the space provided.

Calculate the annual cost to run an appliance for a year.

1. After school each day, Sally uses her computer to do her homework. If she has an average of two hours of homework per night for 180 days of school per year, how many kilowatt-hours are consumed and what is the annual cost of using her computer? A CPU and monitor use 270 Watts.

2. Choose a home appliance that you use and calculate your own energy consumption.

Appliance: _____

Wattage: _____

Hours used Per Day: _____

$$\frac{\text{wattage x hours used per day x days used per year}}{1000} = \text{kilowatt-hour (kWh) consumption}$$

Multiply this number by your local utility's rate per kWh (In Denver the cost is 8.9 cents/kWh) to calculate annual cost.

Example:

If John uses a window fan (200 watts) 4 hours a day for 120 days per year, how much does it cost him to run his fan per year?

$$\frac{200 \text{ W} \times 4 \text{ h/d} \times 120 \text{ d}}{1000} = 96 \text{ kWh}$$

96 kWh x 8.9 cents/kWh = $8.16 per year

3. **Lighting Dilemma** - How much energy/money can be saved by replacing light bulbs with Compact Fluorescent Lights?

A. Search your home and count the number of lights in each room. Each halogen light uses three times the energy and must be counted three times.

B. Calculate the number of hours the lights are used in each room each day.

C. Enter the data below.

	Number of Lights	**Number of Hours**	**Lights X Hours = TOTAL**
Living Room			
Dining Room			
Kitchen			
Bedrooms			
Bathrooms			
Hallways			
Room			
Outside Lights			
TOTAL			

D. Each energy efficient CFL bulb saves 50 watts, how many watt-hours could you save if you replaced all bulbs with CFLs?

total hours of operation x 50 watts = _____ watt-hours you would save each day

Divide your answer by 1000 since there are 1,000 watt-hours in a kilowatt-hour (which is how your utility bills you)

watt-hours/1000 = _____ kilowatt-hours you would save

Take this answer and multiply it by 365 (the days in a year) to calculate the Kilowatt-hours saved in a year.

kilowatt hours X 365 = _____ kilowatt-hours saved in a year

To calculate the amount of money your family could save in a year, take the kilowatt-hours saved in a year times the cost per kilowatt-hour (in Denver it is $.089).

kilowatt-hours saved x $.089 = _____ amount saved per year!

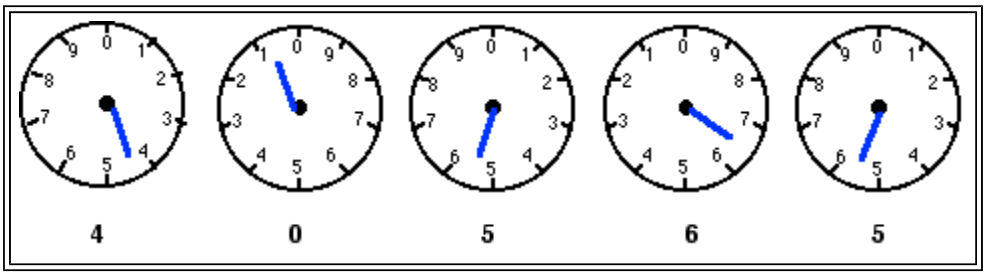
In addition to saving money, we use less electricity! Using less electricity means producing less greenhouse gases. If we assume that every kilowatt-hour saved removes 2 pounds of carbon dioxide from the air, how much greenhouse gases could be prevented?

kilowatt-hours saved in a year x 2 pounds = _____ pounds of greenhouse gas prevented

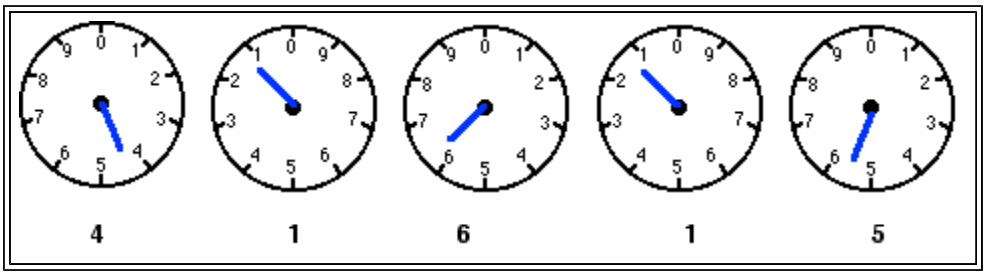
4. **Reading Electric Meters**

Example:

Monday morning the meter looked like this:



Friday morning the meter looked like this:



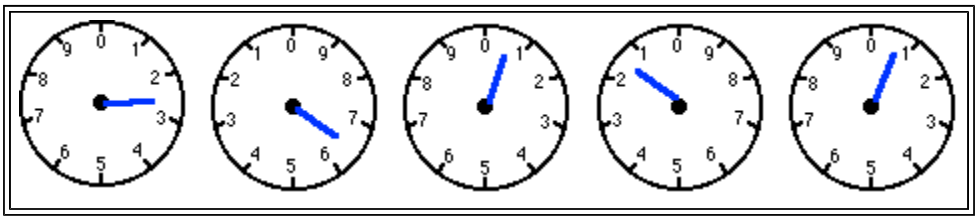
The meter reading Monday would be 40565 and on Friday it would be 41615

To figure out how much electricity was used, subtract Monday's reading from Friday's reading and multiply by the electricity costs. (Electricity costs in Denver are $.089 per kWh.)

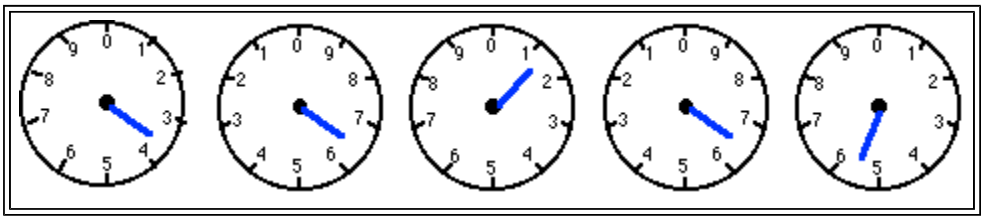
TOTAL COST = 1050 kWh x $.089 per kWh = $93.45

Problem:

On January 1, the meter looked like this:



On January 31, the meter looked like this:



How many kilowatt-hours of electricity were used during January?

If the cost of electricity in Denver is $.089 per kWh, how much did electricity cost for January?

What is the average cost of electricity per day during January?

Created for the NTEP II program on behalf of the National Renewable Energy Laboratory in Golden, Colorado.