



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 what happens with it after people get rid of it. Students will discuss problems resulting from e-waste that is not properly recycled and model e-waste handling in the United States. Students will also discuss ways of reducing e-waste and learn how they can make a difference by properly recycling their e-waste.

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

5th-8th

- Define e-waste and discuss ways to reduce it
- Investigate the rapidly growing e-waste problem from disposal to final destination

Disciplinary Core Idea (DCI)

ESS3 Earth and Human Activity - ESS3.C Human impacts on Earth systems

- (3rd-5th) Societal activities have had major effects on the land, ocean, atmosphere, and even outer space. Societal activities can also help protect Earth’s resources and environments.
- (6th-8th) Human activities have altered the biosphere, sometimes damaging it, although changes to environments can have different impacts for different living things. Activities and technologies can be engineered to reduce people’s impacts on Earth.

Science & Engineering Practice (SEP)

Obtaining, Evaluating, and Communicating Information

- (3rd-5th) Read and comprehend grade-appropriate complex texts and/or other reliable media to summarize and obtain scientific and technical ideas and describe how they are supported by evidence.
- (6th-8th) Critically read scientific texts adapted for classroom use to determine the central ideas and/or obtain scientific and/or technical information to describe patterns in and/or evidence about the natural and designed world(s).

Crosscutting Concept (CCC)

Energy and Matter: Flows, Cycles, and Conservation

- (3rd-5th) Matter is made of particles.
- (6th-8th) Matter is conserved because atoms are conserved in physical and chemical processes.

Preparation:

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

Room Set Up for Activities:

Students will work in small groups and pairs at their 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: Sustainability - Fishing for Answers – This lesson uses a fishing game to explore the concepts of sustainability and the tragedy of the commons. .

Earth Science 1: Oil Spill – Students explore the issues surrounding an oil spill, particularly the methods of environmental cleanup. Students act as environmental engineers to test different methods for effectively cleaning up a model oil spill and determine the harmful effects that oil spills and their cleanup cause for animals and the environment.

Engineering 6: Saving the Beach – 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:

www.sciencefromscientists.org/standards/

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

After Our Visit:

Extend this lesson by starting to tackle the problem of e-waste right at home by recycling unwanted electronics using the recycling links and guides provided.

Access this Extension activity by visiting the Classroom Post found on our website at sciencefromscientists.org/cohorts. Use the name of your school/cohort and password to log in.

To help Evaluate, check out our Open Response questions online at sciencefromscientists.org/open-response-questions. They are freely available for all of our lessons for current teachers. Use the password supplied by your instructor to log in.

Additional Resources:

- The Problem With E-Waste (1:51): <https://www.youtube.com/watch?v=FmJFVmtWf-I>
- Your Old Phone is a Veritable Gold Mine (5:08): <https://www.youtube.com/watch?v=USuY93sovuM>
- The Circuit: Tracking America's Electronic Waste (7:50): <https://www.youtube.com/watch?v=n6FJJ29k8uc>
- e-Stewards Website - the globally responsible way to recycle your electronics: <http://e-stewards.org/>