Quiz: Evaluating Your Energy Use

1. According the the US Department of Energy, total energy consumption for the country in the year 2009 was
   A) 94,578 trillion BTU.
   B) 300 million BTU.
   C) 84 million calories.
   D) 150,000 calories.

2. By DOE estimates, you used 350 billion Joules of energy in 2009. *Really*? *That* much?
   A) Yes, and probably more. The number is an estimate, and does not include the food energy (how could the government know how much you ate in 2009?).
   B) No. The number includes commercial and industrial energy use. You used *some* of that energy indirectly, but your personal use did not total 350 billion Joules.
   C) Yes, exactly that much. The government has discovered your secret cache of 150,000 Big Mac sandwiches, and has included it in their calculations.

Direct Use: Natural Gas

Month	*July*	Total Consumption (Ccf)	*total = 13*	Daily Use (MJ/day)	*energy = 45.5*
Billing Period	*30*	Total Consumption (MJ)	*MJ = total×105*	Your Share (MJ/day)	*gas = 15.2*
Total Bill ($)	*29.10*	Cost per MJ ($/MJ)	*cost = bill÷MJ*	Daily Cost ($)	*daily = 0.32*

3. According to the above data, what is the cost per MJ of the natural gas?
   A) $20.00 per MJ B) $2.00 per MJ C) $0.20 per MJ D) $0.02 per MJ

4. If this household has a gas furnace and hot water heater, what would you expect the trend in energy use to be?
   A) Probably pretty constant all year long. No real spikes or dips in use.
   B) Gas consumption will rise in the autumn and winter when the furnace is in use, and decrease in warmer spring and summer months.

Direct Use: Electricity

Month	*July*	Total Consumption (kWh)	*total = 1700*	Daily Use (MJ/day)	*energy = 204*
Billing Period	*30*	Total Consumption (MJ)	*MJ = 6120*	Your Share (MJ/day)	*electricity = energy÷3*
Total Bill ($)	*145.94*	Cost per MJ ($/MJ)	*cost = 0.02*	Daily Cost ($)	*daily = electricity×cost*

5. What is the daily cost of electricity use?
   A) $0.02 B) $0.57 C) $1.62 D) $6.80

6. If you are estimating the energy use for an entire year, does this figure for electricity use need to be revised up or down?
   A) 1700kWh per month is probably about average, no matter what time of year.
   B) You probably use more than 1700kWh per month in the winter.
   C) You probably use less electricity in the winter, when you are not running your air conditioner.

Direct Use: Gasoline

Average Daily Miles	*10*	**Daily Consumption (gal)**	*gallons = miles÷mpg*	**# Of Commuters in car**	*people = 1*
Average gas mileage (mpg)	*30*	**Daily Consumption (MJ/day)**	*MJ = 39.7*	**Your Share (MJ/day)**	*gasoline = 39.7*
Gas Price ($/gal)	*3.00*	**Cost per MJ ($/MJ)**	*cost = 0.075*	**Daily Cost ($)**	*daily = gallons×price*

7. How many gallons of gas per day does this commuter use?
   A) 0.10 gal B) 0.30 gal C) 3 gal D) 10 gal

8. How much is the cost of gasoline per day for this commuter?
   A) $0.75 B) $1.00 C) $3.00 D) $10.00

Direct Use: Food

Your Daily Calories	*calories = 2000*	**Monthly Food Expenditure ($)**	*food= 140*
Your daily Energy (J)	*joules = calories×4184*	**Daily Cost of Food ($)**	*daily = food÷30*
Daily Consumption (MJ)	*MJ = joules÷(1×10⁶)*	**Cost per MJ ($/MJ)**	*cost = daily÷MJ*

9. What is the daily consumption in MJ of energy?
   A) 8,368,000 MJ B) 4184 MJ C) 2000 MJ D) 8.368 MJ

10. How much does the food cost per MJ of energy?
    A) $0.02 B) $0.06 C) $0.56 D) $0.75

11. Which source of energy is most expensive per MJ?
    A) Natural gas. B) Electricity. C) Gasoline. D) Food.

12. Which energy source is most expensive in actual dollars spent per day?
    A) Natural gas. B) Electricity. C) Gasoline. D) Food.

13. True or false: The numbers on the above tables are totally unrealistic. No one would *ever* use that much energy.