



Recycling Lesson Plan- Reclaiming and Replacing

Driving question– What happens to garbage when it leaves the school or my house?

Lesson- Students will collect household trash for analysis and build model landfills in order to understand the processes and impacts of solid waste management. They should consider the following questions:

- What is going into landfills?
- What kind of barriers are at modern landfills to prevent chemical leaching?
- What happens when a landfill is filled to capacity?
- Are the laws the same in all states?

Student teams are to consider what might be done when a local landfill is filled to capacity and propose how the land may be reclaimed for future use. Teams will also design a landfill to take the place of the current landfill. They must determine where to put it and explain the reason for choosing that location. How will they prevent chemicals leaching into the environment? They may use models, drawings, or multi-media presentations to share their ideas with the class and explain the reasons for the choices they make in both design plans.

http://www.teachengineering.org/view_lesson.php?url=http://www.teachengineering.org/collection/cub_/lessons/cub_environ/cub_environ_lesson04.xml

http://www.teachengineering.org/view_lesson.php?url=collection/cub_/lessons/cub_environ/cub_environ_lesson05.xml

Informational Text- As part of their presentations, students should be prepared with an, “If you want to learn more...” recommended reading for their peers, which includes the book or article and the name of the newspaper or magazine, author, a quick summary, and the ISBN.





Additional Information

For more than thirty years, the U.S. Environmental Protection Agency (EPA) has been collecting data on the generation and disposal of waste in the United States. Waste reduction and recycling programs across the country are measured and used to determine the amount of waste generated. In 2013, Americans generated about 254 million tons of trash and recycled and composted over 87 million tons of material, which is equivalent to a recycling rate of 34.3 percent. On average of the 4.4 pounds of solid waste generated by every person each day, we recycle or compost about 1.51 pounds of that waste.

Recycling is the process of turning used waste and materials into new products. This prevents potentially useful materials from being wasted, as well as reduces energy use and pollution.

The energy required to convert raw materials such as minerals, oil, and trees into metals, plastics, and paper is far greater than the amount of energy required to collect and recycle our paper, bottles, and cans into new products.

A wide variety of different materials can be recycled, including paper, plastic, glass, metal, textiles and electronic equipment. Historical evidence shows that humans have been recycling various materials for thousands of years.

Recycling Resources

Find recyclers at earth911.com/ or www.recyclingcenters.org/.

West Virginia Solid Waste Management Board or Solid Waste Authority Contact Information at <http://www.state.wv.us/swmb/>.

<http://www.terracycle.com/en-US/> Recycling systems for previously non-recyclable or hard-to-recycle waste.

<http://www.facingthefuture.org/> A nonprofit leader whose mission is to create tools for educators that equip and motivate students to develop critical thinking skills, build global awareness and engage in positive solutions for a sustainable future.

<http://www.epa.gov/recycle/> Learn how reducing, reusing, and recycling can help you, your community, and the environment by saving money, energy, and natural resources.

https://www.epa.gov/sites/production/files/2015-09/documents/2013_advncng_smm_rpt.pdf Characterization fact sheet and data tables provide the most recent available data on annual US waste generation, recycling, and disposal, as well as the benefits of recycling.

<http://www.paperrecycles.org/statistics/paper-paperboard-recovery> American Forest & Paper Association recovery, 2015.

<https://plastics.americanchemistry.com/Education-Resources/Publications/2014-National-Post-Consumer-Plastics-Bottle-Recycling-Report.pdf> 2014 study to quantify the amount of high density polyethylene (HDPE) and polypropylene (PP) bottles collected and the rate of recycling of those bottles.

<http://www.cancentral.com/curriculumSelect.cfm> Can Manufacturers Institute's educational curriculum.

<http://www.jason.org/partner/isri> School curriculum regarding scrap metal recycling.