Waste Woes

by Chris Jozefowicz

Our old electronic gadgets often become toxic trash.

School tests can be stressful. But they might also inspire you to help change the world. That's what happened to three girls from the Island Trees school district in New York. Kristen Dethlefsen, Jenna Morlock, and Marisa Wetzel learned about a growing problem from a reading section on a test they took. That problem is *e-waste*, short for electronic waste. E-waste is junk with electronic parts. Examples of e-waste include TVs, computers, and cell phones.

Courtesy of Eileen Anderson

E-Waste Girls Marisa Wetzel, Kristen Dethlefsen, and Jenna Morlock show off some of the e-waste they recycled.

The girls learned that parts of electronic equipment contain chemicals that can be dangerous. "We learned that e-waste causes health problems," says Marisa. Later in the year, they had to come up with an idea for a science project. They remembered the interesting topic from their test.

So the girls, then in eighth grade, launched a recycling drive. They called themselves the E-Waste Girls. They helped fellow students and the community learn about properly recycling e-waste instead of tossing it in the trash. "When we throw it out," Jenna says, "it goes to the dump, where it piles up and piles up."

21st-Century Trash

Those trash piles are getting larger. "The problem is growing," says Barbara Kyle, the national coordinator for the Electronics TakeBack Coalition, an organization that fights e-waste.

People in the United States tossed 2.37 million tons of TVs, cell phones, computers, and printers in 2009, according to the Environmental Protection Agency. Worldwide, people throw away 10 to 20 times as much each year. That's enough e-waste to fill a train that stretches around the globe.

Copyright © 2009 Weekly Reader Corporation. All rights reserved. Used by permission.Weekly Reader is a registered trademark of Weekly Reader Corporation.

The E-Waste Girls saw a lot of that kind of junk in their drive. The most common items collected were phones, followed by computers, MP3 players and radios, and a lot of chargers and cables. They put recycling boxes in their school principal's office and watched the boxes fill up. "By the end it got to be too much," says Jenna. "We had to move the boxes to some supply closets."

The E-Waste Girls worked with their town's recycling service. The service took the e-waste to a special recycling center. "At the recycling center, they break it down," Jenna says. The recyclers separate the plastic, metal, glass, and other parts to reuse. "Then they take out the dangerous chemicals and dispose of them properly," Jenna says, "so they don't escape into the air or the ground or the water."

Passing the Problem

But most electronics in the United States are not recycled. Some items end up in landfills close to our homes. Many more items are shipped to other countries-sometimes illegally-and left in huge e-waste dumps in Asia, Africa, and Latin America.

Dangerous chemicals are the biggest problem related to e-waste, says professor Valerie Thomas. She studies recycling at the Georgia Institute of Technology in Atlanta. Chemicals in e-waste can leak into the ground, water, or air if people are not careful. Those chemicals can pollute if they go into a landfill or an incinerator, a facility that burns trash, Thomas says. But they can also be dangerous if the item is recycled.

The E-Waste Girls were surprised to learn what some of the chemicals in e-waste could do. "They can harm the environment and people," says Marisa. "The chemicals can cause a lot of health problems, like kidney damage, liver damage, and nervous system damage."

So why would other countries take dangerous waste? For money, mainly. It's often cheaper to ship junk overseas than to take care of it properly in the United States. Poor people living in countries such as China or Ghana break apart the old electronics and sell the parts. They may earn only a few dollars a day. Children often work beside adults in these e-waste scrap yards. In most cases, the law does not protect those workers from harm.

Buyers Beware

People in countries that create millions of tons of waste-such as the United States-can prevent e-waste pollution from spreading.

The E-Waste Girls say the first challenge is helping people learn what e-waste is. "We asked our friends, and nobody had heard anything about it," says Jenna. Many of their teachers didn't know either. So Kristen, Jenna, and Marisa taught everyone, including the teachers. "They said that now that they know what e-waste is," says Marisa, "they're going to start recycling it properly."

One big way people can help reduce e-waste is by buying smartly. For instance:

- **Consider electronics made with fewer toxic chemicals.**
- **Choose products that will last several years.**

Copyright © 2009 Weekly Reader Corporation. All rights reserved. Used by permission.Weekly Reader is a registered trademark of Weekly Reader Corporation.

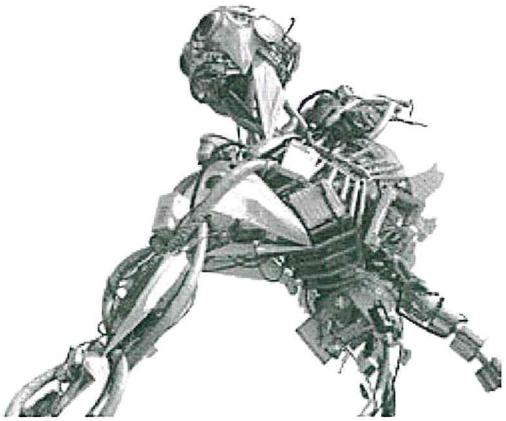
- **Don't replace electronic items until you really need to.**

Thomas says people should ask themselves, "Can I upgrade my old one instead of getting a new one?" She also says people should ask themselves, "How long will this product last?"

Something else that everyone can do to fight e-waste is to recycle old stuff. The E-Waste Girls say their recycling drive collected 269 items, weighing in at more than 2,000 pounds. That's 1 ton! The girls' project also helped them become finalists in the Siemens We Can Change the World Challenge, a national student competition.

The E-Waste Girls see a future in which projects like theirs will not be needed. Marisa hopes recycling e-waste will soon be as easy as taking out the trash. "In our town, garbage men take away the garbage and recycling," she says. They pick up paper, plastic, and glass to be recycled, but not electronics. "It would be cool," Marisa says, "if they could take away the e-waste to be recycled too."

Green Machines



Newscom

This sculpture in London is made out of the amount of waste one person might throw out during his or her lifetime. It includes computers, washing machines, and vacuum cleaners. It weighs 3 tons.

E-waste would disappear if companies made sure all electronics were recyclable and weren't made of toxic components. Right now, that is impossible. But researchers such as Valerie Thomas are dreaming of that day. Thomas is a professor at the Georgia Institute of Technology. She explores ways to make it easier for people to recycle all kinds of products. Even computers might one day be as safe for the environment and as easy to recycle as a cardboard box, she says.

Some computer companies have already pledged to remove toxic chemicals from their products. Environmental groups and the people who buy these products can also help by asking companies for safer products that can be recycled. Thomas predicts more people will recycle electronics when all they have to do is put them out with the rest of their recycling in a pickup bin.

Copyright © 2009 Weekly Reader Corporation. All rights reserved. Used by permission.Weekly Reader is a registered trademark of Weekly Reader Corporation.

iStock

Hidden Hazards

"Electronics are where a lot of toxins live," says Barbara Kyle from the Electronics TakeBack Coalition. People are generally safe if products are used correctly. But if electronic equipment is broken or disposed of improperly, the chemicals can escape into the environment. The following four substances are singled out by the Environmental Protection Agency as particularly dangerous.

Substance	Common Sources	Possible Health Risks
lead	screens of TVs and computer monitors (in cathode-ray tubes); solder	damage to many body parts, including nerves, kidneys, blood, reproductive organs, bones, and muscles
mercury	bulbs in flat-screen TVs and monitors; laptop screens; compact fluorescent bulbs	damage to nervous system and kidneys
brominated flame retardants	plastic cases and cables	cancer, nerve damage, disruption of liver function
cadmium	rechargeable batteries	cancer, kidney damage

Copyright © 2009 Weekly Reader Corporation. All rights reserved. Used by permission.Weekly Reader is a registered trademark of Weekly Reader Corporation.

Name: _____ **Date:** _____

1. What is e-waste, or electronic waste?

A. a national student competition

B. damage to the nervous system

C. a facility that burns trash

D. junk with electronic parts

2. E-waste pollution is a growing problem because it causes health problems and is harmful to the environment. What is a solution to this problem?

A. to throw away phones, computers, MP3 players, and radios

B. to ship e-waste to other countries in Asia, Africa, and Latin America

C. to properly recycle e-waste instead of tossing it in the trash

D. to break apart old electronics and sell the parts

3. Read this sentence from the text.

"[The E-Waste Girls] helped fellow students and the community learn about properly recycling e-waste instead of tossing it in the trash."

Based on this evidence, what conclusion can be made?

A. Some students and the community did not know how to recycle e-waste properly.

B. The E-Waste Girls disposed of dangerous chemicals by themselves.

C. E-waste from the recycling drive was shipped overseas.

D. Some students and the community were not interested in e-waste.

ReadWorks.org · © 2019 ReadWorks®, Inc. All rights reserved.

4. Read this sentence from the text.

"Marisa hopes recycling e-waste will soon be as easy as taking out the trash."

Based on this evidence, what can you infer about the current process of recycling e-waste?

A. It is not as important as taking out the trash.

B. It is more difficult than taking out the trash.

C. It only needs to be done once a year.

D. It takes less time to recycle than it does to take out the trash.

5. What is the main idea of this text?

A. A sculpture in London is made out of the amount of waste one person might throw out during his or her lifetime.

B. Three girls held a recycling drive to help reduce e-waste and to educate people about this growing problem.

C. Some computer companies have already pledged to remove toxic chemicals from their products.

D. The Environmental Protection Agency has singled out four substances that are dangerous to the environment.

6. The author includes a chart that lists four substances that are particularly dangerous, their sources, and the health risks they have. Why might the author have included this chart?

A. to educate readers about the harmful effects of substances found in e-waste

B. to encourage readers to stop using TVs, computers, and other electronics

C. to demonstrate that there are no safe ways to use the products in the chart

D. to convince readers that nothing can be done to prevent these substances from escaping into the environment

ReadWorks.org · © 2019 ReadWorks®, Inc. All rights reserved.

7. Choose the answer that best completes the sentence.

The girls learned that e-waste causes health problems _____ kidney damage, liver damage, and nervous system damage.

A. such as

B. despite

C. unlike

D. since

8. According to the E-Waste Girls, what is the first challenge of preventing e-waste pollution from spreading?

9. Explain whether or not it is easy to recycle electronics now.

Support your answer with evidence from the text.

10. According to the passage, most electronics in the United States are not recycled. Why might people in the United States fail to recycle e-waste?

Support your answer with evidence from the text.

ReadWorks.org · © 2019 ReadWorks®, Inc. All rights reserved.