Educator's Guide

green LEARNING

Eco 360

Activity 1: What is Circular Economy?
greenlearning.ca
Copyright © 2022 GreenLearning Canada Foundation.
All Rights Reserved.

Table of Contents

1. **Backgrounder**

2. **Curriculum Connections**

3. **Activity Number and Title**
   a. **Overall Objective**
   b. **Materials**
   c. **Time Required**
   d. **Learning Outcomes**
   e. **Grade Level**

4. **Activity Outline**
   a. **Steps Involved**
   b. **Learner Assessment**

5. **Associated Worksheets**

Backgrounder: What is a Circular Economy?

Circular Economy is the concept of an economic model that does not generate waste. If we look at our economy today, it largely follows a linear approach. We take raw materials from the natural environment and make different products. Once created, the products are then sold to consumers who use them for a certain period, and then the products are disposed of into the landfill. A landfill is a place for discarding all waste that has no use in our economy.

Linear Economy: Take ▶ Make ▶ Use ▶ Dispose

A linear economy works fine for a small community of consumers. On a global scale with billions of consumers becoming part of our economy, a linear system becomes unsustainable. We are running out of raw materials to create new products for everyone. Landfills are filling up with the massive increase in disposal of waste - products that are no longer in use. This is a challenge that requires changing the way we think of our economy today.

How can we design a better economic model that reduces waste going into landfills? We can take inspiration by observing our natural ecosystem to design a better system for our economy.

In the natural ecosystem, there is no waste generated that requires disposal to a landfill. Our natural ecosystem works in a circular system, where all raw materials go back to where they came from. Natural ecosystems work sustainably, without creating waste that needs to be disposed of in landfills. This is because the waste generated in one organism becomes food for another organism.

In this way, the natural ecosystem provides an excellent example of a perfect circular system, where there is no waste generated and everything gets recycled. In contrast to a linear economy, the natural world follows a circular model, where all materials flow within the system following a circular cycle of recycling and reusing materials.
A **circular economy** works in a similar fashion, where raw materials and products are used and reused as many times as possible to reduce the extraction of new raw materials. This also reduces the amount of waste going to landfills.

In the wake of all the excess waste, in particular, the plastic pollution harming our environment, there have been calls for an alternative model of an economy. One that does not generate the amount of waste that is currently generated in a linear economy. Learning about circular economy and how it can offer a viable solution to combating waste

pollution is a necessary step to moving towards a world without plastic waste ending in the environment.

Here are some additional resources on circular economy:
- https://www.ellenmacarthurfoundation.org/circular-economy/concept
- https://www.ellenmacarthurfoundation.org/circular-economy/concept/infographic
- https://reports.weforum.org/toward-the-circular-economy-accelerating-the-scale-up-across-global-supply-chains/the-limits-of-linear-consumption/

Curriculum Connections

Activity 1: What is a Circular Economy?

Alberta
- ❖ Chemistry 30: Unit C Chemical Changes of Organic Compounds
  - ➢ 30-C2.3 sts explain how science and technology have both intended and unintended consequences for humans and the environment
- ❖ Social 10-1
  - ➢ 3.2 - recognize and appreciate the impacts of globalization on the interdependent relationships among people, the economy, and the environment
- ❖ Grade 9 Unit C: Environmental Chemistry
  - ➢ 3 - analyze and evaluate mechanisms affecting the distribution of potentially harmful substances within an environment

Ontario
- ❖ Grade 9 Chem (C1.2)
- ❖ Grade 9 Bio (B1.2)
- ❖ Grade 9 Geography
  - ➢ B1. The Physical Environment and Human Activities: analyze various interactions between physical processes, phenomena, and events and human activities in Canada
  - ➢ C1. The Sustainability of Resources: analyze impacts of resource policy, resource management, and consumer choices on resource sustainability in Canada (FOCUS ON: Interrelationships; Geographic Perspective)

Activity 1: What is Circular Economy?

Overall Objective

The objective of this activity is to introduce the concept of a circular economy, its inception, application, and future. Reflect on the need for a circular economy, the problem of waste in the world and the flaws of the current linear economic model.

Materials

- Internet-enabled device
- Eco 360 Notebook (we recommend asking learners to maintain a notebook for this program to write down reflections as they go through the program)
- Topic backgrounder
- [Circular vs. Linear Economy Worksheet](#)

Time Required

30 minutes - 45 minutes

Learning Outcomes

By the end of this activity, learners will:
- understand circular economy
- contrast circular economy with our current linear economy
- understand the problem of waste in our current linear economy and its repercussions
- understand how a circular economy provides a viable alternative to the problem of waste

Grade Level

Suitable for Grades 9 to 12

Activity Outline

🌿 Step One

Begin by watching these videos:
   a. Moving from the linear to circular economy:
      https://www.youtube.com/watch?v=VqgqiCL-JwU (6 minutes)
   b. Explaining the Circular Economy and How Society Can Re-Think Progress:
      https://www.youtube.com/watch?v=zCRKvDyyHmI (4 minutes)

🌿 Step Two

Distribute the Circular vs. Linear Economy Worksheet to learners. As a class brainstorm answers to the questions below. Have learners reflect on the questions individually, recording them in their worksheets. Afterwards, learners can come together as a class and share their reflections with everyone.
   a. How is a circular economic model different from our current economic model? Provide an example to demonstrate.
   b. What are the problems with a linear economic model?

🌿 Learner Assessment

Consolidation: Now that the class has explored the problems faced by a linear economic model, invite the learners to think of solutions. Have learners reflect on the questions individually, recording them in their personal notebooks. Afterwards, learners can come together as a class and share their reflections with everyone.
   a. What actions can we take to ensure we produce less waste?
   b. How can the circular economy help solve some of the complex problems of waste that we are faced with today?
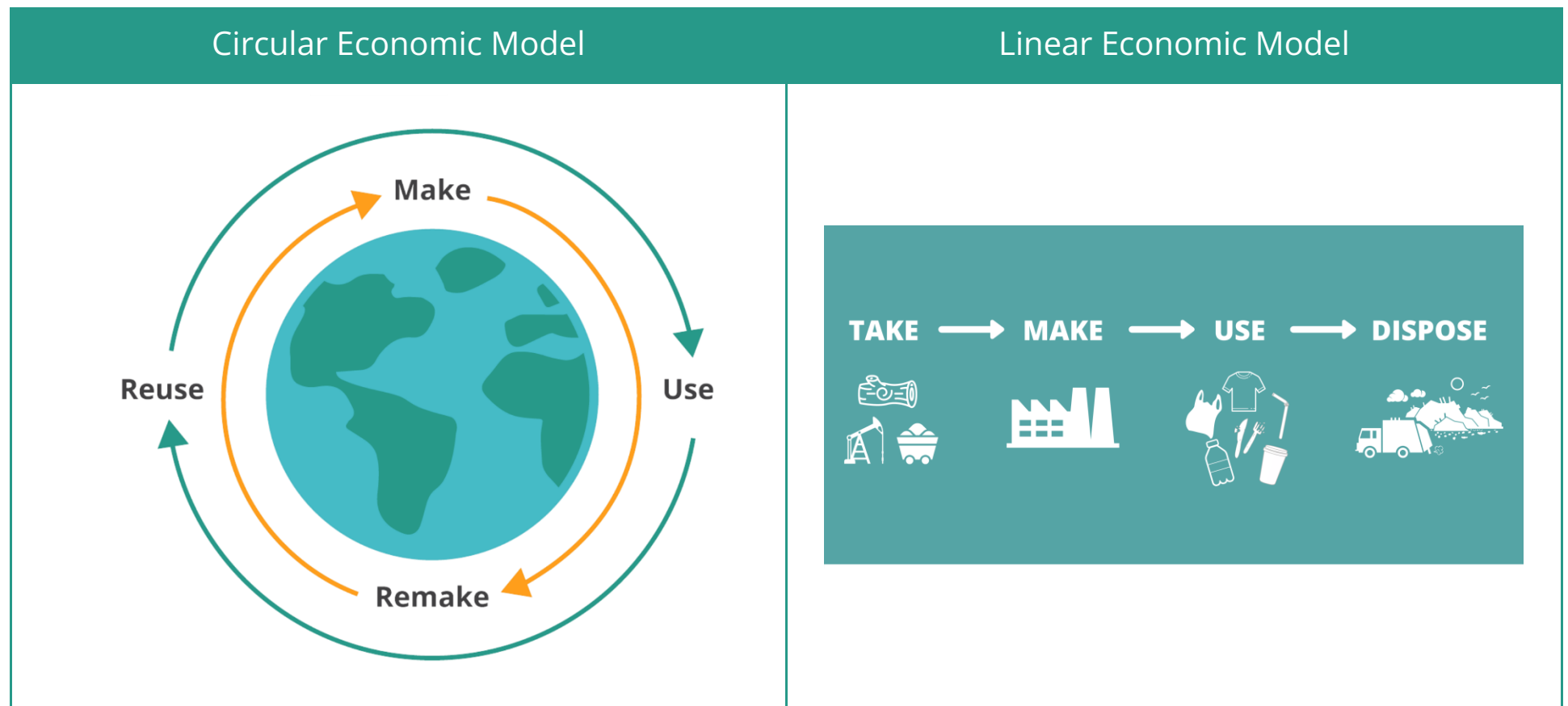
Associated

Worksheets

Eco 360

Circular vs. Linear Economy Worksheet

Activity 1 - What is a Circular Economy?

Comparison Between the Two Economic Models

1. Review the structure of the two models below and notice key differences

Circular Economic Model	Linear Economic Model
Make — Use — Remake — Reuse (cycle around Earth)	TAKE → MAKE → USE → DISPOSE

2. Answer questions below as instructed in activity 1

Circular vs. Linear Economy Worksheet

Activity 1 - What is a Circular Economy?

1. How is a circular economic model different from our current economic model? Provide an example to demonstrate.

Circular vs. Linear Economy Worksheet

Activity 1 - What is a Circular Economy?

2. What are the problems with a linear economic model?

Circular vs. Linear Economy Worksheet

3. What actions can we take to ensure we produce less waste?

Circular vs. Linear Economy Worksheet

Activity 1 - What is a Circular Economy?

4. How can the circular economy help solve some of the complex problems of waste that we are faced with today?