

Creative Reinvention

Facilitator Guide

Learning objectives

- Sustainability solutions address today's biggest challenges to create the future we want.
- We all have a role in creating a more sustainable future.
- By thinking creatively, we can reuse materials and save resources.

Materials

- "Creative Reinvention" activity guide and sign
- "Circular Economy" diagram
- "Recycled Recycling Truck!" image
- "Take a Guess!" activity cards
- "Reinvent @ Home!" take-home activity sheets
- Recycled material demonstration set: plastic water bottle, plastic flakes, pellets, and fiber and fabric samples
- Optional: Green Toys® recycling truck (or other toy) made from recycled plastic

The activity guide, sign, diagrams, information sheet, image, and game cards can be downloaded from www.nisenet.org/sustainability or sustainablekits.asu.edu.

Green Toys recycled plastic toys (including the recycling truck) can be ordered from numerous online vendors, including amazon.com.

Preparation

Read through this facilitator guide, look at all the activity materials, and practice the activity with a friendly audience until you feel comfortable with it. (Note that the guests have an activity guide they can follow, which has the same step-by-step instructions as this facilitator guide.)

Step-by-step instructions

This activity is meant to promote conversation about the circular economy. After participating in this activity, guests may be inspired to make something useful themselves.

1. Show your guests the prop materials: plastic water bottle, baggies of plastic materials, fabric sample, and toy truck. Explain that the fabric sample and toy truck have something surprising in common: they're both made from recycled plastic bottles!

The materials in the plastic baggies show how the bottles are turned into fabric. First, the bottles are cut into flakes. Then, the flakes are melted and turned into pellets. Next, the pellets are stretched into fibers. Finally, the fibers are woven into fabric.

The toy truck was made of a different kind of plastic bottle, a milk jug. To make toys like this truck, the jugs are shredded, reprocessed into raw material, and colored with mineral pigment. The plastic is then ready to be molded into toy parts!

2. Show guests the “Circular Economy” diagram. Explain that the fabric and the truck are examples of the circular economy. Explain that in a *circular economy*, we try to make and use products in ways that don’t create waste. When we’re done with a product (e.g., when your shoes get worn out), it becomes something else (like the surface of a running track). In a *linear economy* approach, when we were done with our shoes, they would end up in a landfill and all those useful materials would go to waste.
3. Invite guests to select a card. Let them know that this product is also made of a reused or recycled material. Ask if they can guess what it is!

Tip: Some guests, such as young children, may not know what some of these items are typically made from. You can offer some hints and starting points for them. You might say something like, “Bags are usually made of strong fabric. This bag is made of special fabric that has been reused from something else—something we can only use one time! What do you think it could have been?”

When they’re ready to learn the answer, flip the card over. Engage the guests in thinking about why the material was a good source for this product, or how it might have been processed. You might say something like, “The messenger bag is made from a used car air bag! If an airbag pops open, it can’t be used again. A new one has to be put in the car. So this company is taking the strong material from used air bags and turning them into bags we can use to carry things. That way the material doesn’t go to waste.”

Tip: It’s ok if guests don’t spend a lot of time guessing, and prefer to flip the cards quickly to learn the answer!

Ask the guests if they’d like to try another card. Once they have gone through all of the cards they’re interested in, ask if they can think of things in their home that they could reuse, rather than recycling them or throwing them away.

4. Offer guests the “Reinvent @ Home!” activity sheet. You might say something like, “I have a project you can try at home if you like. You can melt old crayons to make new ones in fun shapes!”

Tip: Since this activity is about not wasting resources (or, more accurately, about being intentional about how resources are used), you can give guests the option to take a picture of the instructions with a smart phone, or look up similar instructions online.

Common questions

Wouldn't it be better if we just didn't use plastic water bottles (instead of recycling them)?

The circular economy tries to reduce or eliminate waste. From this perspective, it is better to make durable products whenever possible, instead of making things we use only one time. But there are still a large number of water bottles produced every day, so it's important to find new uses for that material rather than putting the bottles into a landfill or the ocean.

What are skateboard decks made from?

Skateboard decks are typically made from thin layers of wood that are glued together, but they can also be made of other materials such as plastic.

Where can I recycle my...?

Airbag: Ask your dealership or mechanic if they are part of a recycling program. There are some chemicals released when airbags deploy.

Animal waste: Don't place animal waste directly on your garden—it must be composted at very high temperatures to be safely used as fertilizer. If your community offers a composting program, check to see if animal waste is permitted. (You can collect it in biodegradable bags.)

Plastic bottles and containers: Plastic bottles usually are readily recycled. Check the number on the bottom of the container to see if your community recycling facility accepts them. You can also search online to find creative ideas for reusing plastic containers.

Potato peels: You can recycle potato peels and other food waste by composting. There are lots of resources available online. Your community may even offer composting alongside recycling. (The example on the activity card is actually pre-consumer waste, which means that the companies get the potato product from the manufacturing process—it's not collected from consumers.)

Shoes: Some Nike stores accept used shoes for recycling. Goodwill and other donation centers will accept shoes and clothing for resale and reuse. There are also a number of smaller organizations throughout the US, so an Internet search with your nearest city should also turn up additional notes.

Skateboards: Some donation centers will accept skateboards to sell in their retail stores.

Other things: Search online for ideas of how to reuse materials yourself, places that accept donations of products in good condition, and information on recycling facilities in your community.

Terms and Definitions

Circular economy: Manufacturing and using products in such a way that there is no waste created. When a product reaches the end of its lifecycle, it is reused, repaired, or made into something else. In

contrast to the circular economy is the *linear economy*, where things simply become waste at the end of their lifecycle.

For example, in a circular economy, if your shoes were too small, you could give them to someone else to wear. If they needed new soles, you could have them repaired, or ground up and made into playground surface. In a linear economy, you might simply throw away your shoes when you were done with them.

Recycling: Taking waste that would otherwise wind up in a landfill and processing it into useable materials.

Upcycling: Reusing an item (often waste) in a new way that it becomes more valuable. Turning plastic bags into bricks, which are then used to make furniture, is one example.

Pre-consumer waste: Waste or refuse that is produced before it reaches the intended user. For example, left over wood scraps from a furniture producer can be chipped and turned into particle board.

Post-consumer waste: Waste or refuse produced after the consumer is done using it. Examples include used plastic water bottles.

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Demonstration sets of plastic flakes, pellets, fiber, and fabric samples courtesy of Oak Hall Cap and Gown.

Image of toy dump truck and recycling truck courtesy Green Toys.

Image of phone cases and skateboard decks courtesy Warren Fosse, Carved, LLC.

Image of animal manure fertilizer courtesy Ryan Hawk, Woodland Park Zoo.

Image of potato starch eco-friendly bag courtesy, BiologiQ.com.

Image of shipping container building courtesy, New Jerusalem Children's Home.

Image of messenger bag courtesy Jeannie Colton, Arizona State University.

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