



Quiz

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**Less is more!**

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# Less is more!

## Activity summary

This multiple-choice quiz shows students just how much energy some everyday devices and appliances use.

Students can participate individually or in teams of two.

### Duration

50 minutes

### Cycle-specific competencies

#### Cycle 1 – Geography

Energy-Producing Regions

#### 4. Issue affecting an energy-producing region or regions

- b. Indicates measures taken to help reduce energy consumption and increase self-reliance (e.g., dual energy, hybrid vehicles, improved public transit, development of energy-efficient appliances)
- e. Explains the impact of growing energy consumption on the environment (e.g., growing energy consumption worldwide contributes to global warming and environmental degradation)

Broad area of learning - Environmental awareness/consumer rights and responsibilities

## Objectives

- Find out which devices and appliances are the biggest energy guzzlers
- Make students more aware of energy efficiency



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## Preparation

Encourage student to start thinking about the topic by introducing it as follows:

In Québec, most of our electricity is generated by hydroelectric generating stations. Hydropower is one of the greenest forms of energy in the world. But that's no reason to waste it!

- Do you know how much electricity your family uses?
- Do you know which devices and appliances in your home use the most energy?

### Materials

- One computer or other device per student or team of two students
- Website: <https://wattson.kwizz.app/> 
- Answers (appended to this document)

## Introduction

Hydropower is unquestionably a green and renewable form of energy, but that's no excuse for Quebecers being such big energy users. If we want to be responsible energy users, it's important to understand just how much our everyday devices and appliances use. You might be surprised!

Start with our LESS IS MORE! multiple-choice quiz. Students can work individually or in teams of two.

## Instructions

- Ask students to open the quiz file
- Give them 25 to 30 minutes to answer the questions.



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## Instructions

Once they have finished the quiz, the students return to their seats. To encourage learning assimilation, ask the following questions:

1. Considering all the devices and appliances discussed in the game:
  - a. Which one surprised you most because of its high energy consumption?
  - b. Which one surprised you most because of its low energy consumption?
2. Is there one device or appliance in particular that you will use differently now that you know how much electricity it uses? What changes do you plan to make?

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# Answer sheet





# Less is more!

In life, MORE is often better. But when it comes to saving energy, LESS is MORE! Find the right answer to each question below and explain your choice.

## **QUESTION 1: What type of computer uses the least energy?**

- Handheld computer
- Desktop computer
- Laptop computer
- I prefer to write in a notebook using a pencil

### **ANSWER: A laptop computer**

Laptops use **4 TIMES** less energy than desktop computers. However, using a notebook and pencil is even more energy efficient! You can always jot down your ideas in a notebook and then use the computer to do your online research and draft your document!

**TIPS:** It's more economical to turn off your computer when it's not in use than to put it to sleep. Turning your computer on and off does not affect its service life.

## **QUESTION 2: Which device uses the most electricity?**

- A refrigerator that runs 365 days a year
- A dishwasher that runs for 40 minutes three times a week
- An alarm clock that rings for an hour to wake you up every school day
- Your uncle's old home phone

### **ANSWER: A refrigerator that runs 365 days a year**

Because a refrigerator runs continuously, it uses twice as much energy as a dishwasher. On average, a fridge uses \$40 worth of electricity a year, compared to \$13.50 for a dishwasher. We bet you wanted us to say that your alarm clock uses too much electricity so you would have a good reason to unplug it for good, eh? Sorry!

**TIPS:** If your refrigerator has an ice maker, it could use about 120 kWh of electricity more every year. So if you don't use the ice maker, remember to deactivate it. It's easy!



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## **QUESTION 3: What type of game uses the least electricity?**

- A PS4 video game console that's on for one hour every day
- A PS4 video game console left in standby mode for 365 days
- A retro game console that's on for one hour every day
- A Monopoly-style board game (tabletop version)

## **ANSWER: A Monopoly-style board game (tabletop version)**

Okay, that was an easy one! However, you should know that recent video game consoles use more and more electricity. It's not a huge cost: about \$4 a year for one hour of playing time a day. But, just between us, do you really play for just one hour? Not to mention that, even in standby mode, most video game consoles continue to draw power and connect to the Internet for updates.

**TIPS:** Remember to unplug your console when you've finished playing. You can also unplug all your accessories (cameras, sensors and other peripherals) when they're not in use because they use energy too. These are referred to as "phantom loads."

## **QUESTION 4: In colder months, the most energy-efficient way to dry your clothes is to use:**

- An indoor clothesline
- A dryer
- A blow dryer
- An outdoor clothesline

## **ANSWER: A dryer**

As a rule, it takes 40 to 60 minutes to dry clothes properly. There's no benefit to selecting the hottest temperature option: your clothes won't dry any faster!

**TIPS:** For maximum efficiency, clean the lint filter regularly and use the automatic shut-off function. In the summer, using an outdoor clothesline is the way to go!

## **QUESTION 5: What's the most affordable way to wash?**

- Take one 8-minute shower a day, using a WaterSense® labeled showerhead
- Take a daily bath in a standard 1.5-metre (5-foot) tub
- Use the garden hose outside
- Wash every three days

## **ANSWER: Take one shower a day**

Using a WaterSense® labeled showerhead can reduce your water consumption by 40%. Sure, you could wash only once every three days, but you've got to think about the people around you! You don't want to share your B.O. with them!

**TIPS:** You can purchase a WaterSense® showerhead at most hardware and home renovation stores.



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## **QUESTION 6: What is the most economical way to boil water?**

- Use a kettle
- Use a pot on the stove
- Use a microwave
- Use a bonfire

### **ANSWER: Use a kettle**

Boiling water every day for three minutes costs about \$2.50 a year if you use an electric kettle. If you use a pot on the stove, it takes longer for the water to reach the boiling point and it can cost up to \$70 a year. A microwave oven uses a little more energy than a kettle, but much less than the stove. It's a good second choice.

**TIPS:** To avoid boiling water needlessly, make sure you don't overfill the kettle.

## **QUESTION 7: What's the best way to save energy when washing dishes?**

- Wash your dishes by hand
- Use a dishwasher
- Get your brother or sister to do the dishes
- Wash your dishes in cold water

### **ANSWER: Use a dishwasher**

Today's dishwashers, especially ENERGY STAR® certified models, are so efficient that they use about half as much hot water as doing the dishes in the sink. Nice try for your brother or sister, but remember that even if you delegate this chore to someone else, they still have to use hot water!

**TIPS:** It's best to start the dishwasher only when it's completely full and to use the shortest cycle possible. Also, it's more economical to let your dishes dry using the Air Dry (no heat) option, which uses about 15% to 50% less energy than the Heat Dry option.

## **QUESTION 8: What's the most energy-efficient device for keeping your food cold?**

- A recent-model refrigerator in your kitchen that meets your day-to-day needs
- An older appliance, used primarily as a backup fridge for juice, beer and soft drinks, installed in your garage or basement
- A cooler
- None of the above

### **ANSWER: A recent-model refrigerator in your kitchen that meets your day-to-day needs**

Recent models are better designed and use 60% less energy than older models. And do you really need a second fridge?

**TIPS:** The refrigerator is a household's most energy-hungry appliance because it runs day and night to keep your food cold. Think about what you want to eat or drink before you open the door: every time you open it, the cold air escapes. The longer you leave the door open, the warmer it gets inside.



# Less is more!

**QUESTION 9: You want to do something to keep Fido company when you're gone. Which of the following options uses the least energy?**

- Leave a radio or MP3 player on so he can hear a voice
- Leave an ENERGY STAR® television on
- Leave an old TV on
- There's no way I'm leaving him at home, he's coming with me to school!

**ANSWER: Leave a radio or MP3 player on**

Unfortunately, you can't bring your pet with you everywhere. A radio or MP3 player uses up to 20 times less energy than a TV. An ENERGY STAR® certified television draws from 25% to 40% less power than a non-certified model. However, it uses more power than the other devices mentioned.

**TIPS:** Here's a simple reflex you can develop in a snap: Turn off the TV when nobody's watching it. You can even unplug it when it won't be used for a long time.

**QUESTION 10: What is the most economical way to do the laundry?**

- Wash and rinse your clothes in hot water
- Wash and rinse your clothes in cold water
- Wear the same clothes several times before you wash them
- Let your parents do the laundry

**ANSWER: Wash and rinse your clothes in cold water**

On average, doing a load of laundry in cold water costs about 1.5 ¢, while doing the same load in hot water costs nearly \$0.50. Nice try getting your parents to do the laundry, but it wouldn't save you any money! It's also a good idea to wear your clothes more than once before washing them, but sooner or later, you'll be forced to take the plunge!

**TIPS:** Be sure to fill the clothes washer as much as possible. It takes less energy to do one big load than two small loads. It makes sense, and it's much faster too!

**QUESTION 11: You want to spend an evening reading a good book, and you need some light. What's the most energy-efficient option?**

- Using a reading light with an incandescent bulb
- Using a reading light with an LED bulb
- Using a flashlight
- Reading by candlelight

**ANSWER: Using a reading light with an LED bulb**

LED bulbs use 80% less energy and last 25 times longer than incandescent bulbs. Reading by candlelight! Congratulations on being such a romantic, but it's far too dangerous. You might start a fire!

**TIPS:** Using a reading light with an incandescent bulb for three hours a day, 365 days a year, might cost about \$5 a year, compared to \$0.60 for a reading light with an LED bulb.



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## **QUESTION 12: What is the most economical option for storing ice cream?**

- A chest freezer
- An upright freezer (with manual defrost)
- An upright freezer (with automatic defrost)
- A cooler

### **ANSWER: A chest freezer**

It can cost up to \$60 a year to run an upright freezer, compared to about \$30 for a chest freezer. That's why a chest freezer is the most efficient choice for your ice cream. And a cooler? Get real!

**TIPS:** For optimal efficiency and to ensure your food is safe, set your freezer at  $-18^{\circ}\text{C}$ , regardless of the make and model. Setting your freezer just  $5^{\circ}\text{C}$  lower draws up to 25% more power! You might not think this is the most exciting question, but you have to admit that when we're talking about ice cream, interest really heats up . . . oops, cools down! Care to join us for a bowl?

## **QUESTION 13: In winter, what's the most economical way to keep warm?**

- Put on warmer clothes
- Raise the thermostat by  $5^{\circ}\text{C}$  so the room heats up faster
- Drink a hot chocolate
- Take a 15-minute hot shower

### **ANSWER: Put on warmer clothes**

You might want to put on some warm pants, cozy socks and maybe a sweater! Setting the thermostat higher doesn't heat the room up any faster and may only overheat it needlessly. Taking a hot shower is the most expensive option: after all, 15 minutes is pretty long! And while it's not a long-term solution, a cup of hot chocolate is a great way to indulge your sweet tooth!

**TIPS:** Did you know that heating accounts for half of a family's annual electricity costs?

Lowering the temperature by just  $1^{\circ}\text{C}$  can save you 5% to 7% on your electricity bill. Another good strategy is to open the curtains and let the sun heat your home. Try these simple tips at home or talk about them with your parents!



# Less is more!

## **QUESTION 14: What is the best method for drying your clothes?**

- Using the dryer for 40 to 60 minutes
- Using the high-temperature dryer setting with no timer (programmed cycle)
- Using the low-temperature dryer setting for 120 minutes
- Using the dryer at room temperature

### **ANSWER: Using a dryer for 40 to 60 minutes**

Excessive drying time uses more electricity and will cause your clothes to wrinkle and shrink. And running your dryer too long at a high temperature or even just at room temperature is not an environmentally friendly choice!

**TIPS:** Choose medium or low heat, even if you're in a hurry. Raising the temperature will not dry your clothes any faster and will only waste energy. And be sure to clean out the lint filter after every cycle!

## **QUESTION 15: What is the most economical way to prepare a meal?**

- Use the stove
- Use an electric slow cooker
- Have it delivered by a restaurant
- Eat at Grandma's place

### **ANSWER: Use an electric slow cooker**

A slow cooker uses up to 80% less energy than a stove. A restaurant meal might be a nice treat, but it's certainly not the most economical solution! And whether you have your meal delivered or choose to eat at Grandma's, cooking it still takes electricity!

**TIPS:** Considered a small appliance, a slow cooker cooks food very gently. Even though it takes longer than a stove, it's an economic and equally delicious solution!



# Less is more!

## **QUESTION 16: What's the most affordable way to cool your home in the summer?**

- Run a 6,000-BTU window-mounted air conditioner 12 hours a day for 30 days
- Run a 6,000-BTU portable air conditioner 12 hours a day for 30 days
- Leave the fridge door open
- Open the windows and leave the air conditioner off

### **ANSWER: Run a window-mounted air conditioner**

Obviously, not air conditioning at all is the most economical solution, but not the most comfortable one. The average energy cost for a window-mounted air conditioner that runs at least 12 hours a day can be as much as \$27 a month, compared to \$42 for a portable unit. A 6,000-BTU capacity is enough to cool a room.

**TIPS:** Did you know that air conditioning accounts for nearly 5% of household electricity bills during the summer? For maximum efficiency, experts recommend cleaning air conditioner filters regularly. You can also shut the doors to unoccupied rooms so the air conditioner doesn't have to work as hard. Closing the curtains so the sun doesn't heat your home during the day can also help cut costs.

## **QUESTION 17: What is the biggest energy guzzler?**

- Using a blow dryer for 15 minutes
- Using a microwave to make five bags of popcorn
- Using LED lighting to read
- Drying your sweatshirt on a clothesline on a beautiful summer day

### **ANSWER: Using a blow dryer for 15 minutes**

A blow dryer uses 1,500 W of power, while a microwave uses 1,200 W. Over the same operating time, a blow dryer uses more energy.

**TIPS:** To reduce blow-drying time, use a towel to dry your hair as much as possible first.

## **QUESTION 18: Which device uses the least energy?**

- An old black and white TV
- A desktop computer and monitor in sleep mode (14 hours a day, 365 days a year)
- A laptop in sleep mode (14 hours a day, 365 days a year)
- None of the above

### **ANSWER: None of the above!**

A computer that is shut down always uses less energy than one left in sleep mode.

**TIPS:** Leaving a desktop computer and monitor in standby mode can cost up to \$2.30 a year for electricity, compared to \$0.92 a year for a laptop. If 30 students turned off their computer instead of putting it to sleep, they would save between \$27.60 and \$69 a year. Imagine if everyone at your school did the same! Now dream a little and picture an entire city following suit. When everyone pitches in, even little changes can make a big difference!



# Less is more!

## **QUESTION 19: What is the most economical refrigerator?**

- A refrigerator with a top freezer
- A refrigerator with a bottom freezer
- A cooler
- All of the above

### **ANSWER: A refrigerator with a top freezer**

Refrigerators with top freezers generally draw less power than models with bottom freezers. Wondering about the cooler? It might be okay for a day, but don't forget that you have to replace the ice and to make ice, you need a freezer! Do you have a top or bottom freezer at home? And we don't mean upstairs or in the basement!

**TIPS:** A refrigerator draws significant power to chill food. To prevent that cold air from escaping, make sure you close the door as soon as you have put something in or taken something out, even if you'll have to open the door again a few seconds later.

## **QUESTION 20: What is the most economical way to do your laundry?**

- Use a front-loading washer
- Use a top-loading washer
- Wash your clothes in a nearby river
- I am a total fashionista and all my clothes have to be hand-washed

### **ANSWER: Use a front-loading washer**

Front-loading models use less water and energy than top-loading models. They also spin-dry better, which cuts down on drying time. You wash all your clothes by hand? Cool, they must be really beautiful, but it must take forever! That kind of lifestyle isn't for everyone. And the concept of washing clothes in a river is really not the idea of the century! (Well, it was the idea of last century, maybe!)

**TIPS:** On average, ENERGY STAR<sup>®</sup> certified clothes washers use 25% less energy and 45% less water than traditional models.

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*Ce document est également diffusé en français.*

