



CANADA
4-H Ontario

www.4-hontario.ca

4-H ONTARIO PROJECT



EYE ON ENERGY PARTICIPANTS RECORD BOOK

Credits

The 4-H Pledge

I pledge my Head to clearer thinking,
my Heart to greater loyalty,
my Hands to larger service,
my Health to better living, for my club, my community,
my country, and my world.

The 4-H Motto

Learn To Do By Doing

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Date: February 2024



Thank you to the Eye on Energy Advisory Committee members who assisted with the creation of this resource:

- David Knapp, Stanley Knapp Resource Fund
- Dan Carlow, Manager, Innovation, Engineering and Program Delivery, OMAFRA
- Brandon Gilroyed, BioDiesel Project research, Associate Professor, School of Environmental Sciences, University of Guelph Ridgetown Campus

4-H Ontario grants permission to 4-H Volunteers to photocopy this 4-H project resource for use in their local 4-H program.

All information presented in this Project Resource was accurate at the time of printing.

4-H Ontario is pleased to be able to provide project resource reference manuals for use by volunteers in clubs. 4-H Ontario screens and trains volunteers to equip them with the tools to serve as positive role models for youth. With so many topics to choose from, 4-H volunteers are trusted to use these resources to provide safe and quality programming while using their judgement to assess the appropriateness of activities for their particular group of youth. By downloading any 4-H resource, you agree to use it for 4-H purposes and give credit to the original creators. Your provincial 4-H organization may have restrictions on the types of 4-H projects or activities which can be completed in your region.

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The development of this project resource was made possible through the support of funding provided by the Stanley Knapp Resource Fund.





4-H Inclusion Statement

4-H in Canada is open to all* without discrimination based on race, national or ethnic origin, colour, religion, sex, age or, mental or physical disability.**

4-H is dedicated to providing a safe and inclusive environment that allows for universal access and participation. Where barriers to participation are identified, 4-H will, with reasonable accommodation, adapt programs, rules, policies, or expectations to reduce or remove the barriers.

Any accommodations, changes or exceptions will be assessed on an individual basis, taking into account the individual experience of the member and their family. The physical safety and emotional well-being of members, leaders, staff and volunteers is 4-H's highest priority, and is the ultimate consideration in final decisions.

4-H Canada and local 4-H organizations consider inclusion a priority. Leaders are encouraged to work with individuals and their families to identify and discuss accommodations as required, and to reach out to provincial or national office staff for help with unresolved concerns.

**This applies to youth members (ages 6 to 21), volunteers, leaders, staff and professionals.*

***Definition of discrimination as per Canadian Charter of Rights and Freedoms.*

Déclaration sur l'inclusion des 4-H

L'adhésion aux 4-H au Canada est ouverte à tous les jeunes* sans discrimination fondée sur la race, l'origine nationale ou ethnique, la couleur de la peau, la religion, le sexe, l'âge ou le handicap mental ou physique. **

Les 4-H ont pour mission d'offrir un environnement sécuritaire et inclusif qui permet l'accès et la participation de tous. Lorsque des obstacles à la participation sont décelés, les 4-H adapteront, à l'aide de mesures d'adaptation raisonnables, les programmes, les règles, les politiques ou les attentes afin de réduire ou d'éliminer ces obstacles.

Toute mesure d'adaptation, modification ou exception sera évaluée au cas par cas, en tenant compte de l'expérience personnelle du membre et de sa famille. La sécurité physique et le bien-être émotionnel des membres, des animateurs et des animatrices, des membres du personnel et des bénévoles sont la priorité absolue des 4-H et constituent le facteur ultime à considérer lors de la prise des décisions définitives.

Les 4-H du Canada et les organisations locales des 4-H considèrent l'inclusion comme étant une priorité. Les animateurs et les animatrices sont encouragés à collaborer avec les personnes et leurs familles afin de définir et d'examiner les mesures d'adaptation, selon les besoins, et de communiquer avec le personnel du bureau provincial ou national pour obtenir de l'aide en cas de préoccupations non résolues.

**Ceci s'applique aux jeunes membres (âgés de 6 à 21 ans), aux bénévoles, aux animateurs, aux membres du personnel et aux professionnels.*

***Selon la définition de discrimination en vertu de la Charte canadienne des droits et libertés*

RECORD KEEPING – WHY?

Record Books document time and money spent, what you have learned, your ideas, memories and what you liked and didn't like. Your Record Book also....

- Helps you set goals for this project
- Has space to record important dates, your elected executive and the names and contact information of your leaders and club members
- Is a great way to get and stay organized

Down the road, when you look back on your 4-H projects, these books will remind you what you learned so you can use those skills later in life. It will bring back memories of the project, your 4-H friends, your story and your thoughts at the time of the project. You will never forget because this book will act as a reminder! It will also be helpful at the Achievement Program when reviewing your progress and accomplishments.

How do I organize my materials?

1. Make your records neat and easy to read. This will make it easier to find and share information with others later.
2. Use a three-ring binder or duotang to hold your materials and divide your information into sections using dividers. This will keep things from becoming lost and make it easier to find what you need later. This will also allow you to add extra pages later.

How do I keep good records?

1. Keep track of activities throughout the meetings as you complete different parts of the project. It's often difficult to remember things that happened in earlier meetings.
2. Make sure the information you write in your Record Book is complete and accurate. If you're unsure about something, ask your leader for help before writing it in your book. You can also consult people in your community or do some research. If you borrow information from someone or somewhere else, write down where you found it.

Remember that this is YOUR Record Book, so make it your own! And remember to bring your Record Book to every meeting!



The 4-H Pledge

I pledge

My head to clearer thinking,

My heart to greater loyalty,

My hands to larger service,

My health to better living,

For my club, my community,

my country, and my world.



CANADA
4-H Ontario

PARTICIPANTS RECORD BOOK FOR 20__

Name: _____

Address: _____

Name of Parent(s) or Guardian(s) _____

Age as of January 1: _____ Number of Years in 4-H: _____

Club Name: _____ 4-H Association: _____

Club Participants:

Name	Email	Telephone

CLUB EXECUTIVE

President: _____

Vice-President: _____

Secretary: _____

Treasurer: _____

Press Reporter: _____

Leader Name and Contact Information: _____

Leader Name and Contact Information: _____

	Date and Time	Place	Notes – things to bring, remember, etc.
Meeting #1			
Meeting #2			
Meeting #3			
Meeting #4			
Meeting #5			
Meeting #6			
Achievement Program			

MEMBER EXPECTATIONS AND GOALS

Why did you join the Eye on Energy club?

What is one goal that you want to achieve in this project?

Do you have any ideas for fun things to do during the project?

Do you have any ideas for an Achievement Program for the Eye on Energy Project? (Keep in mind that an Achievement Program should include the community in some way).

Member Responsibilities

- Be a current paid member of 4-H Ontario
- Attend at least 2/3 of the meeting time allotted for this project
- Complete the Record Book for this project. Please bring it with you to each meeting!
- Put your Record Book in a binder or duotang so you don't lose any pages.
- Complete any other projects as required by the club leaders.
- Remember the more you put into your 4-H club, the more you will get out of it!

ROLL CALLS - IN MY OPINION.....

	Roll Call	My Answer
1		
2		
3		
4		
5		
6		
7		

PROJECT SUMMARY: EYE ON ENERGY PROJECT

A. Member Comments:

1. What did you gain from taking this project?

2. Which meeting or topic was the most/least interesting? Why?

i. Most:

ii. Least:

3. Comment and give suggestions for improvements on the overall project (e.g. Activities, tours, achievement program plans, member presentations, special activities, judging information).

4. What interests would you like to explore through future 4-H projects?

B. Parent/Guardian Comments:

C. Leader Comments:

This project has been completed satisfactorily!

Member: _____ Leader: _____

Date: _____ Leader: _____

SAMPLE JUDGING CARD

Judging Card

Criteria:

1. Is the item made properly?
2. Does the item serve the purpose of the class it is in?
3. Is it the proper size for its purpose?
4. Does it smell and look like it should?
5. _____
6. _____
7. _____

*Note: additional requirements can be added to the list specific to the item being judged.

Giving Reasons:

I place this class of _____ , _____ , _____ , _____ .

I place _____ over _____ because...

I place _____ over _____ because...

I place _____ over _____ because...

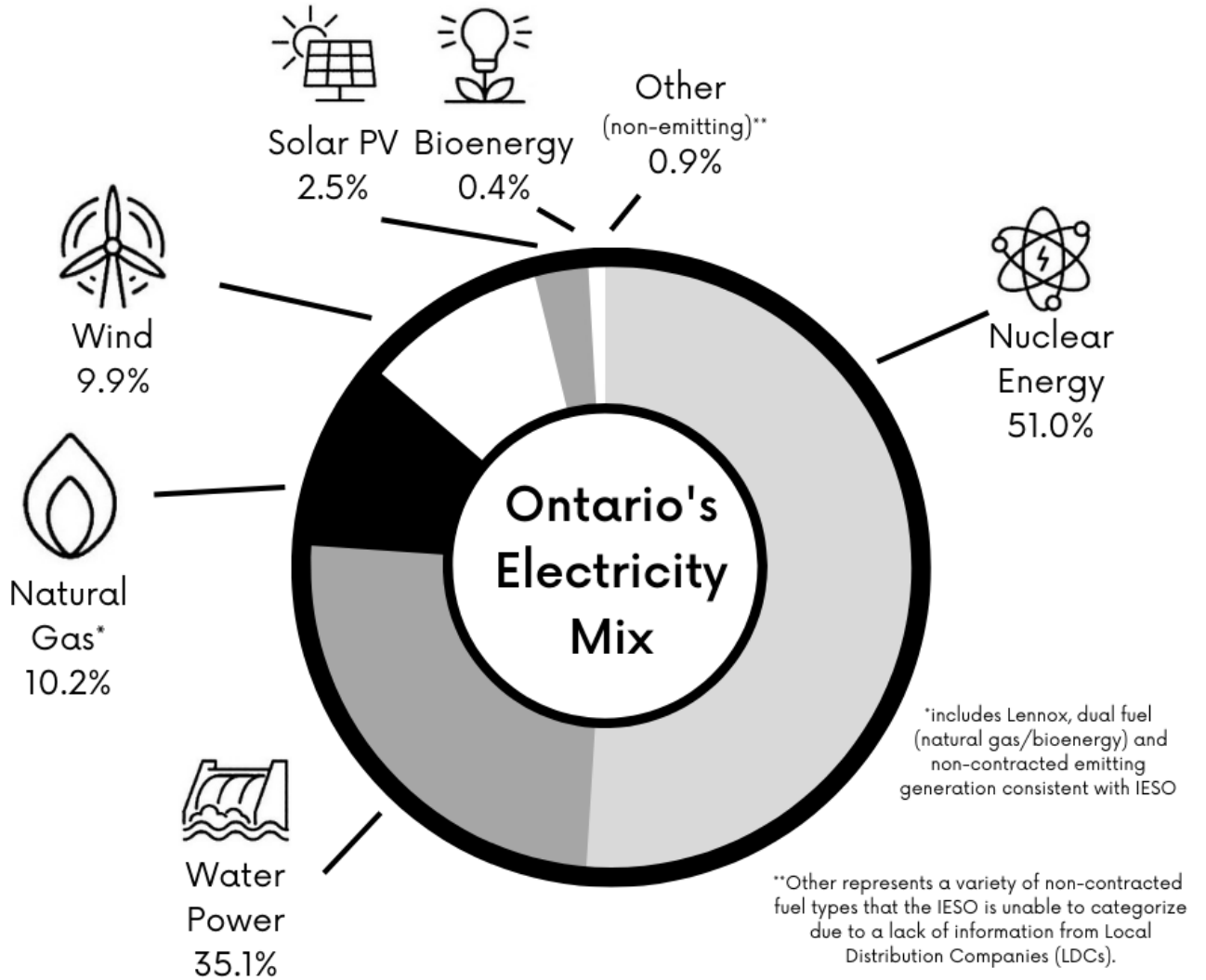
I place _____ 4th because...

For these reasons, I place this class of _____ , _____ , _____ , _____ .

Official Placing _____ .

WHERE DOES ELECTRICITY COME FROM?

Ontario's System-Wide Electricity Supply Mix in 2022 looked like this:

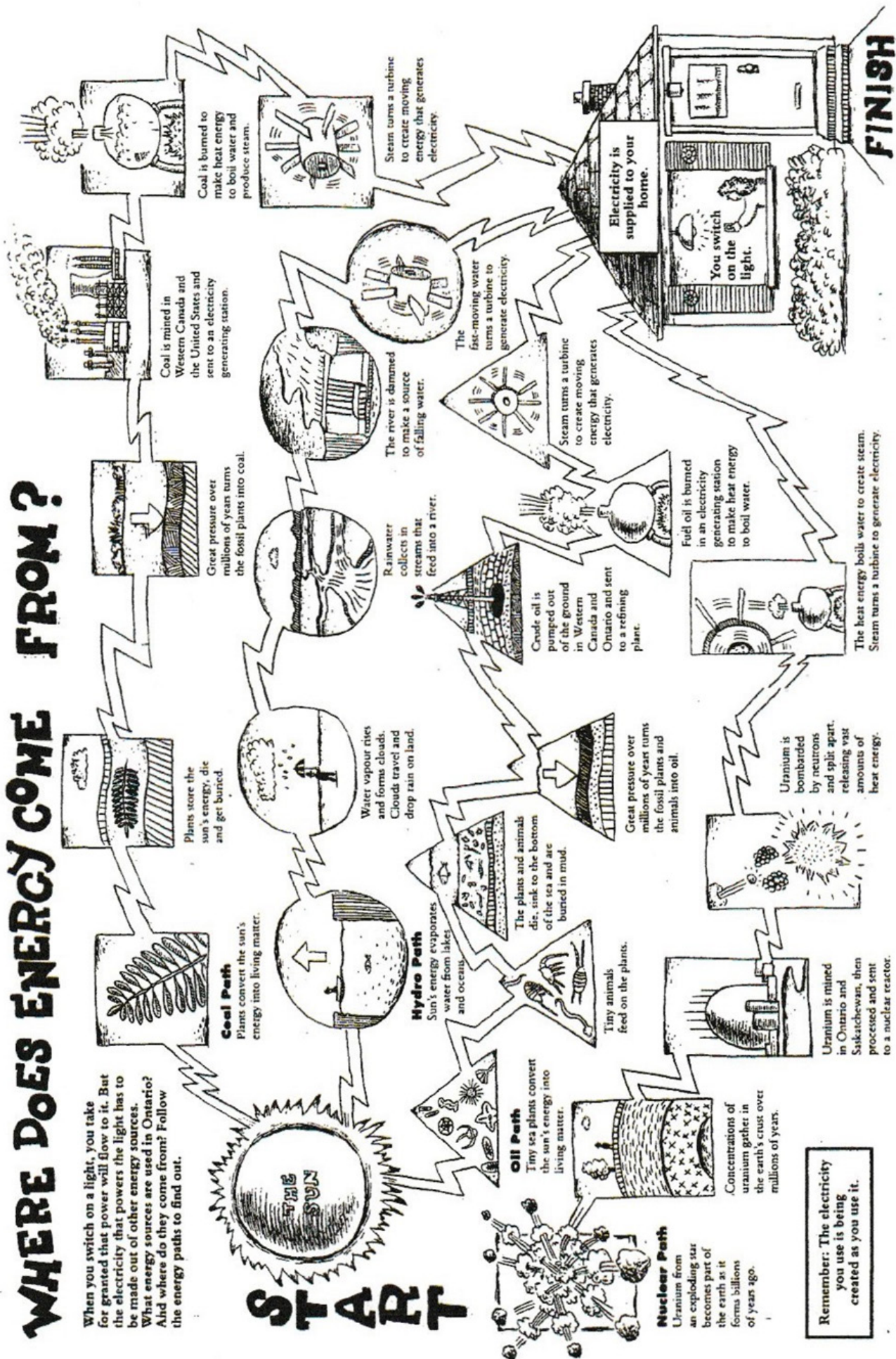


Source: Electricity Retailing – Disclosure to Customers, O, Reg. 416-99, March 31, 2023, www.ontario.ca/laws/regulations

WHERE DOES ENERGY COME FROM?

When you switch on a light, you take for granted that power will flow to it. But the electricity that powers the light has to be made out of other energy sources. What energy sources are used in Ontario? And where do they come from? Follow the energy paths to find out.

START


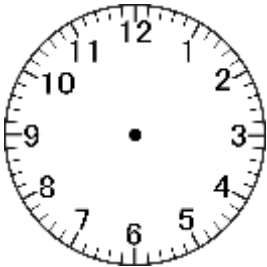
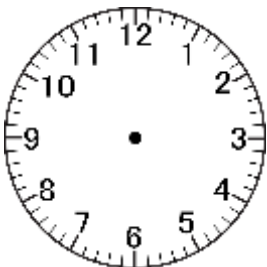
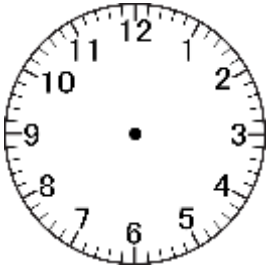


Remember: The electricity you use is being created as you use it.

Source: Energy Matters (Ontario Ministry of Energy, Owl Magazine, 1992, p. 6-7).

TRACKING ENERGY USE

Worksheet: 24-Hour Clock

Time in Words	24 Hour Clock	12 Hour Clock	Analogue
Seven o'clock in the evening	19:00 hours	7:00 p.m.	
		1:00 a.m.	
	21:00 hours		
Two o'clock in the afternoon			



JUDGING SOURCES OF ENERGY

Judging Card

Criteria:

1. Is the item made properly?
2. Does the item serve the purpose of the class it is in?
3. Is it the proper size for its purpose?
4. Does it smell and look like it should?

5. _____

6. _____

7. _____

*Note: additional requirements can be added to the list specific to the item being judged.

Giving Reasons:

I place this class of _____, _____, _____, _____.

I place _____ over _____ because...

I place _____ over _____ because...

I place _____ over _____ because...

I place _____ 4th because...

For these reasons, I place this class of _____, _____, _____, _____.

Official Placing _____.

THINGS TO REMEMBER WHEN JUDGING:

1. Reasons should be short, clear and convincing.
2. Stand straight and look at the person you are speaking to.
3. Start by naming the class and giving the order of placement.
4. Explain why you placed the first over the second, the second over the third, and the third over the last.
5. Never go back. Say everything you want about one placing and then move on to the next one.
6. Keep a clear picture in your mind of what you are judging.
7. Be positive. Talk about the important points that were better in each exhibit.
8. Don't be too hard on the exhibit that was the last. Talk about two or three wrong things and then quit. Speak loudly enough for the judge to hear you confidently.
9. Know the right words to use and use them correctly. Don't get stuck using the exact words over and over.
10. Always do your best.

THE POSITIVES AND NEGATIVES OF ENERGY

Where Does Our Energy Come From?

Energy is created by two kinds of sources, renewable and non-renewable.

Energy Source	Positive	Negative
Non-Renewable: Non-renewable energy comes from sources that will run out or will not be replenished in our lifetimes.		
Coal		
Oil/Petroleum		
Natural Gas		
Renewable: Renewable energy comes from natural sources that are replenished at a higher rate than consumed. Generating renewable energy creates far lower emissions than burning fossil fuels.		
Hydropower		
Solar		
Wind		
Geothermal		
Tidal		
Biomass		
Nuclear		

THE LAZY PERSON'S GUIDE TO SAVING THE WORLD



The Sustainable Development Goals are important, world-changing objectives that will require cooperation among governments, international organizations and world leaders. It seems impossible that the average person can make an impact. Should you just give up?

No! Change starts with you. Seriously. Every human on earth—even the most indifferent, laziest person among us—is part of the solution. Fortunately, there are some easy things we can adopt into our routines that, if we all do it, will make a big difference.

Have a look at just a few of the many things you can do to make an impact!



THINGS YOU CAN DO FROM YOUR COUCH

- Save electricity by plugging appliances into a power strip and turning them off completely when not in use, including your computer.
- Stop paper bank statements and pay your bills online or via mobile.
- Speak up! Ask your local and national authorities to engage in initiatives that don't harm people or the planet. You can also voice your support for the Paris Agreement and ask your country to ratify it or sign it if it hasn't yet.
- Turn off the lights. Your TV or computer screen provides a cosy glow, so turn off other lights if you don't need them.
- Do a bit of online research and buy only from companies that you know have sustainable practices and don't harm the environment.
- Report online bullies. If you notice harassment on a message board or in a chat room, flag that person.
- In addition to the above, offset your remaining carbon emissions! You can calculate your carbon footprint and purchase climate credits from Climate Neutral Now. In this way, you help reduce global emissions faster!"

Source: The Lazy Person's Guide to Saving the World <https://www.un.org/sustainabledevelopment/takeaction>



THINGS YOU CAN DO FROM HOME

- Air dry. Let your hair and clothes dry naturally instead of running a machine. If you do wash your clothes, make sure the load is full.
- Take short showers. Bathtubs require gallons more water than a 5-10 minute shower.
- Eat less meat, poultry, and fish. More resources are used to provide meat than plants
- Compost—composting food scraps can reduce climate impact while also recycling nutrients.
- Recycling paper, plastic, glass & aluminium keeps landfills from growing.
- Buy minimally packaged goods.
- Plug air leaks in windows and doors to increase energy efficiency
- Adjust your thermostat, lower in winter, higher in summer
- Replace old appliances with energy efficient models and light bulbs



THINGS YOU CAN DO IN YOUR NEIGHBOURHOOD

- Shop local. Supporting neighbourhood businesses keeps people employed and helps prevent trucks from driving far distances.
- Let your favourite businesses know that ocean-friendly seafood is on your shopping list.
- Shop only for sustainable seafood. There are now many apps that will tell you what is safe to consume.
- Bike, walk or take public transport. Save the car trips for when you've got a big group.
- Use a refillable water bottle and coffee cup. Cut down on waste and maybe even save money at the coffee shop.
- Bring your own bag when you shop. Pass on the plastic bag and start carrying your own reusable totes.
- Take fewer napkins. You don't need a handful of napkins to eat your take-out. Take just what you need.
- Shop vintage. Brand-new isn't necessarily best. See what you can repurpose from second-hand shops.
- Donate what you don't use. Local charities will give your gently used clothes, books and furniture a new life.
- Take advantage of your right to elect the leaders in your country and local community



THINGS YOU COULD DO AT WORK

- Give fruits or snacks that you don't want to someone who needs and is asking for help.
- Does everyone at work have access to healthcare? Find out what your rights are to work. Fight against inequality.
- Mentor young people. It's a thoughtful, inspiring and a powerful way to guide someone towards a better future.
- Voice your support for equal pay for equal work.
- Lend your voice to talk about the lack of toilets in many communities around the world!
- Make sure your company uses energy efficient heating and cooling technology.
- Raise your voice against any type of discrimination in your office. Everyone is equal regardless of their gender, race, sexual orientation, social background and physical abilities.
- Bike, walk or take public transport to work.
- Save the car trips for when you've got a big group.
- Organize a No Impact Week at work.
- Learn to live more sustainably for at least a week: un.org/sustainabledevelopment/be-the-change.

THE LAZY PERSON'S GUIDE TO SAVING THE WORLD

Action:

Things to think about:

- What supplies do I need?
- Who do I need to talk to?
- When would the best time be to take action?

Steps to action:

1.

2.

3.

4.

Notes:

TEST YOUR KNOWLEDGE OF HOME ENERGY CONSUMPTION

Home Energy Consumption Quiz

This quiz will test your knowledge of energy consumption and energy efficiency.

1. Which is the best glazing for your home's windows?
 - Triple glazing
 - Windows without glass to let the breeze in
 - Single glazing
 - Gas-filled double glazing
2. What drives up your home energy bill the most?
 - Hot water
 - Household appliances and electronics
 - Heating and air conditioning
 - Lighting
3. What are the most effective ways to reduce your hot water bill?
 - Insulate your pipes, collect rainwater, and shower every other day.
 - Wash your clothes in cold water, and install a low-flow showerhead and faucet aerator.
 - Install a low-flush toilet, a drain water recovery system and an electronic thermostat.
4. How much hot water can you save by taking a five-minute shower instead of a bath?
 - 100 litres each time
 - 50 litres each time
 - 75 litres or more each time
5. How much hot water will be lost if a leaky faucet drips at one drop per second?
 - 15 litres a day
 - 27 litres a day
 - 9 litres a day
6. Which of the following does NOT save energy at home?
 - Turning off the lights when you leave a room
 - Drying your clothes on the clothesline
 - Using a good old-fashioned thermostat
 - Plugging your electronics into power bars and turning them off when not used
7. At what temperature should you set your thermostat during the day in winter to reduce your energy bill without sacrificing comfort?
 - Between 15°C and 18 °C
 - Between 18 °C and 21 °C
 - Between 21 °C and 24 °C
8. True or false: The internet, home automation, and smart homes are trendy and don't change how we use energy.
 - False
 - True

Source: Test your knowledge of home energy consumption <https://blogue.energir.com/blogue/en/at-home/test/>

JUDGING LAUNDRY DETERGENT

Judging Card

Criteria:

1. Is the item made properly?
2. Does the item serve the purpose of the class it is in?
3. Is it the proper size for its purpose?
4. Does it smell and look like it should?
5. _____
6. _____
7. _____

*Note: additional requirements can be added to the list specific to the item being judged.

Giving Reasons:

I place this class of _____ , _____ , _____ , _____ .

I place _____ over _____ because...

I place _____ over _____ because...

I place _____ over _____ because...

I place _____ 4th because...

For these reasons, I place this class of _____ , _____ , _____ , _____ .

Official Placing _____ .

SIMPLE QUESTIONS - POWERFUL RESULTS

Write down all the items you threw out today.

Item	Recycled	Reused (how)	Composted

Are there other ways you can use as many R's as possible to create zero waste?

- Reduce – carefully consider how many items you purchase
- Reuse – think of ways to use an item in several different ways, and share an article with friends or family members once you are finished with it
- Recycle – use an item again
- Repair – fix an item to keep using it
- Refuse – avoid unneeded packaging or items that need to travel long distances
- Renew – maintain the item to keep it working well
- Return – bottles and containers that may have had a recycling deposit, e.g. alcohol bottles, pop bottles, milk jugs
- Restore – return the item to its original state
- Revitalize – refresh an item to give it a new life
- Redesign – use the whole or parts of an item to make it useful in a different way
- Add any other ideas you may come up with

Find the yard sales, auctions, second-hand, vintage, consignment and thrift stores in your area. Be sure to record the dates, locations and contact information.

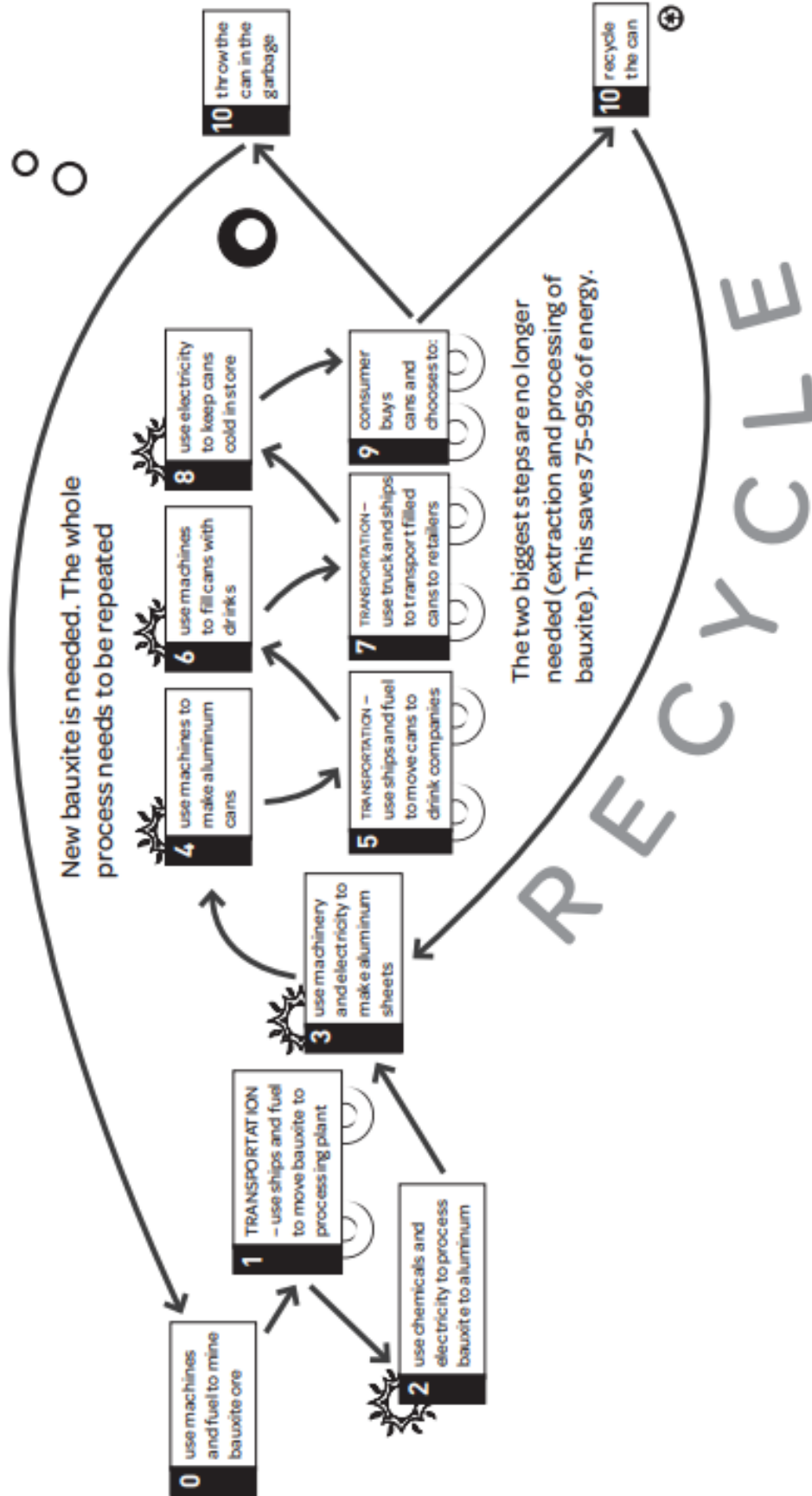
Date	Event	Location	Contact Information

Create a flyer, social media post or campaign to share the contact information.

THE LIFE CYCLE OF A PRODUCT

Title: No Fish Story! – The Making of an Aluminum Can

BLM 1



Source: Energy Conservation Learning Activities by Grade 1-8, Ecological Literacy Resource, Revised 2011-12, www.ontarioecoshools.org

What product (matter) have you chosen to learn more about?

What natural resource or raw material is needed to make this product?

Where is energy needed in the life cycle of this product?

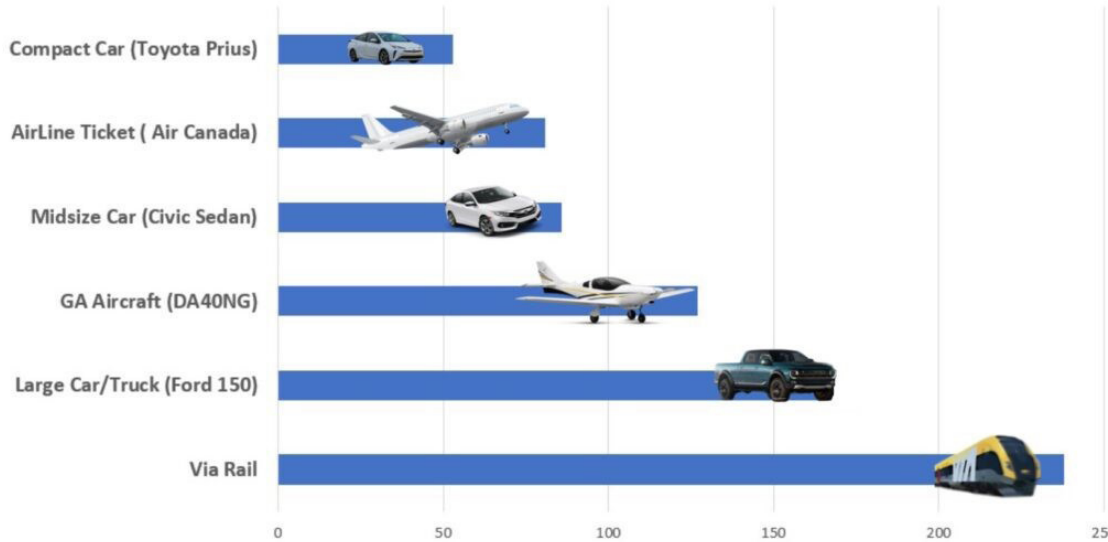
What is the effect of taking this raw material from the environment?

Can this product be recycled? How is it done?

What is the recycled product made into after recycling? What are the benefits of recycling this product?

PLANES, TRAINS AND AUTOMOBILES

Montreal to Halifax - Grams of CO₂/km per Passenger

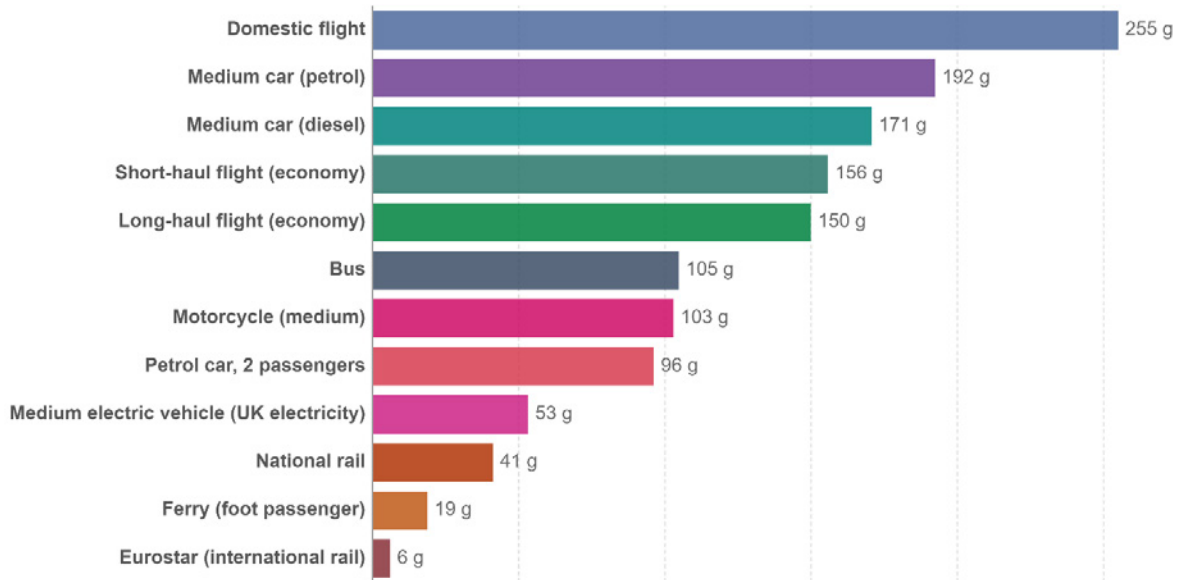


Graphic Source: Comparing the Carbon Footprint of Transportation in Canada, <https://pickeringairport.org/comparing-the-carbon-footprint-of-transportation-in-canada/>

Carbon footprint of travel per kilometer, 2018



The carbon footprint of travel is measured in grams of carbon dioxide-equivalents¹ per passenger kilometer. This includes the impact of increased warming from aviation emissions at altitude.



Source: UK Department for Business, Energy & Industrial Strategy. Greenhouse gas reporting: conversion factors 2019.

Note: Data is based on official conversion factors used in UK reporting. These factors may vary slightly depending on the country, and assumed occupancy of public transport such as buses and trains.

OurWorldInData.org/transport • CC BY

1. Carbon dioxide-equivalents (CO₂eq): Carbon dioxide is the most important greenhouse gas, but not the only one. To capture all greenhouse gas emissions, researchers express them in 'carbon dioxide-equivalents' (CO₂eq). This takes all greenhouse gases into account, not just CO₂. To express all greenhouse gases in carbon dioxide-equivalents (CO₂eq), each one is weighted by its global warming potential (GWP) value. GWP measures the amount of warming a gas creates compared to CO₂. CO₂ is given a GWP value of one. If a gas had a GWP of 10 then one kilogram of that gas would generate ten times the warming effect as one kilogram of CO₂. Carbon dioxide-equivalents are calculated for each gas by multiplying the mass of emissions of a specific greenhouse gas by its GWP factor. This warming can be stated over different timescales. To calculate CO₂eq over 100 years, we'd multiply each gas by its GWP over a 100-year timescale (GWP100). Total greenhouse gas emissions – measured in CO₂eq – are then calculated by summing each gas' CO₂eq value.

Graphic Source: Which form of transport has the smallest carbon footprint? <https://ourworldindata.org/travel-carbon-footprint>

PLANES, TRAINS AND AUTOMOBILES

Our group's scenario –

Brainstorm all of the methods of travel.

What way is the most energy efficient?

What considerations should be kept in mind when choosing the way to travel?

What way of travelling makes the most sense for your scenario? Why?

ADVOCACY IN ACTION HANDOUT

Part 1 - How decisions are made.

- What points (criteria) do you use when deciding as an individual?

- What additional considerations would you need to remember if you are a community or municipality?

Part 2 - Communicating with officials.

- Phone call
- Email
- Letter
- In-Person 1:1 meeting
- Official response portal (e.g., Toronto 311 – Toronto at Your Service)
- Delegation to a meeting

Part 3 - Elements of an effective message.

1. The salutation

2. The introduction

- State your name

- State your role, if applicable

- Provide a snapshot of the issue

3. The issue

4. The solution

The Anatomy of the Solution

- Be prepared
- Be specific
- Be realistic
- Consider multiple solutions, depending on the issue

5. The conclusion

The Anatomy of The Conclusion

- Restate the importance of the issue
- Explain how the issue impacts the broader community
- Summarize action items
- Sign off

Option 1 - Ask members to write a message about an issue related to energy use that is important to them.

Option 2 – Create a social media campaign to convince people to choose environmentally-friendly transportation.

Example:

Dear ABC Company, Packaging Department:

I am writing to express my concern about your packaging. My family has always used your product, but recently, you have started wrapping it with excessive plastic and cardboard. This packaging serves no use and is not accepted for recycling. The packaging must be sent to our already overflowing landfill site. We ask you to eliminate this wasteful packaging so our family can continue buying your product. Your company was very successful in the past with its switch to recycled product materials. We wish you the same success in eliminating this new type of packaging you have started to use. I am enclosing your packaging as it is useless to me or my family. I appreciate your consideration. I await your reply.

Yours sincerely,

E. Conserver

LET'S MAKE HYDROGEN

	What happened?	Rank the number of bubbles from most (4) to least (1)
Distilled Water + Baking Soda		
Distilled Water + Lemon Juice		
Distilled Water		
Tap Water		

JUDGING OUR ENERGY

Judging Card

Criteria:

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5. _____
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Giving Reasons:

I place this class of _____ , _____ , _____ , _____ .

I place _____ over _____ because...

I place _____ over _____ because...

I place _____ over _____ because...

I place _____ 4th because...

For these reasons, I place this class of _____ , _____ , _____ , _____ .

Official Placing _____ .

WHAT CAN I DO? ENCOURAGING INNOVATION

Plan your message:

**Whenever you need
to talk, we're open.**

Call.

1 800 668 6868

Youth Text.

686868

Adult Text.

741741

Chat.

[KidsHelpPhone.ca](https://www.kidshelpphone.ca)

