



CARBON FOOTPRINT INVESTIGATION



Carbon Footprint Investigation

Your Mission: Lower your carbon footprint by making smarter choices when you shop!

Climate change is a BIG deal and it affects all living things on Earth. You've probably already heard that you can help fight climate change by driving less, protecting forests and planting trees, but did you know that you can also help by being smarter about what you buy?

Your carbon footprint is the amount of carbon dioxide (and other greenhouse gases) you create through the products you use and the actions you take.

Like you, every product has its own carbon footprint, which becomes part of yours when you use it. It's impossible to have no carbon footprint, but you can shrink yours by making smarter choices at the store.

As part of its Climate Change Plan, Ontario Power Generation (OPG) is also working to drastically reduce its own carbon footprint. It has set out a goal to become a net-zero carbon company by 2040. And it aims to help all of Ontario reach net-zero carbon by 2050.

Together, we can help fight climate by being mindful about our own actions and the future.

To complete this Mission, you must:

- Investigate products in your home and complete the quiz to find out how carbon footprint-friendly you are.
- Use the Smart Shopping List and Tips during your next trip to the store.
- See if you've become a smarter shopper by retaking the quiz.



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Meet the Climate Guardians

Meet the band of heroes quietly working together in a quest to stop climate change – Earth's biggest nemesis which threatens the health and safety of our planet.

Each team member brings knowledge, a love of nature, and a unique superpower to promote climate change solutions. Get to know your Climate Guardians.

Newton – Clean energy advocate

Newton is a native Black Bear from northern Ontario. He is the leader and driving force behind the Climate Guardians. The tech-savvy bear promotes clean energy solutions for the planet. His superpower allows him to draw on Ontario's clean energy to power the team's state-of-the-art technology.

Carey – Clean air preservation

Carey is a Cardinal from southern Ontario whose superpower is his ability to spot air pollution and clean it up by flapping his powerful wings. Carey is fearless and is always the early bird that gets the worm.

Freddy – Clean water preservation

Freddy is a Leopard Frog from northern Ontario who is full of energy and always wearing his swim goggles and water wings for safety. His superpower is his ability to help manage floodwater and seek out water pollution, cleaning up any mess quickly and safely.

Tammy – Habitat conservation

Tammy is a Blanding's Turtle from southern Ontario. Her superpower is the ability to quickly work to conserve, protect and restore habitats to protect all animal





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species from harm or extinction. With the help of her tricked out wheels, Tammy the turtle can get to the scene in a hurry.

Fiona – Plant and wildlife protection

Fiona is a red fox from southern Ontario who loves to read and has a wealth of knowledge of all living species big and small. Her superpower is her ability to spot troubled species. Once detected, she leaps into action to treat, restore and protect natural ecosystems.

What is climate change anyway?

"Climate" refers to the weather in a specific region, and climate change happens when the weather in that region changes and stays that way for a really, really long time. We're talking about changes that last anywhere from hundreds to millions of years!

Some climate change happens naturally, like the ice age for example. The problem is that the climate change we are seeing today is happening faster than in the past. Consider this: it took about 5,000 years for the planet to warm by 5°C after the last ice age, and some predictions now say we could see the same 5°C increase in just a tenth of the time!

What's causing our climate to change so quickly?

We use fossil fuels like natural gas, diesel and oil to heat our homes and power our cars. Burning these fuels causes greenhouse gases like carbon dioxide (CO₂) and methane (CH₄) to be released into the atmosphere. These gases then trap heat near the Earth's surface, making it warmer. The Earth can re-absorb and release some of these gases, but we are creating too much and the planet can't keep up.

Even the food we eat adds to our greenhouse gas emissions. Methane is released by livestock as they digest their food, and the billions of cows raised for





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meat and dairy worldwide make a lot of gas. More gas trapped in the atmosphere means more warming, and more warming means big trouble for life on Earth.

Climate Guardian Newton says: Did you know there are many clean energy sources that can help slow climate change for a healthy planet. Using clean, carbon-free energy sources – like hydroelectric, nuclear and solar – can really help us cut back on the amount of carbon dioxide being released into the atmosphere!

So what if it gets a bit warmer?

From wilder weather to melting sea ice, rising ocean levels, droughts, and famine, climate change has an impact on every living thing. For some species, slowing down climate change can mean the difference between survival and extinction.

Yikes! How can we help?

You can do your part to slow down climate change by shrinking your carbon footprint, and one of the ways to do this is to pay attention to the products you buy. Just take a look at the places energy is used and CO₂ is released during a product's life:

- Collecting materials, manufacturing, packaging, shipping to store, shopping, usage, disposal

The best way to shrink your carbon footprint is to use less (and buy less), but sometimes that's not an option. Ask yourself these questions the next time you buy something:





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What's it made of?

Most products made of new materials will have a higher carbon footprint than products made of recycled ones. For example, products made from recycled metals can use as little as 4 per cent of the energy used to create new metal products! Natural materials (like wood) can also be a better choice than synthetic materials (like plastic), which are made partly from refined fossil fuels (like oil).

What's it stored in?

Did your product come in a package? The more packaging it comes with, the more energy was used to create it and the higher its carbon footprint. Products with packaging made from recycled or biodegradable materials will usually have a lower carbon footprint.

Where was it made?

The energy used and emissions released during a product's transportation from factory to store make up a BIG part of its carbon footprint. Think about all the fruits at the grocery store that come from other countries – lots of emissions were released getting these fruits to you. A product made locally will often have a lower carbon footprint than one made far away.

Does the product need to be brand new?

When you reuse something or buy a used product, it means a new product doesn't have to be made, and no new emissions are released. If you have to buy it new, make sure you're 100 per cent finished with the old product first!

Do you really need it, or do you just want it?

We know that new products have high carbon footprints because of the energy used and greenhouse gases emitted when they are made, so try to limit your





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purchases and buy things that you need, instead of things that you want. You can use a shopping list like the one on the last page of this Mission Brief to help keep you on track.

Do I really NEED that new toy?

Not all of these questions will work for every product you use (you wouldn't really want to buy a used apple - eww!) but they'll help you on your way to reducing your carbon footprint at home.

Take the Smart Shopping List and Tips cutout found in this Mission with you the next time you go to the store with your family so you can keep these questions handy!

How Footprint-Friendly are You?

Keep track of how many points you score for each question. Score 1 point for every A you select, 2 points for every B, and 3 points for every C.

Now that you've learned all about how the things we do and the products we choose can affect climate change, investigate the products in your home to find out how footprint-friendly you really are. Use this quiz as your guide!

1. **Your t-shirt was...**
 - a. Made in the country you live in
 - b. Made in the same continent as you
 - c. Made in another continent (far, far away!)
2. **How many old lightbulbs in your house have been replaced with new energy efficient ones?**
 - a. 6 or more





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- b. 3-5
- c. 0-2
- 3. What's your favourite snack?**
 - a. Last night's leftovers
 - b. Fresh local fruits and veggies
 - c. Prepackaged granola bars
- 4. Of all the personal electronic devices (tablets, video game consoles, etc.) in your home, how many are yours?**
 - a. 0 or 1
 - b. 2 or 3
 - c. 4 or more (too many to count!)
- 5. What kind of laundry detergent do you have at home?**
 - a. Concentrated liquid
 - b. Powdered soap
 - c. Capsules
- 6. Your shoes are mostly made of...**
 - a. Canvas
 - b. Leather
 - c. Plastic or rubber (they might even light up too!)
- 7. When it comes to water, you...**





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- a. Always use a reusable bottle or drink from a water fountain
 - b. Only buy bottled water when you're on the go
 - c. Stick to bottled water
- 8. How often do you eat red meat (like beef)?**
- a. Twice a week or less
 - b. About every other day
 - c. Every day (it's my favourite!)
- 9. At the grocery store, you use...**
- a. Canvas/vinyl bags (covered in cool designs, of course) or an old school cart/wagon
 - b. Old/reused plastic grocery bags
 - c. Brand new plastic grocery bags
- 10. How often do you replace the gear you use for your extracurricular activities (like dance, sports, music lessons, etc.)?**
- a. Only when I outgrow it (but I always try to buy used)
 - b. Every couple of seasons
 - c. As soon as something new and cooler comes out





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What's your score?

Write score here.

| Question | A = 1 | B = 2 | C = 3 | Total |
|-------------|-------|-------|-------|-------|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| Grand Total | | | | |





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So... how did you stack up?

- If you **scored 10 points**... you're a carbon footprint champion!
You're officially a carbon-smart super shopper! Keep up the good work!
- If you scored **11-20 points**... you're almost there!
You're making lots of carbon conscious choices, and with the help of the Smart Shopping List and Tips, you'll be a super shopper in no time!
- If you scored **21 points or more**... you've got some carbon culprits to conquer!

It only takes a couple of small changes to make a big difference. Try reusing a grocery bag the next time you're at the store, or switching out an old lightbulb to a fluorescent one, and watch your score soar!

Didn't ace the quiz? Don't worry – read on to find out how you can become a smarter shopper!

If you find items in your house that have high carbon footprints, don't throw them out! Make sure you use them up first or give them away to a younger sibling or charity. If they're no longer useful, see what parts can be recycled before you buy new. When you do need to replace these items, use these tips to help you choose products that have a lower carbon footprint.

Look out for products that:

- Are made with natural or recycled materials
- Are made locally
- Don't have a lot of packaging





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Can be reused or recycled later

Have other signs of a low carbon footprint

Most importantly, remember that the best thing you can do to reduce your carbon footprint is to buy less, so be sure to ask yourself if you really need a product (or if you just want it) before you check out.

You have a lot of choice when it comes to what you buy at the store, but when you choose green or eco-friendly products, you're making a smart choice for the planet. These are the types of products that are made using recycled parts, were created using renewable energy sources, or are energy efficient when you use them – like solar-powered cell phone chargers and outdoor lamps.

Lucky for us, Canada is a world leader in producing and using energy from renewable resources! This is partly due to the massive size of our country, our diverse geography and access to natural resources like water, wind, and solar for energy. We even get clean energy from organic waste, like banana peels, apple cores and other food you'd normally throw out.

Climate Guardian Newton says: About 18 per cent of Canada's total energy supply now comes from renewable sources! And when it comes to renewable energy, we're really big fans!

Smart Shopping List & Tips

Before you leave for the store, think about what you're going to buy and ask yourself these questions:

- Do you really need it, or do you just want it?
- Does the product need to be brand new?
- Is there a more environmentally friendly option?





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_Use this shopping list to keep track of the products you need to buy!

Before you put a product in your cart, ask yourself these questions to make sure you are making the smarter choice when you shop:

- What's it made of?
- Where was it made?
- What's it stored in?

Share your results

Send a picture to *email tbd* of you in action using the Smart Shopping List and Tips to help choose more footprint-friendly options when you're at the store!

When you've completed this Mission, be sure to take on the next one in the Climate Guardians series.

