

projectgreenchallenge

pgc
2013

CURRICULUM

LESSON PLANS
FOR A
conscious
lifestyle

TECH

Introduction

Smartphones, iPods, tablets and laptops...there's no denying that we're a wired generation. We text, pin, post, and tweet without a second thought, but what we don't consider are the global implications of our gadgets. The demand for electronics has accelerated mining for raw materials, while simultaneously, the mountains of outdated and broken electronics continue to grow! The U.S. creates over 3 million tons of e-waste annually, accounting for 2% of all municipal waste. Furthermore, a recent report from the United Nations states that over the next ten years, there will be a 500% growth in computer waste in India alone!

Sadly, the recycling and disposal of electronics used in the United States is rarely handled domestically. These products are loaded onto ships and taken to foreign countries causing pollution and health crises for those living near these e-waste dumps. Workers are exposed to the toxic fumes that are released during the extraction of metals, while the waste, soil and air are polluted as the excess parts are burned to make room for the next shipment. We, as informed consumers, must demand both that our technology is produced with less toxic components, and that companies take responsibility for the safe disposal of their gadgets. To learn more about this process watch our video of the day from Annie Leonard, "The Story of Electronics"

Resources

- *[Pinterest Board](#)*
- *[Project Green Challenge 2012 Technology](#)*
- *[Project Green Challenge 2011 Technology](#)*

Objectives

In today's lesson, students will:

- Define "designed for the dump"
- Invent an ethical technology innovation
- Collect e-waste to educate the school community and reduce landfill waste
- Differentiate between ethical/responsible electronics recycling and conventional electronics recycling

Materials Needed

- Projector
- Computers
- Technology Handout (provided)

Lesson Plan

Start of Class: 10 minutes

Start class by screening Annie Leonard's "*Story of Electronics*", as part of the Story of Stuff.

Designed for the Dump Discussion: 15 minutes

Following the animation, have your students think about all of the electronics they use. The students will form a circle to discuss their reactions to the video. You can join them in the circle and encourage them to take leadership in the discussion. To get the students started, some sample questions include:

- What kinds of electronics do you use every day?
- How long do you think you will have these items? (ex. phones)
- Do you think any of these are "designed for the dump"?
- What are your thoughts about the video?
- How do you think electronics disposal affects the communities in which products are dumped?

Greenovation Activity: one day of class and finished for homework

It is time for your students to be the designers of an ethical product that does not have such a harmful, toxic impact on the planet. Now that they have traced their way through the journey of an electronic item, it is time for them to recreate that journey through the design of their own product. Students will choose the materials, the labor, the design of the product, how long it will last, and what will happen to it at the end of its lifecycle. They should turn in a diagram of their newly designed item and a written response that explains why this product is better for the environment.

Mapping the Story of Your Electronics: two days of class

Select a piece of technology you have and share its full journey, from the moment the materials were gathered to make the item, and trace the journey through what will happen at the end of its lifecycle. Students will construct a timeline of this journey on the back of the accompanying handout. They will use the provided map to document the specific countries and paths traveled to bring the product to their homes.

Students will start the timeline by looking at what

materials were used to make the product. Students can use the following questions to help guide the timelines. What are the materials, where are they from, and how were they obtained? Then, where was the product made? Who made it? How much are they paid? Then, where is the item shipped and sold? Where did you purchase your product? How much did you or your parents pay? How long have you used it so far? How long do you plan to use it? Where do you keep it or put it when you stop using it? Does the manufacturer ensure proper disposal/recycling? Does it go to the landfill? Does it sit in your house? What happens to it after it breaks down?

Note: To make this activity easier or shorter, select one electronic and work together as a class to trace its journey. You can look at the item to see where it was made, and go from there, acting as a detective trying to uncover what you can. Alternatively, students could select something general, such as cell phones or computers, and trace the pathway of these items as a whole. For example, what are some of the materials that make up computers? Students may find that aluminum and lead are two materials used to make computers, so then they could research where these materials are mined.

If your students have trouble finding any of this information, they can use their best judgement based upon the resources they find. Perhaps a lack of transparency with where the product is made reveals that the company of manufacture is trying to hide something?

Assessment/Checks for Understanding:

Take matters of E-waste into your own hands! Help your students organize and host an e-waste collection at your school so that old or unusable electronics can be recycled in an ethical and environmentally friendly manner. During the event, inform your peers about the impacts of e-waste on health and the planet to spread this important message to the world. Find your local e-waste center. Check Earth911 for more information. Reach out to the e-waste center and ask about their e-waste recycling process. (Make sure it is done ethically) Organize a collection day at your school for students, faculty, administration, and families. Take photos and share with the community. Make a sign showing how much was collected and hang on a bulletin board!

Mapping the Story of Your Electronics

name: _____

Directions: On the following map, label all of the countries that played a part in the stages of your electronic item's production. On the back, record the timeline of what happened in each stage.

