



## Energy Use Challenge Sheet

Using a calculator complete the sums below to find out how much fuel is used to light your house for one year. We will be comparing the amount of coal that is burned with the amount of uranium that is used.

1. First, we need to know how light bulbs are used to light your house

Write down how many light bulbs are used in your house. It's OK if you don't get it exactly right, because we are doing a comparison. If you get stuck, estimate two bulbs per room.

Write the number of bulbs down here: \_\_\_\_\_  
Total number of light bulbs in house

2. From this number we will estimate how many *Watts* of energy are used. Let's assume that each of the bulbs in your house is a 100 Watt bulb.

Fill in the numbers below and complete the multiplication:

$$\begin{array}{r} \text{_____} \\ \text{Number of bulbs} \end{array} \quad \times 100 \text{ Watts} \quad = \quad \begin{array}{r} \text{_____} \\ \text{Total number of Watts} \\ \text{used to light house} \end{array}$$

3. Energy is usually measured in Kilowatt hours. There are 1000 Watts in a Kilowatt

$$\begin{array}{r} \text{_____} \\ \text{Total number of Watts} \\ \text{used to light house} \end{array} \quad / 1000 \quad = \quad \begin{array}{r} \text{_____} \\ \text{Total number of Kilowatts} \\ \text{used to light house} \end{array}$$

4. Now let's say that you have the lights on from 8am to 10 am, and then from 5pm to 11 pm. How many hours in the day is this?

Write the number of hours down here: \_\_\_\_\_  
Total number of hours lights used in house



5. This allows us to calculate the amount of Kilowatt - hours that the light bulbs in your house use each day.

$$\frac{\text{Hours to light house}}{\text{Total Number of Kilowatts used to light house}} \times \text{Total Number of Kilowatts used to light house} = \frac{\text{Total number of Kilowatt- hours used to light house}}{\text{Total number of Kilowatt- hours used to light house}}$$

6. First we will find out how many kilograms of coal are required to light the house.

1 kg of coal provides enough energy for 6.1 Kilowatt hours.

$$\frac{\text{Total number of Kilowatt- hours used to light house}}{\text{Total number of Kilowatt- hours used to light house}} \div \frac{6.1 \text{ Kilowatt hours}}{1 \text{ kg coal}} = \frac{\text{Total kilograms of coal used to light house}}{\text{Total kilograms of coal used to light house}}$$

7. Then we will calculate how many kilograms of uranium fuel are required to light the house.

1 kg of uranium fuel provides enough energy for 24,000,000 Kilowatt hours.

$$\frac{\text{Total number of Kilowatt- hours used to light house}}{\text{Total number of Kilowatt- hours used to light house}} \div \frac{24,000,000 \text{ Kilowatt hours}}{1 \text{ kg of uranium fuel}} = \frac{\text{Total kilograms of uranium fuel used to light house}}{\text{Total kilograms of uranium fuel used to light house}}$$