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Workshop Template – Designing a Better Plastic Future

Interreg Italia–Österreich

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DOCUMENT APPROVAL

Name	Organization	Role	Action	Date
Alexander Berndt	CUAS	Lead		

DOCUMENT HISTORY

Version	Date	Modifications	Authors
V1.0	26.08.2025	Initial idea	Gehan Dasanayake
V1.1	27.08.2025	Workshop layout and agenda development	Gehan Dasanayake
V1.2	30.08.2025	Workshop layout and agenda development with updated equipment list	Gehan Dasanayake
V1.3	21.09.2025	Workshop updated to relate more with construction	Gehan Dasanayake
V1.4			

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1. Introduction

The “Designing a Better Plastic Future” workshop is a 3-hour program for pupils (12–15 years) to learn about sustainability, the circular economy, and life cycle assessment (LCA) through creative reuse of discarded plastics.

It combines theory (CE & LCA) with a hands-on activity (upcycling plastic bottles, caps, tubs, and other materials) and group reflection.

1.1 Learning Objectives

By the end of the workshop, participants will be able to:

- Understand the principles of the Circular Economy (CE).
- Apply Life Cycle Assessment (LCA) to evaluate environmental impacts.
- Create a useful/fun product from discarded plastic materials.
- Map the product’s journey across its life cycle and identify improvement points.
- Reflect on waste reduction, carbon impacts, and propose circular design improvements.

1.2 Required Knowledge

No specialized background is required. However, participants will benefit from:

- Basic teamwork & presentation skills.
- General awareness of environmental issues (plastic waste, recycling, climate change).

The workshop is designed to be accessible and engaging for pupils aged 12–15.

2. Workshop Structure

Table 1 Workshop Structure

Phase	Duration	Activities	Purpose	Materials
Opening	10 min	Welcome participants, Introducing workshop themes + icebreaker quiz	Engage curiosity, set sustainability theme	Slides
Context Setting	TBD	CE & LCA intro (Linear vs Circular economy, plastic bottle LCA example	Build understanding of CE & LCA concepts	Slides, Videos
Main Content	TBD	Safety briefing, Hands-on Upcycling Challenge, CE & LCA reflection questions	Apply CE and LCA while product creation.	Slides Recycled bottles, tubs, caps, cardboard, tools, PPE, worksheets
Wrap-up	15 min	Team presentations & awards, feedback & closing.	Consolidate learning, celebrate achievements, gather feedback.	Certificates, feedback forms.

2.1 Workshop Agenda

Table 2 Workshop Agenda

Phase	Duration	Activities	Purpose	Materials
Opening	10 min	Welcome + icebreaker quiz, introduction to workshop theme and plastics	Engage curiosity, set sustainability theme	Slides, Videos
Context Setting – Circular Economy (CE)	TBD	Circular Economy Introduction, (Rs: Reuse, Repair, Redesign, Recycle, Reduce)	Build understanding of CE principles	Slides
Context Setting – Life Cycle Assessment (LCA)	TBD	Introduction to LCA (Plastic brick example)	Show how LCA measures environmental impacts across stages.	Slides
Safety Briefing	TBD	Explain safe handling (cutting, tying, no heavy glue)	Ensure safe working practices.	Scissors, paper cutters tape, ties, gloves.
Hands-On Activity	TBD	Teams build products (planter, feeder, organizer, spinner, scoop)	Apply CE & LCA in product creation	Cans, tubs, caps, spoons, cardboard
Poster Preparation	TBD	Groups draw product story: life cycle arrows + Rs used and answer the given questions	Communicate sustainability reasoning. Connect product to carbon impacts	Poster paper, stationary items
Team Presentations	TBD	Each group presents their upcycled product + CE and LCA story + Improvement Idea	Share ideas, practice public speaking, inspire peer learning.	Posters, judging sheets.
Review & Awards	TBD	(Best CE Idea, Best LCA Reflection, Best Teamwork, Best Future Idea) + Reflection	Celebrate achievement, encourage collaboration.	Certificates, small prizes.
Feedback & Wrap-Up	TBD	Reflection worksheets, group discussion, closing remarks.	Consolidate learning, gather improvement ideas, close the session.	Feedback forms

2.2 Required Equipment

Table 3 Required Equipment

Category	Item	Quantity	Purpose	Alternative Options
Technology	Projector & screen	1 set	Present slides and visuals	Large monitor, flip charts
	Laptop	1 unit	Run presentation and visuals	Tablet with HDMI adapter, shared desktop
	Speakers	1 set	Audio for videos or sound-supported content	Built-in laptop speakers, no-audio option
Materials	Plastic waste items (Cans, tubs, caps, spoons, cardboard)	1 kit/team	Raw materials for hands-on product creation (planter, feeder, organizer)	Pre-cleaned upcycled materials
	PPE gloves (cut resistant)	1 set per participant	Safety when handling sharp tools	NA
Supplies	Markers, pens, pencils, erasers	1 set/team	Poster design, calculations, sketching, note-taking	N/A
	Scissors, tape (no heavy glue), paper cutters	1 set/team	Assembly of posters and model elements	N/A
	Poster paper	2 sheets/team	Visual presentation of team decisions, CE & LCA strategy	A3/A2 papers
	Paper towels & cleaning materials	1 set/team	Clean-up during and after activity	Reusable cloths
Documentation	LCA reflection sheets	1 per participant	Recording environmental impact analysis	Digital form (Google Sheets/Forms)
	Evaluation sheets	1 per team	Peer review & judging of final products	Tablet, online survey
Other	Full Slide Deck	1 master set (digital)	Guide participants through the entire workshop visually and clearly	Available via shared drive, USB stick, or printout handouts

2.3 Evaluation Framework

Table 4 Workshop Evaluation

Evaluation Type	Timing	Method	Key Metrics	Follow-up Actions
Immediate	End of workshop	Feedback forms	Satisfaction, objective achievement	Immediate improvements
Short-term	1-2 weeks later	Email survey	Knowledge retention, initial application	Provide additional resources
Long-term	3-6 months later	Interview/survey	Behaviour change, performance impact	Plan follow-up sessions

3. Detailed Explanation

3. Workshop Layout Explanation

3.1. Opening

Activity: Welcome & Icebreaker Quiz

Description:

The facilitator welcomes participants, introduces the theme of plastics and sustainability, and sets expectations for the session. An engaging icebreaker quiz (“plastic in building materials?” from the PPT) helps participants test prior knowledge while sparking curiosity. The facilitator briefly explains the day’s structure and highlights the role of Circular Economy (CE) and Life Cycle Assessment (LCA) in addressing today’s plastic challenges.

Purpose: Create an engaging start, spark curiosity, create a positive atmosphere, and introduce sustainability concepts in a relatable way.

Materials: Slides, videos

3.2. Context Setting – Circular Economy (CE)

Activity: Introduction to CE Principles (Rs: Reuse, Repair, Redesign, Recycle, Reduce)

Description:

Through short visuals and discussion, participants explore the difference between a linear economy (take–make–dispose) and a circular economy (keeping materials in use for as long as possible). Using examples from the PPT (bottle planters, pen pots, repairing instead of discarding), participants connect CE principles to everyday life.

Purpose: Build understanding of CE and why it matters for reducing plastic waste.

Materials: Slides

3.3. Context Setting – Life Cycle Assessment (LCA)

Activity: Introduction to LCA (Plastic Brick Example)

Description:

Facilitator explains LCA as a tool to measure environmental impacts across a product's life stages: raw material extraction, manufacturing, distribution, use, and disposal. Using the recycled plastic brick example from the PPT, participants see how energy, CO_2, water, and waste accumulate at each stage. A quick group discussion connects LCA hotspots to CE solutions. Emphasize how LCA can guide design choices to lower environmental impact.

Purpose: Show how environmental impact is measured and highlight opportunities for improvement.

Materials: Slides.

3.4. Safety Briefing

Activity: PPE and Handling Demonstration

Description:

Facilitator explains safe cutting, tying, and assembling methods. Emphasis on proper use of scissors, tying without heavy glue, and safe teamwork practices. Participants are reminded of responsibility when handling sharp tools and materials.

Purpose: To ensure the safety of all participants during hands-on activity.

Materials: Scissors, paper cutters, tape, gloves.

3.5. Hands-On Activity

Activity: Build a Product from Plastics

Description:

Teams are given discarded materials (Cans, tubs, caps, spoons, cardboard). Each group chooses one product idea from the PPT (planter, feeder, organizer, spinner, scoop) and begins constructing it. Facilitators circulate to guide teams in applying CE principles (e.g., reusing bottles) and mapping improvements using LCA (e.g., reducing tape use for easier recycling).

Purpose: Apply CE & LCA concepts in practice through product creation.

Materials: Cans, tubs, caps, spoons, cardboard

3.6. Poster Preparation

Activity: Product Story & Impact Mapping

Description:

Groups prepare a short poster showing their product's story:

- Which Rs of CE they applied.
- Which stages of the life cycle improved.
- How they managed leftover scraps.
- One further improvement idea.

This step consolidates their design thinking into clear sustainability reasoning.

Purpose: Communicate reasoning visually, connect product to sustainability impacts.

Materials: Poster paper, stationery items.

3.7. Team Presentations

Activity: Present Product + CE/LCA Story

Description:

Each team presents their product, showing CE principles used and LCA improvements. They also share how scraps were reused or minimized and suggest one improvement for version 2. Judges or facilitators ask guiding questions, ensuring all voices are heard.

Purpose: Share knowledge, encourage peer learning, and inspire innovative thinking.

Materials: Finished products, posters, judging sheets.

3.8. Review & Awards

Activity: Recognition of Achievements

Description:

Facilitator summarizes key learnings, then presents awards:

- Best CE Idea (most creative use of the Rs)
- Best LCA Reflection (clear hotspot analysis)
- Best Teamwork (collaboration)
- Best Improvement Idea (future version 2)

This step celebrates contributions and motivates participants to keep applying these ideas beyond the workshop.

Purpose: Celebrate learning, encourage collaboration.

Materials: Awards and certificates.

3.9. Feedback & Wrap-Up

Activity: Reflection and Closing Session

Description:

Participants complete reflection worksheets, noting what they learned and how they will apply CE/LCA in real life. A short group discussion follows where participants share one improvement idea for future sessions. Facilitator thanks everyone, reinforces that they are now “eco-designers,” and closes with an inspirational note.

Purpose: Consolidate learning, collect improvement ideas, and end the workshop positively.

Materials: Feedback forms

Equipment & Purchasing Links

1. **Materials for Student Activity**
    - Cleaned plastic cans – various sizes
    - Plastic caps & lids
    - Plastic tubs/containers
    - Spoons, cardboard, and other recyclable household plastics
2. **Safety Equipment (PPE)**
    - Safety Gloves (cut resistant)
    - Cleaning tissues / reusable cloths
3. **Workshop Supplies**
    - Scissors & paper cutters
    - Tape (no heavy glue), string, paper clips
    - Poster paper, markers, pens, pencils