THE CIRCULAR CLASSROOM

MODULE 1

MOVING FROM THE LINEAR TO THE CIRCULAR ECONOMY

INTRO

WELCOME TO THE CIRCULAR CLASSROOM WORKBOOK FOR MODULE 1

Moving from the linear to the circular economy

In this workbook, you will find a general introduction to the core content of this module, along with activities for in-class learning, further research and exploration.

This pack includes three core activities that you can do during class. It also has variations and suggestions for how to extend the learning experience so you can engage in lengthier explorations into the core topics.

Refer to the website for live links to additional support materials.

Feel free to photocopy this content and use it to activate your classroom.

FROM LINEAR TO CIRCULAR

Our economy is designed to extract raw materials from nature, process them into usable goods and then discard them either into a landfill, incinerator or somewhere in nature (usually by accident).

This linear system is wasteful and the losses result in negative environmental impact, which is not currently accounted for in any of our economic measurement tools.

The alternative to the linear economy is the circular economy, which is all about redesigning the way we produce goods and services so that they meet our needs in more sustainable and regenerative ways.

It's not about recycling; it's really about redesigning the entire product or service delivery model so that human beings get the things they need without negatively impacting the natural systems that sustain us all.

In order to make the global transitions we need, we must change the way each of us consumes, reconsider the way we do business and redesign the types of products that end up in the world. Governments play a crucial role in creating policies that encourage these rapid shifts towards a circular economy, but so does every citizen.

The exciting thing is that this is happening all around the world; people of all types are changing their lifestyles and companies are re-designing their products to be more circular!

These types of changes mean designing take-back programs and reconsidering the way we deliver functionality to the market. They also include encouraging repair through better design and, most importantly, thinking about the entire life cycle of the products we create.

The activities in this workbook will help you start thinking about the differences between a linear and circular approach to meeting human needs, to evaluate sustainability and to design change in the new circular approach. Everyone impacts this endeavor!

ACTIVITY 1

LIFE CYCLE MAPPING AN EVERYDAY PRODUCT

MATERIALS NEEDED

Everyday products such as:
Denim jeans, cups (paper, plastic, ceramic), pens, cell phones
Pens or markers with which to write
Large pieces of scrap paper to draw on

The goal of this activity: Develop the ability to think about the full life of the things that we use in our daily lives and set the groundwork for being able to redesign systems. Everyday objects are fascinating in their complexity and this helps us conceptualize the way the linear system works and how to start making the products we use more circular.

STEP 1

Choose an everyday object that is available in the room.

Ideally you should choose an object of which you have more than one in the classroom, in different variations.

STEP 2

Divide yourselves into small groups of 3–6 people.

Make sure each group has a large piece of paper, as well as one example of the everyday product that has been chosen.

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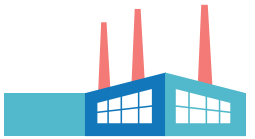
STEP 3

Review the five life cycle stages:

1. MATERIAL EXTRACTION



2. MANUFACTURING

3. PACKAGING + TRANSPORTATION

4. USE

5. END OF LIFE

STEP 4

Each group will document (some will draw pictures, others write lists) the entire life cycle of the product, from start to finish.

Groups can use the template on the next page and the Internet to research how things are made. There should be a time limit of 15–20 minutes.

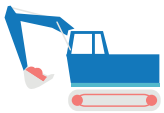
STEP 5

Start your life cycle map with the list of materials you made and find out how they are extracted and processed. Use the Internet to research this, or make some good guesses! When you get to the end of life, think through all the possibilities such as landfill, littering and recycling. How likely are they?

STEP 6

When the groups complete their maps (in whatever way they end up), everyone will share what was discovered about their product's life cycle.

Discuss which end of life option is the best and why – it may be more complicated than everyone expects!



1. MATERIAL EXTRACTION

1. MANUFACTURING

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3. PACKAGING + TRANSPORTATION

4. USE

5. END OF LIFE

QUESTIONS TO ASK

How many different materials go into making up each individual product?

How many different people and jobs go into making up each individual product?

How does this change the way you think about this everyday object?

What is the likelihood of it being recycled now that you understand how it was made?

As a customer of these goods, what could you do to make better choices?

How could it be redesigned and/or created differently to reduce its negative impact?

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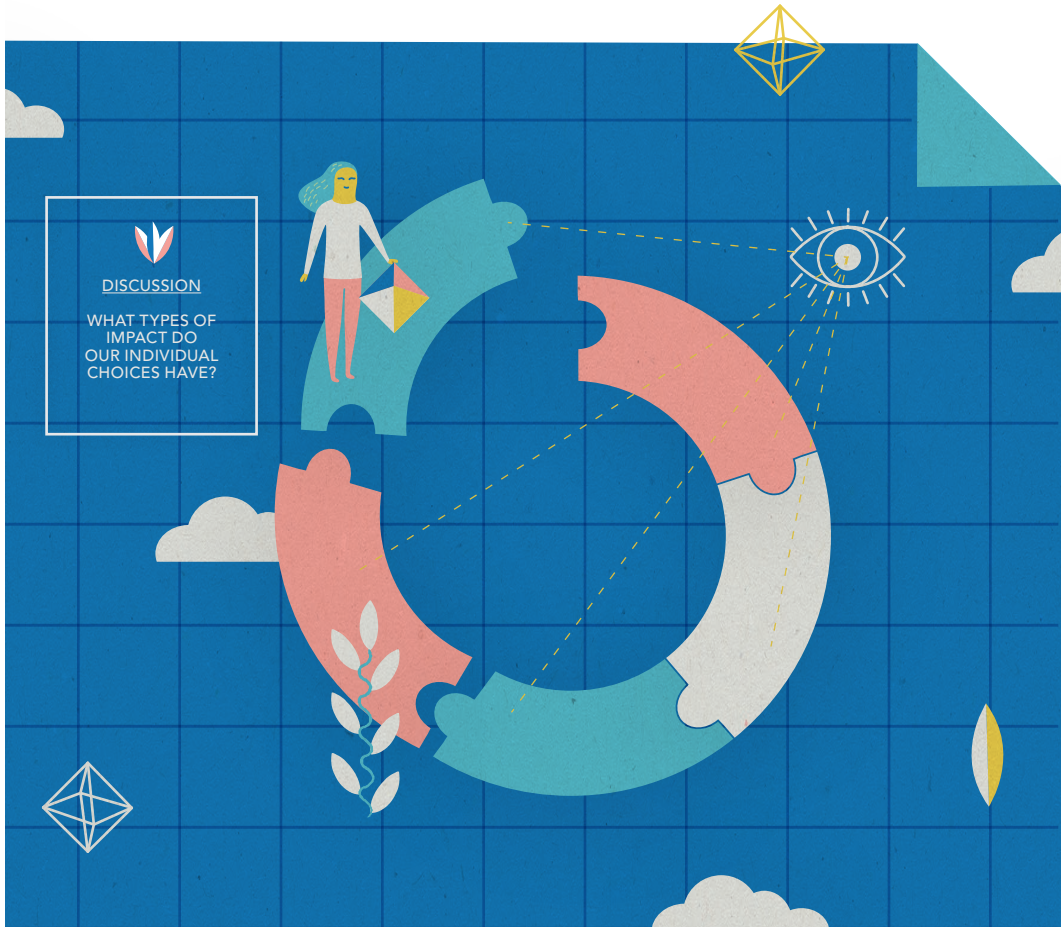
AFTER THE ACTIVITY

After the class discussion, you and your group will have collectively discovered many new things about these everyday objects.

As a follow up, redesign the product to be more circular.



ACTIVITY 2

NATURAL SYSTEMS IDENTIFICATION ACTIVITY

MATERIALS NEEDED

A green space (park or open area)
Something to write with
Scrap paper or notebook

The goal of this activity: Identify different systems and develop a delineation between natural and industrial systems. This is not about judging which systems are better than others – it's about noticing the differences between them. Consider how the natural world provides oxygen, food and water. Consider why industrial systems are created and what services they provide.

STEP 1

Spend 5 or 10 minutes in a natural environment, like a park near the classroom.

STEP 2

Write down as many natural systems as possible within the time limit (template on next page).

The objective is to be able to distinguish between natural and industrial systems. What evolved from nature and what was created by human beings?

STEP 3

Divide yourselves into pairs or small groups to share your lists and decide together if they are from a natural system or not.

STEP 4

OPTIONAL: Draw a diagram of how the systems are interconnected and reliant on each other.

QUESTIONS TO CONSIDER

What defines a natural system?

What defines an industrial system?

How are the systems interconnected?

What are some of the fundamental differences between natural and industrial systems?

AFTER THE ACTIVITY

Consider repeating the activity in a new location to see what differences are found. The activity could be repeated in a less natural environment, in which case you would work to identify all the industrial or social systems around you using the same format. An example of an industrial system is our transportation system. An example of a social system is the educational system.

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SYSTEMS TEMPLATE

Use this template to help you identify the systems around you. It can also be used to identify the industrial or social systems in further versions of this activity.

EXAMPLE	POINTS
TOTAL	

ACTIVITY 3

EVERYDAY COMPARISON DEBATE

MATERIALS NEEDED

Internet access
Scrap paper to write on
Pen or pencil

The goal of this activity: Explore the impact of everyday objects and see the relationship between our choices and the impact on the environment. Debate helps you develop an argument and encourages good conversation around complex issues.

It is advantageous to choose everyday objects for this activity as it will help shift your perspective on the choices you can make in your daily life.

STEP 1

Create two teams and decide on two everyday objects to compare. Some examples are:

Cow's milk vs. almond milk
Car vs. bike
Sticky tape vs. glue
Pen vs. pencil

STEP 2

Take 20 minutes to research the different kinds of environmental impact of the everyday products chosen. Use valid sources such as newspaper articles and scientific studies (Google Scholar is a great resource) to uncover the case for the product.

STEP 3

Each group develops an argument that takes a position on the product's impact on the environment. The facilitator will decide if they are debating whether the objects are good or bad for the planet.

STEP 4

Teams debate which product would be better or worse for the environment, and try to convince the other team. If time permits, each team can come up with a way in which this product could be redesigned to be part of the circular economy.

QUESTIONS TO CONSIDER

What are all the different ways a product can impact the planet?

What different perspectives should we take into account when we create products?

AFTER THE ACTIVITY

You will have uncovered many different facts and issues about the objects. What are the possible opportunities? For homework, consider doing an at-home activity to find alternatives to the products you researched. These alternatives should take a circular approach to products that fulfill the same functions as the ones discussed, but using a circular economy-approach.

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ADDITIONAL ACTIVITIES

How does nature solve problems?
Write an essay about how trees talk to each other in order to share nutrients, or about the different designs human beings have created that have been inspired by nature.

Explore a major environmental problem (ocean plastic waste, melting ice caps, the sixth great extinction).
Individually or in small groups, research a selected issue and develop a short presentation about it. Discuss the issue and share three solutions that are currently being applied. Consider suggesting a new creative solution.

What is the circular economy all about?
Research and write a paper on what the goal, objective and approach to transitioning to a circular economy are all about. What shifts have to be made in the linear economy in order to make this happen?

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