Name:_____
Date:_____
Class Period:_____

Sources of Light Energy Worksheet

Incandescent bulbs are more efficient as heaters than sources of light. They lose 10% of their energy as light and 90% as heat. Many people are using other sources of light that consume less energy, because they cost less to operate, produce less heat, and use less electricity.

1. How much does a kilowatt-hour of electricity cost to purchase in your region? _____
2. How much would it cost to operate one 100-watt incandescent light bulb for 10 hours at the price of 8 cents per kWh? _____
3. How much would it cost to operate one 25-watt incandescent light bulb for 10 hours at the price of 8 cents per kWh? _____
4. The light from a 24-watt compact fluorescent light bulb is nearly equivalent to the light produced from a 100- watt incandescent light bulb. If we assume that each kilowatt-hour costs 8 cents, how much does it cost to operate a 24-watt compact fluorescent light bulb for 10 and 24 hours?

	Compact Fluorescent	Incandescent
10 hours of operation:	_____	_____
24 hours of operation:	_____	_____

5. How much money was saved by using the 24-watt compact fluorescent light compared to the 100-watt incandescent light in 24 hours? _____
6. A light bulb's electric use is measured in watts per hour, but electricity is sold by kilowatt-hours, or units of 1000-watt hours. Therefore, you can calculate the cost of using a bulb with these simple formulas.

   Total watts x Total hours operated = Energy used

   $$\frac{\text{Energy used}}{1000} \times \text{Cost per kWh} + \text{cost of bulb} = \text{Cost of operation}$$

   Find the cost of operation of a 100-watt incandescent bulb for 10 hours of operation at the price of 8 cents per kWh. The cost of the bulb was $0.50.

7. Count the light bulbs and the wattage of the bulbs in your home.
   Total number of bulbs: _____
   Total number of 100-watt incandescent bulbs: _____
   Total number of 60-watt incandescent bulbs: _____
   Total number of 40-watt incandescent bulbs: _____
   Total number of 75-watt incandescent bulbs: _____
   Total number of 25-watt incandescent bulbs: _____
   Total number of fluorescent bulbs: _____
   Total number of halogen bulbs: _____
   Total number of other bulbs: _____
   Describe other: _____

   How many kilowatt-hours would be used where you live if all the bulbs were on at the same time for 10 hours? _____