



Electrical Appliances

STEM Sims

Lesson 1: The Cost of Running an Appliance

Our daily lives are surrounded by electrical appliances. Every time we use an electrical appliance, the appliance uses some amount of electricity. You can calculate the cost of this electricity if we know a few key components.

Doing the Science

1. Start the Electrical Appliances Simulation by clicking on the “Sim” tab.
2. Select the living room.
3. Click on the floor lamp.
4. Fill in Table 1 with all of the information that is given. For this problem, the appliance is 100 watts, and it will be run for 5 hours a day 30 days, or 150 hours. You are also given that one kilowatt-hour, or kWh, costs \$0.168.
5. Now you must use calculations to fill out the rest of the table. Divide the watts by 1000 to get the number of kilowatts, or kW, that the appliance uses.
6. Multiply the kW by the number of hours the appliance will be used for to find the kilowatt-hours, or kWh.
7. Multiply the kWh by the cost of one kWh to find the cost.
8. Enter your answer into the simulation to see if it is correct. If it is not, check your work against the solution in the simulation to see where you made a mistake.

Table 1.

| Unit | Quantity |
|-----------------|----------|
| Watts | |
| kW | |
| Hours used | |
| kWh | |
| Cost of one kWh | |
| Total cost | |

Do You Understand?

1. Click on the ceiling fan and repeat this process to find the cost of the electricity needed to run the fan. Check your answer by entering it into the simulation.
2. Click on the ceiling light and calculate the cost of the electricity needed for a chandelier of five lamps. After you’ve entered your answer, click on the light again and calculate how much money you would save by switching to Compact Fluorescent Bulbs. Check your answer by entering it into the simulation.