

TRASH TIMELINE AND RECYCLE RELAY

Students will guess the biodegradation times of different common materials and then create a visual timeline depicting the correct rates.

3rd Grade NGSS Correlations:

- [LS2.C](#): Ecosystem Dynamics, Functioning, and Resilience
 - [3-LS4-4](#)
- [LS4.C](#): Adaptation
 - [3-LS4-3](#)
- [LS4.D](#): Biodiversity and Humans
 - [3-LS4-4](#)
- [LS4.A](#): Evidence of Common Ancestry and Diversity
 - [CC Scale Proportion and Quantity](#)

Pre-Trip Information:

- [Reduce, Reuse, Recycle Video](#)
- [Explore and Play Games at Recycle City](#)
- [Big Glob of Trash Hurts Animals and the Sea](#) NewsELA Article

Materials:

- 2 bags of matching 'clean' trash, each set of trash marked with the same color sticker, in a reusable grocery bag
- Long piece of rope with ground staples at the ends
- Laminated timeline cards
- White dry erase scoreboard

Set Up:

Set out the rope and staple the ends into the ground. Place the timeline cards along the rope at appropriate intervals. Give each group one of the 'trash bags.'

Background Information/Introduction:

We often use the words **decompose** and **biodegrade** in the same ways, but they have different meanings. To **decompose** is to break down into smaller or simpler parts. To **biodegrade** means to decay and be absorbed by the environment in a way that is not harmful. Something can decompose but still leave behind plastic, metal, or glass parts that will remain and affect the environment for many years. When something biodegrades, it disappears and leaves no remaining trace.

Out of sight = out of mind, right? When something is sent to the landfill, it may be out of your sight, but it definitely still exists. Some objects will sit in landfills for thousands of years, or worse. If we throw our trash anywhere we please, it could be consumed by animals, contaminate water, or harm potential habitat space for many years to come. If we continue to create products that cannot be reused or recycled (or if we just chose not to do so), then we will have to create more landfills, which will destroy natural habitat space for many living creatures. In this activity we're going to guess how long it takes for some common objects to completely biodegrade, so we can make smart choices about throwing things away vs. reusing, recycling, or composting them.

Activity Instructions:

- Explain that each team has the same items in their bags, and the items for their team are marked with dots of their team's color. (Some perishable items are represented by small, laminated cards).
- Tell the teams that they are going to be competing to see who can guess the biodegrading time of each item closest to the actual number (for added difficulty—without going under). They finalize their guesses by laying them down on the rope.
 - Have each team send a representative ('player') up to the front of the group.
 - Announce the item those 2 players will be guessing the biodegradation time of and have them pull that item out of the bag.
 - The players are allowed to get feedback from their group (think 'Price is Right' style "higher!" or "lower!") but are ultimately in charge of deciding where they put their final guess. (Limit the time for each set of players to make their guesses to about 20-30 seconds.)
 - At the end of the time limit reveal the actual time it takes for that object to biodegrade and determine which team won that round. Add a point to the scoreboard for that team.
 - Repeat until you have gone through all objects, or for X number of turns.
 - The team with the most points at the end wins.

Wrap Up/Discussion:

Ask students why we might try to buy reusable or biodegradable products. Explain that we as humans all make choices, and we need to consider the consequences of our actions. Collectively we have the ability to reduce the amount of waste that enters landfills each year.

Post Trip Activity:

- Have the students research recycling laws for your community. Have them collect classroom waste and sort the items according to those regulations (reuse, recycle, compost, and landfill) for one week. At the completion of the week have the students document which pile is largest and why.

- Optional version: take the class around the school and have them pick up trash on the playground and in hallways (be sure to take necessary safety precautions. Gloves, hand sanitizer, etc.). Have them sort the items according to those regulations (reuse, recycle, compost, and landfill) for one week. At the completion of the week, have the students document which pile is largest and why.
- Challenge students to reuse or upcycle an item they would normally dispose of or recycle. Once completed, have them present their item to the class, describing its new use and how they created it. ([SL.5](#), [SL.6](#))

KEY

OBJECT	BIODEGREATION TIME
Paper towels	2 weeks
Apple core	3 weeks
Newspaper	2 weeks
Cardboard (unwaxed)	3 months
Cotton cloth	5 months
Rope	1 year
Waxed cardboard (milk carton)	5 years
Cigarette butt	3 years
Diaper	15 years
Aluminum can	300 years
Plastic bag	15 years
Plastic 6 pack holder	100 years
Leather	3 years
Styrofoam	??? Infinity
Plastic bottle	450 years
Aluminum foil	??? Infinity
Glass bottle	??? Infinity
Paper plate	4 months
Piece of wood	13 years
Synthetic fabric	35 years