



Title: Recycle Every Day!

Grades: Pre K-K

Subjects: Language Arts, Science

Time: 60 minutes

Objectives:

- Explain the need to reduce the amount of trash they generate, and describe ways in which they can make changes in their actions to support waste reduction.
- Listen to gain knowledge and share information, perform a task, and converse with an adult or peer.

Standards:

Technology Standard 3: Understand the relationship among science, technology, society and the individual.

- Benchmark # 3: Know that man-made materials, products and systems can affect the environment adversely, yet there are things that can be done to circumvent this process (e.g., disposing of waste properly, reusing objects, recycling, reducing the amount of trash created, composting, shopping green, buying in bulk).

Science Standard 14: Understands how human actions modify the physical environment

- Benchmark #1: Knows how people affect the environment in negative (e.g., litter, pollution) and positive (e.g., recycling, picking up litter) ways.

Language Arts Standard 8: Use listening and speaking strategies for different purposes.

- Benchmark # 1: Make contributions in class and group discussions.
- Benchmark # 2: Ask and respond to questions.
- Benchmark # 5: Use grade level appropriate vocabulary in speech (e.g., terms related to waste reduction and recycling).

Materials:

- A copy of “Recycle Every Day!” by Nancy Elizabeth Wallace- Chart paper
- Writing and coloring utensils
- Construction paper for poster
- Glue
- Recycled art materials (scraps of colored construction paper, yarn, tissue paper, bits of ribbon etc.) for original poster

Overview: The average US citizen generates approximately one ton of trash annually, but seldom gives it any thought once they throw it away. So what happens to it all? Well, it goes into the waste stream where it is collected and hopefully, disposed of in a manner that least impacts the environment. This process is known as solid waste management.

The Environmental Protection Agency has designed a plan for this process, which they refer to as “integrated solid waste management”, and has identified five ways to properly handle waste materials: a) source reduction and reusing, b) recycling, c) composting, d) converting to energy, and e) burying it in a sanitary, engineered site. The EPA emphasizes that there is no definitive approach to waste management and encourages communities to combine these five methods to effectively address the issue.

Most recyclable materials are sent to a single stream materials recovery facility. (The term “single stream” refers to the fact that the recyclables are not pre-sorted by the consumer.) Trucks transport the recyclables to the facility, where they are unloaded onto the “tipping floor”. From there they are placed on



a conveyor belt and sorted by hand and by machine into the four main recycling categories: a) plastics, b) paper, c) metals, and d) glass. Once sorted plastics are further sorted by color and type. Some facilities use air to separate lighter plastics from heavier ones, while others use optical scanners, or both methods, to separate by type (e.g., PET, HSPE, etc). After sorting, the plastics are baled and sent off to manufacturing plants where they are ground up, washed, melted, and reformed into plastic pellets. These plastic pellets are what is used to make other consumer goods.

Paper recyclables are sorted into four categories: a) corrugated boxes, b) newspaper, c) mixed paper, and d) office mix. These are each baled and sent off to paper mills. Used newsprint, for example, is washed and rinsed and simultaneously has the long and short fibers separated from it. The long fibers are then mixed with wood scraps from lumber mills and together combine to make up pulp. The pulp is then poured onto large rollers, drained, and run through heated rollers. The paper that results is trimmed, rolled onto tubes and sent to printing plants.

Glass recyclables are sorted by color. This may take place before or after crushing the glass, depending on the facility, and sometimes it is shipped without sorting. Once glass is crushed it is cleaned of any debris and contaminants. Then the crushed glass, or “cullet”, is loaded onto trucks and transported to manufacturers. Crushed glass is used for a variety of purposes, including the production of new containers, kitchen counter tops, and in the construction of roadways. To make new glass containers the recycled, crushed glass is mixed with sand, soda ash, limestone and feldspar. This mixture is then melted down in large furnaces and reformed into new containers. Recycling one ton of glass saves 1330 pounds of sand, 433 pounds of both soda ash and limestone, and 151 pounds of feldspar that would otherwise be used to produce new glass.

Magnets are used to separate steel from other recyclables, and aluminum is separated mechanically using an eddy current. Once separated the steel and aluminum are crushed, baled and sent to processing mills. Aluminum is melted down, and either poured into molds or rolled into sheets, to await use by manufacturers to make new products. Tin and steel require the process of electrolysis to be recovered. Following the recovery they are purified, melted and poured into molds. When it is time to make them into new products, the steel is melted down, poured onto sheets and then coated by the tin before forming. Once these and the other recyclables mentioned above have been processed and transformed into useful items, they are placed back on the shelves for consumers to purchase, and the cycle starts once again.

Kid’s Speak: Recycling is the process of reprocessing materials into new items. For example, a plastic bottle can be recycled and emerge as a fleece jacket. If trash is not recycled, it is taken to landfills which are rapidly filling. Eventually more land will be needed for landfills so that land will be unavailable for environmentally friendly use by people, plants, or animals. Items made from glass, paper, aluminum, and plastics can be recycled. Recycling prevents valuable resources from being wasted. These items are sorted and separated into material types. If you are unsure if an item or its packaging material can be recycled, check for the recycling symbol.

Eco-Fact: An average of 50 % of landfills are filled with paper, most which could have been recycled.

Procedure:

Before Reading the Story:

- Teacher asks students what the terms recycle and reuse mean.
- Teacher will tell students that she has a book called “Recycle Every Day!” This book will help us discover why recycling is a good choice. We will read about a family that does a different recycling activity each day.
- Introduce book and read story.

After Reading the Story:



- Discuss the book. How did Minna's family recycle everyday? Did it seem hard for Minna's family to recycle every day? Did everyone help?
- Make a chart of the days of the week. Ask the students to help you recall and record the recycling activity that Minna's family did each day.
- Teacher says, "Let's act out what Minna's family did." Ask for volunteers to act out the different days of the week.
- Teacher asks, "What did Minna do for the poster contest? Why did she make this choice for her poster? Did Minna win the contest?"
- Teacher tells students that she thinks Minna's poster had a good message to remember. We are going to repeat that message in a chant or rap style to help us remember it. Write Minna's message on the board: "Re-re-remember. Re-re-recycle every day!"

Making a Poster:

- Teacher explains to students that they are going to make a poster like Minna did. They are going to use recycled materials. They will glue their recycled materials onto construction paper. We will hang our posters at school or bring them home to remind others to recycle.
- Students will copy Minna's words onto their poster: Re-re-remember. Re-re-recycle every day!

Adaptations:

- Students could do a charade style dramatization and other students could guess what recycling activity they are portraying.
- For students unable to copy Minna's words, teacher could copy Minna's words onto a worksheet. Students could trace words and glue onto poster.

Extensions:

- Games and activities including making a calendar can be found in the book "Recycle Every Day!"
- Students could bring old books that they no longer need into class. Students could swap books.