

# ECOLOGICAL HANDPRINT

*Lesson Plan for Grades 5-12 - 30-45 minutes*

*Prepared by [Climate Change Connection](#)*

## LEARNING OUTCOMES

Please see the document titled “Ecological Handprint Learning Outcomes” for grade 5-12 curriculum outcomes.

## MATERIALS

Each student should have:

1. A copy of the Ecological Handprint worksheet
2. Two markers or crayons of different colours

## BACKGROUND

The Ecological Handprint builds on the concept of the Carbon Footprint. The Carbon Footprint was developed as a tool for individuals and communities to determine areas in which their actions impact the environment, and to use their findings to find areas to reduce their impact. In contrast, the focus of the handprint is to understand how individuals and communities can expand their ability to undertake actions that positively impact our planet. It is a symbol and a measurement of our commitment to positive actions that benefit the world in the present and the future.

The concept of the ecological handprint has different meanings, including:

- A measurement tool to determine action taken, and the positive impacts of our action for a sustainable future
- A symbol of our commitment to positive action
- A pledge to take positive action
- A way to connect with a community of people who are committed to a sustainable future

An important part of expanding our handprint is encouraging others to take positive action – not only do we grow our own handprint, but others’ as well. When we join together with many others to multiply our actions, our handprints grow even more.

## ACTIVITY

1. Discuss the concepts of the Carbon Footprint and Ecological Handprint.
2. Explain that students will work through the six areas of positive action: transportation, community, consumption, water, food, home, and waste. Going through each action they will colour in a section of the hand for what they are currently doing. Other formats could include:
  - a. Students can use two colours to record their actions: one for actions they are already doing, and a second for actions that they pledge to undertake in the future.
  - b. Instead of colouring in a section of the hand for actions they are already doing, colour in sections for what they can commit to doing in the future.
  - c. Use a blank version of the handprint where students can record actions that are currently doing and/or future pledges that are not reflected in the handout.
3. Using the information provided in the section below, work through the “positive action statements” to give further context.
4. Once students have filled out their handprints, discuss what positive impacts students already have, and what they would like to do in the future. Were they surprised by any actions?
5. Inquiry Questions:
  - a. How can we reduce the impact households have on climate change?
  - b. How does individual behaviour affect the global distribution of resources?
  - c. How much water is actually saved by reducing meat consumption?
  - d. How can individuals be empowered to take positive action to benefit the environment?
  - e. How can collective action of many individuals help reduce the global Carbon Footprint?

## POSITIVE ACTION STATEMENTS

It's time for action! Our climate is changing. As the concentration of greenhouse gases (GHGs) increases in our atmosphere, the average global temperature rises. Rising temperatures have a big impact on our province. In recent years, impacts have included severe weather events, thinning of the ice on Hudson's Bay, increased stress to infrastructure, melting permafrost, shorter winter road seasons, and declines in some wildlife species. Atmospheric scientists have accumulated a vast amount of evidence identifying human activity as the main cause.

There are many positive actions we can all take to reduce our GHG emissions and live in a more climate-friendly manner. What actions are you already doing in your life? What are you willing to

do in the future?

There are many areas in our lives where we can take positive action. Some of the ones that have the biggest impact include the food we eat, how we care for our water, our methods of transportation, energy use in the home, our consumption habits, and how we participate in our community.

**Below you will find more information related to the positive action statements of the Ecological Handprint.**

### **Transportation**

- 1 I walk.** Walking is good for the earth, your health, and the safety of our neighbourhoods.
- 2 I bike.** Bicycling can reduce a large portion of our GHG emissions from transportation. A bicycle costs pennies per mile, and is an excellent way to get to know your community. It emits no greenhouse gases, local pollutants, or engine noise. It provides moderate, low-impact exercise of the kind the human body needs to maintain good health. It reduces road maintenance needs, insurance costs, and is an affordable alternative.
- 3 I take the bus.** Jump on a bus! If more people used public transit there would be fewer cars and fewer emissions. Each full bus is equivalent to approximately 40 cars on the road.
- 4 I carpool.** Sharing a ride means that you are cutting your GHG emissions by at least half.

### **Community**

- 5 I have learned about sustainability in my school.** I read books and newspapers, watch films and DVDs about global warming. I also talk to my teacher and classmates about how to protect the environment.
- 6 I talk to my parents about protecting the environment.** I talk to my family, neighbours, friends, co-workers, and community groups about ways to reduce global warming.
- 7 I stand up for important issues:** I remind others that their actions have an impact on the environment. If I see someone forgetting to recycle, I remind them.

- 8 I volunteer.** Create change in your community - invite neighbours and friends to help you make the changes you want to see. By joining together with others, we are able to amplify our positive actions in a way that would not be possible if we did so on our own.

## Consumption

- 9 Before I buy something new, I consider- Do I need it? Can I borrow it? Can I buy it second hand?** Our everyday consumption contributes to a large amount of our GHG emissions, through manufacturing, packaging, transportation, consumption, recycling and disposal. The best solution is to “keep it simple” – buy less. We all need to evaluate our purchases and consider how they contribute to the bigger picture. We need to buy more durable goods, more re-usable products, products with less packaging, and we should borrow or rent items that we use infrequently.
- 10 I repair things rather than throw them out.** Many clothes and household items can be repaired easily. It can be fun to fix something or upcycle it into something new! Plus, repairing items reduces the waste that ends up polluting the air, land, and water.
- 11 I bring my own bag when shopping.** Plastic bags don't biodegrade, they photodegrade - breaking down into smaller and smaller toxic bits contaminating soil and waterways and entering the food web when animals accidentally ingest. Billions end up as litter each year. On top of that, plastic bags are made out of petroleum products.

## Water

- 12 I save water.** It takes lots of energy for water to get treated, purified, and pumped to your home. A low-flow showerhead uses 60% less water than a standard fixture and can save up to 0.4 tonnes of GHGs per year. The toilet is one of the largest uses of water in your home. Toilet dams displace water in the tank so that the toilet uses less water each time it's flushed.
- 13 I drink tap water.** It takes a lot of energy to bottle, transport, and recycle bottled water. Plus, most tap water is tested more often than bottled water, making it healthier to drink.
- 14 I have a rain barrel.** Instead of letting rainwater wash away you can capture rain in a rain barrel and use it on your lawn or garden. A cistern or rain barrel will capture and store rainwater for your lawn and garden reducing your use of municipal water. 34% of the City of Winnipeg's GHG emissions released are due

to water usage and wastewater treatment.

- 15 I know where my water comes from.** The source of our water and where it ends up is known as our watershed. Watersheds provide all the water we depend on. Everyone has a responsibility to make sure their actions are not harming watersheds – water quality and water quantity, as well as plants, fish and wildlife depend on it. Spend time exploring what your watershed has to offer.

## Food

- 16 I eat vegetarian meals.** Animal products, like meat and dairy, are the most resource-intensive food on the table. Producing meat requires huge amounts of water, land, and inputs like hormones and antibiotics. It also produces significant amounts of methane – a cow's diet and multiple stomachs cause them to produce methane every time they exhale. Meat and dairy take 4-8 times more energy to produce than the food gives us. In contrast, breads, cooking oils, potatoes, nuts and flour, contain more energy than it takes to produce them. If you're a meat eater, try cutting out one meat meal each week. It's easier than you think!
- 17 I garden.** Get *really* local by growing food right next to your home. When you grow your own food you nourish the soil of your garden by planting species that enrich the soil, along with using fertilizers that are of natural origin.
- 18 I eat mostly home cooked meals.** To-go food containers are usually not recyclable, which creates a lot of waste. Eating food made at home reduces the amount of garbage created.
- 19 I compost.** Composting reduces your waste by up to 40%. By composting, a family of three can reduce GHGs by more than 1/8 of a tonne of GHGs each year. Composting your food and yard waste makes valuable fertilizer and reduces the amount of waste in landfills. When organic waste decomposes in the landfill it produces methane, a potent GHG.

## Home

- 20 I turn off the lights.** By switching to energy efficient light bulbs you will save energy, but also reduce waste. An Energy Star light bulb replaces several incandescent light bulbs because they last a great deal longer than the average light bulb. The energy savings of cooler-burning bulbs impact your utility bill, and are an easy step to make your home greener.

- 21 I have a programmable thermostat.** Programmable thermostats are an easy solution to regulating your home's temperature in both summer and winter — when you are asleep or away.
- 22 I unplug my electronics when I am not using them.** Even if electronics are turned off, they still use electricity. The best way to save energy is to unplug any game consoles, computers, chargers, and other electronics after they have been turned off.
- 23 I have planted a tree.** Not only do trees combat climate change by absorbing carbon dioxide, a well-placed evergreen on the north side of your home can shelter it against cold winter winds and reduce your home's energy demands. Similarly, shade trees on the south side can help keep your home stay cool in summer by shading your home's windows and walls.

## Waste

- 24 I recycle.** Recycling properly is an easy and important step to reducing the amount of waste that ends up at the landfill. Plastic, metal, and paper products are turned into something new instead of harming the planet.
- 25 I choose a litter-free lunch.** Choosing to bring a lunch in reusable containers, rather than in single-use packaging, helps to reduce lots of garbage! Sadly, most of the disposable packaging cannot be recycled, so packing your own lunch is the best option.
- 26 I safely throw out hazardous waste (paint, batteries, electronics, etc.).** Paints, batteries, and old electronics can all be recycled, just not in your blue bin. Instead, take any old hazardous waste to special recycling facilities found in your city.
- 27 I like being outside and protecting nature.** Spending time in nature is fun and good for our health. It is our responsibility to protect the natural spaces we love, by making choices that respect the environment.