... systems thinking is based on the fundamental shift of perception from the world as a machine to the world as a living system.

Fritjof Capra
Learning with a Global Perspective: a Systems Thinking Approach

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Toronto and Region Conservation (TRCA) Education is a team of centres and programs whose commitment to excellence in education has spanned 50 years.

Our programs are designed to connect learners to their environment through fun and meaningful, hands-on exploration of local systems.

We are dedicated to providing education that is charting the way to a more sustainable future.
What We Offer

TRCA Education offers a diversity of programs designed to meet the needs of:

→ Elementary and Secondary teachers and students
→ Guiding and Scouting leaders and participants
→ Youth and Adult community groups of diverse interests and needs
→ Individuals, of all ages, interested in specialized workshops, camps, certification and credit programs.

Our programming allows you to choose from:

→ Day Trips to our many sites and facilities
→ Day Programs in your school or community centres
→ Overnight Field Trips to our three field centres

* Programs are offered throughout the full calendar year
Systems Thinking Overview

Basic Concepts
✓ What is Systems thinking
✓ What is a system?

Activities
✓ Key concepts for understanding Systems Thinking

Discussion
✓ Systems Thinking and your school
Linear Thinking vs. Systems Thinking

**Linear Thinking Paradigm**
- Cause and effect
- Deconstruction
- Identifies with “parts” in isolation
- The ZOOM lens

**Systems Thinking Model**
- Cause, effect and feedback
- Construction
- Identifies with the “process” as well as the “parts”
- The WIDE angle lens
What is a system?

A collection of parts that *interact* to form a distinguishable whole
Key Components of a System

Systems Criteria:

- Parts/objects
  - Would anything important change if a part was removed or added?
- Interaction/Relationships
  - Is the whole greater than the sum of the parts?
- Subsystems
  - What’s the purpose?
- Inputs, outputs, and feedback
  - Are the causes and effects linear or circular?
- Change over time
  - Have we seen this before?
Activities

Crossing the Great Divide – multiple interpretations
from: http://www.mrgym.com/Cooperatives/Crossing.htm

Bears in the Air – demonstrates the efficiency within systems and how systems process can change without affecting the output of the overall system
from: http://www.facingthefuture.org/Curriculum/

Systems are Dynamic – demonstrates how systems are always adapting and changing but maintain their stability
from: http://www.facingthefuture.org/Curriculum/
(the Protector/Nemesis adaptation is from “Theatre of the Oppressed”)

Papers

Systems Thinking in High Schools for 2100 – Gordon Kubanek
http://www.systemdynamics.org/conferences/1999/PAPERS/WSHOP4.PDF
Systems Thinking Tools

- Mind Maps
- Storytelling
- Behaviour Over Time Graphing
- Causal Loop Diagrams
Discussion

• What are the barriers/challenges to implementing a Systems Thinking approach at your school?

• What can you do:
  • on your own?
  • with a partner?
  • with department?
  • with the entire school?