

Milli Recycles & You Can, Too!

from **Celebrating Chemistry**



Chemists Celebrate Earth Day

Recycling centers process the materials you place in your recycling bin and turn them back into products we can use again. Each kind of material requires a different process. For example, a recycling center may start by melting plastic jugs after cleaning them, by shredding aluminum cans, crushing glass bottles, or adding water to old newspaper until it turns into a pulpy soup. So to make recycling more efficient, Milli's hometown provides containers so she can separate her recyclables right at home. Does yours? If not, your town's website may list stores or collection centers that accept recyclables.

Look at the bottom of a **plastic** bottle. Do you see a little number inside a triangle of arrows? That is the plastic resin identification code. There are seven different codes and each stands for a different type of plastic. A growing number of communities are collecting all plastics to recycle, but most still limit the types—usually those with a #1 or #2 code. Milk jugs, drink bottles, containers for shampoo or laundry detergent, and various food jars are examples of commonly recyclable plastics. When the resin identification code is hard to find, Milli follows a simple rule called "check the neck". If the lid screws on the top, and the neck is smaller than or the same size as the base, then the plastic container should go in the recycling bin. Recycling plants separate plastics by resin identification codes before cleaning and processing them into new, recycled plastic materials.

Metals are separated by type, such as iron/steel, aluminum, copper, lead, and zinc. They are separated because each kind of metal is used to make different products, and they melt at very different temperatures. Iron/steel and aluminum are the most recycled metals because they are widely used to make food cans like those for vegetables and some drinks. Digging the ore out of the ground and making brand new cans and products costs much more than it does to recycle what we have now.



Paper that will be recycled is split into five main groups:

- office white paper
- newspaper
- cardboard
- mixed or colored paper
- computer print out paper

These five types of paper are broken down separately by mixing them with water and chemicals to turn them into a mushy mixture called pulp. The pulp is used to make newspapers, new boxes, and new writing paper. Sometimes the paper and boxes you recycle may even be made into egg cartons and flowerpots!



American Chemical Society
Office of Community Activities
1155 16th Street, NW, Washington, DC 20036
email kids@acs.org or call 800-227-5558, x 6097
chemistry.org/kids
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Glass has to be separated by color before it is recycled. Some communities have separate containers to collect green, clear and brown glass. Others wait and separate colors of glass at the recycling plant. Once glass is colored with pigments and dyes, the color cannot be removed. In fact, mixing colors can weaken the glass. Once each type of glass is separated, it is mixed with other materials like silica sand, soda ash, and limestone in a furnace that is heated to a very hot temperature, 1538 °C (2800 °F). Once melted, the hot liquid glass is poured into a machine that will either blow or press it into its new shape.



Recycling can seem like extra work compared to just tossing your cans and bottles and papers into the trash. But you can also make it fun! Try and see just how small you can make your bag of trash by reusing and recycling as much as you can. Milli often gives things that she does not want or need any more, such as books and clothes, to someone else rather than throwing them in the trash. Whenever possible, buy products that are made from recycled materials. After a little bit of practice, reusing and recycling will become a habit. *And with every item you reuse or recycle, you help make Earth a better place!*

