



THE CIRCULAR CLASSROOM

EDUCATOR
SUPPORT PACK

INTRO

WELCOME TO THE CIRCULAR CLASSROOM WORKBOOK FOR MODULE 4

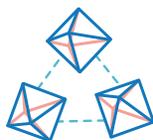
Educator support Module

This pack includes ideas on how to bring Circular Classroom thinking into the world and explains the in-class activities.

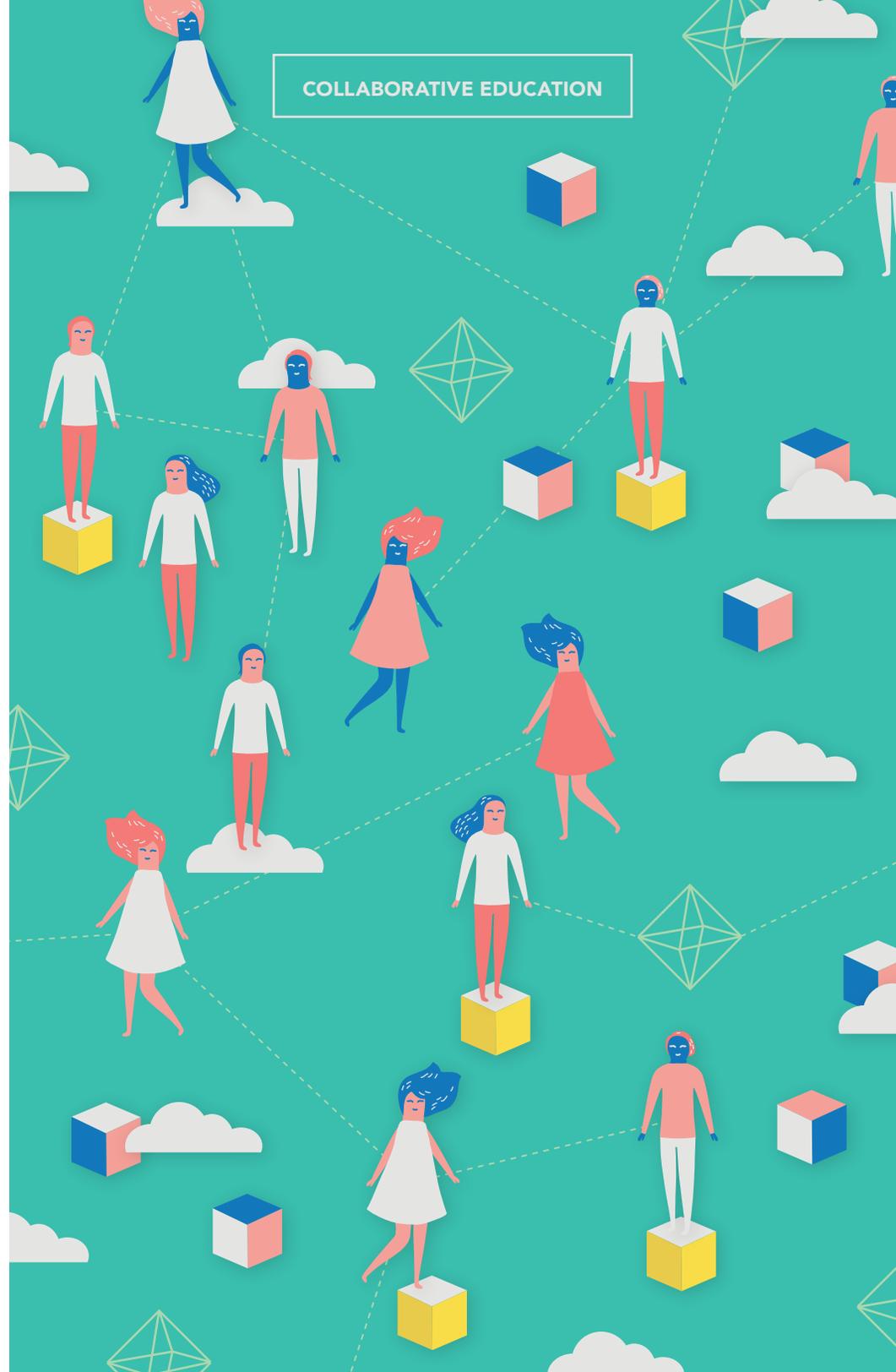
The workbook discusses how to get students motivated and engaged with this topic, what parts of the curriculum it connects to, plus tips for in-class conversations and sharing the impact while keeping it positive and future focused.



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

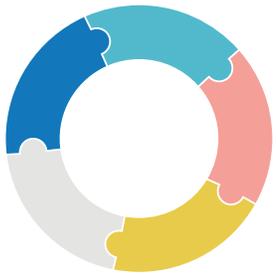


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CIRCULAR CLASSROOM

Circularity is a concept that has been popularizing as an approach to addressing our environmental and equity issues for some time.



There is a significant body of work from academics, industries, governments and individuals that supports the shift from a linear, reductive production approach to a more holistic and sustainable approach that closes the loop of the linear economy.

In order to support the transition to a circular economy, people need to be equipped with the thinking and design tools, plus the language, that enable this to occur.

The Circular Classroom exists to help young adults gain access to these critical new approaches early on.

This will not only help to inform their career decisions, it will also support them in gaining the tools needed to address some of the complex social and environmental issues we face.

This support pack for educators provides an overview of the learning approach and objectives along with a navigation map for classroom planning and connections to the Finnish curriculum.

The videos and in-class activities have been developed by Dr. Leyla Acaroglu, who has spent over a decade leading the way in developing highly engaging and positively framed content for a circular and sustainable future.

The Circular Classroom activities are delivered as multiple in-class interactive activities.

CIRCULAR CONNECTION

All of these modules fit together to create a foundational perspective of what the current linear economy is and how we can all participate in shifting it to a more sustainable, regenerative and circular economy through our actions as individuals.

The key approaches are learning through doing and applying creative, divergent thinking to the complex problems that this transition offers us.

Some of the content is difficult to grasp, as is much of the communication around the environment.

As such, the future is painted in a depressing light, which discourages many people, especially young people, from getting involved.

That's why it is so important to encourage your students to get actively involved in the topics that they care about.

They could start a Circular Classroom activity club at your school, change their lifestyles, or take inspiration from other young people helping to make a positive impact on the future today.

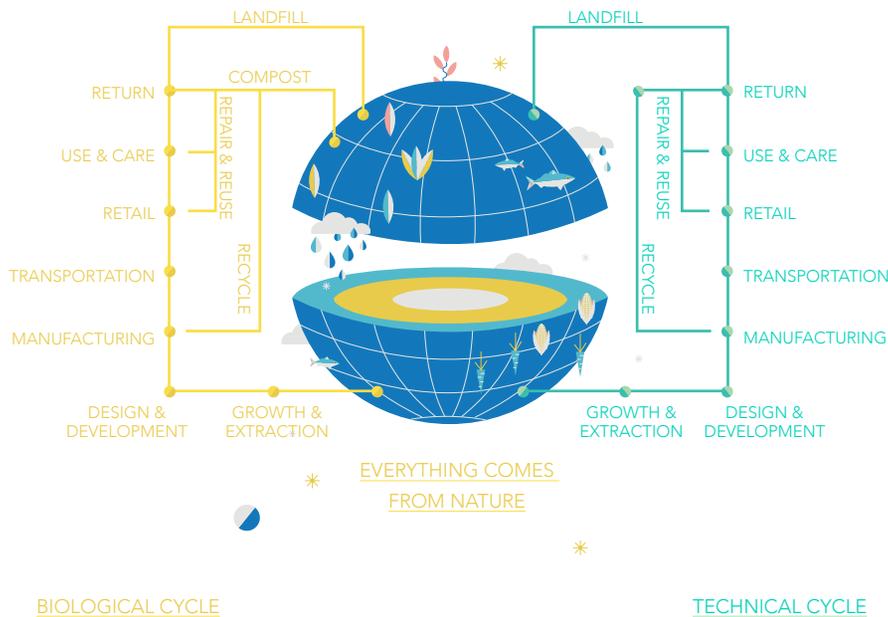
There is always more to learn, which is why it's going to take all of us working together to find the new ideas and tools needed to shift from the wasteful to the regenerative systems.



These modules highlight just three topics. There are many more, offering you and your fellow educators a fantastic opportunity to become more involved in developing new in-class activities around the Circular Classroom.

SYSTEM DIAGRAMS

These diagrams are intended to help illustrate the way our systems currently work, and how it could be. Use these with the students to give them a visual reference regarding how these systems do and can work.

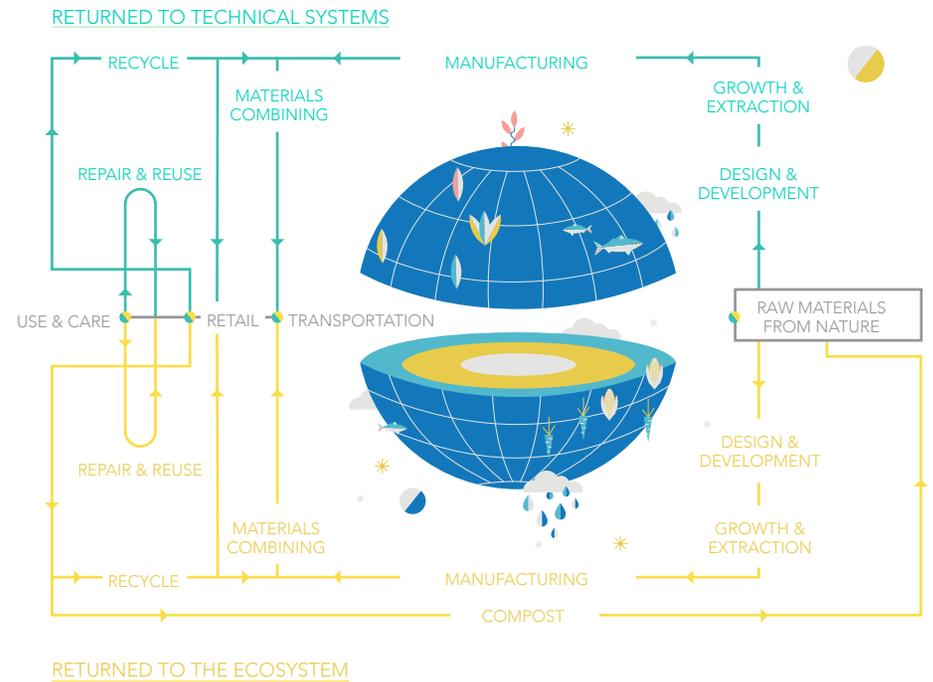


In this first diagram, the current system enables materials to be lost from the system through solid waste and pollution.

It doesn't include any incentives that encourage producers to design products

that are recyclable or designed to be recaptured at the end of life.

Instead, the current system encourages many aspects of the linear system to produce waste and make consumers responsible for recycling or reuse.



In the second diagram, the circular economy seeks to change this by incentivizing producers to design products that are not easily biodegraded back into nature. These products would also have materials and resources that are valued, not wasted, and that enable the consumer to easily help recapture them at the end of life.

The two loops show the two different nutrient cycles. On one side, we have the biological system, which contains things that can be metabolized back into nature easily, such as any non-synthetic food or untreated paper. On the other side, we have the

technical system, which is all of the human-created materials and products that are not easily biodegraded back into nature. It is better to keep cycling these through the technical system by recapturing, reusing and repairing.

All of this shows us that we need new systems, processes and ideas, which means new opportunities for businesses, governments, designers and individuals to change the way we do things. In short, these visuals further illustrate the different ways we can shift from a linear to a circular economy.

SUGGESTED METHOD

The modules are laid out in three sections that are designed to go in order, but are interchangeable and can be shuffled and reordered as you see fit.

STEP 1

Introduce the topic area from the module.

STEP 2

Spend 5 minutes checking how students are thinking about the themes to establish their own thinking and comprehension.

STEP 3

Play the short video featuring Leyla's introduction of the topic area.

STEP 4

Have the students carry out one of the core learning activities.

STEP 5

Have the students reflect on outcomes and key questions.

STEP 6

Follow up on further sessions with the additional in-class activities.

EDUCATION APPROACH

The framework that these activities are developed within is a critical approach to pedagogy, where the educator is able to transition into a learning role with the students.

The goal is to enable collaborative and experiential learning while acknowledging that this is a new area of knowledge in which all the answers don't yet exist.

By taking this approach, the educator is able to engage with the experience of transferring knowledge in a different way, still maintaining their authority as leader of the educative experience, but also allowing for sharing in the learning outcomes.

This is important with a huge topic area such as this, as it is impossible for everyone to know all the answers, and the reality is that we don't actually have them yet!

To support the development of circular thinking in higher education, we need more people exploring, testing, experimenting and engaging with thinking and doing tools.

All the activities in the Circular Classroom are designed to be interactive and experiential.

With this format, once the video has been played and the students have completed the core task, hopefully their interest in the topic and their engagement with the in-class experience will increase, allowing you as the educator to introduce more interactive activities in future classes.

Experiential education allows students to develop new mindsets of self-understanding through action, interaction and reflection.

This approach cognitively engages students in different ways from just verbally receiving information. In an interactive situation, the brain experiences and interprets new knowledge in different ways.

Experiential learning is all about learning through doing. The main proponent of this approach is David Kolb, who proposed that knowledge is built through the transformation of an experience.

His experiential learning model can be broken down into 5 steps:

Do

Have the student do a task.

Share

Have the student share what they discovered or did.

Process

Have your students reflect on how the learning process worked.

Generalize

Encourage students to connect this experience to other real-world experiences in order to relate and connect the dots.

Apply

Enable students to apply what they have learned.

This cycle is then repeated and the cycle of experiential learning continues!

The format of each learning activity set is designed to support this approach, where you share, take action reflect and share. That's why each activity has questions to consider after the activity.

MODULE DESCRIPTION

The Circular Classroom is broken down into three different modules designed to help your students discover the biological systems that sustain life on earth, the opportunities that the circular economy offers and the tools to design a better future.

Each module offers overarching content and core concepts via the video, the introductory concepts and the in-class activities in the workbooks.

[The website circularclassroom.com holds additional resources in the form of links and extra videos.](https://circularclassroom.com)

Each module is flexible so that the educator can decide whether to carry out the activities in the classroom or as homework. However, most of the main activities are designed to be conducted in a group, while the additional activities are designed to be excellent individual homework assignments in the form of research projects, essays, presentations or group assignments.



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

MODULE 1

LINEAR TO CIRCULAR ECONOMY

The future is circular and the content in this module will help your students gain perspective on past, current and future choices, both as individuals and as members of society.

The linear economy has helped us advance, but the advancement has come at a cost to the environment.

The circular economy is seeking to remedy this through shifts in the way we organize society and produce goods and services in order to ultimately design the kind of future we want to live in.

This module provides big-picture perspectives of shifts in society through economic and social structures. It helps students gain an overview of what these big concepts are, but also reveals the relationships between everyday things that they use, as well as the incredible supply chains and systems at play in the current linear process.

The activities in this module help students gain a life cycle perspective and understand supply chains and production costs. Students will also

start to develop micro and macro perspectives, along with perspectives on the impact and influences they have as individuals and members of society.

Activity 1

LIFE CYCLE MAPPING

Life cycle thinking is about being able to uncover the life story of an everyday product. It is based on a scientific method of understanding how things we do in the economy impact the environment (life cycle assessments). This activity is a great way of getting students to start appreciating the complexity of the linear economy, especially the magnitude of materials and processes that go into making everyday stuff.

This activity is very intuitive and allows the students to learn about manufacturing, supply chains and material processing.

Activity 2

NATURAL SYSTEMS IDENTIFICATION

Identification of natural systems helps students see the relationships between industrial and natural systems. Being able to see how nature operates in a symbiotic and collaborative way helps to establish the importance of changing the way we meet human needs by designing products and

services that are more sustainable. A natural system is anything that works together to achieve a goal, like bees and pollinating flowers working together to achieve the outcome of healthy ecosystems, honey, more bees, and more flowers. Even the blades of grass on a lawn provide a home for micro digesters in the soil!

Up in the atmosphere, there are all sorts of natural processes that operate in harmony to help keep the planet's temperature stable and allow the right amount of sun and UV rays to penetrate the earth's surface so the magic of photosynthesis can occur, providing oxygen and the building blocks of life.

Activity 3

COMPARISON DEBATE

This activity helps us to gain a deeper understanding of the impact of our everyday consumption choices and how every action has a reaction in the system. Simple things like what milk we drink or how we get to school have a greater impact on the planet.

The opportunity here is for students to learn research skills, to practice public speaking and to uncover more about how things are made and what opportunities each of us have to make more informed consumption choices. It also helps lay the foundations for transforming linear products into circular products later on.

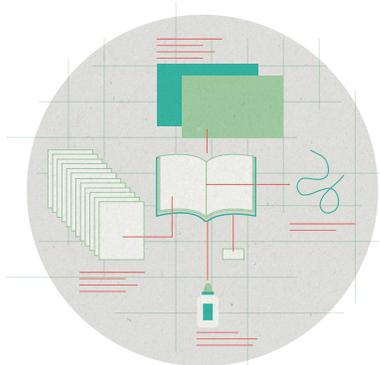
A great follow up to this is the eco-footprint activity in Module 2, Activity 1.

Learning Outcomes

By the end of Module 1, students should be able to explain the difference between the linear economy and the circular economy.

They should have a different and more detailed perspective on the way the economy works, how supply chains provides goods and services, the different types of natural systems and how these goods and services produce raw materials for the linear economy.

The goal of this module is to lay the foundation to start building the tools for thinking in circular systems.



The Life Cycle Map activity in Module 3

MODULE 2

SYSTEMS & SUSTAINABILITY

The second module in the Circular Classroom series further emphasizes systems thinking and sustainability, allowing your students to learn about the way nature provides life-sustaining ecosystem services and how they can make choices to help reduce negative impacts.

Systems thinking is a very powerful tool that has been around for several decades, originating at MIT and expanding into many different professional fields, from engineering and computer science through to biology and business management.

By learning systems thinking, your students will develop a more holistic view of how the world works, the role they play in it and techniques for making better decisions in their daily lives.

Sustainability is about making sure the decisions we make today don't negatively impact the ability of future generations to live as well as we do today. Sadly, many of the actions we have taken since the 1970s are restricting the earth's ability to regenerate itself.

This means we need to change the way we meet human needs and do business. Students will consider what thinking and societal shifts are needed for us to all live sustainably on the planet. If we get this right, hopefully we can start to be a positive, regenerative force, too!

Each of the activities in this module is designed to support learning these key concepts, understanding personal impacts and utilizing systems thinking.

Activity 1

ECOLOGICAL FOOTPRINT

This activity helps students learn the eco footprint methodology and find methods for individual impact reduction. Extra research into Earth Overshoot Day and the many opportunities to be a more conscious consumer make great additional homework activities.

Activity 2

SYSTEMS MAPPING

This activity allows students to start developing a systems mindset by exploring a topic in a group and developing a systems map.

You can pick almost any topic and it will help students start to understand cause and effect along with the power of connections and relationships.

The most important thing is to remind them that there is no wrong thing that can be added to the map, as everything is interconnected. Remind them when they share what they uncovered to look at how diverse all the maps are!

Activity 3

UNITED NATIONS' SUSTAINABLE DEVELOPMENT GOALS (UNSDGS)

Using the Sustainable Development Goals as an educational tool, this activity lays out the global challenges humanity is facing and provides an opportunity for students to develop their personal perspectives on challenges they want to contribute to changing. This promotes civic engagement along with gaining a greater understanding of social and environmental issues. This could also work well as an individual or group homework assignment. Consider breaking up the class into pairs so that each Sustainable Development Goal is covered.

Learning Outcomes

By the end of Module 2, students should have an understanding of what a system is and be able to differentiate between the natural and industrial systems at play in the world, as well as connect them to some of the sustainability challenges we face.

Students should also be able to identify and see how systems interact, as well as identify how individual actions impact the world.

The goal is to support a shift in perspective on how we as human beings affect the natural world and how we need nature to survive and thrive as a species.

These new concepts support the development of a systems mindset, which is a critical tool in supporting a transition to the circular economy.

MODULE 3

DESIGN & CREATIVITY

Design is one of the most powerful tools we have to shape society and create a future that works better for all of us.

This module explains why design and creativity play such an important role in activating the circular economy.

The design of materials, goods, services, governments, businesses and even schools impacts the natural systems we all rely on, but also shapes social values and the opportunities we have to make more sustainable lifestyle choices. Everyone has the opportunity to be a designer of the future and this module is all about

identifying the professional and personal role that design plays in our lives. The activities are designed to be fun and help students get excited about their future careers after experiencing the role of design in society.

Activity 1

PRODUCT AUTOPSY

By breaking something down, students can quickly uncover how it was designed and also see the sustainability failures and potential redesign options that exist. The product autopsy is a really powerful way of uncovering why recycling does or doesn't work and what design changes need to be made to products to help them work within the circular economy.

Activity 2

POST DISPOSABLE CHALLENGE

Students become very motivated by the global waste crisis as awareness of the impact on the oceans and animals is increasing. The post disposable design challenge allows students the space to think not just about the problems, but also about the opportunities to shift these issues into circular solutions. A great precursor to this activity is to have them do a research paper/essay on one of the key waste topics to help them prepare for the redesign challenge.

Activity 3

CITIZEN DESIGNERS

In this activity, students learn active citizenship and are motivated to take action on something they are passionate about, rather than deflect responsibility to other parts of the system. Whatever it is they choose to research and be involved in, it is important that they uncover respectful and proactive actions that they can take to help create a positive shift towards the circular economy.

Learning Outcomes

By the end of Module 3, students should be able to clearly explain the role that creativity and design plays in influencing our lives, along with being able to articulate the different global challenges we face with the Sustainable Development Goals. Connecting the dots between individual choices, collective actions and the designed world will support students' ability to develop greater citizenship, as well as enable a creative mindset when approaching problem solving. The goals are to teach an overview of the design process, to foster creative and reflective thinking, to enable students see how individual actions have the capacity to contribute to positive change and to allow students to experience the joy and possibility of creative problem solving for real-world issues.

ACTIVITY SUMMARY

Each module has three core interactive activities and several additional recommendations. The goal is that, over time, educators from across the country will work with their students to co-create new content to support this learning evolution. We have included a quick reference list and planning sheet for each activity so you can decide where to fit them in within your curriculum planning.

MODULE 1

LINEAR TO CIRCULAR ECONOMY

ACTIVITY 1

LIFE CYCLE MAPPING

Discover the hidden lives of how everyday things are made, explore the relationships they have with the natural world and with potential recycling opportunities.

ACTIVITY 2

NATURAL SYSTEMS IDENTIFICATION

Supports reflection on and understanding of the ways natural and industrial systems work around us.

ACTIVITY 3

COMPARISON DEBATE

Challenge students to conduct research on the environmental impact of everyday items and experience debating about which is better.

MODULE 2

SYSTEMS & SUSTAINABILITY

ACTIVITY 1

ECOLOGICAL FOOTPRINT

Online activity that allows students to uncover the impact of our everyday consumption choices.

MODULE 3

DESIGN & CREATIVITY

ACTIVITY 1

PRODUCT AUTOPSY

Facilitates the understanding of how things are made and the potential for recycling and circularity.

ACTIVITY 2

SYSTEMS MAPPING

Develops critical thinking, supports thinking in relationships and how systems in the world work.

ACTIVITY 3

UNITED NATIONS' SUSTAINABLE DEVELOPMENT GOALS (UNSDGS)

Discover the UNSDGs and see the relationship between problems and opportunities.

ACTIVITY 2

POST DISPOSABLE CHALLENGE

A gamified challenge in which students are given a scenario and design brief to create a circular product.

ACTIVITY 3

CITIZEN DESIGNERS

A challenge for students to see their role in the world and take action to help make positive changes.



	MODULE 1 Linear to Circular Economy			MODULE 2 Systems & Sustainability			MODULE 3 Design & Creativity		
	ACTIVITY 1	ACTIVITY 2	ACTIVITY 3	ACTIVITY 1	ACTIVITY 2	ACTIVITY 3	ACTIVITY 1	ACTIVITY 2	ACTIVITY 3
Date									
Location									
Video #									
Core Learning Objective									
Materials Needed									
Notes									
Session Follow-Up Plan									

FINNISH SYLLABUS

Adaptation and Co-Creation

These activities and the framework in these curriculum support tools are provided as launch pads for further in-class development. You are invited to adaptively use the resources, graphics and content in ways that help you work with your students in the most optimal manner.

One of the goals of this initiative is to support educators in experimenting and developing new content with students and fellow educators. Once you have delivered all the modules and in-class activities, set an ideation challenge with your students to create new content that helps others learn what was discovered in your class. By developing new activities and filming or developing workbooks and sharing them, you too can help design a future that works better by enabling more approaches to this important topic to be explored and developed.

SYLLABUS	MODULE	ACTIVITY NOTES
ENGLISH		
They familiarize themselves with different discussions on societal phenomena, particularly from the viewpoint of active citizenship. They consider the responsibilities and opportunities of individuals and communities to act, including human rights issues and opportunities to become involved in civil society.	1.3	All these activities engage students in reflection and dialogue around the role of individuals in society and our active participation within it.
	2.3	
	3.3	
Science and Future: They learn to share viewpoints based on their knowledge or opinions. They reflect on different views of the future, particularly from the perspective of technology and digitization.	3.1	All these activities encourage engagement with the complexity of the technological world and enable students to develop a deeper perspective on the future.
	3.3	
	2.2	
	2.3	
Sustainable Way of Living: The themes of the compulsory courses in the syllabus continue to be dealt with from the perspectives of ecological, economic and socially and culturally sustainable ways of living, taking into account the students needs and interests.	2.1	All these activities support the student in thinking about their personal impact on the environment and support the development of actions that help to address these in more active ways.
	2.3	
	3.3	

SYLLABUS	MODULE	ACTIVITY NOTES
BIOLOGY		
Ecology and Environment: In this course, the students observe the basics of ecology and the diversity of life, as well as threats to biodiversity in Finland and elsewhere in the world. Key themes include factors that threaten biodiversity and the possibilities of protecting it. The course also acquaints students with other ecological environmental problems. The objective of the course is for the student to be able to compare, analyze and assess the impact of human activity on ecosystems and understand the significance of biodiversity on the future of humanity.	1.2	These activities lend themselves to deep reflection on the natural systems around us and the different kinds of impact that human actions have on them. The additional activities from Module 2 also support further systems exploration and can be focused on natural systems and biodiversity.
	2.1	
	1.1	
Basics of Ecology: <ul style="list-style-type: none"> • Interactions between living and non-living nature • Structures and regeneration of ecosystems • Materials cycle and energy flow in an ecosystem • Biodiversity • Interspecies relationships 	1	Life cycle thinking is a critical tool to support an understanding of how consumption demand impacts nature. The systems activities also support this deeper understanding of relationships and interconnectedness.
	2	
Toward a Sustainable Future: <ul style="list-style-type: none"> • The significance of ecosystem services • Ecologically-sustainable development, circular economy and eco-social knowledge and ability • Acting to promote a sustainable way of living in the immediate environment • An experiment on ecology or the state of the environment, or an environmental development project 	2.1	All these activities support these objectives through learning about what sustainability is and how it affects us all.
	2.2	
	2.3	
	3.2	
	3.3	

These tables outline the connections that the activities have to the Finnish curriculum and serve as a handy guide for referencing what activities could work well for your subject area.

SYLLABUS	MODULE	ACTIVITY NOTES
GEOGRAPHY		
Develop the student's geographic worldview and provide them with the prerequisites for understanding global, regional and local phenomena and problems, as well as potential solutions for them. Guide students in preserving factors that influence the changing world, forming justified views, taking a stance on changes occurring in their surroundings, local areas and in the world at large, and actively contributing to the well-being of nature and human beings. The instructions provide the students with the ability to observe environmental and human rights issues, as well as support them in strengthening their eco-social knowledge and ability.	1.1 2.2 3.3	The mapping tools are very useful for this learning outcome as they help students see relationships and map connections between cause and effect, influence and impact. The citizen activities help students turn problems into opportunities and develop their eco-social skills.
Objectives and Instruction: • Able to observe everyday environments and describe regional phenomena, structures and interactions in nature and human activity • Able to critically reflect on topical events in the world and the factors that affect them • Able to observe and assess the status of natural and built environments, changes occurring in them, as well as human well-being on a local, regional and global level	2.2 3.2 1.2	These activities support the student's identification and understanding of the natural environment and reflect on the impact that human activities have on systems that sustain life.
The World in Change: • Knows what kind of solutions can be used in order to mitigate risks or alleviate their impact and is familiar with the possibilities of predicting and preparing for risks, as well as for acting according to sustainable development • Understands how human activity affects the viability of the globe and the well-being of people	2.2 2.3	Systems thinking and the United Nations' Sustainable Design Goals are critical tools for learning to engage with this important knowledge area.
Understand the significance of ecologically, economically, culturally and socially sustainable development for the future of the world.	2.2	Systems thinking is the key tool for thinking in this way and the activities that focus on the relationships between any of these elements would support this learning.
Primary production and the environment + industry and energy.	1.1 2.1	Life cycle thinking and product tear-downs help students understand these concepts.

SYLLABUS	MODULE	ACTIVITY NOTES
GEOGRAPHY		
Sustainable way of Living: The themes of the compulsory courses in the syllabus continue to be dealt with from the perspectives of ecological, economic and socially and culturally sustainable way of living, taking into account the students' needs and interests.	2.1 2.3 3.3	All these activities support the student in thinking about their personal impact on the environment and support the development of actions that help to address these in more active ways.
PHILOSOPHY		
The objective of the course is for the student to get acquainted with the key concepts, questions and theories of philosophical ethics, as well as the basics of environmental philosophy. Perspectives of nature of normative statements and their relationship with descriptive statements and is able to justify the conceptions of good and right.	2.2 3.1 3.2	These activities help students understand their role in the world, question the ethics of what human beings do and develop a more critical mindset regarding mass-produced consumer goods.
• Ethics and the moral choices of the individual, interpersonal relationships and life choices • Ethical questions concerning animals and the environment • Social and political philosophy	3.1 3.2 3.3	Understanding the impact of consumer choices such as eating meat, thinking about some of the major issues that affect the planet such as ocean plastic waste and how to design in order to solve this, along with reflecting on the role individuals play in affecting change.
SOCIAL STUDIES		
Familiarize them with opportunities to influence, as members of a democratic society, at a local, national and international level, and be motivated to act as an active and responsible citizen.	1.1 1.3 3.3	These activities support this through understanding the cause and effect relationship of actions and taking action to make change.
Able to justify views of value-based and controversial social and economic questions.	1.3	All the follow-up questions to each activity challenge the student to think about their role, perspective and values in society.
Able to analyse connections between multi-dimensional social phenomena, compare alternatives for social and economic development and evaluate the different motivations for and impact of the alternatives for the dimensions and actions of societies from the viewpoint of different population groups.	2.3	The systems mapping experience helps students see the relationships between complex aspects of our societies. In this regard, it would be good to use a social aspect for the systems mapping exercise.

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