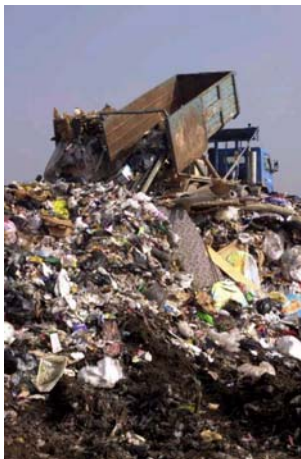


RESOURCE MANAGEMENT (DUMPSTER DIVE)



Purpose:

To see what is in your trash and why it's there – and if it should be there. Can materials in the trash be recycled or reused? Have materials in trash been fully used? If we keep these materials out of the dumpster, could we save on disposal cost, conserve valuable resources, or conserve landfill space?

Background:

Americans generate trash at an astonishing rate of 4.6 pounds per day per person, which translates to 251 million tons per year [source: EPA]. This is almost twice as much trash as the average person generates in most other major countries.

Inside a **landfill**, there is little oxygen and little moisture. Under these conditions, trash does not break down very rapidly. In fact, when old landfills have been excavated or sampled, 40-year-old newspapers have been found with easily readable print.

Bacteria in the landfill break down the trash in the absence of oxygen (anaerobic) because the landfill is airtight. A byproduct of this **anaerobic breakdown** is landfill gas, which contains approximately 50 percent **methane** and 50 percent **carbon dioxide** (Both are powerful **greenhouse gases**) with small amounts of nitrogen and oxygen. This presents a hazard because the methane can explode and/or burn. To remove the danger a series of pipes are buried within the landfill to vent the gas. This gas is either burned or it is vented to the atmosphere. Either way, the greenhouse gases are released into the atmosphere, which increases the heat potential of our planet.

Recycling uses less energy and reduces greenhouse gas emissions (GGE).

Manufacturing goods from recycled material uses less energy than making those items from raw natural resources. For example, recycling aluminum takes only 5% of the energy needed to manufacture it from raw material. Overall, recycling saves enough energy each year to provide heat and light for 400,000 homes.

Methane is released when **organic material** (food and yard waste) decomposes. If we redirect those organic materials to composting or recycling facilities then Methane and Carbon Dioxide emissions will be reduced.

Currently, the U.S. recycles approximately 32 percent of its waste which saves an equivalent amount of greenhouse gases to removing 39,618 cars from the road. Increasing the recycling rate to 35 percent would reduce greenhouse gas

emissions by an additional 5.2 Million Metric Tons of Carbon Dioxide Equivalent (**MTCE**).

Did you know?

- The unreleased energy contained in the average trashcan each year could power a television for 5,000 hours.
- On average, around 16% of the money you spend on a product pays for the packaging, which ends up as trash.
- As much as 50% of the waste thrown in the trash could be used as compost.
- Up to 80% of an average car can be recycled.

What can I do?

- Start recycling at home
- Encourage others to recycle
- Build a compost bin & make your own soil additives
- Become actively involved in a program to promote recycling & composting in your community

<http://science.howstuffworks.com/landfill/>

<http://www.squidoo.com/recyclingfacts>

Materials needed: Scale, Tarps, Gloves

Pre-procedures: Schools should notify janitorial staff a week prior to activity to mark bathroom waste to insure children do not go through it.



Procedures:

1. Sort dumpster materials into six piles (glass, plastic, paper, aluminum, organic material and other)
2. Weigh each pile and calculate the total weight.
3. Calculate the yearly trash output (*52 weeks).
4. Divide your total by 2000 to find the tonnage that might be produced in a year.
5. Use the resource sheet from the EPA to determine the amount of GGE per year if material went to a landfill and if it were recycled.

<http://www.epa.gov/climatechange/wycd/waste/measurehg.html#click>

Additional Resources:

<http://www.resourcefulschools.org/facts.html>

Interactive Recovery cycle:

<http://www.smrc.com.au/projects/rrrc/rrrc-cycle.cfm#>

Recycling reduces greenhouse gases



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Prope

Time _____ Day of _____ Week _____ of Dumpster Dive

Waste Management & Greenhouse Gas Emissions (GGE)

Material	Weight of Material in Dumpster (in lbs)	Total weight of material in a year (in lbs)	Yearly Weight of Material Converted to Tons (2000 lbs = 1 ton)	Landfill Factor (see red column on GGE Factors handout)	*GGE in metric tons of carbon if landfilled (multiply tonnage by landfill factor)	Recycle Factor (see blue column on GGE Factors handout)	**GGE if recycled (multiply tonnage by recycle factor)
<i>Example Glass</i>	<i>10 lbs</i>	<i>10 lbs x 52 weeks per year = 520 lbs</i>	<i>520 lbs / 2000 = 0.26 tons</i>	<i>0.01</i>	<i>0.26 x 0.01 = 0.0026 metric tons of carbon</i>	<i>-0.08</i>	<i>0.26 tons x -0.08 = - 0.0208 metric tons of carbon</i>
Glass							
Plastic							
Aluminum							
Paper							
Organic Waste							
Other							
Totals							

* This is the amount of greenhouse gas (in metric tons) that would be **emitted** if these materials **went to a landfill**.

** This is the amount of greenhouse gas emissions (in metric tons) that would be **reduced** if these materials **were recycled**.

What material in our dumpster creates the most GGE if it is not recycled? _____

Why? _____

Explain why we investigate GGE and Waste Reduction. (Please use full sentences.) _____

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