



Classroom Teacher Preparation

Technology 5: e-Trashing our Future

Please use the following to prepare for the next SfS lesson.

Description:

This lesson provides students with an opportunity to examine the increasing volume of e-waste in society and how our country is dealing with our technology habits. Students will analyze authentic data and explore this rapidly growing problem to gain an increased awareness of e-waste and its effect on global communities. Students will learn how they can help make a difference by properly disposing or recycling their e-waste.

Lesson Objectives – SWBAT (“Students Will Be Able To...”):

5th-8th

- Investigate the rapidly growing e-waste problem through reflection, activities, and discussion
- Identify how proper disposal and recycling of e-waste benefits the global community
- Recognize the importance of electronics recycling and locate recycling options in their own communities

Preparation:

This lesson serves as an introduction to the topic. No prior knowledge is necessary.

Vocabulary:

These terms will be defined in lesson:

- E-waste – (short for electronic waste) is the term for any outdated or obsolete discarded electronic device. Used electronics destined for reuse, resale, salvage, recycling, or disposal are also considered e-waste.
- Electronics – devices using transistors, microchips, and other components including: computers and their accessories, cell phones, televisions, and gaming systems.
- Obsolescence – the process of becoming obsolete (no longer produced) or no longer usable
- Planned obsolescence – a business strategy in which the obsolescence of a product is planned and built into it from its conception. This is done so that in the future the consumer feels a need to purchase new products and services that the manufacturer brings out as replacements for the older technology

Room Set Up for Activities:

Students will work in small groups of 4-5 at desks.

Safety:

There are no safety precautions for this lesson.

Related Modules:

This lesson may be taught as part of a sequence or group of related modules on **Human Impact**. Modules include:

Life Science 10: Population and Sustainability – Introduces population-related concepts, focusing on those relating to human impact. The lesson utilizes demonstrations and videos to explore how the Earth’s human population has grown and how limited our resources are.

Earth Science 1: Oil Spill – Provides students with a deeper understanding of the issues that surround an oil spill and highlights methods of environmental cleanup. Students will investigate how oil spills negatively impact the environment by destroying habitats, endangering animals, and threatening our food supply.

Engineering 6: Saving the Beach – Examines the causes of beach erosion and discuss how erosion affects a beach and its 'stakeholders'. Students work in small groups to engineer solutions to beach erosion through brainstorming, planning, and designing prototypes for their model beaches.

For other module sequences and groups, look here: www.sciencefromscientists.org/sequences

Standards Covered:

Please click the following link to our website to review the standards covered by this lesson, listed by state:
<http://www.sciencefromscientists.org/standards/>

Lessons are matched to both national NGSS and local state standards.

Classroom Post and Activities:

A link to the Follow Up Student activity can be found in the Classroom Post on our website at [sciencefromscientists.org/cohorts](http://www.sciencefromscientists.org/cohorts). Use the name of your school/cohort and password to log in. *This lesson's Follow Up Student Activity is to start tackling the problem of e-waste right at home by recycling unwanted electronics using the recycling links and guides provided in the follow-up document.*

Additional Resources:

WGBH Videos and Activities: The PBS educational site is a great, **free** resource for educators but you must create an account to use the materials. The first time you log in to the [PBS Learning Media](http://www.pbslearningmedia.org) website you will be asked to create an account and provide an email and password. Once you have logged in, select "keep me logged in" to avoid having to repeat the process.

- Electronic Gadgets Loop Scoops animated video (2:07): <https://mass.pbslearningmedia.org/resource/lpsc10.sci.life.elgad/electronic-gadgets/#.WNFSchBw9-U>
- Kenya Takes on E-Waste Problem Video (7:21): <https://mass.pbslearningmedia.org/resource/23909357-4068-4bc1-9cb3-c89cb54ec445/kenya-takes-on-e-waste-problem/#.WNFepBBw9-U>

Other Relevant Websites and videos:

- The Story of Electronics Video: <http://storyofstuff.org/movies/story-of-electronics/>
- "E-Trash" A Growing Concern CBS News Video (2:37): <http://www.cbsnews.com/news/e-trash-a-growing-concern/>
- China – The Electronic Wastebasket of the World CNN Video (3:39): <http://www.cnn.com/2013/05/30/world/asia/china-electronic-waste-e-waste/>
- Where does e-waste end up? - Interactive Website: <http://www.greenpeace.org/international/en/campaigns/detox/electronics/the-e-waste-problem/where-does-e-waste-end-up/>
- What's in Electronic Devices? - Interactive Website: <http://www.greenpeace.org/international/en/campaigns/detox/electronics/the-e-waste-problem/what-s-in-electronic-devices/>
- Frontline World: Ghana: Digital Dumping Ground Website with video: <http://www.pbs.org/frontlineworld/stories/ghana804/index.html>
- e-Stewards Website - the globally responsible way to recycle your electronics: <http://e-stewards.org/>