2024-2-SK01-KA210-SCH-000278989

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GREEN LOOP

Lesson Plans

Slovakia

CONTENT

GREEN LOOP LESSON PLAN

Lesson Title	Upcycling Clothes
Curriculum Link / Subject	Environmental education, Engineering, Mathematics, Ethics, Social skills, art
Circular Economy Theme	☒ Refuse ☒ Reduce ☒ Reuse ☒ Repair ☒ Recycle
Teacher	Mgr. Lenka Vatrálová Mgr. Veronika Vačková Hrnková PaedDr. Jana Meňhartová
Grade Level	7th
Time/Duration	90 min
Objectives	**Academic / Thinking Skills Objectives** ● Understand the befits of repairing and reusing clothes. ● Discuss the impact of shopping habits in the modern world. ● Identify personal solutions or ideas. ● Prevent consumerism within the environment and society. ● Inspire and motivate learners to be trendy and show renewed clothing items in a fun and practical way. **Sustainbility/ Circular Objectives** ● Understand principles of the circular economy. ● Develop teamwork, creativity and presentation skills. ● Connect knowledge from STEAM fields.
Systems Thinking Elements	● What can prevent waste generation in the city?

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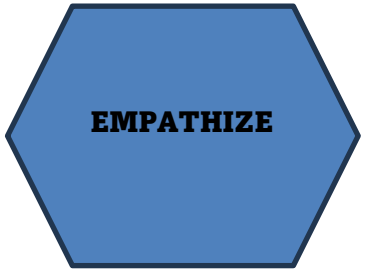
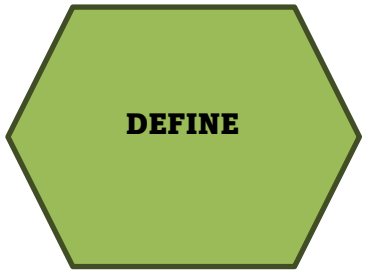
	• Why is it important to repair and reuse clothes? • How and where can they be used (social occasions)? • What can we do to raise awareness among a consumer?
	• *Teacher Role:* *Facilitates discussion about the importance of reusing clothes and protecting the environment; shows a short video or presentation about child labour and examples of countries where it occurs.* • *Student Role:* *Students share ideas, discuss how to reduce or eliminate the problem, cooperate in groups* • *Tools/Materials:* *slido.com, video, photos*
	• *Teacher Role:* *Guides students using Internet and AI tools (Copilot) to answer key questions:* *What problem are you solving? What do you need to learn? What are the constraints? How will you measure success?* • *Student Role:* *Students search for answers online and formulate their understanding.* • *Tools/Materials:* *Tablets, an internet* • *Expected Output:* *Clear **problem statement**.*

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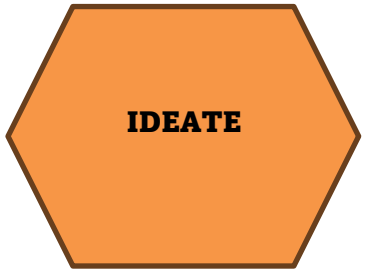
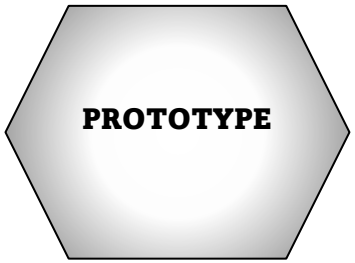
	• *Teacher Role:* *Encourages brainstorming and divergent thinking without judgment.* • *Student Role:* *Generate multiple creative ideas; choose top 1–2 concepts.* • *Tools/Materials:* *Tablets, Paper, Coloured pencils* • *Expected Output:* *Sketches or drafts of proposed clothing designs.*
	• *Teacher Role:* Encourages students to think about construction methods and evaluate ideas through brainstorming. • *Student Role:* Teams explore creative ways to reuse clothes and test construction ideas. • *Tools/Materials:* *Old clothes, Needle, Thread, Decorative buttons* • *Expected Output:* *Prototype of redesigned/upcycled clothing.*

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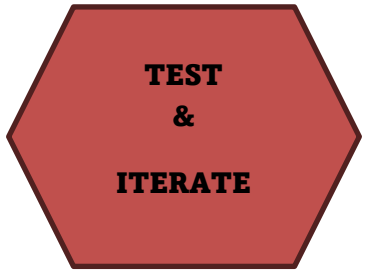	• *Teacher Role:* Organises peer review, encourages revisions, evaluates according to criteria: functionality, practicality, teamwork. • *Student Role:* *Present models, receive feedback, refine design.* • *Tools/Materials:* *Peer feedback forms* • *Expected Output:* *Improved clothing models with documented changes (sketch/drawing notes).*
Assessment & Reflection	• Teacher rubric • Digital documentation (photos, videos, final models) • Peer feedback — voting for most interesting & most creative model • Student self-reflection — fashion show
Inclusion Strategies (UDL)	• How will SEN/ELL learners be supported? **Support for SEN/ELL learners** • Group work improves social and communication skills; small groups support quieter students.

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	• Each learner can contribute by drawing, suggesting ideas, sewing, researching, or documenting. **Adaptations** **Visual Supports:** • Step-by-step illustrated guides, inspirational photos, visual vocabulary cards. **Scaffolds:** • Graphic organisers for brainstorming/sketching. • Checklists for design-thinking phases. • Peer feedback templates. **Group Roles:** 1. Sketches ideas 2. Searches for information 3. Works on sewing/construction 4. Documents process (photos/videos) 5. Presents final product

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	Language Supports: • Bilingual word bank • Translation tools • Multimodal communication (drawings, gestures)
Real-World Connection / Impact	**Who will see the work?** • **Classmates:** fashion show, feedback sessions • **School community:** hallway exhibition, school swap event • **Parents:** digital platform or parent meeting • **Local community:** school website/social media, community swap event **Possible real-world impact** • Reduces textile waste by promoting repair & reuse • Encourages creativity and innovation • Shapes mindful shopping habits • Builds culture of sharing & collaboration • Raises sustainability awareness among the school community

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GREEN LOOP LESSON PLAN

Lesson Title	Reduction of single-use dishware
Curriculum Link / Subject	• Science • Technology • Computer Science / STEAM • Environmental Education • Ethics Education (consumer behaviour)
Circular Economy Theme	☐ Refuse ☒ Reduce ☒ Reuse ☒ Repair ☒ Recycle
Teacher	Mgr. Lenka Vatrálová
Grade Level	6th – 8th grade
Time/Duration	90 – 120 min
Objectives	**Students will be able to:** • explain the environmental impacts of single-use dishware, • identify which stages of the life cycle cause the greatest problems, • create a solution proposal using STEAM (model, prototype, mock-up), • apply principles of the circular economy (refuse, reduce, reuse), • work in PBL teams, ideate and test solutions, • prepare recommendations for the school or community.
Systems Thinking Elements	• analyzing the connections between consumption, waste, and environmental impacts, • identifying points where we can intervene in the system (leverage points), • understanding that "waste" begins already at the product design stage, not only at the bin.

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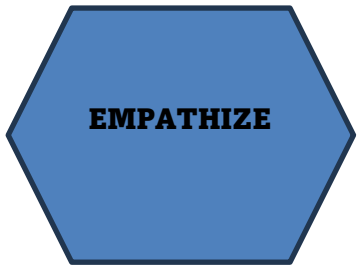
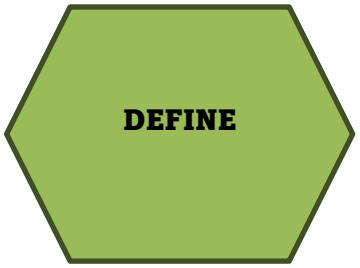
	• Teacher Role: Shows students pictures or real objects of single-use dishware (plastic items, paper cups, cutlery). *Poses the challenge: "Why does our society still rely on single-use dishware?"* *Plays a short video about the impacts of single-use plastics (optional).* • Student Role: Describe their own experiences (school, festivals, home). *Identify problems such as waste, recycling challenges, environmental pollution, and resource consumption.* • Tools/Materials: Samples of dishware, photographs, worksheet with basic questions.
	• Teacher Role: Teacher divides the class into teams of 3–4 students and explains the PBL assignment: "Your task is to find out how to reduce the use of single-use dishware in the school or community and to create a proposal for a solution." • Student Role: Each team will: ○ **explore where single-use dishware is used in the school**, ○ **identify the causes** (laziness, convenience, lack of alternatives, cost), ○ **formulate their own "How Might We…?" problem statement**, e.g.: *"How might we reduce the use of single-use cups in the school cafeteria?"*

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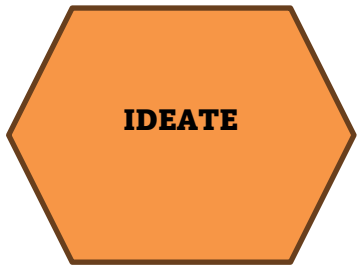
	• Tools/Materials: Post-it notes, A3 paper • Expected Output: A clearly defined problem and its underlying causes.
	• *Teacher Role:* Uses creative techniques: 6–3–5 method, mind maps, sketching, Guides students to consider elements of the circular economy. • *Student Role:* They generate a variety of ideas, for example: ○ introducing reusable/returnable cups at school, ○ designing a reusable cup for school events, ○ creating a dish-library (borrow-a-cup/plate system) for classes or events, ○ cup-swap system among students, ○ a station for hygienic washing of personal cups, ○ reducing packaging for snacks in the school buffet, ○ a reward system for using personal reusable dishware. • *Tools/Materials:* *Paper, markers* • *Expected Output:* *A list of ideas and selection of the one best solution.*

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PROTOTYPE	• *Teacher Role:* *Provides materials for 3D modelling.* *Observes the process and asks guiding/supportive questions.* • *Student Role:* *Teams create a functional or visual prototype, for example:* ○ *a model of a returnable cup system (e.g., a cardboard mock-up of a dispensing machine),* ○ *a 3D model of a multifunctional cup made from cardboard, fabric, or modelling clay,* ○ *a model of a washing station for reusable dishware,* ○ *a poster or visual campaign design representing the winning idea,* ○ *a digital prototype, such as a QR-based tracking system for reusable cups.* *STEAM connections:* ○ *technology – construction of the model,* ○ *art – design and visualisation,* ○ *computer science – optional digital solution,* ○ *science – environmental impacts,* ○ *mathematics – calculations of waste reduction.* • *Tools/Materials:* *Adhesive tape, cardboard, paper, markers, waste materials, string, modelling clay, LEGO.* • *Expected Output:* *A complete prototype of the proposed solution.*

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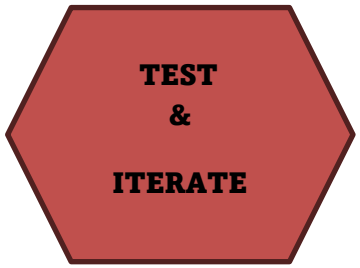	• *Teacher Role:* They test each other's prototypes. They add 2–3 improvements based on the feedback received. • *Student Role:* Test each other's prototypes. Add 2–3 improvements based on the feedback received. • *Tools/Materials:* *Evaluation cards, markers* • *Expected Output:* *An improved prototype* ***plus a short description of the changes***
Assessment & Reflection	What did you learn about single-use dishware? Which solution reduces waste the most? How could your proposal be implemented at school?.
Inclusion Strategies (UDL)	• How will SEN/ELL learners be supported? ○ option to work with visual icons, ○ voice-based instructions for students with reading difficulties, ○ multiple levels of prototype complexity, ○ students can choose a role (designer, technician, researcher, facilitator).

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Real-World Connection / Impact	○ students address a real problem that affects their school, ○ they are able to implement their solution in real life, ○ they learn consumer responsibility, ○ they become aware of the value of the circular economy in everyday life.

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ASSESSMENT RUBRIC

Topic: Reduction of single-use dishware
Method: *PBL + STEAM + Circular Economy*
Duration: 90 - *120 minutes*
Maximum score: *20 points*

	4 points	3 points	2 points	1 point	0 point
EMPATHIZE - Understanding the Problem	The student/team clearly explains why single-use dishware is a problem, identifies its environmental impacts, and can describe the needs of users (school, community).	Understands most aspects of the problem and can provide several examples of impacts.	Shows a basic understanding of the problem, but arguments are limited or incomplete.	Understands the problem only partially (e.g., focuses only on the amount of waste).	Is unable to describe the problem or its connections.
DEFINE - Problem Definition	The team formulates a clear and well-defined "How Might We…?" problem statement, identifies the causes of the problem, and	The problem is defined, but without deeper analysis of its underlying causes.	The problem statement is incomplete or too broad.	A minimal problem definition that cannot effectively guide the creation of a solution.	No problem statement is provided.

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	defines the target context/environment.				
IDEATE – Idea Generation	The team generates multiple original ideas, considers circular economy principles (reduce, reuse, repair), and selects a well-reasoned solution.	Several functional ideas are proposed, but the level of creativity is lower.	A limited number of ideas; the concepts are general or lack depth.	Only one simple idea is produced, with no clear connection to the defined problem.	No ideas are generated.
PROTOTYPE – Prototype Creation	The prototype is aesthetic, functional, clearly demonstrates the solution, and explains how it reduces the use of single-use dishware. Creatively incorporates STEAM elements.	The prototype is solid and includes most key elements, though some details are less fully developed.	The prototype is incomplete or unclear; critical elements are missing.	The prototype is very simple and difficult to interpret.	No prototype was completed.

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TEST & ITERATE – Testing and Improvements	The team presented the prototype, obtained feedback, implemented specific and meaningful improvements, and was able to explain why the changes are effective.	The prototype was tested and partially improved.	Improvements are minimal or superficial.	Only cosmetic changes were made; reflection is missing.	No testing or no improvements were completed.

Bonus Category (optional): Presentation (0–2 points)

(Does not count toward the required maximum of 20 points — can be added as a motivational category.)

2 points: A clear, convincing presentation in which all team members participated.

1 point: A basic presentation.

0 points: No presentation.

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GREEN LOOP LESSON PLAN

Lesson Title	Circular City
Curriculum Link / Subject	Environmental education, engineering, maths, ethics, social skills, art
Circular Economy Theme	☒ Refuse ☒ Reduce ☐ Reuse ☐ Repair ☒ Recycle
Teacher	Mgr. Lenka Vatrálová, Mgr. Beáta Konvičková
Grade Level	8th graders
Time/Duration	90 minutes
Objectives	Academic/subject /thinking skills objectives • Understand the benefits of reusing various materials that would otherwise become waste • Define students own solutions and ideas • Prevent a consumerist lifestyle in the context of environment and society • Inspire and motivate residents to create recycling centers in the city, for example green roofs, walls or community gardens etc. • Present a model of city, based on circular economic principles
	Sustainability/Circular Objectives 1 Understand the principles of the circular economy in an urban environment 2 Develop teamwork, creativity and presentation skills 3 Connect knowledge from various STEM fields

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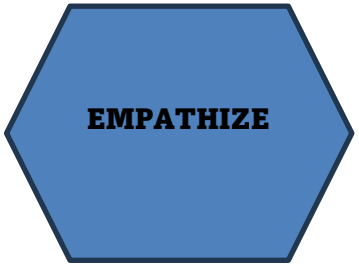
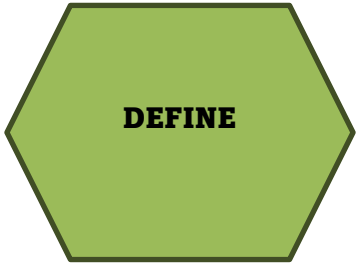
Systems Thinking Elements	• What can prevent waste generation in the city? • How can emissions be reduced in the city? • What can we do to aware consumers? • How this impacts education and health in our society?
	• Teacher Role: Teacher facilitates discussion about importance of waste recycling and environmental protection, shows a short video or presentation about a circular city and an example of places where it has been implemented • Student Role: Students share their ideas and discuss. They cooperate together as they work in groups. • Tools/Materials: menti.com , pictures, presentation, video
	• Teacher Role: Teacher guides students to find answers to questions by using Internet, AI (ChatGPT, Copilot): What is the problem you are trying to solve? What do you need to know or learn to solve the problem? What are the constraints and criteria? How will you know if you have successfully completed this problem? • Student Role: Students use the Internet to find answers. • Tools/Materials: Tablets or phones, Internet • Expected Output: Identifying the problem

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IDEATE	• *Teacher Role: Teacher defines limitations and presents principles of circularity.* • *Student Role: Students will design city zones with principles of circularity. They create a sketch or a map.* • *Tools/Materials: paper, crayons* • *Expected Output: Sketch or a map of the city*
PROTOTYPE	• Teacher Role: Teacher brainstorms their ideas, encourages them to think about the best construction. • Student Role: Students make a decision based on the pros and cons of their model. • Tools/Materials: Worksheet. • Expected Output: Prototype of the model.
TEST & ITERATE	• *Teacher Role: Teacher evaluates each model according to criteria: functionality, practical use, teamwork* • *Student Role: Students check the functionality of their model, improve it and test it again.* • *Tools/Materials: worksheet, paper,* • *Expected Output: Improved model of the circular city.*
Assessment & Reflection	• Teacher rubric , digital documentation-photos, videos, presentation • Peer feedback (voting for the most innovative city) • Student self-reflection

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Inclusion Strategies (UDL)	● How will SEN/ELL learners be supported? Students will work together in groups, so they improve their social and speaking skills. Small group work allows quieter students to participate comfortably. Each student contributes in their own way – drawing, suggesting ideas, writing descriptions. ● What adaptations (visuals, scaffolds, group roles, language supports) will be offered? **Visuals** Introductory video: A short documentary about circular cities (e.g., Copenhagen example). Sketches and maps: Students create visual representations of their circular city. Model presentation: Physical or digital models displayed during group presentations. **Scaffolds** Step-by-step progression: Clear stages (Identify → Search → Develop → Select → Model → Test → Improve → Communicate). Guiding questions: What problem are you solving? What materials will you use? How will you know your solution works? Teacher-defined limitations: Practical use, positive environmental impact, cost-saving, teamwork. Evaluation criteria: Practicality, functionality, teamwork. Brainstorming templates: For pros/cons and decision-making. **Group Roles** **Role distribution for inclusivity**: Person 1: Choose city area for implementation. Person 2: Decide on materials. Person 3: Design the model. Person 4: Present results.

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	Additional roles for engagement: Builders, Decorators, Presenters, Documenters (photos/videos). Tech support during presentations. **Language Supports** Vocabulary lists: Key terms like "circular economy," "reuse," "composting," "rainwater harvesting." Sentence starters for presentations: "Our city reduces waste by…", "Energy is saved through…" Visual glossaries: Diagrams or maps with labels for city zones and circularity principles. Peer support: Mixed-ability grouping for collaborative learning. Digital tools: Use AI (Copilot, ChatGPT) for research and language assistance.
Real-World Connection / Impact	• Who will see or use this work (class, school, parents, community)? The lesson plan indicates that the work will be shared beyond just the classroom: **Class**: Students will present their models to classmates during the final stage. **School**: There is an option for an exhibition of models at school and voting for the most innovative city. **Parents and community**: The plan mentions digital documentation (photos, videos, presentations) and involving the whole school community, including younger students, parents, and teachers. • What real change could this activity create in school or daily life? **In School** Waste reduction initiatives: Students may start recycling more actively or propose creating recycling stations, compost bins, or repair corners in the school. Green spaces: Ideas like green roofs, vertical gardens, or community gardens could inspire school projects.

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	Energy-saving habits: Turning off lights, reducing water waste, and promoting shared resources (e.g., book exchange, reusable materials). Awareness campaigns: Students could organize exhibitions or presentations for other classes, influencing the whole school community. **In Daily Life** Behavioral change: Students become more conscious about reusing items, repairing instead of discarding, and avoiding single-use products. Family involvement: Parents may adopt practices like home composting, rainwater collection, or waste sorting after seeing students' projects. Community engagement: Students could advocate for bike-sharing programs, local repair cafés, or zero-waste shops in their town.

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GREEN LOOP LESSON PLAN

Lesson Title	Second life
Curriculum Link / Subject	Art, Social studies, Environmental studies, Language Art
Circular Economy Theme	☒ Refuse ☒ Reduce ☒ Reuse ☐ Repair ☐ Recycle
Teacher	Mgr. Veronika Vačková Hrnková, Mgr. Dominika Ružová
Grade Level	7th -8th graders
Time/Duration	90 minutes
Objectives	Academic/subject /thinking skills objectives 1. The benefits of reusing various materials that would otherwise become waste 2. Collaborate effectively in a group to plan and produce a product. 3. To promote recycling and the reuse of materials
	Sustainability/Circular Objectives 1. Prevent a consumerist lifestyle in relation to the environment and society 2. To inspire and motivate people to reduce waste and conserve natural resources 3. Define the concept of a circular economy and explain how it differs from a linear economy.

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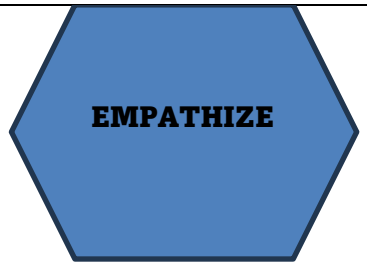
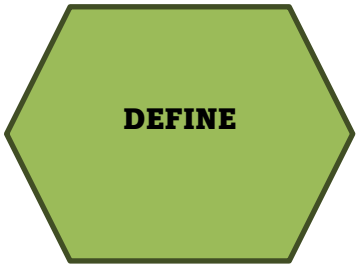
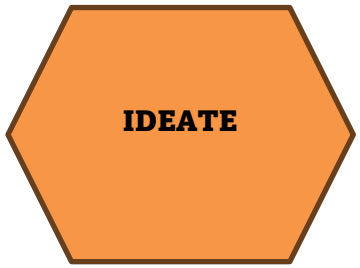
Systems Thinking Elements	Reuse waste, waste minimisation, prevent a consumerist lifestyle
	• *Teacher Role:* Teacher facilitates brainstorming, discussions and explores user needs and problems. • *Student Role:* Students brainstorm, share their ideas, look up for examples and discuss real experiences. • *Tools/Materials:* Whiteboard, markers, pictures, worksheet
	• *Teacher Role:* Teacher presents an introduction to circular and linear economy, emphasizes principles of sustainability. • *Student Role:* Students listen to a presentation on circular economy, look at examples, start a discussion and share their ideas. • *Tools/Materials:* Projector, computer, worksheet. • *Expected Output:* Differences between linear and circular economy.
	• *Teacher Role:* Teacher encourages brainstorming and presents some motivational design or products that students can make from waste materials. • *Student Role:* Discussion about benefits of reusing various materials that would otherwise become waste. • *Tools/Materials:* Worksheet. paper waste, egg carton, cans, buttons, plastic bottles, glue, cardboard, toilet paper roll, crayon markers, scissors, hot glue gun, T-shirt.

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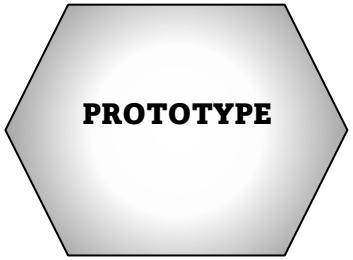
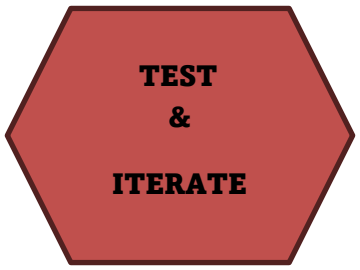
	• *Expected Output:* Practical use of products and functionality of model.
	• *Teacher Role:* Teacher supports students in creating draft solutions in simple, tangible forms. • *Student Role:* Students design their products from waste material, choose adjustment. • *Tools/Materials:* Worksheet. paper waste, egg carton, cans, buttons, plastic bottles, glue, cardboard, toilet paper roll, crayon markers, scissors, hot glue gun, T-shirt. • *Expected Output:* Practical use of products and functionality of model from waste.
	• *Teacher Role:* Teacher encourages students to create their best solution, test and evaluate prototype, keep making changes if it is necessary. • *Student Role:* Students will check the functionality of their model. Repeat testing or improve the prototype if it is necessary. • *Tools/Materials:* Worksheet • *Expected Output:* Improved products/prototype
Assessment & Reflection	• Teacher rubric or checklist • Peer feedback (deciding on the fragrance, texture and label) • Student self-reflection and presentation about their prototype (worksheet, emojis)
Inclusion Strategies (UDL)	• How will SEN/ELL learners be supported? Small personal actions contribute to a bigger societal change. Sharing ideas deepen understanding. SEN students are part of a group, and they participate equally. The group can

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	create a story about waste: where it was made, who used it, what happened to it. The story can be drawn as a commix or acted out as a short play ● Visuals will be offered for SEN and the other learners as a part of a presentation and method of making the product. ● Suitable for children with communication difficulties – they can draw or use gestures to express the story
Real-World Connection / Impact	● Who will see or use this work (class, school, parents, community)? Products which will be made could be used by students, but they can make more and share it with community or other students. ● What real change could this activity create in school or daily life? Using waste to create functional products can contribute to a broader environmental change.

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GREEN LOOP LESSON PLAN

Lesson Title	Natural Deodorant
Curriculum Link / Subject	Art, Social studies, Environmental studies, Language Art
Circular Economy Theme	☒Refuse ☒ Reduce ☒ Reuse ☐ Repair ☐ Recycle
Teacher	Mgr. Beáta Konvičková, Mgr. Dominika Ružová
Grade Level	7th -8th graders
Time/Duration	90 minutes
Objectives	Academic/subject /thinking skills objectives 1. Apply problem-solving skills to adjust recipes and packaging choices. 2. Collaborate effectively in a group to plan and produce a product. 3. Use scientific measurement skills to create a natural deodorant
	Sustainability/Circular Objectives 1. Evaluate their product in terms of effectiveness, safety ans sustainability 2. Design a sustainable packaging solution using reused or recycled materials. 3. Define the concept of a circular economy and explain how it differs from a linear economy.
Systems Thinking Elements	• What problems might conventional beauty products cause?

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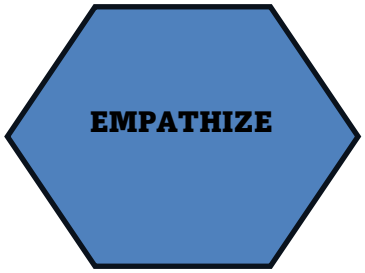
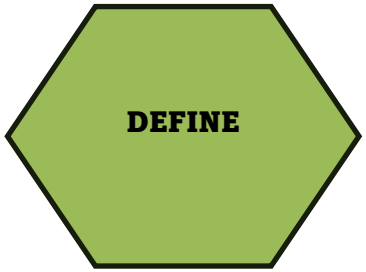
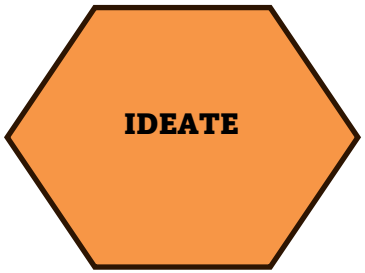
	• What small sustainable change can you make in your life ?
	• *Teacher Role:* Teacher facilitates brainstorming, discussions and explores user needs and problems. • *Student Role:* Students brainstorm, share their ideas, look up for examples and discuss real experiences. • *Tools/Materials:* Whiteboard, markers, pictures.
	• *Teacher Role:* Teacher presents an introduction to circular economy, emphasizes principles of sustainability. • *Student Role:* Students listen to a presentation on circular economy, look at examples, start a discussion and share their ideas. • *Tools/Materials:* Projector, computer, worksheet. • *Expected Output:* Differences between linear and circular economy.
	• *Teacher Role:* Teacher encourages brainstorming and presents ingredients necessary to make a natural deodorant. • *Student Role:* Discussion about how natural ingredients can serve as safer, more sustainable alternatives to synthetic deodorant components. • *Tools/Materials:* Ingredients list, worksheet. • *Expected Output:* List of ingredients and their functions.

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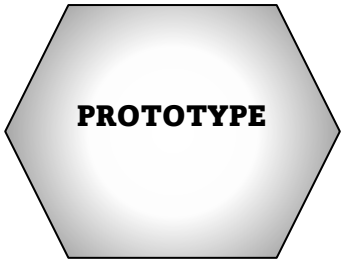
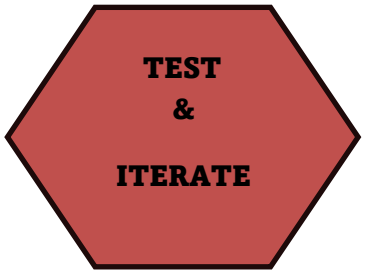
	• *Teacher Role:* Teacher supports students in creating draft solutions in simple, tangible forms. • *Student Role:* Students design their deodorant recipe, choose adjustment. • *Tools/Materials:* Coconut oil, baking soda, cornstarch, essential oil, gloves, bowls, spoons, metal containers. • *Expected Output:* Mixture of ingredients.
	• *Teacher Role:* Teacher encourages student to adjust their mixtures if the texture is not smooth and solid. Teacher asks students to think about a label of their product. • *Student Role:* Students adjust their mixtures, fill in their deodorants into a container. They come to an agreement about their label (slogan, name). • *Tools/Materials:* Worksheet, metal containers. • *Expected Output:* Improved deodorant.
Assessment & Reflection	• Teacher rubric or checklist • Peer feedback (deciding on the fragrance, texture and label) • Student self-reflection (worksheet, emojis)
Inclusion Strategies (UDL)	• How will SEN/ELL learners be supported? Small personal actions (like switching deodorants) contribute to a bigger societal change. Sharing ideas deepen understanding. SEN students are part of a group, and they participate equally.

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	• Visuals will be offered for SEN and the other learners as a part of a presentation and method of making the product. They will be given a recipe with icons.
Real-World Connection / Impact	• Who will see or use this work (class, school, parents, community)? Product which will be made could be used by students, but they can make more deodorants and share it with community or other students. • What real change could this activity create in school or daily life? Using eco-designed products can contribute to a broader environmental change.

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GREEN LOOP LESSON PLAN

Lesson Title	Handmade Bath bombs
Curriculum Link / Subject	Art, Science, Environmental studies, Math
Circular Economy Theme	☒ Refuse ☒Reduce ☒ Reuse ☐ Repair ☐ Recycle
Teacher	Mgr. Beáta Konvičková, Mgr. Dominika Ružová
Grade Level	7th -8th graders
Time/Duration	90 minutes
Objectives	Academic/subject /thinking skills objectives 1. Apply problem-solving skills to adjust recipes and packaging choices. 2. Collaborate effectively in a group to plan and produce a product. 3. Use scientific measurement skills to create a bath bomb. 4. Explain the basic acid–base reaction that makes a bath bomb fizz
	Sustainability/Circular Objectives 1. Evaluate the product in terms of effectiveness, safety and sustainability 2. Reflect on ingredient choices (natural vs synthetic) and potential environmental impacts. 3. Define the concept of a circular economy and explain how it differs from a linear economy.

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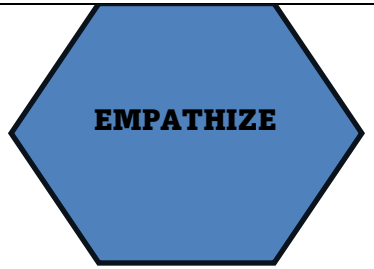
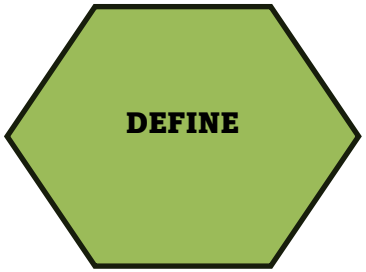
	4. Identify at least three ways to reduce waste when making/presenting products (reuse molds/packaging; upcycle materials; choose compostable ingredients).
Systems Thinking Elements	• What problems might conventional beauty products cause? • What small sustainable change can you make in your life?
	• *Teacher Role:* Teacher facilitates brainstorming, discussions and explores user needs and problems. • *Student Role:* Students brainstorm, share their ideas, look up for examples and discuss real experiences. • *Tools/Materials:* Whiteboard, markers, pictures.
	• *Teacher Role:* Teacher presents an introduction to circular economy, emphasizes principles of sustainability. • *Student Role:* Students listen to a presentation on circular economy, look at examples, start a discussion and share their ideas. • *Tools/Materials:* Projector, computer, worksheet. • *Expected Output:* Differences between linear and circular economy.

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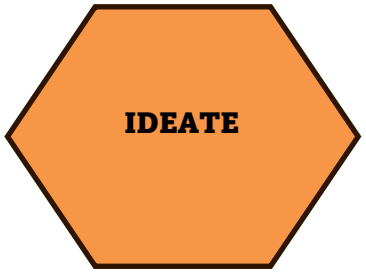
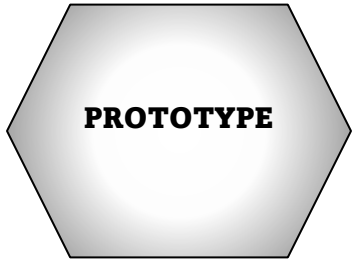
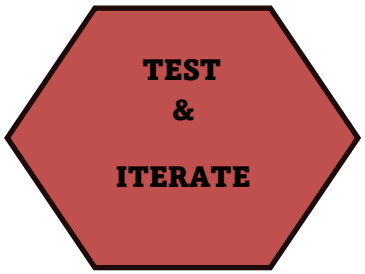
	• *Teacher Role:* Teacher encourages brainstorming and presents ingredients necessary to make a bath bomb. • *Student Role:* Discussion about how natural ingredients can serve as safer, more sustainable alternatives to synthetic components of conventional beauty products. • *Tools/Materials:* Ingredients list, worksheet. • *Expected Output:* List of ingredients and their functions.
	• *Teacher Role:* Teacher supports students in creating draft solutions in simple, tangible forms. • *Student Role:* Students design their bath bomb recipe, choose a fragrance. • *Tools/Materials:* Coconut oil, baking soda, cornstarch, essential oil, , Epsom salt, citric acid,water, gloves, bowls, spoons, cotton cloth,yarn • *Expected Output:* Mixture of ingredients.
	• *Teacher Role:* Teacher encourages student to mix the ingredients gradually, and add water drop by drop. Teacher asks students to think about a label of their product. • *Student Role:* Students do their mixtures, fill in their bath bombs into the silicone mold. They come to an agreement about their label (slogan, name). • *Tools/Materials:* Worksheet, silicone molds. • *Expected Output:* Handmade bath bomb.
Assessment & Reflection	• Teacher checks if students follow the steps and if the bath bombs hold the shape.

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	• Peer feedback (deciding on the fragrance, texture and label) • Student self-reflection (worksheet, emojis)
Inclusion Strategies (UDL)	• How will SEN/ELL learners be supported? • Sharing ideas deepen understanding. SEN students are part of a group, and they participate equally. • Visuals will be offered for SEN and the other learners as a part of a presentation and method of making the product. They will be given a recipe with icons.
Real-World Connection / Impact	• Who will see or use this work (class, school, parents, community)? Product which will be made could be used by students, but they can make more bath bombs and share it with community or other students. • What real change could this activity create in school or daily life? Using eco-designed products can contribute to a broader environmental change.

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GREEN LOOP LESSON PLAN

Lesson Title	Why should we repair things rather than throw them away?
Curriculum Link / Subject	Art, Science, Environmental studies
Circular Economy Theme	☒ Refuse ☒Reduce ☒ Reuse ☐ Repair ☐ Recycle
Teacher	Mgr. Martina Lenická
Grade Level	7th -8th graders
Time/Duration	90 minutes
Objectives	Academic/subject /thinking skills objectives 1. Apply skills in practice. 2. Learn how to recycle various items. 3. Understand key concepts: reuse, sustainability. 4. Be able to cooperate effectively in a group.
	Sustainability/Circular Objectives 1. Be able to define what the circular economy is. 2. Select several items that may be damaged or worn out and find ways to reuse them. 3. Identify the benefits of repair (environmental, economic). 4. Recognize items that can be repaired. 5. Propose simple solutions for repair or reuse.

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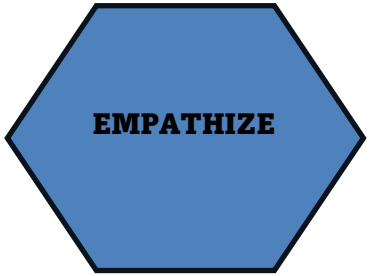
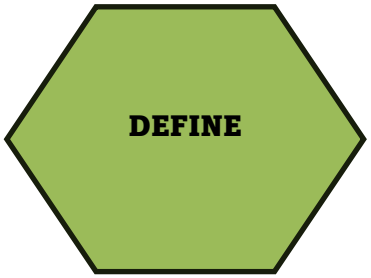
Systems Thinking Elements	• What impact can a linear economy have compared to a circular economy? • How can we make use of worn-out or non-functioning products (electronic devices such as a tablet, headphones, a mobile phone, a projector, etc.)?
	• *Teacher Role:* Teacher facilitates brainstorming, discussions and explores user needs and problems. • *Student Role:* Students brainstorm, share their ideas, look up for examples and discuss real experiences. • *Tools/Materials:* Whiteboard, markers, pictures, počítač
	• *Teacher Role:* Teacher presents an introduction to circular economy, emphasizes principles of sustainability. • *Student Role:* Students listen to a presentation on circular economy, look at examples, start a discussion and share their ideas. • *Tools/Materials:* Projector, computer. Whiteboard, markers • *Expected Output:* Differences between linear and circular economy.

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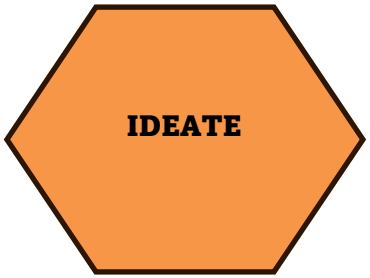
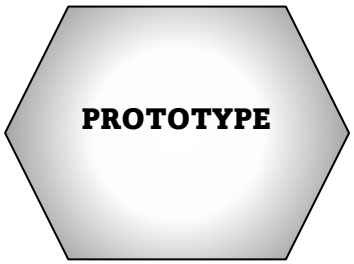
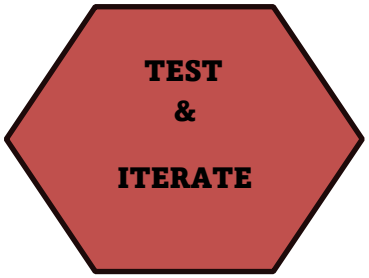
	• *Teacher Role:* The teacher assists students with generating ideas. • *Student Role:* Students discuss how to recycle more, offering specific ideas for recycling and reusing items. • *Tools/Materials:* projector, laptop • *Expected Output:* A list of different ideas
	• *Teacher Role:* The teacher provides support and encourages active participation. • *Student Role:* Students must propose how broken or old electronic items can be used and create a new product from an old model. • *Tools/Materials:* projector, laptop • *Expected Output:* a new usable product
	• *Teacher Role:* The teacher provides guidance and encouragement. • *Student Role:* Students must propose how broken or old electronic items can be used and create a new product from an old model. • *Tools/Materials:* electronic devices • *Expected Output:* a new functional product

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Assessment & Reflection	• The teacher monitors how the pupils are working. • Peer feedback from colleagues. • Pupils' self-reflection.
Inclusion Strategies (UDL)	• How will SEN/ELL learners be supported? • Sharing ideas deepen understanding. SEN students are part of a group, and they participate equally. • Visuals will be offered for SEN and the other learners as a part of a presentation and method of making the product.
Real-World Connection / Impact	• What impact does adopting a more environmentally friendly approach have on our future? • Students are able to create new items from old or damaged objects. • Students develop creativity and thinking skills while contributing to waste reduction.

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GREEN LOOP LESSON PLAN

Lesson Title	Circular Economy – Critical Thinking & Ethics
Curriculum Link / Subject	Social studies, Environmental studies, Civic Education, Ethics
Circular Economy Theme	☒ Refuse ☒ Reduce ☒ Reuse ☐ Repair ☐ Recycle
Teacher	Mgr. Dominika Ružová
Grade Level	7th -8th graders
Time/Duration	90 minutes
Objectives	Academic/subject /thinking skills objectives 1. Develop critical thinking when evaluating products and consumption 2. Distinguish between needs and wants 3. Analyze information and advertisements 4. Work collaboratively and present ideas
	Sustainability/Circular Objectives 1. Understand the concept of circular economy 2. Compare linear vs circular systems 3. Identify waste reduction strategies 4. Reflect on ethical consumer choices

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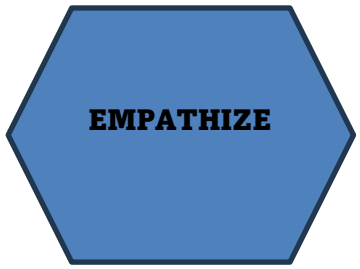
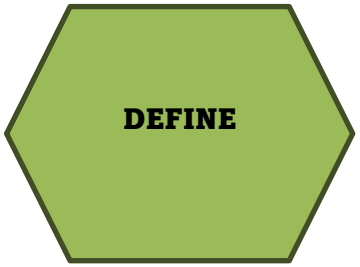
	• **Teacher Role:** Teacher facilitates a discussion using statements about consumption (e.g. buying new vs repairing, throwing away vs reusing). Teacher encourages students to share their opinions and real-life experiences. • **Student Role:** Students react to statements, express agreement or disagreement, and explain their reasoning. They share examples from their daily life related to consumption and waste. • **Tools/Materials:** Whiteboard, markers, prepared statements.
	• **Teacher Role:** Teacher introduces the concept of circular economy and explains the difference between linear and circular systems using simple examples. Teacher guides discussion with questions. • **Student Role:** Students listen, take notes, and participate in discussion. They compare examples and identify key differences between systems. • **Tools/Materials:** Projector, presentation, worksheet. • ***Expected Output:*** *Understanding of differences between linear and circular economy.*

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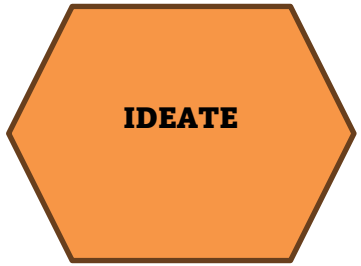
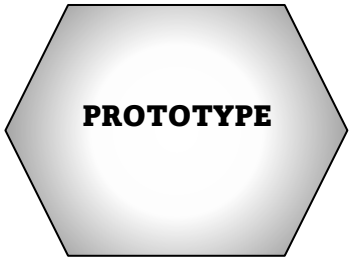
	• **Teacher Role:** Teacher encourages brainstorming and supports students in thinking creatively about improving products and reducing waste. Teacher provides examples and guiding questions. • **Student Role:** Students analyze everyday products and identify wasteful or unsustainable aspects. They discuss how products could be redesigned to last longer, be reused, or recycled. Students evaluate advertisements and identify how they influence consumer behavior. They brainstorm ideas for reducing waste and making more responsible choices. Groups create a list of improvements to make products more sustainable. • **Tools/Materials:** Worksheet, sample product images or ads. • **Expected Output:** List of ideas for circular solutions and product improvements.
	• ***Teacher Role:*** *Teacher supports students in transforming their ideas into simple designs or concepts. Teacher provides guidance and feedback.* • ***Student Role:*** *Students work in groups to redesign a product using circular economy principles. They create a simple sketch, plan, or concept of their improved product.* • ***Tools/Materials:*** *Paper, markers, worksheet.*

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	• ***Expected Output:*** *Draft design of a more sustainable (circular) product.*
	• ***Teacher Role:*** *Teacher facilitates presentations and encourages constructive feedback. Teacher asks guiding questions to improve ideas.* • ***Student Role:*** *Students present their product ideas to the class.* *They give and receive peer feedback and suggest improvements.* *They reflect on how their idea could be more sustainable or practical.* • ***Tools/Materials:*** *Worksheets, presentations.* • ***Expected Output:*** *Improved product ideas and reflection on sustainability.*
Assessment & Reflection	• Teacher observation (participation, collaboration) • Peer feedback (discussion, presentations) • Student self-reflection (what I learned, what I would change)
Inclusion Strategies (UDL)	• How will SEN/ELL learners be supported? Use **visuals** (pictures of products, waste, recycling symbols) Show **simple diagrams** of linear vs circular economy Provide **key words with icons** Give **short, simplified explanations** alongside normal ones • Visuals will be offered for SEN and the other learners as a part of a presentation and method of making the prototype.

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Real-World Connection / Impact	This activity helps students understand how everyday choices affect the environment and encourages more responsible consumption habits. Students may start: • repairing instead of replacing items • reducing unnecessary purchases • reusing materials in creative ways • thinking critically about advertisements and consumer pressure At school level, it can inspire: • reduced waste production in classrooms • more recycling and reuse practices • awareness campaigns about sustainability

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GREEN LOOP LESSON PLAN

Lesson Title	Mapping the product life cycle
Curriculum Link / Subject	Biology, Geography, Technology, Environmental Education, Computer Science (STEAM elements)
Circular Economy Theme	☐ Refuse ☐ Reduce ☒ Reuse ☒ Repair ☐ Recycle
Teacher	Mgr. Lenka Vatrálová, Mgr. Timea Holúbková
Grade Level	6th – 8th grade
Time/Duration	90 – 120 min
Objectives	Students will be able to: • explain the concept of a product life cycle, • identify the stages of the cycle: extraction – production – transport – use – waste, • describe where the greatest environmental impacts occur, • create their own model of a product life cycle (3D or interactive poster), • propose circular alternatives that reduce waste, • work collaboratively in a PBL process (Empathize – Define – Ideate – Prototype – Test).
Systems Thinking Elements	Connections: materials → production → use → waste → new cycle, • understanding the impacts of decisions, • identifying points where waste can be reduced, • understanding feedback loops and consequences.

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EMPATHIZE	• *Teacher Role:* ○ introduces the problem of waste and shows examples of everyday products (e.g., T-shirt, bottle, mobile phone, snack), ○ leads a short discussion: *"What happens to this product when we stop using it?"*, ○ encourages students to describe their own experiences with products that quickly turn into waste. • *Student Role:* ○ *express their own experiences,* ○ *identify environmental problems associated with different products,* ○ *ask questions about the origins and life cycle of objects.* • *Tools/Materials:* *Sample objects, pictures, a video about waste, sticky notes*
DEFINE	• *Teacher Role:* ○ divides students into teams and explains the PBL task: *"Map the life cycle of one product and identify where waste is generated and how it could be reduced."* ○ provides a template with the **6 life-cycle stages**. • *Student Role:* ○ choose one product (e.g., notebook, T-shirt, bottle, toy), ○ describe its life cycle, ○ identify problematic stages (at least 1–2).

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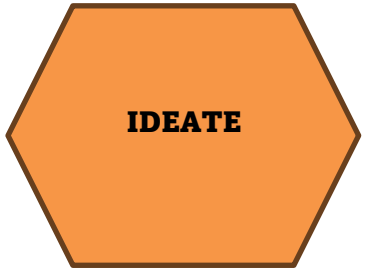
	• *Tools/Materials:* Life-cycle template, markers, A3 paper • *Expected Output:* *A life-cycle map on paper — basic analysis of the product's stages and impacts.*
	• *Teacher Role:* ○ introduces the challenge: *"How can we adjust the product's life cycle so that less waste is generated?"* ○ encourages brainstorming and offers creative techniques (6–3–5 method, mind maps). • *Student Role:* Students propose solutions related to: ○ materials that cause less environmental harm, ○ reusable alternatives, ○ improved packaging, ○ repair and extending product lifespan, ○ recycling or upcycling ideas. They then select the best solution. • *Tools/Materials:* Markers, Post-it notes

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	• *Expected Output:* *A list of ideas + selection of the best proposed solution.*
PROTOTYPE	• *Teacher Role:* ○ *ensures that students have enough creative materials,* ○ *explains that the model should visually represent the entire life cycle of the product and show how the cycle can be improved environmentally.* • *Student Role:* *Students create a model of the product's life cycle, for example:* ○ *a 3D model of the production journey (cardboard "stations" = life-cycle stages),* ○ *a circular flow model ("product loop") made from cardboard,* ○ *a fold-out booklet or mock-up,* ○ *a comic-style timeline,* ○ *a LEGO model showing production and recycling phases,* ○ *a box diorama with opening sections representing each stage.* • *Tools/Materials:* *Cardboard, paper, waste materials, glue, scissors, LEGO, string, markers* • *Expected Output:* *A completed model of the product life cycle with visually marked problem areas and suggested improvements.*
	• *Teacher Role:* allows teams to **walk around and review each other's models**,

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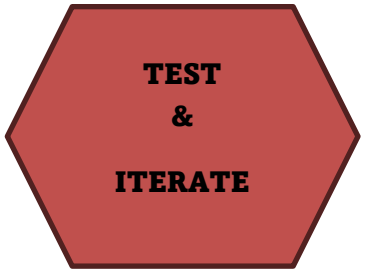	leads reflection using guiding questions: ○ *What is clear and easy to understand?* ○ *What would help the viewer understand the problem better?* ○ *How clearly does the model show where waste is generated?* • *Student Role:* ○ give and receive peer feedback, ○ make improvements to their model, ○ add any missing elements. • *Tools/Materials:* *Markers, additional materials, paper* • *Expected Output:* *An improved model with a brief explanation of the changes.*
Assessment & Reflection	**Assessment focuses on:** • understanding the **product life cycle**, • identifying **stages where waste is generated**, • evaluating the **quality of proposed solutions**,

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	• assessing the **creativity and functionality** of the model, • observing **team collaboration**.
	Reflection: • **What did I learn today about the origins of the things we use?** • **Which stage causes the most harm to the environment?** • **How can we prevent waste already at the product-design stage?**
Inclusion Strategies (UDL)	• How will SEN/ELL learners be supported? ○ visual supports for students with learning difficulties, ○ option to work with simpler or more accessible materials, ○ vocabulary supported with pictograms, ○ option to work on a tablet for students who create better digitally, ○ team roles adapted to students' strengths.
Real-World Connection / Impact	Key Ideas / Big Understanding: • every product we use daily has its own origin, journey, and "end of life", • students understand that waste is not created only at the moment of disposal — it is generated throughout the entire life cycle, • they develop critical thinking both as consumers and as future creators/designers.

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ASSESSMENT RUBRIC

Topic: Reduction of single-use dishware
Method: *PBL + STEAM + Circular Economy*
Duration: 90 - *120 minutes*
Maximum score: *20 points*

	4 points	3 points	2 points	1 point	0 point
EMPATHIZE - Understanding the Problem	The student/team clearly identifies the problem related to products and waste, provides specific examples, recognizes environmental impacts, and can describe user experiences (school, community).	The student understands most aspects of the problem and can provide examples of impacts, but deeper detail or precision is missing.	The student understands the problem only partially; identifies some impacts, but explanations are incomplete or superficial.	The student sees the problem only at the level of waste quantity and does not understand broader connections.	The student cannot describe the problem or its impacts.
DEFINE - Problem Definition	The team formulates a clear and precise problem statement ("How Might We…?"), identifies the causes of the problem, and defines the target context/environment	The problem is defined correctly, but a deeper analysis of the causes is missing.	The problem statement is incomplete, too broad, or ambiguous.	A minimal problem definition that does not provide clear direction for creating a solution.	No problem statement is provided.

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	(where and why waste is generated).				
IDEATE – Idea Generation	The team creates multiple original ideas that reflect the principles of the circular economy (reduce – reuse – repair – replace). They select a well-reasoned and realistic solution.	The team proposes several functional ideas, but they lack a higher level of originality or strong environmental connection.	The ideas are general or only loosely connected to the problem; the number of ideas is limited.	The team proposes only one simple idea with no clear link to the identified problem.	No solutions are proposed.
PROTOTYPE – Prototype Creation	The model is clear, aesthetic, and functional. It clearly shows all stages of the product life cycle and visually marks problematic areas as well as proposed improvements. STEAM elements are visible (construction, creativity, functional components).	The model is functional and understandable, but some parts are less developed or certain details are missing.	The model is incomplete, unclear, or shows only part of the life cycle.	The model is very simple and provides minimal information.	The model was not completed.

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TEST & ITERATE – Testing and Improvements	Students actively work with the feedback, accurately identify what needs to be improved, and significantly enhance the model. They can clearly explain why the adjustments are effective.	The model has been improved and adjusted, but the explanation of changes is not sufficiently in-depth.	Improvements are minimal or superficial; feedback was used only partially.	The adjustments do not meaningfully affect the quality of the model; feedback was not used effectively.	There was no testing or no improvements made to the model.

Bonus Category (optional): Presentation (0–2 points)

(Does not count toward the required maximum of 20 points — can be added as a motivational category.)

2 points: A clear, convincing presentation in which all team members participated.

1 point: A basic presentation.

0 points: No presentation.

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