

Earth Day

Talking Trash: Electronic Waste



Evolution of Electronics



1950

1960

1970

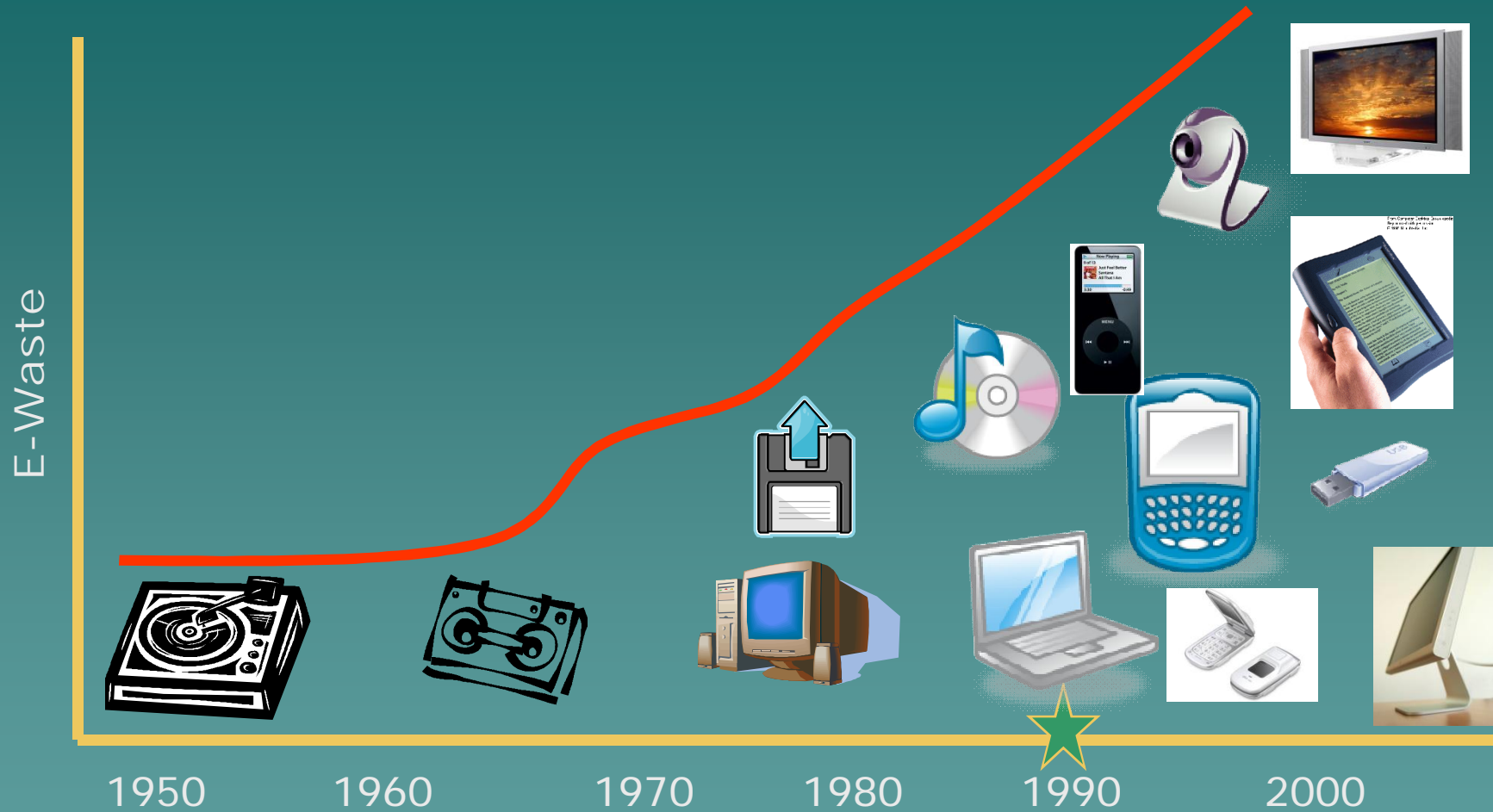
1980

1990

2000


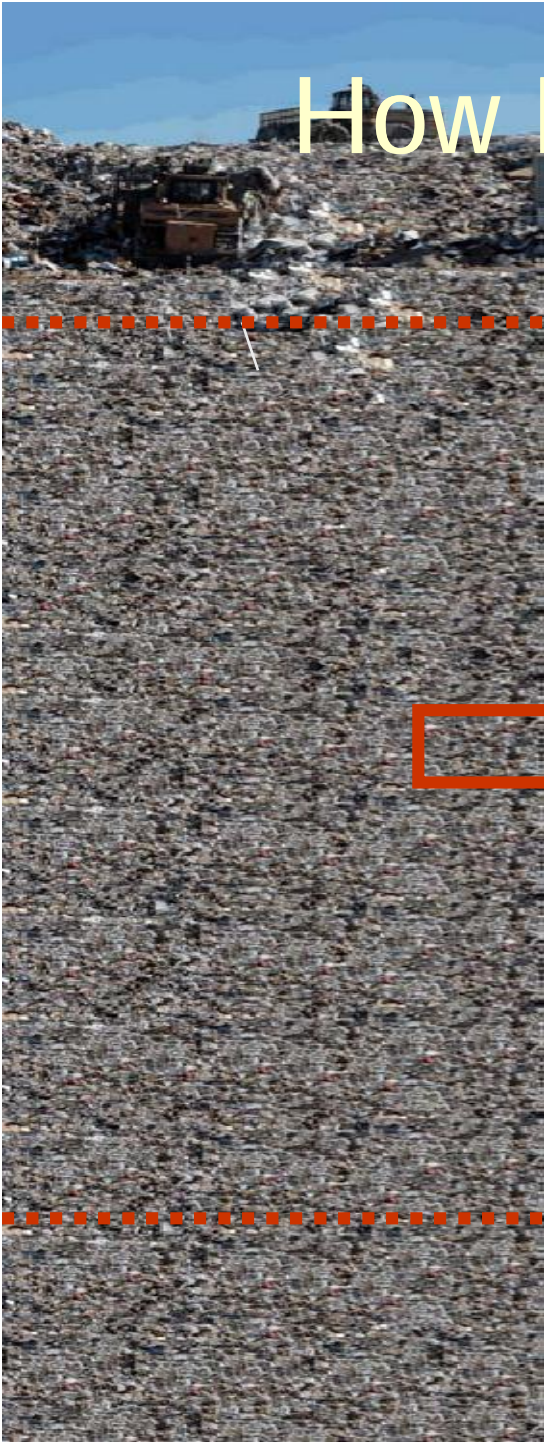


Evolution of E-Waste




* Resources are finite!

How Much E-Waste Do We Generate?



2.63 Million Tons of E-Waste
In 2005, U.S. generated 2.63 million tons of e-waste (EPA)



Trashed: 87.5%
2.3 million tons
Ended up in incinerators or landfills

Recycled: 12.5%
50-80% exported for processing abroad

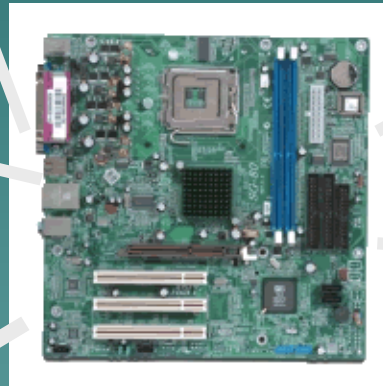
What's in 2.63 million computers?



Chromium

Barium

Lead
Cathode ray tube



Beryllium

Mercury
Lighting component for
flat screen displays

Cadmium
Switches,
solder joints

Plastics

Flame Retardants



Where Does E-Waste Go?

Everything goes somewhere!

- ◆ Landfill
- ◆ Storage
- ◆ Recycled Responsibly: 95% of PCs are recyclable.
- ◆ “Recycled” abroad



(same scale)

Image © 2007 DigitalGlobe

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Pointer 64°48'01.22" N 147°41'42.84" W elev 436 ft Streaming ||||| 100%

Eye alt 4904 ft

Ecological Effects of E-Waste

- ◆ Landfill

 - ◆ Lead

 - ◆ Mercury

- ◆ Recycling abroad

 - ◆ Brominated flame retardants

 - ◆ Acid leaching

Chemical Processes

◆ Acid Leaching

Extracting metals from circuits using aqueous chemical solutions: leaching

Recovering the metal ion from solution by selective precipitation as an ionic compound.

Are There Laws to Prevent E-Waste Pollution?


- ◆ Federal Law allows Individuals and small businesses to dispose of 250 lbs (~5 computers) of hazardous waste.
- ◆ U.S. is one of the few countries that does not ban the export of hazardous material generated by e-waste.
- ◆ In the U.S. there are four states that ban computer disposal in landfills. California, Washington, Maine and Maryland.

Building a Greener Computer

- ◆ Easily interchangeable parts
- ◆ Using lead free solder
- ◆ Use PCB free wire insulation
- ◆ Use non-toxic silicon based flame retardant instead of non-recyclable and toxic Brominated Fire Retardants
- ◆ Replace chromium corrosion inhibitors with non-toxic forms

Think Globally, Act locally!

What you can do with this knowledge:

- ◇ Volunteer
 - ◇ Pay for electronic recycling
 - ◇ Spread the word
 - ◇ Be a responsible consumer
- 
- A stylized silhouette of a mountain range in shades of teal, located at the bottom right of the slide.

Electronics Recycling Event in Fairbanks!

Earth 2008

Saturday, April 26th 10am-4pm

Carlson Center Parking Lot

You can help out by:

- Volunteering
- Bringing electronics to recycle
- Letting people know about the event