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The cost of electricity worksheet answer key

TEACHER ANSWERS KEY HOME ENERGY AUDIT: MEASURING SPREADSHEET RESPONSE KEY Created for the NTEP II program on behalf of the National Renewable Energy Laboratory in Golden, Colorado. TROUBLE #1: After school every day, Sally uses her computer to do her homework. If, on average, she has two hours of homework a night for 180 school days a year, how many Kilowatt hours are consumed, and what is the annual energy consumption of her computer? A CPU and monitor uses 270 Watts. $(270 \text{ W} \times 2 \text{ hours} \times 180 \text{ days}) / 1000 = 97.2 \text{ kWh}$ annual usage problems to solve #2: Meter reading for 1. Meter reading for January 31 is 36165 kWh. How many kilowatt hours of electricity were used during January? $36165 \text{ kWh} - 26010 \text{ kWh} = 10155 \text{ kWh}$ for January If the price of electricity in Denver is \$.089 per kWh, how much did electricity cost for January? $10155 \text{ kWh} \times \$0.089 \text{ per kWh} = \903.80 What is the average price of electricity per day in January? $\$903.80 / 31 \text{ days} = \29.15 per day HOMEWORK: The responses will vary depending on the appliance selected, wattage, and hours of use. When an electrical appliance is switched on and functioning, it uses electricity from the grid supply. Electrical energy is transferred from the mains to the appliance. The rate at which energy is transferred is measured in kilowatt-hours (kWh). It can be calculated by multiplying the power of the appliance by the time it is used. $\text{energy transferred} = \text{power} \times \text{time}$ Note that since the unit of energy transferred to an appliance is kWh, when using the equation, make sure that the power is in kW and the time is converted to hours. Electricity meters (see chart below) are used in the home to measure the energy transferred to all electrical appliances used on that house or building. The total cost is calculated using this formula: $\text{total cost} = \text{number of units} \times \text{per unit}$ The Formula 1 unit is 1 kWh. It is important that energy is used effectively by everyone today, as excessive use causes more pollution of the environment and costs more. All appliances waste some energy when switched on, so only part of the energy is used for the actual intended use. For example, a light bulb uses electricity when turned on, but some of the output energy is heat, which is not actually necessary from a bulb. Heat is wasted energy going into the environment. The more input energy (electricity) used by an appliance for its intended use, so the more efficient an appliance is. Sankey charts showing the input and output energy of appliances; you will see the Sankey chart for a bulb below. The electrical energy transferred to the bulb is 100 J. 75 J is actually converted into light energy, which is the intended use of a bulb. 25 J goes to waste as heat. Let us use this information in this activity.

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