TREE
Micro- and project-based learning programme for Teaching ciRcular Economy and Ecological awareness in VET

Funded by the European Union

TRAINING LESSON 3 - Part 2 (Plastic sector)

Title	○ **Impact of single-use plastic**
Part of the training course referred to in this lesson	○ □ Part 1 General information about sustainability and CE Part 2 Specific Information about: □ Wood sector X Plastic sector □ Agrifood sector
EQF level	Level 3
Where the lesson was tested	//
General Learning objective(s) according to the Bloom Taxonomy https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/	□ **Create** Produce new or original work (design, assemble, construct, investigate, formulate) X **Evaluate** Justify a stand or decision (appraise, argue, defend, critique, select, support) □ **Analyze** Draw connections among ideas (differentiate, organize, relate, compare, distinguish, test, experiment) X **Apply** Use information in new situations (execute, implement, solve, use, demonstrate, operate) X **Understand** Explain ideas or concepts (classify, discuss, describe, identify, locate, translate) □ **Remember** Recall facts and basic concepts (define, duplicate, list, memorize, repeat)
Specific learning goals	● *Using various sources, students will be able to indicate the effects of microplastics on organisms;* ● *They will describe the need and possibilities of plastic;* ● *Students will indicate the effect of microplastics on the body;* ● *They will offer an alternative to plastic products.*
Cognitive, socioemotional and behavioural outcomes based on	**SDG 4 "Quality education"** **Cognitive outcomes:** Learners understand the importance of education and lifelong learning opportunities as key principles of sustainable development.

https://www.unesco.de/sites/default/files/2018-08/unesco_education_for_sustainable_development_goals.pdf	**Social and emotional outcomes:** Learners acquire knowledge, develop skills needed for sustainable consumption. **Behavioral outcomes:** Learners are able to use learning and lifelong learning opportunities, applying the acquired knowledge and skills. **Environmental results:** Learners apply the acquired knowledge in practice, use energy and natural resources sparingly and sustainably, and develop ecological thinking. **9 SDG "Industry, Innovation and Infrastructure"** **Cognitive learning objectives:** Learners explain the concepts of sustainable infrastructure and industrialization, give examples. **Social and emotional learning objectives:** Learners are able to describe the meaning of sustainable consumption. **Behavioral Learning Objectives:** Learners are able to identify and critically evaluate various forms of industrialization. **SDG 12 "Responsible consumption and production"** **Cognitive learning objectives:** Learners describe the influence of individual lifestyles on environmental and social development. Learners explain the interrelationships between production and consumption; Learners describe the principles of sustainable consumption, give examples; **Social and emotional learning objectives:** Learners are able to explain the need for sustainable production and consumption; **Behavioral learning objectives:** Learners are able to explain the meaning of sustainable use of natural resources, encourage them to choose environmentally friendly lifestyles and habits by personal example.
Green skill(s) addressed	□ Creative problem-solving X Forward-thinking □ Monitoring skills X Analytical skills X Lean production X Maintenance and repair skills X Pollution prevention X Eco-design □ Management skills X Impact quantification X Life-cycle management □ Science skills X Waste management □ Environmental auditing □ Ecosystem management □ Other_____
Duration	20 minutes

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Structure and content of the lesson	Lesson topic: The effect of microplastics on organisms 1. Classification and use of plastics 2. Bisphenol A 3. Phthalate **INTRODUCTION** Topic Presentation of general facts about plastics Microplastics are solid plastic particles consisting of polymers and active additives. Microplastics can form spontaneously when larger plastic products such as car tires or synthetic textile fabrics wear out. Microplastics can also be specially manufactured and added to products with a specific purpose, such as exfoliating granules in face or body scrubs. Microplastics are used in a variety of products, including fertilizers, plant protection products, cosmetics, household and industrial detergents, cleaning products, paints and products used in the oil and gas industry. Microplastics are also used as filler for artificial sports pitches. According to estimates, a total of approximately 145,000 tonnes of microplastics are used annually in the EU/EEA. **TOPIC 1: CLASSIFICATION AND USE OF PLASTICS** Primary microplastics enter the environment directly. Secondary microplastics are formed by the breakdown of larger plastic items. Plastic is widely used due to the cheapness of the raw material, good properties and simple product formation. Appearance, properties and processing characteristics of plastic allow the creation of products of various shapes and finishes. Plastics are replacing metals in the automotive, appliance, aerospace and other industries. Porous plastics insulate heat and sound well. Some plastics are used to make organ prostheses, surgical sutures and adhesives. **TOPIC 2. BISPHENOL A** an industrial chemical used in the production of artificial materials and artificial resin; found in plastic products intended for storing or otherwise using various food products (baby bottles, cups, plastic containers, the inner layer of cans); Acts as a hormone (estrogen) **TOPIC 3: PHTHALATE** Used for making toys Very harmful when decomposed Banned in the EU

Commented [2]: The title of the lesson is "THE IMPACT OF SINGLE-USE PLASTIC". It could be the impact on human beings, plants, animals, environment.

Commented [1]: Dear Zilvinas, I have already shared a comment on this, but I will do it again as I see that things were not improved accordingly. This lesson is way too short and the contents are not related to the short lesson title. Please add some more content in relation to the impact of single-use plastics. At this point, this is a urgent activity!

Please, make the needed corrections also to the PowerPoint presentation.
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Assigned to Žilvinas Kapočius

	DAILY HABITS RELATED Possible alternatives to single-use plastic: Disposable straws. They can be made of paper, bamboo or do without them; Water bottles. You can use reusable dishes - drinking glasses, cups. Shopping bags. Reusable ones made of different materials can be used. Cups of coffee. Reusable cups can be used. Kids toys. It is recommended to buy toys made of organic materials. **CONCLUSIONS** When choosing alternative materials - paper, textiles, large amounts of water can be consumed and forests cut down. The most important thing is to aim for multiple use of any product. A sustainable choice would be to choose not only organically grown raw materials, but also to contribute to saving the resources themselves. We need to change our thinking, attitude towards consumption. Not plastic that should be environmentally friendly, but a man. Plastic has unique properties, we can use it for a long time and recycle it. It is a material that must be valued and saved.
	https://am.lrv.lt/uploads/am/documents/files/atliekos/Vienkartinio%20plastiko%20prestatymas%200211.pdf https://am.lrv.lt/lt/naujienos/vienkartinio-plastiko-gaminiu-naudosime-vis-maziau-laukia-pokyciai https://www.eea.europa.eu/lt/highlights/plastikas-kelia-vis-didesne-gresme http://dspace.lzuu.lt/bitstream/1/548/1/Aplinkos%20tarsa.%20Rutkoviene,%20Sabiene_1.pdf https://lt.wikipedia.org/wiki/Plastikas https://nvsc.lrv.lt/lt/naujienos/plastiko-povekis-sveikatai
Interactive questions R3	Mark the correct answer: A) All plastics degrade quickly; B) All plastic is toxic; C) Degradable plastic is toxic; D) Degradable plastic is non-polluting. Mark the correct answer: A) The EU will ban plastic products by 2030; B) Plastic packaging will have to be recycled until 2025; C) microplastics will not be restricted in the EU ; D) The use of single-use plastic will not be banned in the EU until 2030.
Keywords	**micro plastic , BPA, phthalate**
Questions for reflection	Why is plastic widely used in production? When does plastic endanger the health of organisms? Describe polluting microplastics. Which alternative products can be used instead of plastic?

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Additional resources	Reducing the environmental impact of single-use plastics https://www.youtube.com/watch?v=PfAmozjYUBQ Single use plastics and discovering the true value of things https://www.youtube.com/watch?v=y9n-DTARqSQ The problem with single-use plastic https://www.youtube.com/watch?v=heLLljcmmNo The problem with plastics https://www.youtube.com/watch?v=526gMLHDVLg
Icons & related info for the hints of the PowerPoint presentation	 The icon is intended to indicate general information  The icon is for important information  The icon is for marking links
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