SCENIC HUDSON

Great River Sweep

My Ton of Trash

Objectives:

Students will visualize how much solid waste is generated for each person in New York.

Students will understand how the number of people living in our state and country affects the amount of trash we generate.

Students will understand the environmental and social effects of trash disposal.

Subjects:

Mathematics, social studies, science, environmental education, health.

Materials:

- 9 pound bag of miscellaneous trash. Wash all containers and avoid items with sharp edges**
- gloves

Background:

Feel good about recycling? Well, you should, but we still throw lots of stuff away. In 1998, the people in New York threw away 29.7 million tons of trash. That's 3,258 pounds per person or 9 pounds per person per day.

So, what are we still throwing away? Toothpaste tubes, TV sets, old shoes, broken toys, food scraps, packaging that's not recyclable, carpeting and drapes, outdated computers, furniture... Whew! The list is endless. What else can we do with trash? The best thing you can do is to try and not create any trash. Of course that's impossible no matter how hard we try, we'll always have something to throw away. But, there are many ways to make less trash.

Over the last two decades, people have become more aware of environmental problems related to landfills, yet the amount of household solid waste generated in the United States is still too much. People believe that we are running out of space for landfills, when actually there are many sites to locate modern, sanitary landfills that will meet state and federal requirements. These new landfills are designed to be clean and to contain and collect leachate and methane gas that result from the decomposition of solid waste. But, there's a problem. Nobody wants a landfill in their neighborhood and everyone hates to pay more for trash disposal. So, both the cost and people's feelings about landfills can prevent new ones from being built.

Is trash disposal the real problem, or is it something else? What we really need to do is keep a close eye on the amount of natural resources we use, throw away, or waste each day and each year. Together, we need to design ways to use natural resources in a way that is good for both the environment and for our wallet!

Procedure:

Define trash and list some examples, then discuss:

- What qualities does an item have that makes you decide it is trash?
- What different kinds of trash are there?
- Place a plastic sheet on the floor and dump out a 9 pound bag of trash on it. Discuss:
- Does this seem like a lot of trash? This much trash is thrown out each day for every person in New York.
- How do you think the number "9 pounds" was calculated? Will the number from 1998 ever change? Why?
- How do you feel about the fact that you are responsible for 9 pounds of trash that is thrown out each day?

Calculate:

- If you generate 9 pounds of trash each day, how many pounds do you make every week, month and year?
- Convert the annual number from pounds into tons. How many tons of trash do you make each year?
- To help you visualize how much a ton weighs, add the weights of students in the class until you reach one ton. How many students does it take to make a ton? How many "students-worth" of trash do you make each year?
- How many people are in your family? If 9 pounds of trash are generated each day for every person, how many pounds or tons of trash does your family make every week, month and year?
- How many people live in New York? If 9 pounds of trash are generated each day for every person, how many pounds or tons of trash are generated each day in New York?

Discuss:

- What happens to all the trash you throw away?
- Where is "away"? Is there such a place?
- What do you think happens to waste at the landfill?
- What are possible problems with piling waste in landfills?
- What would you do with your family's trash if there was no truck that came to take it away? How might this affect the amount of trash your family makes?
- Research the rate of human population growth in New York and the U.S. since 1850. Discuss:
    - What relationship might there be between an increasing human population and the amount of trash generated?
    - How might the amount of trash generated be influenced by changes in lifestyles since 1850?
    - How might the amount of trash generated be influenced by family income?
    - How have increases in numbers of people and amounts of trash affected the environment?
    - What are the predictions for future human population growth?
    - What predictions might you make for the amounts of trash we'll produce in the future?
    - What impacts might an increasing population have on our use of natural resources?

Calculate:

- If every person in New York threw away one less pound of trash per day, how much less trash would end up in our state's landfills?

Discuss:

- What could you do to reduce the amount of waste you make?

Pre- and Post-Activity Questions:

- How many pounds of trash do you think are thrown out each day for every person in New York?
- What relationship, if any, is there between the number of people and the amount of trash?

Going Beyond:

The 9 pounds of solid waste represent the amount you generate at home each day and your share of the amount generated by manufacturers and industry when they make products for you. Since 1987, the people of New York have been working towards the goal of reusing/recycling 40-42% of the solid waste produced by 1997. This goal was met, and as of 1998, each person recycled 3.8 pounds of household solid waste a day. Do some of the calculations above using 9 pounds for trash and 4 pounds for recyclables. What impact does recycling have on landfill space? What are the long-term benefits of reducing trash, reusing items, and recycling everything you can?

**You may also choose to collect your class' trash for a predetermined period of time (one day to one week). Investigate the contents (see "Classroom Collection" activity) and then separate out 9 pounds for this activity. How does your class compare with the state's data?

Adapted from: Recycling Study Guide, "Out of Sight, out of Mind-Part 1." Department of Natural Resources PUBL-IE-020 93REV. and http://www.dnr.state.wi.us/org/caer/ce/eek/teacher/tontrash.htm (www.dnr.state.wi.us)
Population data from the New York State Data Center: http://www.nylovesbiz.com/nysdc/default.asp