

Responding To Climate Change And Sustainability In Education

From Theory to Practice

Panel Participants: Janice Haines and Dr. Karen Acton

Focus Question: How can transitional forms of education for sustainability best be designed, organized, supported and evaluated?



Transformative Pedagogies are Required to Teach Sustainability

➔ *A focus on Student-centered, Active Learning*

Transformative



Traditional

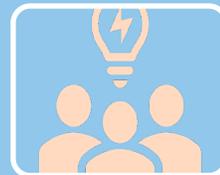
Teaching the nuanced and complex issues of climate change requires a different teaching approach...

- It requires transformative, active, learning strategies

Transformative Learning:



Draws on the understanding and experiences that students bring



Educators take the role of facilitators



In-class learning is brought into context with the real world



Students develop the attitudes and skills necessary to address challenges

An example of transformative teaching - a resource based on active learning strategies: Empowering Learners in a Warming World – A Climate Change Inquiry Guide

Survey

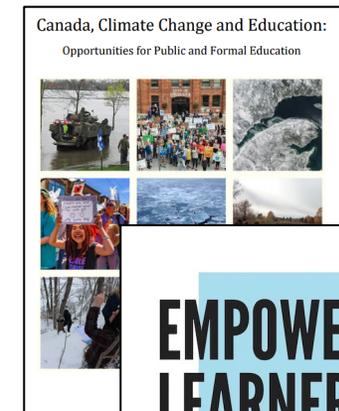
A national survey: *Canada, Climate Change and Education* was conducted with 3200 educators, parents, and students and found the majority think that schools should be doing more about climate change and that all teachers are responsible to teach climate change issues.

Resource

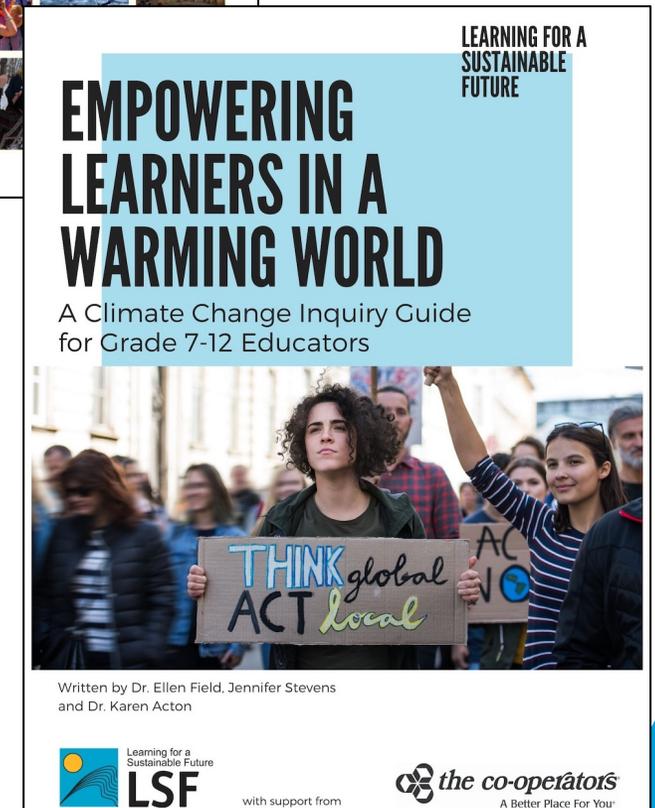
The ELWW resource was developed as a response to requests from educators for support in teaching the challenging topic of Climate Change:

- *Less than half of the educators who participated in the survey felt they had the knowledge and skills to effectively teach climate change.*
- *Lacking are: PD, resources, current information on climate science, strategies to undertake courageous conversations with students on eco-justice issues, and understanding of the complex economics and politics of climate change.*

Canadian survey on CC <https://lsf-lst.ca/cc-survey>



<https://climatelearning.ca/>



Using Transformative, Active Learning Strategies

Going Deeper – The 6-Stage Inquiry Framework

Example: Inquiry #1: What is Climate Change and Why Care?



1. Provocation

- Affinity Mapping
- Videos
- Neighbourhood Walk



4. Determining Understanding

- Know-Want-Learned Chart



5. Pursuing Learning

- Weather vs climate
- Natural Greenhouse Effect
- Carbon Dioxide Trends



2. Question Generation

- Q F T strategy
- Video Follow-up Questions
- Mapping Interconnections



6. Consolidation

- Journal Reflection Prompts
- Visual Processing Cards
- Mental Health Check



3. Knowledge Building

- Six Thinking Hats

Active Learning Strategies are based on Universal Design Learning (UDL)

Higher-Order Questioning with Q-Charts

	Is Are Was (Present)	Did Do Does (Past)	Can (Possibility)	Could Should (Probability)	Will Would (Predictability)	Might (Imagination)
What (Event)						
Where When (Situation)	Remembering & Understanding Lowest Order of Thinking Skills (LOTS)			Understanding & Applying		
Which (Choice)						
Who (Person)						
How (Means)	Applying & Analyzing			Evaluating & Creating Highest Order of Thinking Skills (HOTS)		
Why (Reason)						

Six Thinking Hats Strategy – use different analysis lenses

WHITE HAT- Facts

BLUE HAT-Process

GREEN HAT
What new ideas? What is my suggestion? How can this be improved?

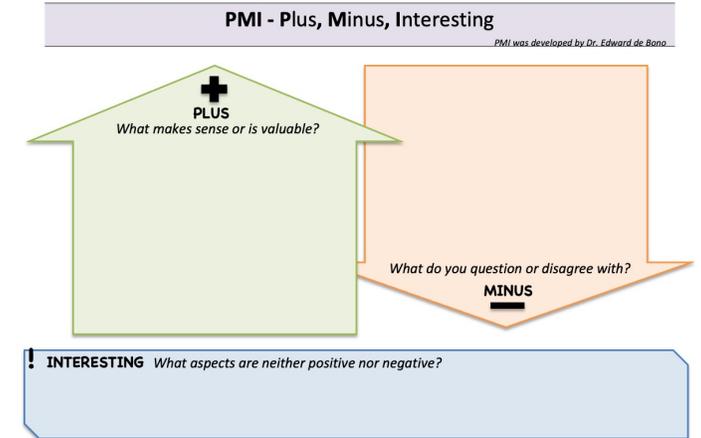
RED HAT
Intuition, hunches. How do I feel? What do I like about these feelings?

YELLOW HAT
The optimistic view. What are the benefits?

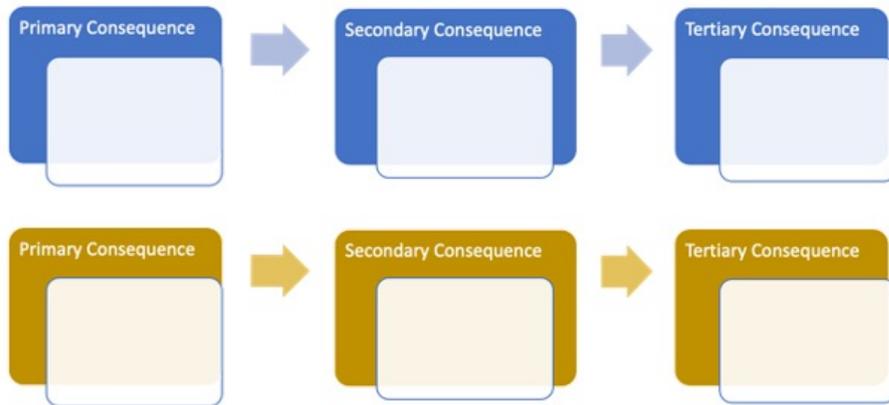
BLACK HAT
The pessimistic view. What are the risks?

THINKING CAP

PMI – plus, minus interesting perspectives



Consequence Mapping – go deeper with cause & effect



RAFT – Student choice to demonstrate their learning

RAFT			
R - Role	A - Audience	F - Format	T - Topic
Journalist	Newspaper reader	Blog	To be chosen by the group or individual
Blogger	Internet followers	Rant	
News anchor	Teacher	Video	
Instagram influencer	Students	Poster	
Student	Parents	Newspaper article	
Politician	Politicians	Letter	
Scientist	General Public	Campaign	
Judge	Activists	Commercial	
Entrepreneur	Self	Brochure	

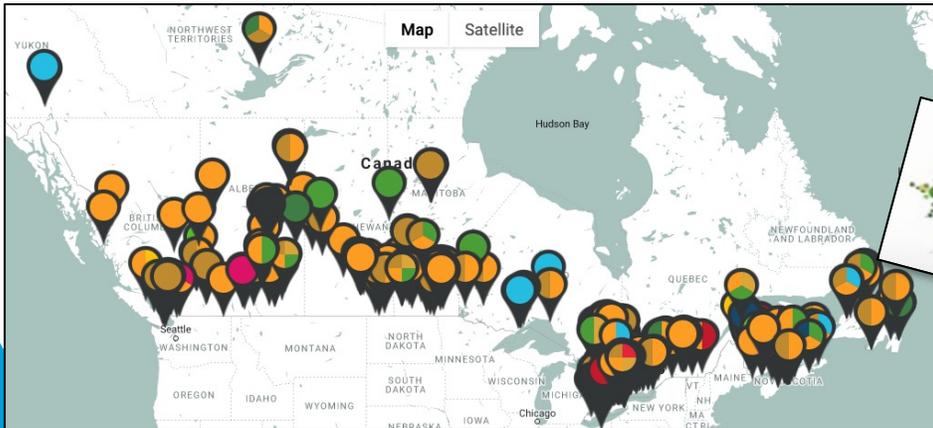
Culminate with Taking Action!

KNOWLEDGE + ACTION = HOPE

Four Types of Student Action

Allowing time for students to take action is an essential part of the learning process on climate change, as it empowers students and eases their eco-anxiety.

Direct	Indirect	Advocacy	Research
Roll up your sleeves!	Get creative!	Use you voice!	Validate & Justify!
Clean up a neighbourhood; raise funds for an initiative; start an eco-justice club; volunteer for a local organization	Use posters, an assembly, or social media to share information and raise awareness	Attend a local government meeting and/or write letters. Use the power of consume-decision-making to give voice to issues	Research an eco-justice issue (using the literature or by conducting surveys or interviews) and mobilize this knowledge



OUR CANADA PROJECT
PROJET NOTRE CANADA

<https://ourcanadaproject.ca/>

922 schools

899 action projects

251 cities



Sustainable Future Schools

A Sustainable Future School (SFS) takes a whole school approach to help students, teachers, principals, staff, parents and community members integrate the UN Sustainable Development Goals (SDGs) into school culture; teaching, learning and curriculum; facilities and operations; and community partnerships.

Sustainable Future School Framework





Canada's 1st Sustainable Future School

Belfountain Public School In Caledon, Ontario, Canada

Belfountain P.S.

- Rural school north of Toronto
- 200 Kindergarten to Grade 6 students
- 15 staff
- Highly supportive parent community
- In 2002, developed an Eco-focus
- In 2005, adopted a whole-school approach to extending learning outside
- In 2020, Belfountain School began a Partnership with LSF using the SDGs as a framework to provide an authentic context for acquiring the knowledge and skills to tackle important, real-world issues.

Belfountain Public School Proposal September 2019





A Sustainable Future School: How do we do it?

1

Create the Vision with all Stakeholders – of ‘open questioning’, use of the UN goals, extending learning outdoors, incorporating the community.

2

Investing in Professional Learning – e.g., SDGs and how they relate to curriculum and specific grade levels, place-based inquiry

3

Providing Resources and Materials – e.g., ideas on student management outdoors, examples of how to teach curriculum in nature

4

Acknowledging all Small Steps – e.g., moving from ‘easy’ activities to higher-level ones, embracing shifts in thinking, including all voices

5

Reflecting on Practice – what they do well and what they can improve on, how are they including transformative learning and critical thinking?

6

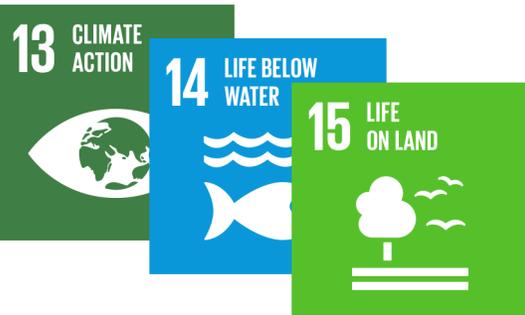
Practising active citizenship – integrated, real world learning which leads to more complex understanding of economics, politics, and the environment

**This is an organic process and every Sustainable Future School will and should look different*



THE GLOBAL GOALS

Complex projects



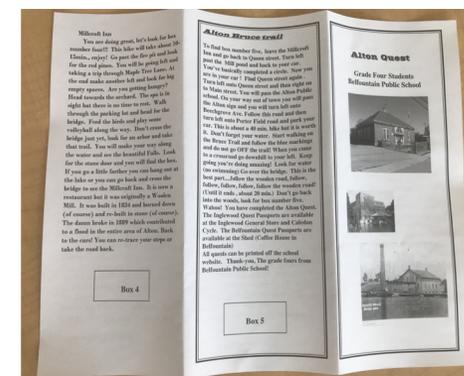
Grade 4/5 & 6 students: Community Festival

- Students created budgets, wrote grants and educated their community about an invasive species. *(Credit Valley Conservation Authority)*



Grade 4/5 students: Geocaching Boxes.

- This encouraged health and wellness, family time and learning about key areas in their own communities. *(Town and businesses in catchment area)*



Grade 5/6 students: Trail Ambassadors Badge

- Badges were created to encourage other students to see themselves as ambassadors. The hope was to get children to learn more about the trails and in the future help to maintain and take care of them. *(Caledon Bruce Trail Association)*





THE GLOBAL GOALS

2020/2021 Current Initiatives

Just Eat it Challenge

- Grade 3 posters and a kindergarten video helped promote a food waste challenge in their community. Students started planting pulses in the Spring. (*EcoCaledon*)

Rain Gardens

- Grade 1 and 2 classes are putting a rain garden in at the school. They learned about benefits and are making decisions about plant species and design. (*Credit Valley Conservation Authority and Peel Board*)

Fashion Takes Action

- Kindergarten students are learning about clothing, where it comes from and how it affects the environment. They created a video to help raise awareness.
- [Fashiontakesaction_03_24.mp4](#) (1min.22 sec) Notice the connection that a 5 year old child already makes to clothing and sustainability. [fungusclothes.MOV](#) (15 seconds)



Questions



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Learning for a
Sustainable Future

LSF

OUR MISSION: to promote, through education, the knowledge, skills, values, perspectives and practices essential to a sustainable future