



A <u>hair-dryer</u> is **plugged in at home**.

- 1) What is the power rating located on the hair-dryer?
- 2) What current is the hair-dryer drawing?
- How many kilowatts of power is the hair-dryer using? (Hint: 1 kW= 1000 W)
- 4) If you use the hair dryer for 0.33 hours (20 min), how much energy did you use?
- 5) How much did it cost to use the hair dryer if DTE charges \$0.10/ kWh?



An <u>electric kettle</u> is **plugged in at home**.

- 1) What is the power rating located on the electric kettle?
- 2) What current is the electric kettle drawing?
- How many kilowatts of power is the electric kettle using? (Hint: 1 kW= 1000 W)
- 4) If you use the electric kettle for 0.33 hours (20 min), how much energy did you use?
- 5) How much did it cost to use the electric kettle if DTE charges \$0.10/ kWh?





You are making smoothies in a blender plugged in at home.

- 1) What is the power rating located on the blender?
- 2) What current is the blender drawing?
- How many kilowatts of power is the blender using? (Hint: 1 kW= 1000 W)
- 4) If you use the blender for 0.33 hours (20 min), how much energy did you use?
- 5) How much did it cost to use the blender if DTE charges \$0.10/ kWh?



A digital clock is plugged in at home.

- 1) What is the power rating located on the digital clock?
- 2) What current is the digital clock drawing?
- How many kilowatts of power is the digital clock using? (Hint: 1 kW= 1000 W)
- 4) If you use the digital clock all day (24 hours), how much energy did you use?
- 5) How much did it cost to use the digital clock if DTE charges \$0.10/ kWh?



A hair straightener is plugged in at home.

- 1) What is the power rating located on the hair straightener?
- 2) What current is the hair straightener drawing?
- 3) How many kilowatts of power is the hair straightener using? (Hint: 1 kW= 1000 W)
- 4) If you use the hair straightener for 0.25 hours (15 mins), how much energy did you use?
- 5) How much did it cost to use the hair straightener if DTE charges \$0.10/ kWh?



Background information: Your fuse panel at home usually has 15 A breakers. This means if more than 15 amps try to flow, the breaker will trip, stopping the whole circuit so it doesn't overheat and burn up.

Question 1: The **2 appliances** on this station run on the same circuit when plugged in at home. Can they run at the same time or will they pop the breaker?

Claim: (Answer)

Evidence: (Show your work)

Reasoning : (Explain how your evidence supports your claim)



Background information: Your fuse panel at home usually has 15 A breakers. This means if more than 15 amps try to flow,

Question 2: What are 3 appliances from the chart below that could run on a 15 A circuit breaker in your home.

Claim: List the 3 appliances you chose.

Evidence: Show your work.

Reasoning: Explain how your evidence supports your claim.

| Appliance | Watts | |
|-----------------------|-------|--|
| Cell Phone - recharge | 4 | |
| Electric blanket | 200 | |
| Shaver | 15 | |
| Coffee Machine | 1,500 | |
| Microwave | 1,500 | |
| Popcorn Popper | 1,400 | |
| Toaster oven | 1,200 | |
| Sink Waste Disposal | 450 | |
| Espresso Machine | 360 | |
| Ceiling Fan | 100 | |
| Can Opener | 100 | |
| Curling Iron | 90 | |



 Find the total monthly cost for using these devices, given the estimated times of usage. Assume a 30 day month and \$0.12 per kWh.

| Appliance | Power | Usage | Total Time | Total kWh | Cost |
|-------------|--------|-------------|------------|-----------|------|
| night light | 5 W | 9 hr/night | | | |
| porch light | 60 W | 12 hr/night | | | |
| radio | 20 W | 4 hr/day | | | |
| clock | 12 W | all day | | | |
| iron | 1200 W | 4 hr/week | | | |
| ceiling fan | 12 W | 8 hr/day | | | |

2. What are the main sources of energy consumption in your home?

Station -Real-world connection

Directions: Read the above article and answer the following questions:

- 1. Explain how reducing the amount of electricity you use in your home/classroom would lower energy usage, cost, and carbon dioxide emission.
- 2. Skim and scan the Save money, Save energy guide and list at least 5 things you can do to reduce you and your families energy consumption.
- 3. Locate an electronic device in the room that you would like to know the power rating of.