

# OUR FOOTWEAR LEAVES A FOOTPRINT: LET'S TALK ABOUT THE CIRCULAR ECONOMY

## BRIEF OVERVIEW/DESCRIPTION OF THE EDUCATIONAL PROGRAMME

We explore the principles of the circular economy, focusing on the shoes of the young participants. We discuss ways of obtaining different materials for shoes, extending the life of footwear, taking care of, reusing and recycling shoes. By solving tasks and playing in collaboration, we look for different ways to use resources more efficiently and reduce waste, both through our personal choices as consumers and at other levels than the consumer (in production, product and economy design, politics, etc).

## COURSE AND SCHEDULE OF THE EDUCATIONAL PROGRAMME (CONTENT AND METHODOLOGY):

### Introduction (5 min)

Introduction of the instructor, brief overview of what is to come, setting learning objectives, schedule, agreements for a safe and collaborative environment.

### Things necessary for life (15 min)

Dividing into groups of 3–4 people and group work on the topic 'what do we need for a good life' (writing on pieces of paper). The results are placed on a printout of Maslow's pyramid. Comparison of results. Together we discuss our basic physiological needs as humans.

### For making any material things, something is needed (energy, materials, water, ecosystems, etc). Planetary boundaries. 10 min

Exploring and discussing a diagram of planetary boundaries (working in the same groups). Students compare the basic needs with the planetary boundaries. The discussion leads to an understanding that the production and consumption of things competes for the same resources that we, as well as other living beings, need to be alive.

### How do we get things? What will happen to them next? Comparison of the linear and circular economic models. 15 min

Many environmental problems are caused by a linear economic model: take resources from nature – design – produce – consume – throw away.

Students discuss (with the help of guiding/supporting questions) what is needed to produce things.



In collaboration, the class constructs a diagram of linear economy on the floor, using the provided elements (take resources from nature – design – produce – consume – throw away).

We look for an answer to the question of how a circular economy differs from a linear economy, or what could we do differently?

During the discussion, the instructor asks the students to give examples of how cycles of matter, the covering of energy needs and the recycling of waste are solved in nature. Drawing on these examples, we will have a closer look at the diagram and principles of the circular economy (each group gets a 'butterfly' diagram of the circular economy). Students use their prior knowledge of various cycles of matter and soil formation.

**Looking at our own shoes, we will conduct a case study on the example of an object that is essential in our latitudes. 20 min**

Work continues in the same groups as earlier, focusing on the following topic: *What footwear am I / are we wearing?*

- ▶ Students have a look at their own and their classmates' shoes, select one for further study, and complete an observation sheet with guiding ques-

tions (the shoe's age, material, possibilities of reuse or recycling, care options, etc).

- ▶ Groups can then choose from 10 different shoes that come with a passport of the shoe's life cycle (the same information they studied for their own shoes). They review it, too.
- ▶ The results will be shared with the class, with guiding questions from the instructor. Students compare the information collected about the shoes and discuss whether product information is always available to us – consumers – through observation.
- ▶ Each group suggests three ways to make shoe manufacturing less resource-intensive and wasteful in the stage of the economy they received by drawing lots. The circular economy 'butterfly' diagram and previously shared examples are used as a reference.

**Together, we make the linear economy diagram more circular, focusing on the example of shoes. 10 min**

Gathering around the linear economy diagram, students recall the goals (principles) of the circular economy and present the results of their group work by stages of the economic model. The diagram of a linear economy on the floor is transformed into a circular



economic model, and shoes with a passport are placed in the centre.

Discussion with students about which professions are involved in these stages and whether we know who could implement this or that proposal or recommendation (politicians, shoe consumer, employee of a re-use centre, designer, economic operator, myself, shoe repair specialist; etc).

In order to understand the importance of creating a new economic model, a guided activity is done to explore the food web's sensitivity to human impact (the alternation of predator and decomposition chains, where a living being's waste is always a valuable resource for the next link, so that 'garbage' is not generated in nature).

### **SUMMARY** 15 min

**Step game.** Students stand in a circle of string placed around the shoes on the floor. Boards with stages of the circular economy have also been placed on the floor, along with suggestions for how the existing linear economy system can be significantly reshaped in an environmentally friendly way. The questions based on which students move around are prepared by the instructor, drawing on the suggestions that were written on the note boards earlier. Students choose the number of steps based on their personal consumption

habits and experiences (eg: Have you ever polished your shoes to make them last longer?).

The instructor reflects in a few words the resulting diagram on the floor and emphasises that it is rational to use existing things as long as possible before acquiring new ones.

The instructor invites students standing in a circle to ask three questions about the programme and allows a few minutes for sharing thoughts in connection with the programme.

**Programme feedback:** the instructor thanks the students and asks them to indicate with their hand if they believe they met the learning objectives set in the introduction (voting with the thumb on a three-point scale) and free-form feedback to the instructor.

**TARGET GROUP:** grades 7–9

### **OBJECTIVES OF THE EDUCATIONAL PROGRAMME**

- ▶ The student knows the differences between a circular economy and a linear economy.
- ▶ The student knows what the planetary boundaries are and can associate them with their own physiological needs as well as with general human activity.



- ▶ The student is able to reason why the current culture of consumption is not sustainable and threatens our own basic needs. The student is able to think on their own personal, as well as global level.
- ▶ The student is able to associate the challenges related to the sustainability of the planet with the globalisation and interdependence of production and consumption.
- ▶ The student is able to identify areas where co-operation is necessary for solving environmental problems.

## GENERAL COMPETENCES

- ▶ Self-determination competence
- ▶ Communication competence
- ▶ Competence in mathematics, science and technology
- ▶ Social and civic competence
- ▶ Cultural and value competence

## LINKS WITH CURRICULA AND CROSS-SUBJECT INTEGRATION

As for curricula, the programme primarily has links with **science, biology and geography**, but also **mathematics and language learning**.

- ▶ The student **is able to solve questions** arising in various areas of everyday life that require the use of mathematical methods of thinking (logic and spatial thinking) and ways of representation (formulas, models, diagrams, graphs);
- ▶ **observes, analyses and explains** objects and processes in the environment, finds interconnections between them and makes general conclusions, applying knowledge and skills acquired in natural sciences;
- ▶ **recognises** people's needs, consumes responsibly, avoids harming their own and others' health, and acts in an environmentally friendly manner.

### Natural science:

The student 4) presents ideas for the recycling of materials; 5) analyses the possible environmental impact and ecological footprint of their activities.



**Topics:** Relationships between animate and inanimate nature. Learning content: Human activity, technology and ecological balance. Energy consumption and recycling of materials.

### **Biology:**

The student takes a responsible approach to the living environment, valuing biodiversity, a sustainable and responsible way of life and the principles of sustainable development.

### **Ecology and environmental protection:**

Learning outcomes. The student: 2) explains the development of natural balance in ecosystems, evaluates the positive and negative impact of human activity on changes in populations and ecosystems and the possibilities of solving environmental problems; 7) values biodiversity and takes a responsible and sustainable approach to different ecosystems and habitats. Study content. Human impact on populations and ecosystems. Importance of biodiversity. Human activity in solving environmental problems.

### **Geography:**

An important part of studying geography is the development of an understanding of the interrelationships between man and the environment, the limited

amount of natural resources and the need for their rational use. Students develop environmental awareness, embrace the concept of sustainable living and sustainable development, and form environmentally conscious attitudes. The program is related to the topic introduction to economics, which deals with economic and natural resources, sustainable management, including the circular economy.

### **Integration of subjects:**

Participating in the programme, the student uses prior knowledge:

- ▶ of natural sciences – processes occurring in nature, soil formation, natural resources, etc;
- ▶ of personal, social and health education – Maslow's pyramid or hierarchy of human needs, analysis of one's own needs and the ability to cooperate;
- ▶ of mathematics – reading diagrams and drawing conclusions based on them

**Cross-cutting theme:** Environment and sustainable development – the links between planetary boundaries, reasonable use of resources and people's consumption habits is discussed.



## METHODS AND EQUIPMENT

**Methods:** group work; discussions; reflecting on, explaining and using drawings and diagrams; modelling; case study based on real shoes

**Equipment:** each group gets one printout of Maslow's pyramid (hierarchy of human needs); a diagram of circular economy (circular economy „butterfly“ diagram); a shoe observation sheet; 20 pieces of recycled paper for writing down basic needs; 4 whiteboard markers; one card with a stage of production characterising the economy; a note board; task cards (written work instructions).

A long string for creating models together. 10 different types of footwear (clogs, rubber boots, hotel slippers, etc) with passports describing their life cycle, for assessing the environmental impact of footwear.

## GUIDELINES FOR THE TEACHER

Please ask the students to wear shoes when they come to the programme (not to come in socks or barefoot) and, if necessary, inform the instructor in advance about any specificities or special needs of the group (eg if a participant is in a wheelchair etc and any other information affecting the organisation of work).

Throughout the programme, we ask the teacher to help the instructor highlight interconnections between the topics discussed in the programme and what has been studied before, as well as to help maintain a collaborative environment.

We also ask the accompanying teacher to fill in a feedback questionnaire (the link will be sent electronically after the programme).

## KEYWORDS

- ▶ Circular economy
- ▶ Production
- ▶ Cycle of matter
- ▶ Planetary boundaries

**DURATION** 2 × 45 min (90 min)

The programme can be conducted all year round.

**PRICE** 165 euros

**GROUP SIZE:** up to 28 (max 30)



## ADDITIONAL INFORMATION

The programme takes place in a safe environment and students don't need to bring any equipment (however, changing shoes is required when the programme takes place at Tartu Nature House).

Participants with special needs can also take part in the programme, but please inform us of this in advance. Any special requests (such as a snack break, etc) should also be discussed with the programme instructor beforehand.

## AUTHORS OF THE PROGRAMME:

**Aili Elts**, Tartu Nature House

**Annelie Ehlvest**, Tartu Nature House

**Aire Orula**, Tartu Nature House

**Liina Niinemägi**, Tartu Nature House

**Gedy Matisen**, Tartu Nature House

**Design: Kati Kekkonen**, Tartu Nature House

The programme has been created within the framework of the collaborative project [Together Towards Improved Quality of Environmental Education](#) (QualitE).

## MAIN REFERENCES FOR THE PROGRAMME:

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- ▶ [runrepeat.com/eco-sneakers-research](https://runrepeat.com/eco-sneakers-research)
- ▶ [www.kestlikkusuudised.ee/saated/2024/07/04/koppel-vs-moora-fossiilkutustest-tuleb-loobuda-aga-kui-kiiresti](https://www.kestlikkusuudised.ee/saated/2024/07/04/koppel-vs-moora-fossiilkutustest-tuleb-loobuda-aga-kui-kiiresti)
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**LANGUAGE OF INSTRUCTION:** Estonian, English

## PLACE

The programme can be conducted at Tartu Nature House or at a school/centre, either indoors or, in the warmer season and in good weather, also as an outdoor lesson. If the programme is to be conducted at a place other than Tartu Nature House, please choose a larger room without tables/desks (for example, a hall or gym).



## INSTRUCTORS

### Aili Elts

Experience in conducting educational programmes on various topics since 2009. Creator, co-author and instructor of several waste-themed educational programmes that have been awarded the quality label of a well-thought-out programme (the 'Cloudberry' label). Experience in creating and implementing systems that protect the environment in the context of the Green Office at Tartu Nature House, as well as in the Eco Schools network as a leader and active member of the hobby school working group. Focus topics: ecology and urban nature.

### Annelie Ehvest

Hydrobiologist and zoologist, teacher of biology and chemistry (MA degree from the University of Tartu, 1990). Creator, co-author and instructor of environmental educational programmes since 1995.

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### Aire Orula

Education: Production and Marketing of Agricultural Products (Estonian University of Life Sciences); Wilderness Guiding (Luua Forestry School). Instructor and programme leader at Tartu Nature House.

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- ▶ [keskkonnaharidus.ee/et/oppeprogrammid/meie-jalatsid-jatavad-jaljed-ehk-raagime-ringmajandusest](http://keskkonnaharidus.ee/et/oppeprogrammid/meie-jalatsid-jatavad-jaljed-ehk-raagime-ringmajandusest)
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