Recycling, Reusing, Reducing: What's the difference?

What do you know about **recycling?**

Recycling

Re-processing material to make another product

What do you know about **reusing?**

Reusing

Use product in original form, but in new way.

What do you know about **reducing?**

Reducing

Reduced (or more efficient) consumer use of materials

Reducing

Reduced material use in product manufacture

Reducing

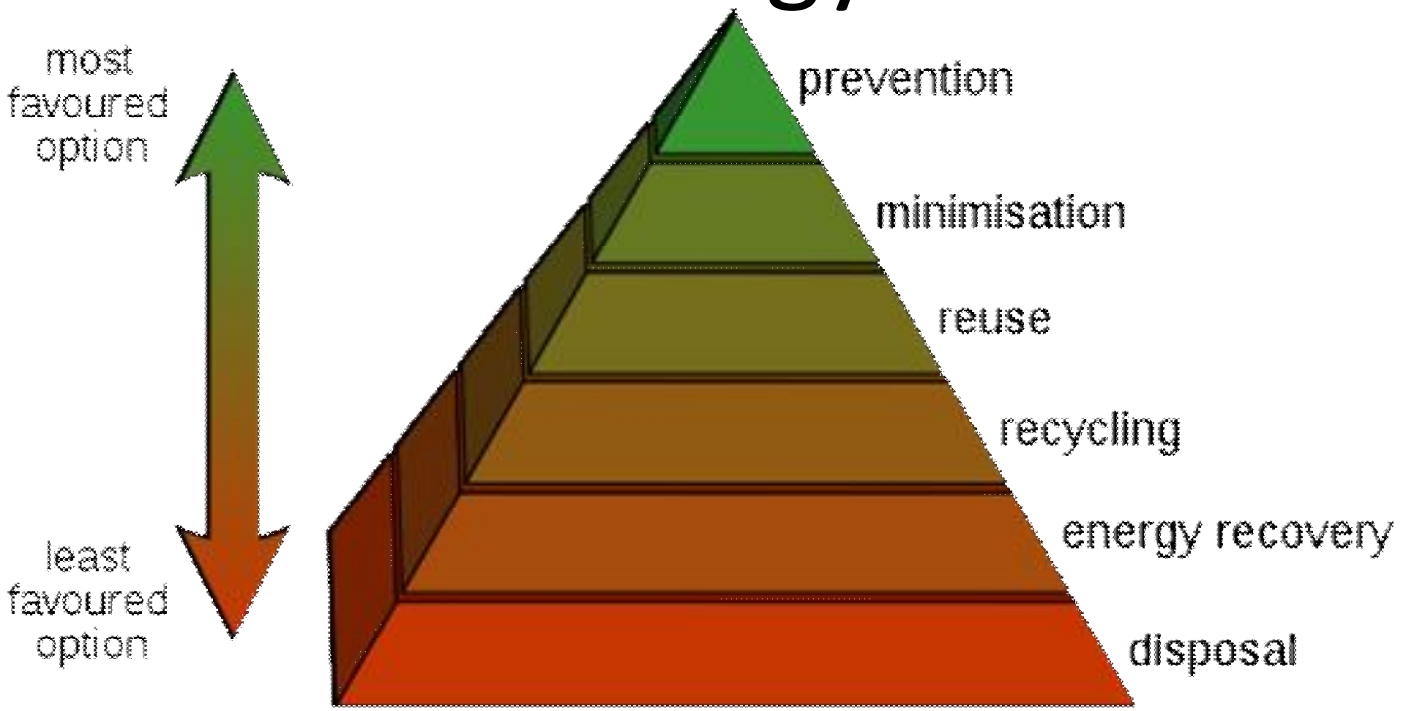
Decreased toxicity

Reducing

Increased useful life through durability and repair-ability

Reduction

Prevents the generation of waste. It's the preferred—but often-overlooked—strategy.



Reduce, Reuse, Recycle

The hierarchy has its limitations.

- Production and consumption are far more important needs to address than disposal.

Where Does Our Trash Go?

On average…

- 31% Recycled
- 69% Landfilled

4.5 pounds of trash are produced per person per day

Dump vs. Landfill

Dump – a hole where trash is dumped

Landfill – a structured place where trash is deposited

U.S. History of Landfills

Before 1960's

- Most waste was burned in open dumps.
- Produced clouds of smoke, a bad odor and created a breeding ground for flies and rats

Before and early 1960's

- Waste burned in incinerators and combustion facilities (high temperatures burn waste more completely than in open burns)
- Prime sources of air pollution

1960's and 1970's

- Laws passed regulating air pollution

1970's

- Dumps converted to full operating landfills.

1988-2001

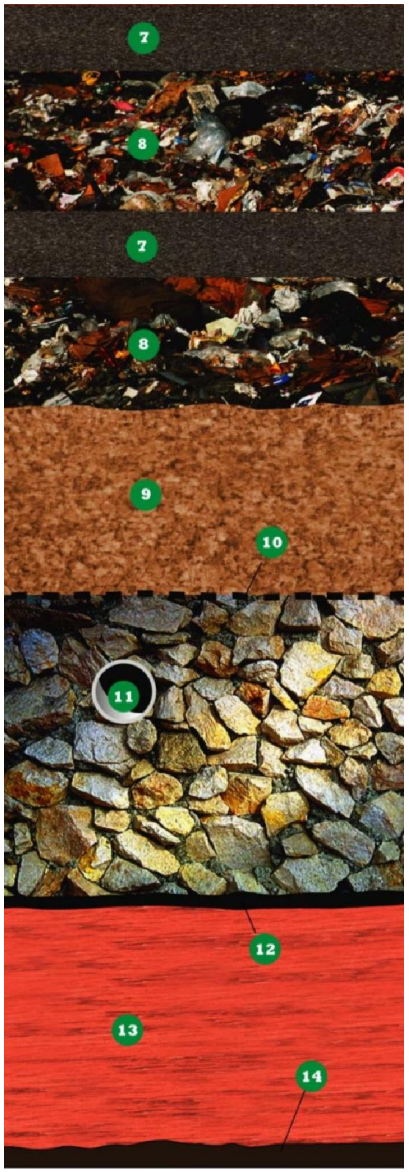
- Number of landfills decline from 8,000 to 1,858
- Due to landfill size, recycling has increased, and regulations are tighter.

Landfill – Design and Function

Challenges of a Landfill

- groundwater contamination from liquids produced in landfill
- methane production from anerobic decomposition of trash
- incomplete decomposition (newspapers in a landfill have been found to be up to 100 years old!)
- as trash decomposes it compacts and settles causing landfills to sink
- most neighborhoods oppose having a landfill built in their vicinity

Anatomy of a Working Landfill



Daily Cover

At the end of each day, waste is covered with 6-12 inches of soil.

- **reduces odors**
- **keeps litter from blowing away**
- **deters scavengers/animals/rodents**

Waste

Waste is compacted in layers to reduce its volume.

Sand/Gravel Layer

Collects liquid produced from waste and funnels it to the leachate pipe system below.

Leachate Pipe System

Pipes collect leachate and pump it out of the landfill and to a water treatment plant, retention pond, or another proper method of disposal.

Geomembrane – Plastic Layer

A thick plastic layer lines the landfills and prevents leachate from entering the ground. The plastic is made from high-density polyethylene which is tough and impermeable.

Clay Layer

Compacted clay is first laid in the landfill space to form a barrier to prevent leachate leaks to protect the soil and hold the trash in place. Clay is used due to its moldable and impermeability qualities.