Journey Towards a Waste-Free Lifestyle and lessening Consumerism impacts on the Environment
A Grade 8 Teacher's Guide on going Waste-Free

Prepared by: TREA **Sponsored by:** Westminster College Foundation

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TREA'S Classroom `Taking the Right Step` CONSUMERISM Presentation Agenda

Materials suitable for substitute teacher, permanent teacher of TREA presenter.

TREA may be able to schedule a visit to schools in the London area on a limited basis depending on staffing. Please contact our office for more information at info@trea.ca.

5 min. Introduction

Facilitator

- Outline of history of Canadian consumerism issues, started in the 50's
- Ecological footprint description and what the planet has resources for
- Impacts on current trends of social behaviours, perceived wants and needs

10 min. Student Feedback

Exercise 1 – Influences that impact our purchasing power?

ie values, trends, personal experience, referrals, habits, routines, social acceptance, availability of products and services, pricing, carbon footprint

5 min. Description of global/local changes needed for sustainability

Facilitator

- Fossil fuel availability, need for relocalization, resiliencies of community
- Less dollars for landfill, more cradle to grave responsibility in product design

20 min. Feedback

Exercise 2 – Advertising

Advertisements found in teen magazines can be circulated and each student can identify what their ad is selling, why an individual would want to purchase the product based on the ad design and if the purchase is a necessity or luxury, impulse purchase or if they feel product life cycle consideration is made.

- Discussion on how we can make a difference
- Stay informed on world and community events, make more informed choices, avoid toxic foods, clothing footprint, purchase local, read labels, lease, rent, share instead of buy.

Or

Exercise 3 – The Food Shopping Challenge

Look at various examples brought in of food packaging to determine which one of two items has the lesser footprint because it is grown locally, the packaging can be recycled, or it is cost effective etc. Students will present back to class a selection they make and considerations why.

5 min. Wrap up

Recap - Our world is changing, over consumption is less attractive, other options must exist.

Please note a TREA online workbook for each family to address household waste management and a survey for kids or adults to calculate their household potential carbon footprint reductions is available. Also TREA has a Waste Reduction Guide and a 30 day challenge to check out too. These can be incorporated into classroom learning sessions. Visit https://www.trea.ca/waste-free/ for these tools**.**

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1.0 INTRODUCTION

Welcome to the Grade 8 Teacher's Guide to a discussion on resource consumption and consumerism. Our intent is to help students take action on climate change and overcome wasteful habits. We are providing tools for classroom discussion regarding environmental factors that impact systems, the passing on to future generations no less than what we as stewards of the planet have access to ourselves and examining change and interactions within systems. Ultimately, we want to stabilize and/or reduce the impacts of a 1.5°C warmer world.

The impact of consumption trends on our environment, including transportation, waste and energy use involving food delivery, packaging, and purchasing are all important factors that we influence with our personal actions. We need to evaluate carefully our purchasing and economic choices to create a healthy environment that supports a planet with limited resources. This module addresses consumerism issues, why we make purchases, advertising impacts, decision-making, and effective things we can do now to make better decisions for the planet.

As educators, we hope you will find this material useful in setting the stage in the classroom to understand the impact our consumer-driven economy has so that students can make changes and influence family and friends to reduce consumerism impacts on our environment. We include resources and a presentation outline to help make this learning module meaningful for your students, in particular, to have them avoid excess packaging and one time use containers in their routines thus diverting waste away from landfills as well as living more sustainably.

PURPOSE:

To introduce the concepts of a circular economy product lifecycle, over consumption, and need for relocalization**.**

GOALS:

Our message to schools for discussion and deliberation is that the more we produce and the more that we buy, the more it impacts our society's living standards such that we need to incorporate sustainable ethical practices into our everyday actions. Consuming goods has become over time too central to our culture. It is not just the producing and selling of products and services that helps our modern economy thrive but a sustainable approach to protect the extraction and use of our natural resources such as wood, ore, fossil fuels, and water and avoidance of excessive pollution and waste as a result.

Single-use items pollute our environment. Approximately 152,600 tonnes of waste are produced annually by Londoners. London's landfill will reach capacity by 2024 without interventions, so it is fortunate Green Bin program is expected in 2022 as one strategy to prolong the landfill when it comes to food waste.

After completion of this module, we envision students will be more conscious consumers making note of product need, packaging, distance products travel and understanding of how individual action can make a difference.

LEARNING OUTCOMES

By following this guide, teachers can:

- Provide students with a study component specific to learner outcomes within programs of studies to enhance and supplement instruction.
- Show students the importance of and develop greater awareness as to taking action at home, at school and in the community in response to consumerism imbalances.
- Help students develop further skills to encourage their development as independent learners specific to informed decision making on purchasing and waste reduction.

By following this guide, students can:

- Understand further the environmental impacts involving over-consumption, the interdependence between humans and the earth's natural systems and the need to create sustainable strategies for future generations.
- Examine their own role in consumerism impacts and discuss ways in which they can improve their choices personally noting that every purchase counts.
- Communicate the importance of relocalization and product lifecycle to others.

2.0 CONNECTIONS TO CURRICULUM FOR GRADE 8 TEACHERS

- Grade 8 Science and Technology

http://www.edu.gov.on.ca/eng/curriculum/elementary/scientec18currb.pdf

Understanding Structures and Mechanisms

Our module relates to the assessment of personal, social and/or environmental impacts of a system and its interactions, improving a system and/or alternative ways of meetings the same needs. Our discussion focuses on sustainability, can products we use can be more efficiently made, how clothing and other products are not all made in Canada and thus have different production standards, pollution, the quality of materials produced, pricing, casual discarding of perceived poor craftsmanship, and any subsequent environmental and waste problems.

The discussion of consumerism ties to Grade 8's learning of our dependency of social and economic systems on our natural systems and the consequences of consuming too much.

- Grade 8 Geography

http://www.edu.gov.on.ca/eng/curriculum/elementary/social-studies-history-geography-2018.pdf

The discussion of consumerism ties to the investigation of natural resources, and the steps to contribute and be responsible citizens in a complex society characterized by rapid technological, economic, political and social change that does not necessarily recognize humanity's demand for ecological resources and services is exceeding what the Earth can provide. Consumerism is part of the analysis of connections between natural and human environments addressing the fundamental concepts of environment and humanity's interaction.

Consumerism is part of the global inequalities surrounding economic development and quality of life. Having students develop the ability to examine issues from multiple perspectives and adopting a leadership role to encourage sustainable behaviour at home, at school and possibly

even in the neighbourhood or community can help establish better decision-making for the future influencing water, air and soil pollution, housing, modes of travel, growing food and so on.

- Curriculum Citizen Framework

Consumerism ties in with Grade 8's investigation of economic systems, a changing society and Canada's role in the world learning that investigates how people and environments affect each other and our functioning as informed citizens in a culturally diverse and interdependent world in response to a global economy. Consumerism addresses the fundamental concepts of collective choices, trade-offs, needs and wants with respect to personal decision-making and more in developing adaptation and mitigation tools to fight climate change.

3.0 **Getting Started**

3.1 What is Consumerism?

Consumerism can refer to the frequency and intensity of marketplace behaviours. It can also present the idea that happiness and well-being are linked to personal consumption of goods and services. Our consumerism culture encourages people to consume beyond a basic necessity. In today's society, it has been easy for us to travel great distances, eat our favourite foods all year round, and wear clothes for different seasons, then buy new ones given new trends with disregard to the resources needed for them nor any inequitable circumstances in production given globalization has opened up new markets world-wide to be accessible.

Many citizens seek social status and define their self-worth in terms of the quality and quantity of their own personal possessions rather than their impacts on the environment in depleting its reserves. A big issue with consumerism is that many people do not even realize that there is a problem. In 2020, Earth Overshoot Day which marks the date when humanity's demand for ecological resources and services in a given year exceeds what the Earth can regenerate in that year was on August 22. This date included the impacts from the coronavirus pandemic which meant many people stayed at home to work remotely or lost work so the demand on resources lessened from the date the year before which was July 29. Changes in carbon emissions, forest harvest, food demand, and other factors impacting global biocapacity or the Ecological Footprint from January 1 to Earth Overshoot Day (EOD) each year are evaluated carefully based on data.

How do we continue the impact that Covid-19 has started in terms of simplifying our lives and keeping our families safe? Resource inefficiency in food production and food waste are just two major factors that contribute to our over-consumption but some families are now having more time to start gardens and cook meals thus reducing our footprints. EOD tells us if we reduced global meat consumption by 50% and replaced these calories through a vegetarian diet, we would move Overshoot Day 17 days (including 10 days from reduction of methane emissions).

Even with our response to Covid-19 with more precautions until it is eradicated, Toronto Environmental Alliance reminds us that fossil fuel pollution will return to previous levels unless we take major steps to change that with well-resourced, equitable and adaptable public services, institutions, and civic society 'watchdogs' during any future crisis. On the positive, the pandemic response has been bringing new changes to our lifestyles and work patterns that reduce consumption, mean less driving, reduced waste (except for the problem of more takeout meals using one time use plastic containers/cutlery), and more use of local businesses and services instead of products being shipped thousands of miles to reach us.

Excess packaging and excess energy consumed in the production and delivery of products to us means more waste. Environmental costs incurred during processing, transport, storage and preparation must be added to initial production costs. Our society should be thinking refusing, relocalization, recycling, reusing, renting, reducing, renting, redistributing/re-gifting, rethinking, repairing, and composting to lessen their impact on the planet.

We know that as the demand for goods and services increases, the need to produce them also increases. This can lead to more pollutant emissions, increased land-use and deforestation which impact the Earth's biological diversity, creates a larger carbon footprint, particularly from beef and dairy cattle, and increased climate issues which may eventually create health problems. Industrial pollution from toxic by-products is already affecting vulnerable populations. Thus there are many consequences due to over-consumption to find solutions for and product materials to use within a circular economy or from plant waste that can then breakdown and regenerate to create more organic products.

Since the 1950's, advertising, retail and consumer credit have had a huge impact on our personal consumption patterns. Media has engaged the manufacturing sector to persuade citizens that buying goods will fill a void toward a fulfilling and rewarding life. Advertising has been targeted to key audiences and using credit cards has become a way of life. The 'more is better' concept is the challenge and the over-dependence on labour-saving devices, as what we have to move away from to support conservation, sustainable behaviours, using less of our natural resources, reducing greenhouse gas emissions, and supporting future generations.

Sources:

https://www.paggu.com/business/world-economy/the-effects-of-consumerism/

https://www.un.org/en/academic-impact/consumerism-and-climate-change-how-choices-you-make-can-help-mitigate-effects

https://www.overshootday.org/

https://www.youtube.com/watch?v=WInDaa-0Yd4 The Story of Stuff with Annie Leonard

https://www.torontoenvironment.org/climate_change

3.2 What is an Ecological Footprint?

An ecological footprint is the total amount of productive surface area - land, food, water, and other resources used by, or the total ecological impact of, a person or organization's subsistence. It is usually measured in acres or hectares of cropland, grazing land, fishing grounds, built-up land, forest area, and carbon demand on land. An individual with a large ecological footprint needs more land and resources to support their lifestyle than an individual with a small footprint. The choice of food, transportation, housing, types and amounts of energy usage and refuse disposal are some of the factors that determine the size of our footprint.

On the supply side, a city, state or nation's biocapacity represents the productivity of its ecological assets. These areas, especially if left unharvested, can also serve to absorb the waste we generate, especially our carbon emissions from burning fossil fuels.

According to recent (2017) international comparisons from the World Atlas, Canada is among the top 10 countries with the largest ecological footprints in the world with a footprint of 7.01 gha/person. Canada's environmental capacity to regenerate resources (biocapacity) in 2014 was 14.6 global hectares per person, meaning our biocapacity exceeds our footprint of land and

sea use throughout the world to support each Canadian given our current lifestyle. In a 2004 Federation of Canadian Municipalities' (FCM) report, commissioned to develop the first estimates contributing to FCM's Quality of Life Indicators reporting system, it was found that municipalities with higher footprints also had higher residential incomes. While the majority of municipalities in this study fell within 6% either below or above the Canadian average ecological footprint of 7.25 hectares at the time, York (114%), Ottawa (119%), Halton RM (123%), Edmonton (130%), and Calgary (136%) had ecological footprints that were at least 10% greater than the Canadian average.

The planet's biological productive capacity (biocapacity) is approximately 1.9 hectares (4.7 acres) per person. Globally, we use up to 2.8 hectares per person. Thus, we are living beyond the planet's biocapacity to sustain us with a deficit of 0.9 hectares (2.2 acres) per person.

What about London's footprint?

The FCM report (2004) listed London's ecological footprint at 6.96 hectares per person at the time. To find out your own personal Ecological Footprint, visit https://app.projectneutral.org/.

Sources:

https://www.footprintnetwork.org/our-work/ecological-footprint/

http://www.worldcentric.org/conscious-living/expanding-eco-footprint

"Ecological Footprints of Canadian Regions and Municipalities" September 2004. Found at https://www.osti.gov/etdeweb/biblio/20539833

3.3 What are recent consumer trends?

Consumer trends are the buying habits of consumers. Many things can influence consumer trends such as individual personal values, purchasing trends, personal experiences with a product, referrals from others, routine purchases, pricing and the availability of products and services. With pandemic protocols and lockdowns, this has been noticeably impacted.

Sustainable consumption is our goal; we need to consume to survive but we also need to make smart choices to avoid over-consumption and reduce the waste from over packaging. It is possible for Canadians to consume without a large ecological footprint. The understanding of how marketing, consumption and the environment all interconnect helps us to make more informed choices while reducing our impact as we start to see the bigger picture for the future.

For instance, the landfill is where many disposable items are sent to once the consumer uses them. Landfills negatively impact the environment by contributing to groundwater pollution, soil infertility, and their construction destroys habitats. Certain kinds of waste will also release methane as they break down in the landfill. Furthermore, city landfills are reaching capacity, so they are no longer becoming a viable option to dispose of waste. London's landfill is projected to reach capacity in the year 2024 so steps are being taken to expand it and decreasing the amount of waste from going into it. The province is making it much more difficult to establish any new landfills so cities must plan for greater waste diversion plans.

Interestingly, Canada Post published a recent article on consumer trends given the fact 'more Canadians have turned to online shopping than ever before, with millennials and Gen-Z driving the shift'. Some of their studies have shown that 2020 and the pandemic brought huge changes to the e-commerce landscape in a very short period of time, but will those changes persist? They note Canadian shoppers listen to other shoppers thus an increased sharing of reviews, ratings and feedback on websites and social networks has been observed; that Canadians appreciate exclusive product offers, that corporate social responsibility influences buying decisions and will continue to do so in the future. In fact, 46% of Canadian consumers were found to shop more often with retailers who took steps to reduce their carbon footprint.

It would appear Canadian consumers are starting to recognize that their buying decisions matter. Making consistent, conscious choices can make a positive and meaningful impact on the world. Younger consumers are seen to shop small and green and actively look for brands that share their values. Think about ways you can establish and communicate a distinct corporate social responsibility message to your family and friends to improve product lifecyles.

Sources:

https://getinvolved.london.ca/whywasteresource#:~:text=The%20City's%20Action%20Plan%20proposes,viable%20and%20environmentally%20responsible%20manner.

https://www.canadapost-postescanada.ca/blogs/business/ecommerce/9-canadian-consumer-trends-that-could-define-e-commerce-in-2021/

3.4 How is Canada doing?

The Canadian Centre for Policy Alternatives released a study in 2008 that uniquely found the size of Canadian households' ecological footprint grows systematically according to income; therefore, not a function of existence on the planet, but rather a function of capacity to consume. Canadians enjoy one the highest living standards in the world, which requires abundant natural resources and a large biomass capacity. Basic necessities, food and housing, were found to account for 57% of their total ecological footprint (potentially our carbon footprint). Canada, with an abundance of renewable resources and a sparse population density, thus has one of the highest ecological impacts in the world (refer to earlier Ecological Footprint discussion) and consumes a disproportionately large share of the Earth's natural capital capacity. The report also reminded us that global warming is directly linked to human behaviours and consumption of fossil fuels and natural resources resulting in more carbon dioxide and peak oil concerns.

Is it possible then we can say that Canada has a large footprint because our consumer trends are derived predominately from fossil fuel demands on the planet, our high standard of living and the influence of advertising on our purchasing?

The Federation of Canadian Municipalities' notes York, Calgary and Edmonton have the highest municipal footprints in Canada while Greater Sudbury and Niagara Regional Municipality have the lowest. Primary differences are due to consumption expenditure levels and the kind of energy we consume to power our lifestyles.

The 'Pan-Canadian Framework (PCF) on Clean Growth and Climate Change' (December 2016) policy, has been our climate strategy to transition itself to a low-carbon future; the goal initially is to exceed Canada's target of 30% below 2005 levels by 2030 from the Paris Agreement, as a

foundation for net-zero emissions by 2050. The PCF is critical to Canada's climate mitigation efforts as it has set into motion carbon pricing, accelerated coal phase-out, clean fuel, vehicle, transportation and building standards, methane regulations, new technologies, to reduce our greenhouse gas emissions footprint and stimulate clean economic growth options instead. Yearly UN Conference of the Parties (COP) meetings review the national communications and emission inventories submitted by countries to determine if targets are being met. Canada's forests and soil are carbon sinks that already store huge amounts of carbon dioxide (CO_2) but we still need to conserve for sustainable development planning to reach our targets.

Here in London, more than one tonne of waste is produced per person per year. This includes waste generated at home and from businesses. Much of this waste is diverted through waste reduction, reuse, recycling and composting programs. The waste that remains is "Residual Waste". All of the Residual Waste from households and a portion generated by businesses is disposed of at the City's W12A Landfill Site. W12A opened in 1977 and is reaching capacity in 2024 based on current waste being received. Thus, the City has created a strategy to extend the life of the landfill by reducing materials going into it with a curbside Green Bin program and other initiatives such as streaming for bulky plastics, carpets, ceramics, clothing and textiles, small appliances/tools and scrap metal, furniture, mattresses and bi-weekly garbage collection.

Sources:

https://www.policyalternatives.ca/sites/default/files/uploads/publications/National_Office_Pubs/2008/Size_Matters_Canadas_Ecological_Footprint_By_Income.pdf

https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework.html

https://getinvolved.london.ca/whywasteresource#:~:text=The%20City's%20Action%20Plan%20proposes,viable%20and%20environmentally%20responsible%20manner.

https://pub-london.escribemeetings.com/filestream.ashx?DocumentId=50627 London Waste strategy to move from 45% to 60% waste diversion

3.5 Why we need to be efficient with our consumption habits and how

Being efficient, means our being able to satisfy our needs today without compromising the needs of future generations. Not only will this allow for future generations to live on this planet with the same resources, but also it will allow for us to live in a cleaner, healthier environment right now while living within our means. The Indigenous Seventh Generation Principle is based on an ancient Iroquois philosophy that the decisions we make today need to result in a sustainable world seven generations into the future. As communities engage more with bringing Indigenous leaders and traditions to the table, this concept is being discussed much more.

Over the last 40 years, there has also been an increase in environmental consciousness as the environment becomes more of a mainstream issue along with health. Many people are very interested in what they are eating as some pesticides are still in use for agriculture and non-agricultural land management, water bottle are being seen more as plastic pollution and one time use containers are becoming increasingly unpopular. This has resulted in more support for local farmers, markets and suppliers, even 100 mile diets. Associating food waste with over consumption, buying too much, or inadequate storage is more noticeable. A Western University

study in 2019 with 1,300 homes, found families on average were throwing out 125 kg of food per year worth $600. With emails, magnets, grocery list pads and freezer message prompts over time the project ended with a 30% drop in avoidable food waste going to landfill.

Sometimes efficiencies are driven as policy by government. In late 2016, Ontario proclaimed the Waste Free Ontario Act, comprising the Resource Recovery and Circular Economy Act and the Waste Diversion Transition Act. It was recognized more landfills was not the answer and that over a period of10 years, Ontario was only recycling about 25% of its waste and the situation was not improving. With 8 million tonnes of waste going to landfill yearly producers are now to be responsible for the end-of-life management of their products and packaging.

Sometimes efficiencies come from a crisis. The pandemic has changed the world as we know it. Accenture, a high tech innovator business observes 'People are living differently, buying differently and in many ways, thinking differently. Supply chains have been tested. Retailers are closing doors. Consumers across the globe are looking at products and brands through a new lens. Consumer priorities have become centered on the most basic needs, sending demand for hygiene, cleaning and staples products soaring, while non-essential categories slump. The factors that influence brand decisions are also changing as a "buy local" trend accelerates. Digital commerce has also seen a boost as new consumers migrate online for grocery shopping – a rise that is likely to be sustained post-outbreak'. The ways in which people spend their leisure time are changing and entertainment, learning and D-I-Y have also seen an increase.

We need to reduce our dependence on fossil fuels and promote localization and self-sufficiency for food, water, energy and other vital aspects of life. There are many ways we can change our consumption habits in order to consume more efficiently including;

- Driving less; walking, cycling, carpooling or taking public transit.
- Purchasing locally, producing no waste, reading food expiration dates, using leftovers.
- Eating more organic, locally grown food that has no chemicals or pesticides.
- Retrofitting homes or businesses to be more energy efficient or exploring renewable energy alternatives.
- Buying "green" power from local utilities.
- Buying a more fuel efficient, low polluting vehicle; or committing to no vehicle and, choosing a home closer to work or working from home.

Acting locally is about local resiliency - the ability of an ecosystem to absorb and learn from disturbances, to be changed and then re-organized and still retain its basic structure and ways of functioning offers ecological resilience - visit www.stockholmresilience.org.

Sources:

https://news.westernu.ca/2019/10/study-money-motivates-in-reducing-food-waste/

https://www.ontario.ca/page/strategy-waste-free-ontario-building-circular-economy#:~:text=A%20circular%20economy%20protects%20the%20environment.&text=Data%20tells%20us%20that%20increasing,from%20Ontario%20roads%20each%20year.

https://www.accenture.com/ca-en/insights/consumer-goods-services/coronavirus-consumer-behavior-research

https://www.thecanadianencyclopedia.ca/en/article/resources

3.6 Consumerism and its impact on the ecosystem

The production, processing, and consumption of materials have meant the extraction and use of natural resources such as wood, ore, fossil fuels, and water. It has meant building factories and products that generate toxic by-products, pollutants and waste. Of these, three factors are often identified as responsible for pollution - population, technology, and consumption. We don't give consumption the most attention but we should. Non-renewable resources, for example minerals changed through industrial processes, often cannot be re-used. Soil when managed well can sustain itself for long periods with build-up of plant materials and animal waste. Oil, gas, coal and other metals have been mined when the benefits outweigh the costs, and then used to fuel cars, heat homes, and construct buildings.

Governments can encourage or discourage the use of resources by influencing their cost. For example, in 2019, Canada launched a national carbon pricing plan. The goal is to reduce our use of fossil fuels by making products like gasoline more expensive and reduce the emission of greenhouse gases that contribute to climate change. Canada is one of the most resource-rich countries in the world. This is a major national advantage economically and culturally. But Canadians face several challenges if they are to continue to benefit from a large and varied resource base as many of the highest-quality resources have been heavily used. Farmland has been cultivated for many years. The most accessible oil fields have passed their peak output. Maintaining the productivity of the land and finding of new supplies of oil have become priorities when it needs to be recognized we can switch to other energy sources for the same service.

In the book, Facts not Fear: Teaching Children About the Environment it notes: We don't really want copper wire, petroleum, and electricity; we are looking for communication over long distances, warmth in winter, and transportation to our homes and offices. These services can be provided by many different resources, especially as technology advances. As natural resources become scarce, their prices increase and consumers begin to conserve and shift to substitutes. Natural resources aren't useful until human beings figure out how to use them, and human ingenuity is constantly finding how to use new resources or old resources in new ways.

Natural resources are often central to debates about climate change action and reconciliation with Indigenous peoples. The contribution of fossil fuel emissions to global warming has led to political division in Canada over oil sands development, pipelines and renewable energy projects. Political and legal issues also surround the duty to consult Indigenous communities on resource extraction in their traditional territories, the concept of "free, prior and informed consent" and the division of profits from such activities.

Greenbiz tells us E-waste has become the fastest growing waste stream around the globe weighing in at more than 50 million metric tons annually. Within that stream of which less than 20% is recycled; it's estimated that we're tossing $57 billion in precious metals and raw materials annually, not to mention the emissions from material extraction, manufacturing and shipping. In a PC's lifespan, upwards of 70% of the associated carbon emissions occur during manufacturing and it's estimated that by 2025, 8% of global greenhouse gas emissions will come from manufacturing smartphones, computers and TVs alone. With all that embedded value and emissions, it makes good sense to keep products in use as long as possible. We need to design sustainable non-toxic equipment that is easy to repair with replaceable parts. In

addition to improving product design, the circular economy needs to be implemented to maximize material recovery.

On a global scale, in their latest Emissions Gap Report, UNEP tells us more countries are committing to net-zero emissions goals for 2050. These commitments must translate into strong short-term policies, and sustainable products that do not compromise the future.

Within a society, we have a finite number of natural resources to make products and services. Sustainable consumption requires patterns that distribute our resources such that stock of energy and materials are maintained. For instance, plastics which may take millions of years to breakdown have now become an issue instead of an advantage as finding a way to deal with plastics becomes an increasing problem. Activities that improve a balance of consumption and economic activities include: manufacturing full lifecycle activities, resource management, mixed use planning, housing design, pollution and waste reduction and greater availability to shop in our local neighbourhoods. How we link our economy and our environment and look at how our society consumes involves looking at how we spend, what we buy, how much we use and the efficiencies of it in order to make change.

Sources:

https://www.fraserinstitute.org/sites/default/files/facts-not-fear-chapter-7.pdf

https://www.thecanadianencyclopedia.ca/en/article/resources

https://theshiftproject.org/en/article/lean-ict-our-new-report/

https://www.unep.org/emissions-gap-report-2020

3.7 Groups making change

There are many agencies working to reduce consumption-based emissions. A number are listed in TREA's online Green Directory. Their mandates are now even greater given the COVID-19 recovery must be about climate recovery too. The pandemic has demonstrated rapid changes in legislation, community priorities and our lifestyles are possible in the face of crisis.

Council of Canadians stands out in building grassroots community power for a just recovery from the COVID-19 pandemic. Their campaigns include clean water, fair trade, strengthened health care, climate justice and democracy for social, economic and environmental justice.

The Ontario Environment Network works with members to protect, conserve, restore, and promote a sustainable environment for present and future generations. It offers resources, green job listings, and committees on Biodiversity, Land Use Planning, and Conservation.

A number of Canada's agencies advocate for ocean conservation, forests and reforestation, wildlife protection, social and environmental justice, climate action, and regenerative agriculture.

The Circular Economy movement works to create economic opportunities out of the materials we might otherwise throw away extending their lives. There is a club here in London.

There are also organizations that promote ethical consumerism around the world. For example, Green America's mission is a socially just and environmentally sustainable society by focusing economic action to solve social and environmental problems, ie food, labour, finance and energy. It offers a magazine, e-newsletter and a Green America Seal certification scheme for "Green Businesses", committed to using business as a platform for social change.

Importantly there is a global organization promoting self-sufficiency, simplicity, reskilling, local ecological resilience, and sustainable living through a movement of communities coming together to reimagine and rebuild our world. Transition Towns started in 2005 in the UK as a project to equip communities for the dual challenges of climate change destruction, economic instability and peak oil. It is now in more than 50 countries. A Transition Town is an example of a town that encourages localization as a signal to buy less to protect our future. Nearby active Transition groups examples are in Guelph, and Toronto. London's group is currently not active.

The Post Carbon Institute also promotes relocalization - local production of food, energy and goods, the local development of currency, governance and culture as well as resilient communities that thrive within ecological bounds. London has a local chapter.

Sources:

https://www.trea.ca/resources/green-directory/

https://canadians.org/about

https://oen.ca/links/

https://www.canada.ca/en/services/environment/conservation/sustainability/circular-economy.html

https://www.greenamerica.org/

https://transitionnetwork.org/

https://www.resilience.org/about-resilience/ a part of the Post Carbon Institute movement

3.8 The Benefits of Recycling

Planned obsolescence is a term first defined in the 1930's describing a limited lifespan of a product and a need to replace it. We frequently find changes of style and design in conventional consumer products compel us to purchase the latest version even if the product remains durable. This is particularly predominant with the age and frequent changing trends of cars, clothing and technology.

Sometimes we find the issue of computer product support is not available to replace, upgrade or change parts or the price of a new version outweighs the replacement parts, leading to e-waste.

More options are now available to us to give used electronics a second life by selling them used or by donating them to charity. Market places such as eBay and Craiglist have sprung up to avoid having some products end up in landfills or incinerators. Recycling companies often take

e-waste components and parts and separate them as they have markets for various waste items such as plastics, glass and paper. Stricter laws should continue to be lobbied for to require manufacturers to improve recyclability of products toward lifecycle commitment. A circular economy movement exists on this. Ontario has regulatory processes underway.

3.9 The Benefits of Composting

World Counts states a third of all food suitable for human consumption (about 1.3 billion tonnes) in the world is lost or wasted. 1.6 billion tons of so-called "primary product equivalents" are also lost or wasted. Food is lost at every step in the food 'life cycle' - production, postharvest handling/storage, processing, distribution, consumption and end of life because it is misdirected or thrown away due to poor harvesting techniques, spoilage, inefficient distribution processes and overly particular consumer preferences. Every step also releases greenhouse gases. Loss of food also loses the water used to produce it. The UN estimates the direct economic consequences of food waste to $750 billion yearly. And that's even excluding fish and seafood. Counting fish and seafood, the number is close to $1 trillion.

Canada recognizes methane as a powerful greenhouse gas generated following the disposal of food waste in landfills. Research estimates that 20% (or 11 million tonnes) of all the food produced in Canada annually becomes avoidable food loss or waste - food that could have been eaten, but was instead landfilled, incinerated or managed as organic waste (VCMI, 2019).

An estimated 13% of fruits and vegetables grown in Canada go unharvested or are discarded following harvest. A survey of producers noted land application, composting, anaerobic digestion and animal feed as the primary destinations for food loss at this level (VCMI, 2019).

An estimated 12% of Canada's avoidable food loss and waste occurs during the retail phase of the supply chain. This waste may be sent to industrial composting or anaerobic digestion facilities, or disposed in landfills. Donation of surplus food is common among the largest retailers (VCMI, 2019). Second Harvest and Food Banks Canada rescued a combined total of almost 10 million kilograms of food in 2018.

The National Zero Waste Council's findings from an online survey in June 2020 of 1,200 Canadians found more than a third of food produced and distributed in Canada never gets eaten, with significant environmental, economic and social consequences costing the Canadian economy up to $100 billion annually. In addition, organic waste in landfills, largely food, generates 4% of Canada's greenhouse gases. Since public health measures began in response to COVID-19, 63% of Canadians are shopping less often, but are buying more food per trip than before. More homes are adopting food-saving habits, especially checking what food is already in the house, freezing foods to extend shelf life, and getting creative with leftovers.

Throwing away less food saves money, uses scarce resources more efficiently and leaves us with more food. In North America, we find supply management though, may punish farmers who produce more than their quota and the excess is often destroyed. Blemished or undersized produce may be tossed at harvest or during packing and distribution as unfit for sale. Beyond shopping more carefully, packing a lunch and being content with the occasional misshapen vegetable, Canadians need to also actively use their composters.

Composting is a great way to encourage ecological resilience! Composting is the result of the breakdown of organic materials by microorganisms, bacteria and fungi. It is a form of recycling because some of the waste created around the home is transformed into valuable fertilizer.

Composting has many benefits including:

- Composting diverts household waste away from the garbage.
- By reducing the amount of organic matter in the landfills, we can bring the level of greenhouse gases down and extend the life of landfills.
- Microorganisms in compost help to aerate the soil, break down the organic materials, and ward off plant disease. Compost acts to regenerate poor soil and is a great fertilizer for our garden, houseplants, flowers and any other vegetation.
- The process of composting kills pathogens. This takes away the need for pesticides, nitrogen and trace mineral fertilizers thus protecting the ecosystem.
- Compost prevents erosion. Compost absorbs and holds water well, making the soil more resistant to erosion by heavy rainfall.
- The compost process degrades and, in some cases, completely eliminates wood preservatives, pesticides, and both chlorinated and non-chlorinated hydrocarbons in contaminated soils.

  Sources:

  https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/food-loss-waste/taking-stock.html

  https://www.theworldcounts.com/challenges/people-and-poverty/hunger-and-obesity/food-waste-statistics/story

  https://vcm-international.com/food-waste/

  http://www.nzwc.ca/Documents/NZWC-FoodLossWasteStrategy.pdf

4.0 HELPFUL WEBSITE RESOURCES FOR STUDENTS AND TEACHERS

Please visit TREA's Green Directory listings under waste and consumerism sections for more information and websites to visit: http://www.trea.ca/resources/green-directory

TREA also has a comprehensive resource on how to compost as a waste reduction strategy. Visit: http://www.trea.ca/programs/waste-recycling/composting-101/

We recommend students visit the Recycling Council of Ontario site, https://rco.on.ca/, and the Composting Council of Canada site, www.compost.org for more information.

https://www.youtube.com/watch?v=WInDaa-0Yd4 The Story of Stuff with Annie Leonard

https://www.patreon.com/OurChangingClimate Our Changing Climate series including The Problem with Consumerism November 20, 2020

https://www.ted.com/topics/consumerism

https://www.greencalgary.org/green-kids/online-activities#week7 PPT on Ecological Footprint

To understand our City's current strategy for climate change which includes waste diversion and reduced energy usage, a Climate Emergency Plan was approved in April 2020 which outlines actions to establish net-zero emissions by 2050, a major road map to our future. Visit https://getinvolved.london.ca/climate?tool=news_feed#tool_tab

5.0 ADDITIONAL ACTIVITIES/ASSIGMENTS FOR THE CLASSROOM

Assignments involving Science

- Engage students in a class project to start a local garden on the school site. In addition, set up a compost site year round and use compost as fertilizer for the garden.
- Take a tour into a forest and examine and explain the natural composting and natural lifecycle process of all organic materials because of decomposition.
- Have students do a simple pH test on soil to determine where plants will grow best. Visit: http://edibleschoolyard.org/resource/soil-ph-lab.
- Discuss with students different components of soil (sand, silt and clay) by placing soil in a jar overnight and watching as these 3 components separate.
- Discuss ways to grow our own food. Check out free lesson plans and materials Visit: http://edibleschoolyard.org/resource-search
- Have students research the conversion of the sun's energy in plants through photosynthesis, the carbon cycle, and energy transformations to become our food.

Assignments involving Geography

- Have students look at a tag on another student's t-shirt, shoes, coat, school bag etc. and make a list of countries these items come from. Have students then mark these countries on a map to show how much we rely on other countries to support our lifestyle. Then have students calculate the distance from these countries to Canada on the map.
- Compare local products and products delivered from around the world in terms of travel distance, preservatives, seasonality, number of delivery days and cost.
- Discuss options to using non-renewable resources ie minerals, for a specific product.
- Research agriculture issues that cause deforestation and destroyed ecosystems.

Activities involving a Citizen Framework

- Make flash cards with various consumer topics. Have students discuss and list several personal needs and wants. Have students match flash cards to list and discuss.
- Ask students why they purchase certain brands and shop at specific chains. Examine any ethical considerations such as conglomerates owning smaller chains. For instance, our health unit will not support liquor or tobacco sponsorship for programs. Discuss how consumer choices can influence our values.
- Use Dr. Seuss's 'The Lorax' as an assignment on environmental impacts.
- Facilitate discussion on the major consequences of producing excess waste? Costs of household waste collection and landfill? How does destroying one piece of our ecosystem impact the rest of the ecosystem eventually?

- Have students discuss how different cultures handle waste dissemination? How does Canada dispose of hazardous materials?
- Have students make a list of recent purchases or gifts they have received and define how long they use these products before replacing them or did they use them at all.
- Have students discuss activities other than shopping that can fulfill happiness.
- Have students research and explain the impacts of population growth, greater urbanization, standards of living and how we can influence our future.
- Have students monitor how much waste is produced over one week in their classroom including food waste. Then weigh it daily, and find ways to recycle it.
- Have students interview their family on how they dealt with waste in previous years.

General activities for classroom discussion -

- Examine a product students use daily and determine the true costs involved.
- Gain an understanding of the 100 mile and even 100 foot diet regarding food.
- Schedule a visit to an organic farm and/or the local landfill processing site.
- Schedule a visit to the grocery store and identify a few products and all the different places that these products come from - either local or far away.
- Ask the grocery store manager to explain bar codes on products to determine where products come from and if they are organic etc.
- Bring in a speaker or video or make a short video on consumerism choices.
- Schedule a field trip ie London's Food Co-operative, or a local farmers' market. Record the distance travelled to get to this site and compare the footprint to produce items bought in a store that would have come from a different country.
- Organize an assembly, create a skit or quiz etc. to share ideas with the whole school.
- Discuss the advantages and disadvantages of consumerism as it pertains to the environmental, social and economic aspects of our community and ecosystems.
- Discuss if doing nothing is the right step? Discuss how do we create a balance between conservation and consumerism?

- Research what children would eat for lunch 100 years ago and compare it to what children typically eat for lunch today. How has it changed? How has this change contributed to our waste consumption issues?
- Have the students develop a pledge to do something to combat the negative aspects of consumption ie eat local, eat less meat, start a compost site in their backyard.
- Analyze how the parts of a natural system interconnect and influence each other.
- Assess what our impact of natural resources is on plant ecosystems, non-renewables.
- Look at trends in supply and demand and their impacts on production, distribution and consumption of goods and services and discuss the validity of future predictions.
- Discuss the meanings of: extraction, production, distribution, consumption, waste disposal, planned obsolescence, frugality, reduce, and/or conservationism.
- Write a blog or letter to a local print, broadcast or social media business, follow it up.
- Make a list of 'to dos' to be aware of on your students' next shopping trip.

6.0 CONSUMERISM VOCABULARY

1.5°C warmer worlds (IPCC definition) - Projected worlds in which global warming has reached and, unless otherwise indicated, been limited to 1.5°C above pre-industrial levels.

There is no single 1.5°C warmer world, and projections of 1.5°C warmer worlds look different depending on whether it is considered on a near-term transient trajectory or at climate equilibrium after several millennia, and, in both cases, if it occurs with or without overshoot. Within the 21st century, several aspects play a role for the assessment of risk and potential impacts in 1.5°C warmer worlds: the possible occurrence, magnitude and duration of an overshoot; the way in which emissions reductions are achieved; the ways in which policies might be able to influence the resilience of human and natural systems; and the nature of the regional and sub-regional risks. Beyond the 21st century, several elements of the climate system would continue to change even if the global mean temperatures remain stable, including further increases of sea level.

100 Mile Diet - People who follow the *100 Mile Diet* try to only eat food that is grown or raised within 100 miles of their home.

Adaptation - refers to adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts - changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change.

Biological diversity - the variability among living organisms from all sources, including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems***.***

Carbon dioxide (CO_2) (IPCC definition) - A by-product of burning *fossil fuels* (such as oil, gas and coal), of burning *biomass*, of *land-use changes* and of industrial processes (for instance, cement production). It is the principal *anthropogenic* greenhouse gas that affects the Earth's radiative balance. It is the reference gas against which other GHGs are measured and therefore has a global warming potential (GWP) of 1.

Circular Economy - is an economic system aimed at eliminating waste and the continual use of resources.

Climate Change - A term used to describe short and long-term effects on the Earth's climate as a result of human activities such as fossil fuel combustion and vegetation clearing and burning.

Conference of the Parties (COP) - The supreme body of UN conventions, such as the *United Nations Framework Convention on Climate Change (UNFCCC)*, comprising parties with a right to vote that have ratified or acceded to the convention.

Consumerism -The preoccupation of society with the acquisition of consumer goods.

Conservation - The preservation, protection, or restoration of the natural environment, natural ecosystems, vegetation, and wildlife.

Ecological Footprint - This is a measure of human demand on Earth's ecosystems.

Ecological Resilience - Ecosystems can absorb disturbance or stress and remain within their natural variability. Too much disturbance though can lead to ecosystem collapse.

Fossil Fuels - Derived from fossilized remains of animals and plants in the earth over millions of years ago - coal, oil or gas which we use much faster than can be replenished as energy sources giving off carbon dioxide as they are burned.

Globalization - A process by which regional economies, societies, and cultures have become integrated through a global network of communication, transportation, and trade.

Greenhouse gases (IPCC definition) **-** gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of terrestrial radiation emitted by the Earth's surface, the atmosphere itself and by clouds. This property causes the greenhouse effect. Water vapour (H2O), carbon dioxide (CO2), nitrous oxide (N2O), methane (CH4) and ozone (O3) are the primary GHGs in the Earth's atmosphere. Moreover, there are a number of entirely human-made GHGs in the atmosphere, such as halocarbons and other chlorine and bromine-containing substances, sulphur hexafluoride (SF6), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).

Mitigation (IPCC definition) - A human intervention to reduce emissions or enhance the sinks of greenhouse gases.

Net zero emissions (IPCC definition) - Net zero emissions are achieved when *anthropogenic emissions* of *greenhouse gases* to the *atmosphere* are balanced by *anthropogenic removals* over a specified period. Where multiple greenhouse gases are involved, the quantification of net zero emissions depends on the climate metric chosen to compare emissions of different gases (such as global warming potential, global temperature change potential, and others, as well as the chosen time horizon).

Organic - Having either vegetable or animal life, derived from living organisms.

Peak Oil - A point in time when the maximum rate of global petroleum extraction is reached, after which the rate of production enters terminal decline.

Planned obsolescence - A term describing a limited lifespan of a product and a need to replace it.

Product Lifecycle - The stages through which a product or its category bypass - from its introduction to marketing, growth, maturity to its decline or reduced demand in the market. Not all products reach this final stage, some continue to grow and some rise and fall.

Relocalization - A strategy to build societies based on the local production of food, energy and goods, and local development of currency, governance and culture. The main goals are to increase community energy security, to strengthen local economies, and dramatically improve environmental conditions and social equity.

Sink - A reservoir (natural or human, in soil, ocean, and plants) where a greenhouse gas, an aerosol or a precursor of a greenhouse gas is stored. Note that UNFCCC Article 1.8 refers to a sink as any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere.

Sustainable development - Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987) and balances social, economic and environmental concerns.

Sources ~ The Merrian-Webster Dictionary and local agencies.

7.0 CONTACTING TREA

We appreciate your interest to use this material and welcome you to keep in touch.

If you have any questions, comments, or concerns, please do not hesitate to contact TREA:

In-person (call first) or by inquiry:

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Through our website: https:// www.trea.ca/

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