

# Bulletin Board

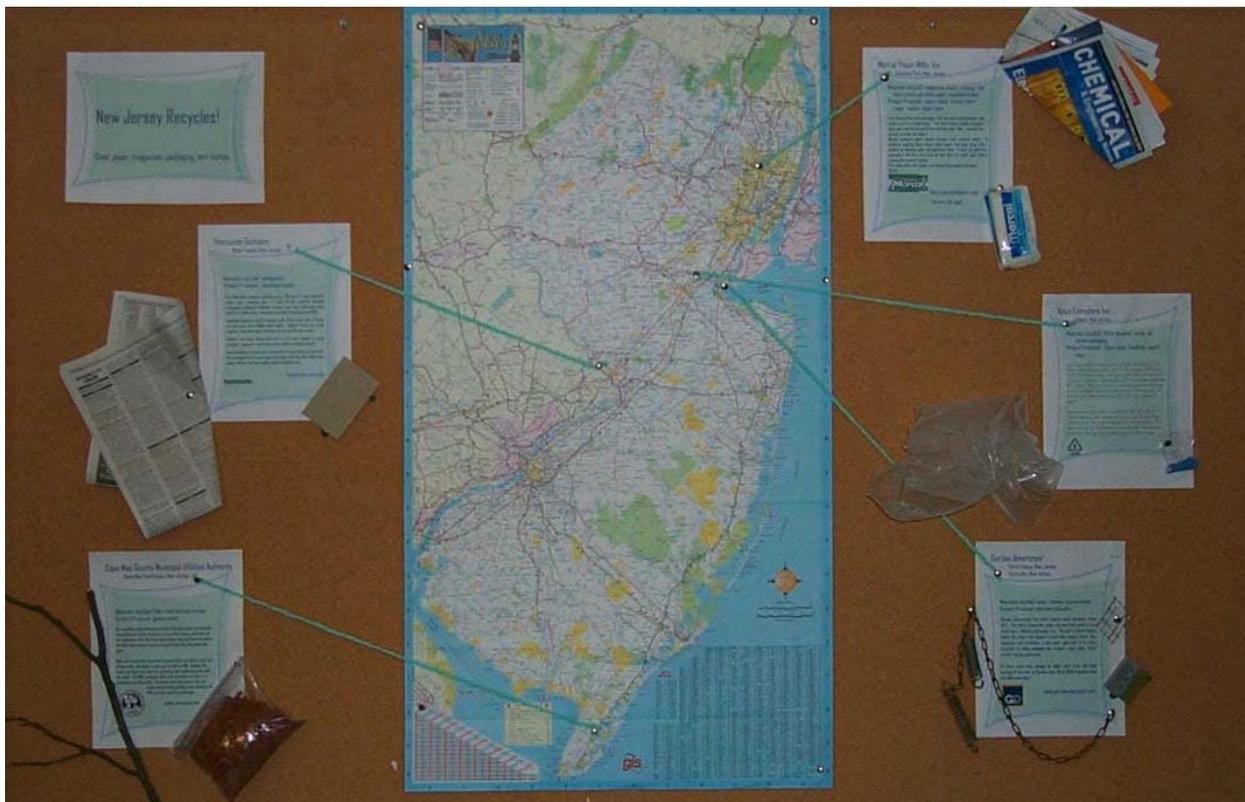
These samples can make a great display.

As shown below, the samples and information sheets can be arranged around the state map, with yarn or ribbon leading from the information sheet to the town on the map. Five of the 6 items are shown displayed. You could cut out the state from the background if you wish to highlight the shape of New Jersey.

For safety, you may wish glue sharp items (staples, nails) to cardstock before hanging. This can be done for all samples, to make them easy to display.

You will have to provide your own pre-recycled items: a piece of plastic packaging such as you find on paper towels, a stick fallen or cut from a tree, newspaper and magazine pages, torn white plastic, and some sort of metal item no longer in use. The illustration shows a screen door spring, but a toy car could represent the feedstock instead.

The fact sheets are very simple, to facilitate reading by the lower grades, and visibility across a classroom, but more information is available for you in the accompanying teacher background sheet.



# Teachers' background

These six manufacturers donated materials to show what we recycle in New Jersey. The variety of materials and locations shows how widespread recycling is.

## Apco

Apco makes products that most consumers never notice; it is an example of how businesses depend upon one another. Apco uses low-density polyethylene (LDPE) that it buys from a firm that manufactures the wrappers for paper towels. Any imperfect batches and leftovers are shipped to Apco, where they are melted to make clear zipper bags. These bags are sold to other manufacturers, who use them to contain small parts within larger packaging. You might find them holding the hardware in products you have to assemble yourself. Students may have seen their parents unwrapping items like this. Apco also purchases LDPE in colors for manufacturing other bags, such as the red medical waste bags used in doctor's offices, and insulation sheeting which is used to cover homes beneath the vinyl siding. Here again, students who are too young to spell insulation may have seen their parents or neighbors install it. Apco also makes heavyweight bags for asbestos disposal. The plastic pellets in the zipper bag have been melted by a marketer so that they are easy to ship and use. (The zipper bag was made by Apco.) The pellets may have come from anywhere in the world, and may be made from petroleum or from another factory's rejected products, just as the zipper bags are. It saves all the manufacturers money when they reuse one another's materials. Students can ask their doctors and dentists to show them the "red bags" that must hold all medical waste. Some of those may have come from Apco.

## Cape May County Utilities Authority

Cape May County Municipal Utilities Authority (CMCMUA or Authority) is a government agency that helps residents, businesses and schools recycle and make the best of discarded materials. The Authority has developed programs and built facilities for the recovery and recycling of many materials and the Authority operates a sustainable landfill for waste that cannot be recycled. The bioreactor landfill produces methane gas that is recovered. Some of the landfill gas is piped to a nearby facility that uses the methane in place of oil and some of the landfill gas is recycled at the landfill site to produce electricity. The CMCMUA also treats wastewater generated in homes and businesses.

The facilities and programs developed by the CMCMUA enable everyone in Cape May County to recycle and dispose of waste in an environmentally friendly manner. In addition to the usual curbside recycling of cans, bottles and paper Cape May County has recycling programs for many other materials.

For example: refrigerators, televisions, computers, leaves, grass, brush, bulky rigid plastics, motor oil and antifreeze are collected for recycling. The Authority operates its own recycling program for tree stumps, logs and wood pallets. Tree stumps and logs are recycled into root mulch that is sold to landscapers and the general public. Wood pallets (6-10 inch high crates used in warehouses as platforms to store and move heavy objects or stacks of material) are chipped into small pieces, colored red, brown or black and sold as decorative landscaping mulch. The greatest benefit of recycling these pallets, tree stumps and logs is that they do not end up in the landfill. Additionally, the revenue from the landscape products helps the Authority offset the cost of the services provided to the 16 municipalities in Cape May County.

## Gerdau Ameristeel

Gerdau Ameristeel has been making steel products since 1937. It is an international company and owns two mills in New Jersey. The mill in Sayreville melts the steel and molds it into steel bars, I-beams and angle iron. These materials are produced to industry standards, and sold to construction companies. Examples are re-bar, which students may have seen parents use in repairing concrete structures, and angle iron used in building shelves and cabinets. The mill in Perth Amboy produces custom wire with specialized levels of strength and durability, according to the requirements of their clients. The steel, mostly from demolition of buildings (you may have to explain to students that buildings contain steel, even though they are covered with brick or concrete on the outside), and crushed autos, is melted and shaped into long square bars, then further shaped into wire of the right size for other industrial processes. Examples are the production of staples, paper clips, chain, muffler clamps, and nails. Gerdau supplies steel to Bostitch and Senco, makers of the staples and nails included. These companies use other suppliers as well, but some of the content of these samples probably came out of the mill at Perth Amboy.

All steel mills use about 90% recycled steel. The cost of fuel to melt and shape used steel is very high, but much lower than the cost of mining and purifying iron ore. When steel manufacturers recycle, they not only control cost, but also minimize pollution from fuel combustion and mining.

## Homasote

Homasote Company, in West Trenton, recycles tons of post-consumer paper every business day, including all curbside to-be-recycled newspaper collected in Mercer County. Every year, manufacturing Homasote® saves nearly 1.4 million trees by using recycled feedstock.

Recycling since 1909, the company 's product was originally used to replace wood in the roofs of automobiles and railroad cars. Later they found that Homasote® was more important for its ability to insulate and control sound. Admiral Byrd, the Antarctic explorer, used Homasote® board to house his expedition and keep his crew warm. Builders now use it inside and outside on walls. Outside they may paint it, wrap it in fabric or buy it pre-wrapped with

fabric. Inside floors and walls it controls sound. For exposed use its ultra-tackability allows it to accept pushpins and serve as a bulletin board.

## Marcal

Marcal uses all kinds of waste paper, and may be known to students because of its presence on supermarket shelves. It shows the importance of making sure that your waste paper gets into the bin, not the garbage. Marcal can use papers that not all recyclers want: slick magazines and newspaper inserts.

First, Marcal mixes the used paper with hot water and detergent, and cooks it until it is a thick liquid. Then they remove staples and paper clips, and wash the ink out of the remaining pulp. They spread it on screens to make new paper. Marcal's paper towels are produced entirely from recycled paper. It produces napkins, facial tissue, toilet paper, and paper bags with a mixture of recycled paper and pulp from trees. Marcal buys this pulp from tree farms, to assure that natural forests are not cut for its production. Marcal can produce plain white paper or printed napkins and paper towels.

Marcal explains its manufacturing process at its website, which has a kids section. Contact them for educational programs and materials.

## Poly-America

Poly-America is the largest recycler of polyethylene in the world. They make Husky trash bags, painter's dropcloths, shrink wrap, grocery bags, and geomembranes. Each year, farmers in New Jersey use tons of white plastic to cover their nursery buildings. You can see pictures of this at the Cumberland County Improvement Authority website. At the end of each season, the plastic is worn, and must be discarded, and replaced in the spring. The County Improvement Authority organizes the collection, baling, and shipment of the plastic to the Poly-America Company in Texas, so that the farmers do not need to pay for disposal. Money earned from the sale of the plastic pays for the cost of the program, and may be paid back to the farmers.