**Energy Efficiency Worksheet**

1. For the following devices **state** what type of Energy is used from this list:

*Chemical Kinetic Heat (thermal) Sound Electrical Light*

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Light bulb: Input Energy \_\_\_\_\_\_\_\_\_\_\_\_

 Useful Energy \_\_\_\_\_\_\_\_\_\_\_ Waste Energy \_\_\_\_\_\_\_\_\_

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Electric Drill: Input Energy \_\_\_\_\_\_\_\_\_\_\_

 Useful Energy \_\_\_\_\_\_\_\_\_\_\_

 Waste Energy\_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_

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TV: Input Energy \_\_\_\_\_\_\_\_\_\_\_\_

 Useful Energy \_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_

Waste Energy \_\_\_\_\_\_\_\_\_\_\_

![C:\Users\Liv\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\QXWTUTT3\MP900404912[1].jpg]()Car engine: Input Energy \_\_\_\_\_\_\_\_\_\_\_\_

 Useful Energy \_\_\_\_\_\_\_\_\_\_\_

 Waste Energy \_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_

![C:\Users\Liv\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\QXWTUTT3\MC900359585[1].wmf]()Bunsen burner: Input Energy \_\_\_\_\_\_\_\_\_\_\_

 Useful Energy \_\_\_\_\_\_\_\_\_\_\_

 Waste Energy\_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_

The greater the percentage of energy that is transformed into useful energy in a device, the more efficient a device is:

$$Efficiency of Device \left(\%\right)= \frac{Useful energy transferrered by the device (output)}{Total energy supplied to the device (input)} × 100$$

2. **Complete** the table below, **calculating the efficiency** as both a number and a percentage:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Energy in | Energy out | Efficiency? |
| Electric Drill | 160W | Kinetic 90WSound 30WHeat 40W |  |
| Hair drier | 180W | Heat 170WSound 10W |  |
| Mobile phone charger | 1W | 0.8W Electrical0.2W Heat |  |
| Electric hob | 1500W | Heat 1300WLight 150WSound 50W |  |
| Kettle | 2.5kW | Heat 2.2kWSound 0.3kW |  |

3.  **Complete** the gaps in the table below.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Energy in | Energy out | Efficiency? |
| Food mixer | 120W | Useful energy 80WWaste energy 40W |  |
| TV | 180W | Useful Energy WWaste energy 36W | 0.880% |
| Ipod  |  W | Useful Energy 0.6WWaste energy 0.4W |  |
| Car engine | 30kW | Useful Energy kWWaste energy kW | 0.4545% |
| X box | 260W | Useful Energy WWaste energy 70W |  |
| Mobile phone |   W | Useful Energy 3.6WWaste energy W | 0.4545% |