

## **“A Trashy Timeline: Where Does our Garbage Go?”**

### **Fourth Grade: A Trashy Timeline: Where Does our Garbage Go?**

We all make way too much garbage. According to the US EPA Americans generate about 4.5 pounds of garbage (trash) everyday. Landfills keep filling up and people keep looking for more places to dispose of all of that garbage. There are several solid waste disposal options. Students will look at the VA Trekkers *Henrico Landfill podcast* (video) which is a “virtual” field trip to the Springfield Road Landfill located in Henrico County, VA. They will see where their garbage goes as well as what items could be recycled verses land filled. No one really knows if glass takes a million years to decompose. It is an educated guess. But doing an exercise with relative decomposition times, students will create a visual representation of the time it takes for various waste items left in a landfill to breakdown or decompose. It will get them to start thinking about what they do with their stuff. It is a good lead into talking about recycling and responsible waste management solutions as they identify items that could be reduced, reused or recycled in order to prevent them from ending up in landfill. SOL Science: 4.1, 4.5, 4.8.

### **Teacher Resources included:**

1. Discussion sheet on different ways to deal with trash
2. Garbage Timeline Decomposition rates
3. Timeline Classroom Activity
4. How Long Will It Be There? Decomposition rates signs

### **Teacher Resources not included:**

1. Several examples (from Garbage Timeline) of litter items with correct decomposition time attached (hidden) from students. (i.e. Bring in some old newspapers from home. Use the 3-6 months sign, tell students once they guess the decomposition time that if recycled it could be made into new paper)

# Garbage Timeline

## Decomposition Rates

Toilet Paper/Napkins	1-3 weeks
Paper Plate	1 week- 2 months
Banana/Orange peel	2-5 weeks
Cotton Rag	1-5 months
Rope	3- 14 months
Newspaper	3-6 months
Carry-out food bag	4-8 month
Wool sock	6 months- 2 years
Cardboard	2 years
Plastic bag	10-20 years
Leather shoe	25-50 years
Nylon Fabric	30-40 years
Plastic beverage container	100 years
Aluminum can	250-500 years
Disposable diaper	300 years
Styrofoam egg carton	Undetermined; as much as 1,000,000 years
Glass jar/bottle	Undetermined; as much as 1,000,000 years

## Timeline Classroom Activity

- Place yellow enclosed signs on blackboard and/or tabletop. Print them the sizes you will need for your classroom and the sampling of litter items you chose for the activity from the Garbage Timeline.
- Define decomposition
- Elements needed (water, sun, oxygen, bacteria/bugs etc.)
- Have students place litter item under the timeframe they think it will take it to decompose. If incorrect, give them the correct time. Ask them, if we don't want litter, what are the different ways we can deal with trash?
- What are the different ways to deal with trash? Explain each one. These are highlighted in the video. Americans produce 4.5 pounds of trash per day. That adds up!
  1. Landfill
  2. Recycling
  3. Incineration
  4. Composting

Ask student which "disposal" method they could use on each item listed on the garbage timeline (answers can vary). Which natural resource is it made from? Is the resource Renewable or non-renewable?

- Explain why recycling is so important.
  - Saves landfill space and natural resources.
  - New products can be made from recyclables.
  - Saves energy.

## What are the different ways to deal with trash?

**Landfill:** More correctly termed “sanitary landfill”; a land site where waste is deposited, compacted and covered with soil.

**(Sanitary landfill:** A method of disposing of refuse on land without creating nuisances or hazards to public health or safety; careful preparation of the fill area, including the use of clay and/or synthetic liners and control of water drainage are required to assure proper landfilling; to confine refuse to the smallest practical area and reduce it to the smallest practical volume, heavy equipment is used to spread, compact and cover the waste daily with at least 6 inches of compacted dirt; after the area has been completely filled and covered with a final two-or-three foot layer of dirt and seeded with grass, the reclaimed area may be turned into a recreational area; sanitary landfills have leachate collection systems, methane gas controls and environmental monitoring systems.)

**Recycling:** A resource recovery method involving the collection and treatment of a waste product for use as a raw material in the manufacture of the same or another product. (i.e.: ground glass can be used to make new glass jars)

**Incineration:** To burn solid waste; used in energy recovery processes.

**Composting:** The controlled biological decomposition of organic solid waste under aerobic (in the presence of oxygen) conditions; organic waste materials are transferred into soil amendments such as humus or mulch. Compost is a mixture of decomposing organic matter (food waste, leaves, grass clippings) used to improve the physical properties of the soil.

**How Long Will They Be There?**

**1 - 3 weeks**

**1 week- 2 months**

**2 -5 weeks**

**1- 5 months**

**3-14 months**

**3-6 months**

**4-8 months**

**6 months- 2 years**

**2 years**

**10-20 years**

**25-50 years**

**30-40 years**

**100 years**

**250-500 years**

**300 years**

**Undetermined, as much as  
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