

# Knowing Energy: Tea at Home



Energy Revealed  
Learner Worksheet  
Level 1-2: Grades 3-8  
Level 3-4: Grades 9-12

**Reminder:**

- kWh = (Watts/1000) x Time (hours)
- 1kW = 1000 W

**Level 1 Questions/Activities:**

1. How long does it take for the water to boil in hours? (1 hour = 3600 seconds/3600 seconds per hour)

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2. How many kW is your machine? See reminder above.

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3. How many kWh does the machine use per pot?

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4. If you make one pot a day, how many kWh are used in one year?

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### Level 2 Questions/Activities:

**Note:** Complete level 1 questions/activities first if you haven't already done so.

1. How many pots of coffee would it take to consume 1kWh of energy?

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2. Try the experiment with refrigerated water and then hot water. What are the results in time to boil water?

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3. Check to see if your kettle uses any phantom power. (Power used when water isn't being boiled).

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### Level 3 Questions/Activities:

**Note:** Complete levels 1-2 questions/activities first if you haven't already done so.

1. How does the volume of water in the pot affect the energy used to boil?

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2. What other appliances in your home can you find that have phantom power as well?

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### Level 4 Questions/Activities:

**Note:** Complete levels 1-3 questions/activities first if you haven't already done so.

1. What uses more energy; the kettle boiling water or the kettle sitting idle in a year?  
(Assume 5 Watts idle power or phantom power and one pot a day boiled)

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2. What other variables can you change in order to influence the time that it takes for the water to boil, assuming the volume is the same?

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3. **BONUS:** Calculate how many kWh you could eliminate in your house with phantom power reduction (Tip: Phantom power is 24/7, 365).

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