

## Why is CRHS Recycling Paper?

Around forty percent of the garbage in the U.S. is paper. At CRHS, it is probably close 80%.

If we recycle a ton of paper, we can save:

- 7,000 gallons of water
- 17-31 trees
- 4,000 KWh of electricity
- 60 pounds of air pollutants

A ton of paper is equivalent to 40 boxes or cases of paper (each case of 5000 sheets weighs 50lbs).

We will only save these resources if we also buy paper that contains recycled material or PCC (Post Consumer Content).

Paper recycling can also reduce the amount of chlorine products dumped into our rivers if an oxygen-based bleaching process is used. Pulp mills using chlorine for bleaching; produce hundreds of chlorinated organic compounds (organochlorides) including dioxins. Studies have shown that dioxins are highly carcinogenic, lead to reduced reproductivity, cause genetic damage, and are persistent and accumulate in the environment, becoming concentrated as it moves up the food chain. Oxygen, ozone, and hydrogen peroxide are some bleaching alternatives to chlorine and chlorine derivatives.

Note: KISD has not been able to find paper with post consumer content at a competitive price.

### How CRHS collects paper for recycling:

Every classroom, office and workroom at CRHS has a paper-recycling bin. Students volunteer their time during advisory to collect recyclables from each classroom. They later deposit it in the Abitibi recycling bin outdoors. Abitibi collects the paper on a weekly basis and the school gets a check.

### How is Paper Made?

The first step in papermaking is harvesting the trees. Some paper companies plant trees specifically for papermaking. These trees are not self-sustaining. They require not only water but fertilizers, herbicides and pesticides as well. Paper mills have to plant many more trees than they harvest to compensate for the trees that die before they reach maturity. Paper mills also use the "waste" from logging operations to make paper.

Paper mills harvest trees from pulpwood forests when they are about five or six years old and delivered to the mill. Paper mills use every part of the tree so nothing is wasted. They burn the bark and roots to generate energy to run the mill. The rest of the tree is chopped into small chips for pulping. Pulping is a chemical process that separates the wood fibers from lignin and other wood parts.

Pulp is the soft, spongy part of a tree. Lignin is the glue that holds a tree together. If lignin is left in a paper product, the paper turns yellow and brittle when it's exposed to light. You have probably noticed that newspapers turn yellow very quickly. Lignin is usually left in newsprint, since newspapers are only meant to last a day or so.

After pulping, paper is the color of grocery bags. High quality papers are whitened with chlorine bleach and sometimes coated with clays and adhesives to give them a glossy finish.

## How is Recycled Paper Made?

1. A washing process is used to remove the ink from the paper. It is shredded, and made into a pulp by mixing with water. If you look at a torn sheet of paper up close, you might see small hairs or fibers. These fibers intertwine in the same way that threads do in a piece of cloth. The longer the fibers are, the stronger the paper. Some of the fibers weaken or break in the process of recycling.

Fiber sludge is generated during the de-inking process. Fiber sludge is clay like material containing particles of ink and fibers too short to be converted to a finished paper product.

According to the Solid and Hazardous Waste Education Center at the University of Wisconsin Green Bay, "In the past, paper sludge has typically been land filled. With landfill costs rising and the potential for ground water contamination from landfill operations; many environmentally conscious paper producers are recovering the energy from this waste stream".

2. The paper pulp travels through a series of meshes that retain the fibers. Very short fibers slip through the mesh and wash away as paper sludge. Paper can be recycled about nine times before the fibers become too short. The fibers in the pages of a phone book are so short that many companies cannot recycle them.

3. Large rollers press the pulp removing the excess water. The paper then runs through a series of driers before going to a paper converter. The paper converter cuts the paper into the different paper products.

### Resources:

- Conservatree- Paper Making  
<http://www.conservatree.org/learn/Essential%20Issues/EIPaperMaking.shtml>  
Conservatree- Environmental Issues  
<http://www.conservatree.org/learn/Essential%20Issues/EIPaperContent.shtml>
- Energy Information Administration Kids Page  
<http://www.eia.doe.gov/kids/energyfacts/saving/recycling/solidwaste/paperandglass.html>
- Treecycle <http://www.treecycle.com/recycling.html#bleaching>
- Solid and Hazardous Waste Education Center at the University of Wisconsin Green Bay  
<http://www.uwex.edu/ces/shwec/uwgb/papermill.htm>.

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