



Guidelines for Structuring Environmentally Focused Curriculums for The Orfe EcoArt Program

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1. Introduction

The following document serves as an environmental guide for instructors following the guideline of the Orfe EcoArt program. The purpose of this guide is to provide direction and support for instructors during the creative phase that children undergo before setting their sights on a specific art project.

The guide's content is developed in accordance with subjects that should be taken into account during the design and execution of projects. The subjects include various environmental concepts, the current environmental situation, and strategies used by the Canadian government to protect our environment. The Orfe EcoArt Program focuses on the outlined subjects as they align with the international environmental strategies it prioritizes.

2. Objectives

- Provide context to teachers regarding the current environmental crisis and the universal call to action revolving around sustainability.
- Unify the recurring environmental concepts in the Orfe EcoArt program on a scientific basis.
- Recognize the guidelines that Canadian educational policies provide regarding the environment.
- Present the environmental challenges prioritized by the Orfe EcoArt program in order to be part of the solution to the current environmental crisis.

3. Goals

The changing environment as well as the changing political, economical and social situations result in the following document having a dynamic character meaning that must be adapted to the current conditions of the reader.

The guidelines provided in this document illustrate the environmental focus of the artistic projects of the Orfe EcoArt program. The guidelines are designed as a tactical and political reference for program instructors.

4. Environmental Guideline for the Orfe EcoArt Program

4.1 International Environmental Context

Various scientific journals, government statistics, news and other entities have informed us of the irreversible environmental crisis that is unfolding. They also inform us that this crisis has been strongly marked by environmental, social and economic challenges. These challenges correspond to the *three pillars of sustainability* and must be addressed urgently.

The way humans interact with the planet's ecosystems has been a main driving force behind the current environmental crisis. These ecosystems, as resilient as they might be, due to their richness of resources, and the high demand of their resources, leads them to become vulnerable to the prevailing productive model (capitalism). Capitalism is marked by pressure of unsustainable extraction of resources, constant production of goods and services, and the distribution and consumption of such which result in increasing waste.

This pressure results in consequences of negative environmental impacts that become evident in situations such as the loss of biodiversity, increased contamination, the proliferation of illnesses and pandemics, climate change and global warming.

As a response to these crises, various parties of varying knowledge have put forward proposals in how to address the challenges of sustainable development in different contexts.

Education, as an instrument of public policy, is included in the previously mentioned proposals which aim to establish a personal and collective responsibility of how we interact with our surroundings. This sense of responsibility aims to accomplish different levels of intervention and efficiency.

4.2 Environmental Concepts

- **Environment**

The set of social (living conditions), ecological (livelihoods) and economic (standard of living) factors which interact with each other in a determined time and place.

- **Limited capacity**

The maximum size of a population that the environment can tolerate indefinitely (Jegen, 2012).

- **Sustainability**

Refers to equity in the three pillars of sustainability (ecological, economical and social) in the decision-making process that will determine our future.

- **Pollution**

A change in the environment due to substances or elements which are put there whose concentration (or amount) exceeds the amount tolerated by nature. These changes in the environment impact the health of humans and the affected ecosystems.

- **Ecological Footprint**

The concept of ecological footprints was developed by Canadian professor William Rees and Matthias Wackernagel (Wackernagel and Rees, 1999 en Jegen, 2012).

An ecological footprint acts as a measure of environmental impact due to human activity. It is a quantitative tool which estimates the amount of used resources and waste produced by a determined population. In other words, we measure the pressure that a population puts on its natural surroundings. The ecological footprint allows us to illustrate the concept of limited capacity (or loading capacity) of a given environment or the planet as a whole (Jegen, 2012).

If the ecological footprint of a population is larger than the area that population occupies, it exceeds the area's limited capacity and must compensate with foreign trade. This foreign trade aims to reduce a population's waste or obtain resources (Jegen, 2012).

- **Environmental Education**

Education regarding the environment, for the environment, and in the environment. This education aims to promote a comprehensive, rich and practical learning experience. Environmental education also aims to instill an appreciation for the dynamic interactions between: physical and biological earth systems; the dependence of our social structures and economic systems on natural systems; the human and scientific dimensions of

environmental issues; the positive and negative consequences of interactions between natural and artificial systems whether intentional or unintentional

(Ministère de l'Éducation de l'Ontario, Préparons nos élèves, 2007, p. 6, en Ministère de l'Éducation de l'Ontario. 2009).

- **Ecological Art**

Ecological art (or eco-art) is the artistic interpretation which illustrates ecological themes or topics related to the environment. It's a form of contemporary art that uses natural resources as its components. It also involves reintroducing the use of diverse materials in an artistic medium. This use of diverse materials not only aims to find new ways of physical expression but to also provoke reflections regarding consumerism and the waste it generates, and how it negatively impacts the environment (2).

- **Responsible Consumption**

It's a form of consumption that aims to better the living conditions of people through a selection of goods and services which is based on the people's real necessities and environmental criteria (social, economical and ecological). An example of this is the life cycle of a product, the impact that the waste created by the production of that product has on the environment, the responsibility of the manufacturer, social justice and a respect for human rights. The key question we must ask ourselves in order to be responsible consumers is: do I really need this?

- **Waste**

Waste involves any material, object or element that has lost its value to its use and it is therefore rejected and thrown away. Waste can be found in all three states, liquid, solid or gas.

The Orfe EcoArt program uses solid waste only.

Glass bottles, discarded cardboard, used paper, Tetrapak containers, fruit peels, wood, and seeds are examples of some of the materials used by the Orfe EcoArt program.




- **Hazardous Waste**




Involves substances, materials or elements that have been discarded which presents some dangerous characteristics. Some of these characteristics include, corrosiveness, reactivity, radioactivity, explosiveness, toxicity, flammability, and pathogenicity. Containers, wraps, and emblems that have had contact with such substances are also considered dangerous. Hazardous waste is a risk for the health of the planet and its inhabitants.

In our day-to-day life, this type of waste is more common than we think. An example of such waste is a Clorox (Sodium Hypochlorite) container. Furthermore, containers of expired or unfinished medicine can be considered reactive waste. Additionally, leftover explosives (from celebrations) as well as discarded protection lacquers are considered explosive waste. Furthermore, detergent containers which are not biodegradable can be easily assigned an ecotoxic characteristic, while nail polish remover containers are considered flammable. Finally, infectious waste, whose pathogenic characteristic is not intrinsic to the waste but to the microorganism present in such waste. Infectious waste includes waste contaminated with bodily fluids such as used face masks, used gloves and used toilet paper.

Radioactive waste requires special care which is usually inaccessible in day-to-day life.

Generally, hazardous waste (excluding pathogens) has a label which warns users about its risks and dangers. Examples of such labels can be found below:

Hazardous Waste	Label
<p>Corrosive: Number 8 makes reference to class 8 which refers to “corrosive substances” according to classification found in NTC 1692:2005 (third edition). Source: ntc 1692:2005</p>	
<p>Reactive: The number 5.1 refers to class 5 division 5.1, “Oxidizing substance”, and the number 5.2 refers to class 5 division 5.2, “organic peroxides” in accordance with classifications found in NTC 1692:2005 (third edition). Source: ntc 1692:2005.</p>	
<p>Explosive: The number 1 makes reference to class 1, “explosives”, in accordance with classification found in NTC 1692:2005 (third edition). Source: ntc 1692:2005.</p>	

<p>Flammable: The number 2 makes reference to class 2, “gases”, in division 2.1 which corresponds to, “flammable gasses”. The number 3 makes reference to class 3. “Flammable liquids” and number 4 corresponds to division 4, “flammable solids” in accordance with classifications found in NTC 1692:2005 (third edition). Source: ntc 1692:2005.</p>	
<p>Radioactive: This characteristic is associated with ionizing radiation. The number 7 makes reference to class 7, “radioactive material”, which is in accordance with classifications found in NTC 1692:2005 (third edition). Source: ntc 1692:2005.</p>	
<p>Toxic: The number 6.1 makes reference to class 6, division 6.1, “toxic substances” and the number 2.3 makes reference to class 2 division 2.3, “toxic gases”, in accordance with classifications found in NTC 1692:2005 (third edition). Source: ntc 1692:2005.</p>	

Depending on the country, city, context, and available management system, toxic waste is handled differently. Due to that, it is recommended to familiarize yourself with the different types of toxic waste applicable to the context of the Orfe EcoArt program. This familiarization should prevent you from using such waste as well as inform you of how to dispose of it if it is accidentally generated.

- **Non-Hazardous Waste**

Materials, objects or elements that do not have the dangerous characteristics that were previously mentioned. These substances do not present any danger to humans or the environment.

- **Classification of Waste**

Waste is classified differently depending on the government and international agreements taken into account by national policies, the management priorities regarding environmental issues and technical guidelines; however, they can be generally classified as follows:

Non-Hazardous Waste

- **Usable**

Such waste can be reused in areas such as recycling, compost, vermiculture, and even energy generation.

The Orfe EcoArt program focuses on the use of waste for the completion of its projects and activities.

- **Non-Reusable**

Non reusable waste offers no possibility of reintegration to the production cycle. This type of waste is usually discarded in a landfill.

Hazardous Waste

Hazardous waste is categorized in accordance to how dangerous it is.

- **Corrosive:** Can cause grave harm to live tissue or other materials due to chemical reactions. A container of Sodium Hypochlorite (Clorox) is an example of corrosive waste.
- **Reactive:** Waste that can chemically react causing explosions, gas or vapour by-product when mixed with another substance. These by-products can be harmful to humans and the environment.
- **Explosive:** A spontaneous chemical reaction that drives explosions, firework-like effects, and harmful gas residue, which is all harmful to humans and the environment. An example of explosive waste is a lacquer or varnish container.
- **Toxic:** Causes serious injury or even death due to their ability to provoke undesired biological effects. Examples of toxic waste include, oil-based paint containers as well as pesticide containers.
- **Flammables:** If exposed to an ignition source under certain environmental conditions, they can catch on fire. Alcohol, hand sanitizers and lighter fluid containers, as well as lacquer containers, are examples of flammable waste.
- **Pathogens:** Infectious waste which poses a biological risk as they contain pathogens such as bacteria and viruses. Used facemasks and used toilet paper are both examples of pathological waste.

- **Integral Waste Management**

Integral waste management involves a set of organized actions which are executed in an efficient and systematic way, in a determined context. It aims to prevent waste generation and to provide guidance to individuals on how to

dispose of the waste based on the previously mentioned guidelines. The above-

mentioned guidelines provide directions in the areas of planning, implementation, follow up and evaluation of waste disposal while keeping in mind environmental, economic, and social criteria. The guideline also aims to prevent harm to the environment and its inhabitants.

- **Prevention of Waste Generation**

Refers to actions taken with the goal of preventing waste production.

In the Orfe EcoArt Program, the prevention of waste production is a management skill which the program instills in children. The best way to take care of the planet is to avoid waste production. The Orfe EcoArt program does this by using biodegradable materials, replacing polluting practices with sustainable ones, and optimizing the use of materials.

- **Separating at the Source**

The action of waste classification in the same place as it is produced. Such classification must comply with the categories previously mentioned. For example, hazardous waste can be separated from non-hazardous waste. We can even classify further and classify recyclable paper waste, corrosive waste, etc.

- **Storage**

Storage Involves temporarily collecting waste in a given space. Waste is stored in various different places as it makes its way from the source to a processing station and so on.

- **Collection and Transport**

The process of collecting the waste and transporting it where such waste can be reused, treated and/or disposed of.

- **Incinerations**

A process to treat harmful waste in which the waste is submitted to very high temperatures in order to eliminate its harmful properties.

- **Harnessing**

The process of extending the lifespan of collected waste by reincorporating it to the production cycle. The reincorporation process occurs through reusing waste, recycling, compost, vermiculture and more.

- **Recovery**

The process by which waste is redirected from its original destination in order to be reincorporated into use processes or treatment facilities.

- **Reduce**

To decrease the amount of waste produced

- **Reuse**

The action of transforming waste into new materials or raw materials.

- **Final Location**

The last stage for the management of non-reusable waste which consists of collecting and containing waste in a technical and environmentally conditioned environment. This is a solution that arises from engineering and is called a landfill.

4.3 Directions of Canadian Environmental Policies

The Orfe EcoArt Program, identifies and incorporates the environmental goals of Canadian environmental education. Our program uses Canadian environmental education as a basis for all of our activities and hopes to instill and motivate a sustainable culture. The government of the province of Ontario recognizes that there is *“no universal model for the implementation of environmental education. Although there is overall agreement on principles and supporting concepts, specific goals and processes must be defined locally to meet the differing environmental, social, and economic conditions that exist in Ontario communities.”*. (Ontario Ministry of Education, 2009).

The Orfe EcoArt program uses the province of Ontario as main reference when it comes to policies regarding environmental education. The program being based in those policies, aims to support students as they gain knowledge, skills, perspectives and practice in order to become active and responsible citizens. The Orfe EcoArt program aligns itself with characteristics which guide the implementation of the previously mentioned policies (Ontario Ministry of Education, 2009).

- It is adapted to the community,
- It is appropriate for the current culture,
- It promotes a better comprehension of local issues which often have provincial, national and international repercussions,

- It teaches individuals how to make responsible management decisions regarding the environment, which have a positive impact on the community,
- It promotes permanent learning,
- It supports the definition of environmental education.

Additionally, the program aligns with the objectives of policies that regard teaching, learning, student participation, community relations and environmental leadership. The following objectives are defined by Ontario's Education Ministry (Ontario Ministry of Education, 2009).

- Prescribe learning that is related to environmental issues and their solutions.
- Promote the participation of the children in environmental management with focus on the community.
- Emphasise the importance of leadership when it comes to the implementation and promotion of eco-responsible practices in all the educational systems. The educational system is made up of the students, parents, community members. The goal is for all levels of the educational system to develop a sustainable way of living.

4.4 Environmental Policies of the Orfe EcoArt Program

People at the Orfe EcoArt program are aware of the challenges that sustainable development carries. Moreover, we are also aware of the importance of promoting environmental consciousness in children to improve the quality of life for present and future generations; thus, at Orfe EcoArt we are committed to:

- Promoting the responsible use of water resources, energy and materials implemented in our classes.
- Encouraging sustainable consumption based on eco-responsible purchasing decisions that favour eco-friendly services and products.
- Properly managing waste (through harvesting practices) generated as a result of our activities,
- Permanently following and evaluating the environmental impact of our activities. This is done as an effort to prevent (or minimize) any negative impact our activities may cost. Any negative impact caused as a result of our activities must be coupled with an effort to negate it.
- Advancing our environmental objectives through continuous improvement.
- Keeping our stakeholders informed about our processes, changes and advances for the fulfilment of this policy.
- Following environmental and sanitary legislature voluntarily as well as other requirements when executing our activities.

4.5 Environmental action strategies in the Orfe Eco-Art program

Based on the knowledge of the current global ecological and health crisis, in which we can observe the excessive generation of waste, especially plastics; the devastation of biodiversity, the disproportionate consumption of goods and services, the deterioration of water sources and the lack of responsibility in our actions towards a healthy environment, the Orfe EcoArt Program, has decided to take responsibility and act together with governments of various levels and communities and other stakeholders, in order to be active contributors to solving the previously mentioned issues.

As part of the effort to be active contributors to combating the current environmental crisis, the Orfe EcoArt Program aims to provide an educational platform in which teachers and students are committed to give solutions to environmental problems defined in the following section:

- **Plastic-Free World**

More than 3 million tons of plastic are thrown out by Canadians. Only 9% is recycled, but the rest ends up in landfills, waste incineration facilities or in nature. Plastic waste is a big burden for our economy and threatens to harm our environment including wildlife, lakes, rivers, and oceans. (3)

Now is the time to act! We need to change the way we design, use, and dispose of plastic waste. Together we can keep plastic in the economy and out of the environment. (4)

The Canadian government is committed to reducing plastic waste in the environment. It invites teachers to include the following suggestions in their lessons.

Help the young leaders of tomorrow by incorporating education about plastic in their curriculum. (5)

- [Climate Kids – Plastics Game](https://climatekids.ca/): <https://climatekids.ca/>
- [Ocean Plastic Education](https://plasticsedkit.ocean.org/): <https://plasticsedkit.ocean.org/>
- [Clean Seas Back to School Campaign](https://www.cleanseas.org/back-school): <https://www.cleanseas.org/back-school>
- [Clean Nova Scotia Foundation – Teacher Resource](https://clean.ns.ca/clean-schools/): <https://clean.ns.ca/clean-schools/>
- [Recycling Council of Ontario – School Resources](https://rco.on.ca/resources/schools-educators/): <https://rco.on.ca/resources/schools-educators/>
- [Join the Plastic Bag Grab challenge](http://www.plasticbaggrab.com/): <http://www.plasticbaggrab.com/>

Here are some ideas to implement:

- Buy sustainable plastic for the classroom.
- Encourage students to recycle plastic.
- Plan meals without waste.
- Plan cleaning sessions for the areas surrounding the school or the community.

- **Responsible Consumption and Sustainability of Actions**

This strategy aims to direct all of our actions — especially those linked to the consumption of goods and services — towards sustainable development. The successful implementation of this strategy guarantees balance in the economic, ecological, and social spheres.

“Sustainable development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs”. This definition is from the 1983 Brundtland commission and was also adopted by the Federal Sustainable Development Law in Canada; approved by parliament in June 2008. Sustainable development consists of achieving and maintaining a natural and man-made environment; as well as a just and vibrant society with a functional economy, for present and future generations. (6)

On September 25th, 2015, world leaders adopted a shared set of objectives to eradicate poverty, protect Earth and ensure prosperity for everybody as part of a new sustainable development agenda. Each objective involves specific goals that must be reached within the next 15 years. To achieve these goals, everyone has to do their part. (7)

Likewise, the UN released a guide under the name “170 Actions to Transform our World” which could be an excellent starting point to incorporate into our program classes. The guide is available in the following link:

<https://drive.google.com/file/d/1iMdE6DLLuCqwq3K9U-DaTUWB6KyMa8QG/view?usp=sharing>

[\[1\] https://www.canada.ca/en/public-health/corporate/mandate/about-agency/sustainable-development.html](https://www.canada.ca/en/public-health/corporate/mandate/about-agency/sustainable-development.html)

[\[1\] https://www.un.org/sustainabledevelopment/es/objetivos-de-desarrollo-sostenible/](https://www.un.org/sustainabledevelopment/es/objetivos-de-desarrollo-sostenible/)

These projects are encased within the scope of this strategy and must ensure sustainability in the use and management of natural resources. Natural resources include water, energy, supplies and raw materials, fauna and flora.

Criteria involving human rights and economic efficiency must also be followed during the projects.

- **Protecting Water Sources:**

Water preservation is vital to keep our planet habitable and for the future of humanity. Teaching youth how to protect oceans, lakes, and ponds, is part of a joint effort. Educating youth regarding environmental issues is a goal that is shared by Canada, The Orfe EcoArt Program and by the whole world in an effort to preserve biodiversity.

- **Innovation and Environmental Development**

It is crucial to encourage children to create, invent and believe that it is possible to solve environmental problems and to improve the existing conditions of Earth through innovation.

This strategy aims to explore the innovative potential of every child and their capacity to reflect on today's principal environmental problems. Children must feel empowered to be part of the solution through their own ideas.

Model Format for Academic Programs

The Orfe EcoArt Program suggests using the following format when developing academic programs.

Date:

Project Name:

Class Length:

Class Size:

Age Range:

Brief Description: (Class experience):

Environmental Action Strategies in the Orfe EcoArt Program:

- Plastic-free world
- Responsible consumption and sustainability focused actions
- Protecting water sources
- Innovation and environmental development

Schedule:

Program:

- Class 1
- Class 2
- Class 3

Learning Objectives: (State at least one at an environmental level)

Resources and Supplies required:

- Resources: water, energy.
- Supplies: painting, brushes, etc.

Teacher Profile:

Environmental Sustainability Criteria Considered When Teaching a Class

Remember to include the maximum amount of good environmental practices in the provision and management of resources and supplies section:

Integral Water Management:

- Use a reusable container with water when working with Paint and for washing brushes; thus, avoiding constantly running the tap.
- If possible collect rainwater and use it for painting lessons.
- Dispose of the water used to wash brushes through drains with a drill. This way, no solid waste will reach the drain system.

Integral Energy Management:

- Natural light use is preferred; hence, classes should be scheduled during the day.
- Unplug your laptop when not in use.
- Turn off unnecessary lights.
- Air-dry artistic projects. Also, avoid using any energy consuming supplies such as fans for these types of tasks.

Responsible Consumption:

- When a purchase is needed, consider using supplies that may be already available, or build the object needed for the class from already owned supplies. For instance, Children can build their own toys.
- Favour sustainable purchases (products made with recycled materials, products without unnecessary packaging or in which the packaging can be reutilized, organic and/or biodegradable products). Make sure your suppliers and favourite brands practice sustainability in their products and services.
- Support local businesses. This mitigates over-pricing and impact generated by transportation. Do not forget to carry your own reusable bag when shopping.
- Read product labels to make sure you do not choose polluting products or products that come from non-renewable sources and/or unsustainable practices.
- Choose products with eco-friendly labels, green seals, fair-trade seals, family agriculture and fair economy organizations.
- Choose products with a long use cycle and which have the possibility to be reincorporated to the productive cycle:
 - One option is to repair a product.
 - Another option is to look for second-hand marketplaces. Usually, products in such places are as-good-as-new.
 - Trading goods with family and friends is also a sustainable practice.
- Avoid purchasing hazardous materials (i.e., flammable, toxic, or explosive goods). Choose the non-polluting alternative.
- Have your meals in an eco-responsible way. Avoid any processed food items and with unnecessary packaging. Use your own cutlery and reusable containers for your drinks.
- Avoid purchasing or using single-use plastic items (i.e., plastic bags, plastic cutlery, straws, balloons, disposable plates).

- Avoid using balloons. They are extremely harmful for the environment.
- Create the habit of asking yourself before any purchase: “Do i really need this item?”. If the item is not completely necessary, then do not buy it. A good practice to follow is bringing a shopping list to not fall into marketing strategies.

Integral Waste Management:

- Instead of disposing of items in good condition, consider donating them. However, if not possible:
- Identify any waste generated during class and evaluate the possibility of reintroducing this waste into the productive cycle through reutilization or recycling.
- Inform yourself about any separation at source practices available within the context of the classes.
- Make sure after an activity where waste is generated, retrieve it, separate it at the source, and reutilize or reincorporate it into the economic cycle. Waste can be reincorporated into the cycle through practices, such as recycling, composting or vermicomposting when possible.
- Look for opportunities to introduce waste optimization practices. For example, at a summer camp composting food is an excellent opportunity to point out the importance of organic fertilizers and how it benefits local flora.
- When dealing with hazardous waste coming from artistic activities, make sure waste is being separated at the source. Moreover, make sure to deal with the waste according to sustainable practices that apply to the specific situation. For instance, take waste to the closest post-consumer waste management system and encourage children to do the same.
- Take advantage of the context of the class and share information about integral waste management and its importance to prevent a negative impact on the environment.

Sharing What We Learnt:

- Share information and eco-friendly practices with family and friends. Moreover, use social media to spread relevant information about the topic.
- Support environmental campaigns in your social surroundings (local community, city and country).
- Set higher daily goals to introduce new habits and behaviours that help the environment.

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