Activity: Trash Timeline

Location: Schoolyard or classroom

---

*UAS adapted this activity from a version used during a training with Rock Creek Conservancy.

SUPPLIES

- Bilingual flashcards
- Bag or container for kit
- Piece of newspaper
- Piece of cardboard
- Piece of coated cardboard (juicebox, soup or carton)
- 1 aluminum can (soda or seltzer)
- 1 steel can (soup or beans)
- 1 plastic bottle
- 1 glass bottle or jar
- 1 piece of styrofoam

Pairs with: watershed education activities, schoolyard litter cleanup, schoolyard report card

Key Terms (bilingual flashcards are below): decompose, newspaper, cardboard, coated cardboard, plastic, steel, aluminum, glass, styrofoam

Total time: 30 mins, *but can be expanded with other activities, research, or discussion*

INTRODUCTION, *5 mins*

We know that littering hurts the environment, but let's think about why.

How does littering hurt plants? Animals? Humans?

Litter lasts a really long time. Most litter will live longer than I will.

FLASHCARD: decompose

What does the word "decompose" mean?
(call on students for different answers)

Yes, decompose means to break down into smaller pieces. You could also say disintegrate, break up, or decay. Maybe you've learned about composting. When you compost natural materials, they break down and become fertile soil you can use to garden.

What kinds of waste can you put in compost?

(call on students for different answers)

Most food waste can go in a compost bin, except for the leftovers or bones of meat or fish.

What about paper?

(call on students for different answers)

Some kinds of paper like small amounts of wet paper towels can go in. What about plastic or glass?

(call on students for different answers, trying to reach the idea that things that take too long to break down or are treated with chemicals should not go in your compost. If they should not go in your compost, they should not go in a landfill)

Everything that cannot be composted is going to take a much longer time to break down. Human-made materials like plastic will last much longer than natural materials, like a banana peel. Human-made materials like plastic and metal leech chemicals into the environment as they slowly decompose. If a piece of litter takes 200 years to decompose, that's 200 years of leeching harmful chemicals into the environment.

TRASH TIMELINE: HOW TO PLAY, *15 mins*

Here are eight items. We're going to use these clean pieces of trash for an activity called a Trash Timeline.

What is a timeline?

Let's work together to line up the items from the item that decomposes the quickest to the item that decomposes the slowest.

Work together to guess:

What material each item is made from.
How many months or years each kind of item takes to decompose.

You, the educator, can decide which way to play with your group.

1. You set a timer for XX minutes and let students work together to put the items in order.
2. You go through one by one and let students guess or vote where it falls in the timeline.

When the timeline has been created:

Ask if anyone wants to make a last-minute swap of two items. Allow a few swaps.

Then, go through each item and identify the material it's made from.

Place the flashcard next to that item.

FLASHCARDS:
newspaper, cardboard, coated cardboard, plastic, steel, aluminum, glass, styrofoam

Ask how long students think it takes to decompose and then reveal the answer.

As you go through items one by one, move them to the correct spot until you've gone through all items and student guesses.

You'll end the activity with the items in the correct order. Review the material and how long it takes to decompose.

ANSWERS:

NEWSPAPER, about 4 months

CARDBOARD, about 5 months because it's thicker than newspaper

COATED CARDBOARD (juice boxes) ~5 years

STEEL CANS (beans, soup), ~80 years
*Steel is what cars are made from, too. Steel will rust; rusting is a chemical reaction that actually helps it decompose quicker. Every can any of us here today has used still exists and will for another 40 years at least.

ALUMINUM CANS (soda), ~100-150 years
*Aluminum is what airplanes are made from. Aluminum does NOT rust, so it takes longer to decompose. It is much easier to recycle than steel, though.

PLASTIC, ~200-500 years depending on thickness

GLASS, Thousands of years.
*The plus side of glass is you can use something like a glass water bottle over and over.

STYROFOAM/expanded polystyrene foam, Thousands and thousands of years!

Styrofoam is plastic that air has been pumped into, which changes its composition so it is really difficult to decompose. Scientists have studied how much styrofoam breaks

down in a certain amount of time, then they do the math to see how many thousands of years it would take to fully decompose. There's no perfect answer because it just takes an incredibly long time and we don't know for sure.

LEGISLATION and PERSONAL SOLUTIONS, *8 mins*

Did you know D.C. has created legislation, or laws, to help the environment?

2009: Plastic Bag Fee
The Anacostia River Clean Up and Protection Act of 2009, known as the "Bag Law," requires DC businesses that sell food or alcohol charge a 5-cent fee for each paper and plastic bag needed for any purchase, with certain exemptions.

2016: Foam Ban
ZERO styrofoam or expanded polystyrene is allowed in food packaging. 10 yrs ago, it was common for takeout containers and coffee cups to be made of styrofoam.

2017: Food Service Ware Requirement
If it's intended for single use, like takeout containers or utensils, restaurants and other food-serving institutions have to use **compostable and recyclable food service ware.**

2019: Single-use Straw Ban
No single-use plastic straws are allowed in food-serving institutions, with the exception of keeping a stock of plastic straws for people with disabilities who need them. Straws made of plant-based materials and paper are allowed.

When our city passes laws like these, it means that taking care of our green spaces and waterways goes from something we hope people do to something people must do. What are some actions you can take in your everyday life to help reduce the amount of trash you create?

- Reusable water bottle, lunch box/bag, food containers, and cloth napkins
- Reusable cloth tote bags for grocery shopping
- Buy less single-use plastic, glass, and metal
- Buy less fast food and bring food from home
- Educate friends and family

CLEAN UP, *2 mins*

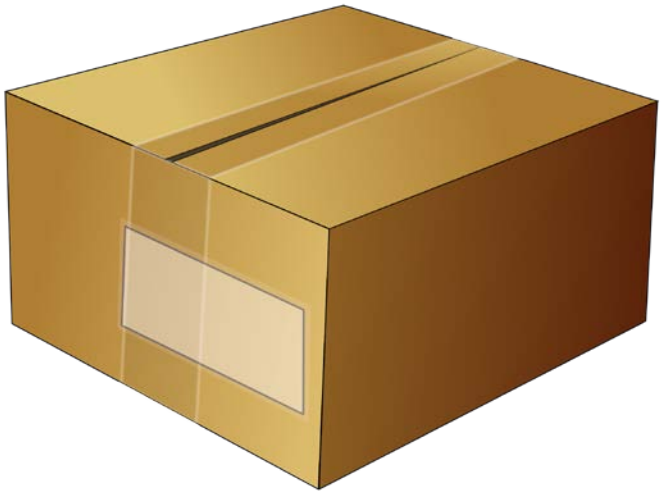
Ask students to put the flashcards in one pile and the Trash Timeline items into the bag or box that they came in.

decompose
descomponer

newspaper
periódico

cardboard

cartón



coated cardboard

cartón recubierto

plastic

plástico

steel

acero

aluminum

aluminio

glass

vidrio

styrofoam

poliestireno

Litter Cleanup Data Collection

PAPER	
PAPER, CARDBOARD, COATED CARDBOARD 	
FOOD PACKAGING 	
PLASTIC	
BAGS 	
BOTTLES 	
FOOD PACKAGING 	
STYROFOAM 	
STRAWS 	
METAL AND GLASS	
ALUMINUM CANS 	
STEEL CANS 	
GLASS BOTTLES