Academia Barcelona

E10183213

CLIMATE CHALLENGE Adventure

Game Time for a Green Future:
Make Your Move Against Climate Change!
2024-1-IS01-KA220-SCH-000243341

Activity Title
Trash to Treasure: The Upcycling Design Challenge

Grade Level: Secondary School (Ages 12–15)
Duration: 2 Lesson Hours (2 x 40 min)
Subject Areas: Environmental Science, Visual Arts, Design & Technology
Learning Domain: Sustainable Consumption, Circular Economy, Creative Reuse
Key Competences: Green Competences, Creativity, Collaboration, Eco-Design Thinking

Trash to Treasure: The Upcycling Design Challenge

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Learning Objectives:

- Students will define what upcycling is and how it differs from recycling.
- Students will identify common waste items in their daily life suitable for upcycling.
- Students will collaboratively design and prototype a functional or artistic product using waste materials.
- Students will present their design with an explanation of its environmental benefit.

Materials & Resources

- Sample upcycled product visuals or short video
- Recyclable/used materials (students bring from home)
- Scissors, glue, tape, markers, string, paints
- Upcycling Design Brief Template
- Cameras or tablets for documentation

Expected Outcomes

- Increased awareness of the creative potential of waste
- Hands-on experience with sustainable design thinking
- Improved teamwork and visual communication skills
- Positive attitude toward circular economy solutions

Assessment & Evaluation

- Peer feedback during gallery walks
- Teacher rubric for creativity, functionality, and sustainability impact
- Reflection cards (self-assessment)
- Optional: Class vote for “Most Creative,” “Most Useful,” “Most Eco-Friendly” products

Session 1 (Day-1)– Understand & Explore (40 minutes)

1. Warm-up & Brainstorming (5 min)
Teacher asks:

““What is one thing you threw away this week that could have been reused creatively?”
Students share ideas orally or with sticky notes.

2. Mini Lecture & Visuals (10 min)
Topic: “What is Upcycling?”
- Difference between recycling and upcycling
- Environmental benefits
- Examples from art, fashion, furniture

3. Exploration Activity (15 min)
Students in groups look at photos or short videos of upcycled items (e.g. YouTube, Pinterest)
They complete a worksheet noting:

- “What do you think this item was originally?”
- “Would you use this item? Why or why not?”
- “What problem might this design solve?”

4. Design Challenge Briefing (10 min)
Teacher presents the challenge: “Bring 2–3 used items from home. Next session, your team will transform them into something useful, fun, or artistic.”
Students are placed into design teams and given an “Upcycling Design Brief” worksheet to brainstorm ideas before next class.

Session 2 (Day-2) – Design & Showcase (40 minutes)

1. Group Project Briefing (5 min)
Teams finalize what they’ll make using the items they brought.

2. Upcycling Sprint Sprint (25 min)
Teams build their upcycled products using tools and materials.
They complete a short product description:
- What it is
- What it was made from
- Why it’s sustainable

3. Gallery Walk & Peer Feedback (5 min)
Each team displays their creation.
Classmates rotate and leave “Stars & Wishes” (positives and suggestions).

Trash to Treasure: The Upcycling Design Challenge – Assessment Tools

1. Pre-Test Questionnaire

Objective: To assess students' prior knowledge about upcycling, waste, and sustainable consumption.

Duration: 5–7 minutes.

1. Which of the following is an example of upcycling?
   a) Throwing away glass bottles
   b) Melting plastic to make new plastic
   c) Turning an old t-shirt into a shopping bag
   d) Burning cardboard for heat
2. What is the main difference between recycling and upcycling?
   a) Upcycling is harmful; recycling is helpful
   b) Upcycling uses an item creatively without breaking it down
   c) Recycling turns items into decorations
   d) Upcycling creates more waste
3. True or False: Upcycling always requires expensive tools and machines.
4. Which material is most commonly used in upcycling projects?
   a) Gold
   b) Organic waste
   c) Used packaging and clothing
   d) Paper
5. On a scale from 1 to 5, how familiar are you with the term “sustainable lifestyle”?
   (1: Not at all – 5: Very familiar)

2. Post-Test – Track It, Cut It: The Carbon Challenge

Objective: To evaluate students’ understanding of upcycling and their ability to apply sustainable thinking.
Duration: 10 minutes

Part A – Multiple Choice (2 points each)

1. Which action helps reduce waste through upcycling?
   a) Throwing old jeans in the trash
   b) Donating clothes to a landfill
   c) Making a pencil case out of a plastic bottle
   d) Buying new clothes every month
2. Why is upcycling considered more eco-friendly than throwing things away?
   a) It creates new products from new materials
   b) It reduces the demand for raw materials and energy
   c) It makes trash look nicer
   d) It increases consumption
3. What are the benefits of upcycling?
   a) It’s expensive but trendy
   b) It reduces waste and encourages creativity

c) It makes items recyclable
d) It only helps artists

4. Which of the following best describes a circular economy?
a) A system where everything is used once
b) A way to increase production and sales
c) A system that reuses, repairs, and repurposes materials
d) A method to burn waste cleanly

5. True or False: Upcycled products can be both useful and beautiful.

Part B – Short Answer (5 points)

6. Describe what your team created in the upcycling activity.
- What was the original item?
- What did you turn it into?
- Why is it sustainable?

Part C – Reflection Statement (5 points)

7. What did you learn from this activity about creative reuse and sustainability?
Do you feel more confident about making eco-friendly choices in your daily life? Why or why not?

3. Rubric Assessment Tool

This rubric is used to assess student performance during the 'Trash to Treasure: The Upcycling Design Challenge' activity.

Criteria	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
Understanding of Upcycling	Clearly demonstrates understanding of upcycling and its environmental purpose with strong, relevant examples.	Shows general understanding; some minor inaccuracies or gaps.	Basic understanding; may confuse with recycling.	Little to no understanding shown.
Creativity & Originality	Highly creative and original design; innovative use of materials.	Creative idea with some originality; mostly reused materials.	Limited creativity; idea is common or lacks detail.	Unoriginal or copied idea; little thought applied.
Functionality/Usefulness	Product is highly functional and could realistically be used.	Product is mostly functional with some small improvements needed.	Product is only somewhat functional; lacks practical use.	Product is non-functional or unclear.
Team Collaboration	Excellent teamwork; all members contributed equally and respectfully.	Good teamwork; most members participated actively.	Uneven participation; limited collaboration.	Poor or no teamwork evident.
Presentation & Communication	Clear, confident, and engaging presentation; visuals enhance message.	Mostly clear and organized; visuals support the content.	Somewhat unclear or disorganized; visuals lack connection.	Unclear or incomplete presentation; weak visuals.

Scoring Guide:

- 20–18 points: Outstanding – Deep understanding, highly creative and functional.
- 17–14 points: Competent – Solid work with minor weaknesses.
- 13–10 points: Basic – Needs improvement in creativity or clarity.
- 9 or below: Limited – Significant support and revision needed.