**KETTLE EFFICIENCY**

**Purpose:** To determine the efficiency of a kettle.

**Materials**

* Kettle
* Thermometer
* 1 L beaker
* Stopwatch

**Procedure/Observations/Calculations**

1. Record the power rating of your kettle. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ W
2. Measure between 500 mL and 1000 mL of water and pour it in the kettle. Record the volume of water. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mL
3. Water has a density of 1g/mL. Calculate the mass of the water in the kettle (in kg). \_\_\_\_\_\_\_\_\_\_\_\_\_ kg
4. Record the initial temperature of the water. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ °C
5. Plug in the kettle and start the stopwatch.
6. Unplug the kettle and stop the time when the water reaches a final temperature of 90°C.
7. Record the time the kettle was running. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ seconds
8. Calculate the amount of electrical energy the kettle used.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ J

1. Calculate the amount of heat energy the water gained.

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ J

1. How efficient was your kettle?
2. Compare with other groups.

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| **Power Rating (W)** | **Input (electrical) Energy (J)** | **Output (heat) energy (J)** | **% Efficiency =** $\frac{output energy}{input energy}$ |
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**Errors:**

* Include errors and improvements; no percent error

**Conclusion:**

Write one