CLASSROOM LANDFILL

GRADES 3-5

This activity was designed as a companion for the music video "Use It Up."

BACKGROUND

In this song, the main theme is "Use it up, wear it out, make it do or do without." The lyrics highlight how easy and common it is to throw things away and not use all we have instead of fixing, finding other ways to use, and conserving common household items. We should try and find the value in used objects. It is also important that we see how the process of decomposition affects different items in order to truly understand the life cycle of our trash and its potential consequences.

We also get an idea in this song of how the consumption culture of the Great Depression and World War II was very different from today. The song mentions how a grandmother who lived through World War II had to save and cherish every little thing she had, and she is aghast that people these days seem to think they never have enough. Just as the person in the song decides to stop wasting unnecessarily, we too can decide that there are better options for objects past their prime besides simply throwing them away.

DEFINITIONS

Biodegradable – Capable of being decomposed/broken down by bacteria or other living organisms

Organic trash – Waste that comes from plants or animals and is biodegradable (e.g. yard trimmings, food scraps, wood waste, paper and paperboard products)

Inorganic trash – Human-made waste that has to be reprocessed or recycled and cannot naturally break down (e.g. plastics, chemicals, metals, glass)

Organic trash

Inorganic trash

MATERIALS

Plastic gloves
Large, clear plastic bin
Lid or plastic wrap for bin
Soil
Popsicle sticks
Organic and inorganic trash samples
Observation chart (below)

OBJECTIVE

In this lesson, students learn that waste is a natural byproduct of life and the world around us; however, too much unnecessary waste, especially waste that is not biodegradable, creates serious pollution issues on land, in water, and in air. When we pollute our environment, we pollute ourselves. This activity allows students to conduct their own experiment to see how important group conservation efforts are. Students work together to create a miniature classroom landfill to discover what happens to the different kinds of waste and how waste can help or hurt nature. Students also familiarize themselves with local recycling opportunities and ultimately learn how reducing consumption is the best solution to pollution.

INSTRUCTIONS

1. Walk around the school/playground and collect a bag of trash mixed with organic and non-organic trash.

2. Wearing plastic gloves, fill the clear plastic bin half-full with soil.

3. Take six to eight trash samples collected and bury them about six inches deep in soil. Make sure that you include a few biodegradable items (for example, apple cores and banana peels). Place the samples near the side of the bin so that students can observe them from outside the bin. Mark each spot with a labeled popsicle stick.

4. Ask students to discuss the following questions:
   - Which items in our classroom landfill do you predict will break down quickly?
   - Which items do you predict will take a long time to break down?
   - Are there some items that look as if they'll never break down?

5. Put the container in a warm, sunny place and water it lightly (or place it outside on a rainy day for a short time). Keep the soil moist but not soaked. Cover the classroom landfill with plastic wrap or a lid.

6. Carefully check samples every week or so. Students may dig them up wearing plastic gloves. A magnifying glass can be used to inspect the samples. Notice how the landfill smells when the plastic wrap or lid is removed. Record observations in the chart below. Keep checking each week for two to three months.

7. As a class, keep a record of ongoing observations using photographs and the following observation chart:

Date	What does the landfill look like?	What does the landfill smell like?	Other observations?

TEACHER TIP

This experiment will take two to three months for students to get the full experience. Ensure you leave enough time throughout the year to complete the activity. Part way through the experiment, vermicompost worms or various bugs could be added to the landfill to speed up decomposition.

These creatures may be obtained locally at vermicompost distribution centers such as:

Arpeggio Farms, Inc.
5505 NW 63rd Place
Johnston, Iowa 50131
www.arpeggiofarms.com

D & D Ranch
PO Box 164
Swisher, IA 52338
319-857-4478
www.dndwormranch.com

Creative Composting Concepts
500 West Main Street
Robins, IA 52328
319-743-3147
www.wormswork.com

To learn more about vermicompost, here is a great resource:
http://www.agmrc.org/commodities__products/livestock/worms/

REFLECTION QUESTIONS

- How did the trash pick-up at the beginning make you feel about waste and pollution?
- How much of the trash that you collected could have been reused or recycled?
- Which items in our classroom landfill do you predict will break down quickly?
- Which items do you predict will take a long time to break down?
- Imagine this experiment on a much larger scale. Do you think the Earth can handle all of this garbage? How can people work together to conserve?
- How do landfills affect air? How do they affect water?
- What can we do to reduce the amount of garbage we create in order to help nature?

OPTIONAL #1

Have students research how long it takes common items to decompose. For example, a pop can tossed on the ground will take 300 years to be crushed and worn away by rocks; a glass bottle will take a million years.

To explore more common biodegradable items, check out activities such as "Litter – How Long Does It Last?" at this website:
http://www.maine.gov/spo/recycle/schools/studentsrecycle.htm

OPTIONAL #2

What are the current average prices received for recyclable materials?

Aluminum $_____ Newspaper $_____ White paper $_____ Mixed paper $_____

Cardboard $_____ Steel cans $_____ Glass $_____ Other plastics $_____

#1 & #2 plastic $_____

ADAPTED FROM

TN Solid Waste Education Project:
http://www-tnswep.ra.utk.edu/reuse/reuse.pdf

Connecting With Nature (Suzuki):
http://www.davidsuzuki.org/what-you-can-do/downloads/CWN_TeachersGuide.pdf

COMMUNITY RECYCLING CHECKLIST

Do we have a recycling center(s) in our community? Yes _____ No _____

Location: _____

If not, where is the closest recycling center?

_____

_____

Which materials are accepted at the closest recycling center?

Aluminum _____ Newspaper _____ White paper _____ Mixed paper _____

Cardboard _____ Steel cans _____ Glass _____ #1 & #2 plastic _____ Other plastics _____

Are lead-acid batteries accepted at our recycling site? Yes ____ No ___

Are tires accepted at our recycling site? Yes ____ No ___

Is used oil accepted at our recycling site? Yes ____ No ___

Is there a place locally where you can drop off (donate) unwanted items for repair and/or resale (e.g. Goodwill, Salvation Army)? Yes _____ No _____

How can you dispose of "white goods" (refrigerators, washing machines, stoves, etc.)?

_____

_____

_____