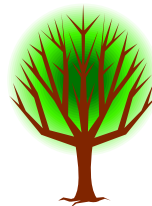


THE GREEN TREE

A Keep Nebraska Beautiful
Bulletin for Educators



Fall 2004

THE THREE R's FOR THE ENVIRONMENT

Most of us don't think about what we throw away every day in the garbage. Our trash, or waste, gets tossed in a trash can, picked up and put in bigger trash cans, and is eventually hauled away. We never have to think about it again!

But our trash never really goes away--it just gets moved to another location where the waste is incinerated (that means burned up) or stored in a landfill. No matter how our trash is handled, waste disposal can cause problems for our environment. Here are just a few of the problems caused by our trash:

⇒ *Hauling all that trash away in trucks uses one of our most precious natural resources--fossil fuel.*



Trucks traveling from our communities to the waste disposal site contribute to air and noise pollution.

⇒ *Incinerating our trash can cause air pollution. The ashes that remain from burning the waste must still be disposed of carefully.*



⇒ *Using landfills to bury our trash uses up valuable land. And even though modern landfills are regulated and considered safe, they are expensive to build, operate, and monitor.*



Our trash can be expensive to dispose of and can cause environmental damage if it is not managed properly. Fortunately, there are some really simple things we can all do to save our planet from trash overload.



REDUCE - Stop waste before it is even created! Reducing the amount of waste we produce has the most positive impact on our environment.

REUSE - Using an item over again, either for its original purpose or for a different purpose, saves natural resources and keeps the item out of the landfill.

RECYCLE - Common items like bottles, cans, and paper can be diverted from the landfill and recycled. The items are then re-manufactured into new products.

REDUCE



What if the waste truck stopped coming to your school or your house? What if you had to live and work with all your trash piling up around you? You'd probably pay more attention to what you throw away and start thinking of ways to **reduce** that trash pile.

According to the U.S. Environmental Protection Agency, reducing the amount of trash we produce is the most effective method for managing our waste. Often called source reduction, this waste prevention strategy means we're consuming less and throwing less away. In other words, we prevent waste from ever being generated in the first place!

That might sound like a complicated idea, but source reduction starts when consumers—that's people like us who buy things—start asking some simple questions:

1) Do I need this product? Instead of purchasing a new item ask yourself if you can make do without it. Can you repair an old item? Buy something used?

2) If I do need this item, can it be produced using fewer natural resources?

This is an easy one--just buy products that require less packaging or purchase items in bulk. Plastic peanuts, cardboard boxes and other packing material are produced using natural resources and represent the largest amount (nearly 1/3) of all the trash in our landfills.

3) Is there a way to lessen the environmental impact of this product? Buy durable products that can be used and reused. For instance, use cloth towels instead of paper towels or buy electronics that can be easily repaired. You can also reduce the toxicity of products by purchasing environmentally-friendly products.

ACTIVITY

WASTE-FREE LUNCH DAY

Objective: *Introduce source reduction to students and teachers. Work with school staff & administrators to reduce cafeteria waste.*

1. Observe the cafeteria for several days. How many bags of trash are produced every day? Talk to kitchen and custodial staff about how much garbage is generated in the cafeteria.

2. Choose a date for Waste-Free Lunch Day. Make posters for the school to advertise the event. Send flyers home with students to encourage participation and to let parents know your objectives.

3. Make sure your advertising material includes helpful hints on how to reduce cafeteria waste. Target students who bring their lunch from home as well as those who buy the school lunch. Some ideas might include:

- Bring lunch in a reusable bag.
- Instead of purchasing individual servings in their own containers, buy food items in larger or bulk quantity and then divide the larger portions into small servings in reusable containers.
- Are you wasting food? Only take as much food as you can eat.

4. Analyze your success. Was cafeteria garbage reduced on Waste-Free Lunch Day? Talk to cafeteria workers and school administrators about ways to permanently reduce waste in the lunch room.

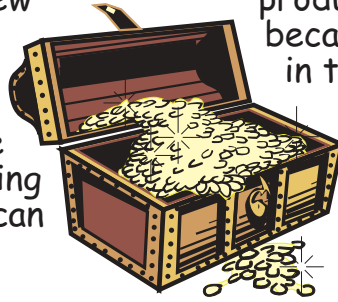


REUSE

"One man's trash is another man's treasure...." That simple phrase that you've probably heard before describes the idea of reuse. **Reuse** means taking something that would usually be discarded as trash and using it again, either for the same purpose or for some other purpose. It might be as simple as using a pickle jar as a vase or using tin cans in an art project.

Reuse benefits the environment in several different ways. First of all, reuse saves natural resources because no new product is being produced or reproduced. It also saves landfill space because the item is reused in a productive way instead of being tossed in the garbage!

Reuse also benefits many local profit organizations. Often, people donate unwanted items to charities instead of throwing them away. Donated clothing, appliances, and furniture can be redistributed and reused by people who need the items.



Here are just a few ideas to help you think of all the ways you can benefit the environment by practicing reuse:

- ✓ Use cloth rags for cleaning instead of disposable products like paper towels.
- ✓ Donate old magazines and books to a local homeless shelter.
- ✓ Store food in empty plastic containers and jars.
- ✓ Use both sides of the paper.

ACTIVITY

COLLECT FOR CHARITY

Objective: *Promote reuse as a method for diverting material from the landfill. Organize, plan and advertise a special event.*

1. Research local nonprofit organizations in your area that could benefit from a donation of gently used toys and clothing. Make sure to contact these organizations and get input concerning specific items they may be looking for.
2. Choose the location, date, and time for the collection drive. Setting aside 2-3 days over a week or 2-week period is probably a good idea. That will make it easier for the entire community to become involved.
3. **ADVERTISE!** Make posters for your school and community, send flyers home with students, and contact your local newspaper to get the word out.
4. Organize volunteers to accept, sort, and deliver the donations.
5. After the collection drive is completed, discuss the success of the project. Can you determine how much weight you kept out of your local landfill? Decide if your school can make the drive an annual event and discuss ways to improve on your success.



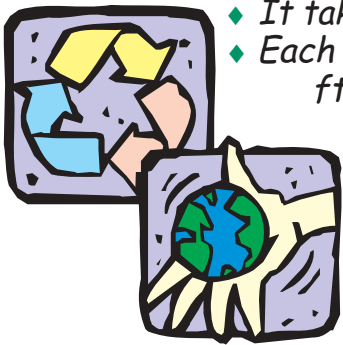
RECYCLE

Recycling has become a vital waste management tool in recent decades. In 2001, recycling diverted 68 million tons of garbage from landfills and incinerators! To **recycle** is defined as processing materials that would otherwise be considered waste into valuable resources. Every day products that we might be throwing away--like glass bottles, paper, aluminum cans, and most plastics-- can be reprocessed into new materials or products.

Recycling begins by collecting material so it can be sorted and processed. Each community handles recyclable material differently. You may have to take your recycling to a local drop-off center, or your recycling may even be picked up at your curb.

After your recycling is collected, sorted, and cleaned, it is reprocessed into a variety of items. Many products today are manufactured using all or partial recycled content. Just look at product labels to see if the product you are purchasing, or the product packaging, is made from recycled material.

Here are some fun recycling facts you can share with your friends and family:



- ◆ It takes 90% less energy to recycle an aluminum can than to make a new one.
- ◆ Each year, Americans throw away enough office paper to build a wall 12 ft. high, stretching from New York City to Los Angeles.
- ◆ Recycling one ton of clear, brown, or green glass saves the energy equivalent of nine gallons of fuel oil.
- ◆ There are about 1,000 milk jugs in a recycled plastic park bench.
- ◆ By recycling one ton (2,000 pounds) of paper we save: 17 trees, 6,953 gallons of water, and 463 gallons of oil.
- ◆ Most bottles and jars contain at least 25% recycled glass.

ACTIVITY

COMMUNITY CAN DRIVE

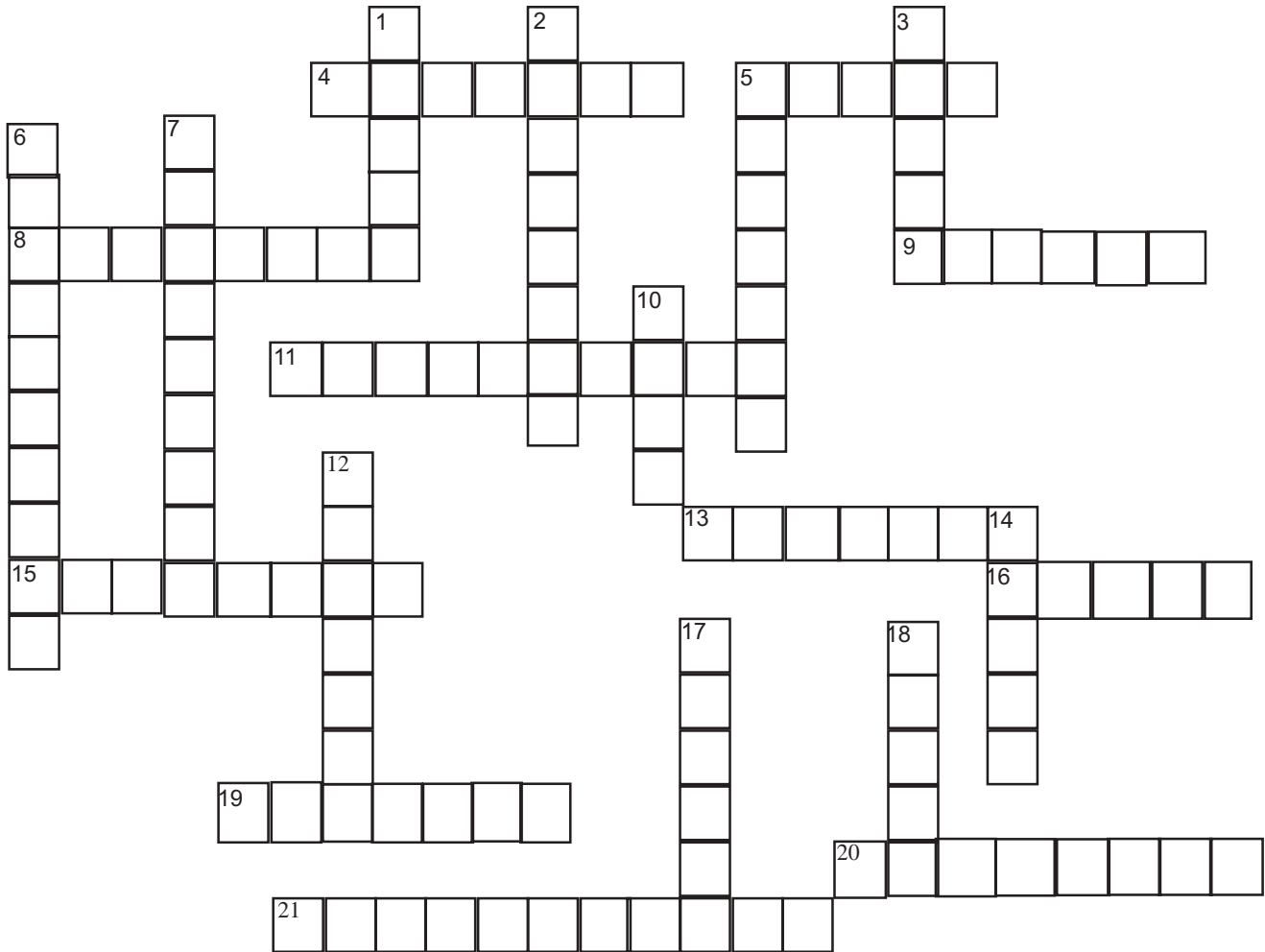
Objective: *Increase recycling awareness in your school and community. Organize and implement a recycling program for the community.*

1. Organize an aluminum can drive that includes the entire community. Any money raised from recycling the cans can be donated to the school library or some other school project or program.
2. Choose locations for the can collection. Talk to school administrators and local community leaders about putting a number of collection containers around town.
3. Organize volunteers to pick up the cans on a regular basis and take them to the recycling center.
4. **ADVERTISE!** You will need to get the whole community involved in order to increase the volume of cans collected. Contact your local newspaper, make signs for the community, and send flyers home with students to publicize your efforts. Make sure to inform the community that any money raised will benefit the school library, etc.
5. Make sure you monitor your success. How much weight did you divert from the landfill? Can you make the can drive a permanent program in your community?



ACTIVITY: CROSSWORD PUZZLE

Test your knowledge! With the things you've learned about reducing, reusing, and recycling, you should be able to complete this puzzle very easily. (Answer key is on page 11)



Across

4. Food waste is usually referred to as _____.
5. To use an item again for the same or different purpose.
8. We need to _____ our natural resources.
9. _____ reduction.
11. A precious natural resource that trucks need to haul our garbage away (2 words).
13. Common plastic item that could be recycled into a park bench (2 words).
15. Put your waste in this and set it at the curb for pick up (2 words).
16. _____ nonprofit organizations can benefit from items donated for reuse.
19. Plastic peanuts and other _____ material accounts for nearly 1/3 of the trash in landfills.
20. One man's trash is another man's _____.
21. We need to protect this for future generations.

Down

1. What we send to the landfill that can not be reused or recycled.
2. The final destination for most waste.
3. What is left when waste is incinerated.
5. One way to divert common items--like paper and cans--from the landfill.
6. To process waste through burning.
7. We need to conserve our natural _____.
10. Buying in this quantity saves packaging.
12. Milk jugs and soda bottles are made of _____ and can be recycled.
14. This item can often be recycled when it is clear, green, or brown.
17. By stopping waste before it is created, we can _____ the amount of trash going to the landfill.
18. Recycling this item saves trees, water, and oil.

ACTIVITY: GARBAGE PIZZA

From "WASTE IN PLACE," A Keep America Beautiful education program designed for K-6 students. These lesson plans have been modified to meet Nebraska educational standards.

OBJECTIVES: Students will be able to 1) describe the composition of Municipal Solid Waste (MSW); 2) identify items within each waste category; and 3) visualize the amount of waste and categories of MSW.

METHOD: Students will construct a garbage pizza (a three dimensional pie chart) representing all of the waste thrown away in the United States, with a slice for each waste category.



MATERIALS:

For pizza dough: mixing bowl, spoon, rolling pin, pizza pan, 2 cups flour, 2 cups salt, 1 cup water, oil or shortening.

For pizza sauce and toppings: school glue, red food coloring, small paint brush, waste items from these categories: paper, yard waste, wood, metals, glass, food waste, plastics, and other waste, polyurethane or lacquer (optional).

VOCABULARY: Garbage, Municipal Solid Waste (MSW), trash, volume, weight

PROCEDURE:

1. Before class, have prepared a "Garbage Pizza" crust, using the following recipe: Mix 2 cups of flour, 2 cups salt, and 1 cup water until a stiff dough forms. Knead as you would a bread dough. Flatten the dough into a well greased round 12" deep dish pizza pan, pressing the edges up the inside of the pan. Flatten out slightly until it looks like a pizza pie. Cut the pizza into the same slices or sections to look like the Municipal Solid Waste by weight pie chart (template included on page 8). Using a fork or knife, puncture each slice several times before baking to avoid expanding air pockets. Bake at 350 degrees F for 40-45 minutes, or until golden brown. Check the pizza every 10 minutes or so and recut the sections. Remove from the oven and let cool completely. Dough should be hard and dry. Mix approximately 4 oz. of white school glue with approximately 2 oz. of red food coloring until you achieve the desired red tomato sauce look. Apply sauce with a small paint brush. Allow to dry thoroughly. Label the underside of each slice with the correct type of waste and % it represents. A permanent marker works well. This makes it easier for students to glue the proper waste on the proper slice.

2. Ask the students to define the words **GARBAGE** and **TRASH**. Garbage refers to only the organic or food waste thrown away. Trash represents broken, discarded or worthless things. Brainstorm with students and list on the chalkboard all the waste items thrown away at home or school. Use the MSW categories in the pie chart

3. Introduce the concept of Municipal Solid Waste. MSW is made up of trash and garbage from household, commercial, and institutional sources in a community. Ask the class if the items listed on the board would also be found in a community's MSW.

4. Draw a circle on the board. Explain to students that we are going to pretend that all the waste thrown away in the United States will fit into this circle. This circle is filled with waste from all of the categories (paper, yard waste, metals, glass, plastic, wood, food waste, and other waste). Show students how much paper is thrown away by drawing a slice for paper (see chart on page 8). Repeat this demonstration for all eight categories. Reinforce the fact that the biggest slice, marked "paper" means that there is more paper than any other item in MSW. The next largest slice is yard waste, etc. Ask the students why it might be important to know the amount and kinds of waste thrown away. By knowing what kinds and amounts of things are in MSW, communities can plan better programs to reduce the amount of waste disposed (e.g., office paper recycling, telephone book recycling, yard waste composting) and plan better waste handling options (e.g., waste-to-energy incineration, sanitary landfilling).

5. Announce that the class is going to make a garbage pizza (with garbage and trash). Collect the items you need for the toppings, or have the students bring them from home. For example:

- √ Paper--newsprint, shredded paper, boxes, wrappers
- √ Yard waste--grass, sticks, leaves, potpourri
- √ Metals--paper clips, staples, can, small hardware
- √ Glass--marbles, sea glass
- √ Plastics--foam cup, plastic fork, jug lids
- √ Wood--tooth picks, building blocks
- √ Food wastes--e.g. shells, pasta, pretzels, dry cereal
- √ Other--rubber band, candle

Show the students the "pie chart" pizza dough. Glue the waste items onto their corresponding pizza slices with uncolored glue or a hot glue gun. For an added touch after the glue has dried, spray the garbage pizza with polyurethane or lacquer, available at your local hardware store. Share the garbage pizza model with other classes or the entire school. Have students team-up and teach students in other grades about the MSW using the garbage pizza model.

ASSESSMENT

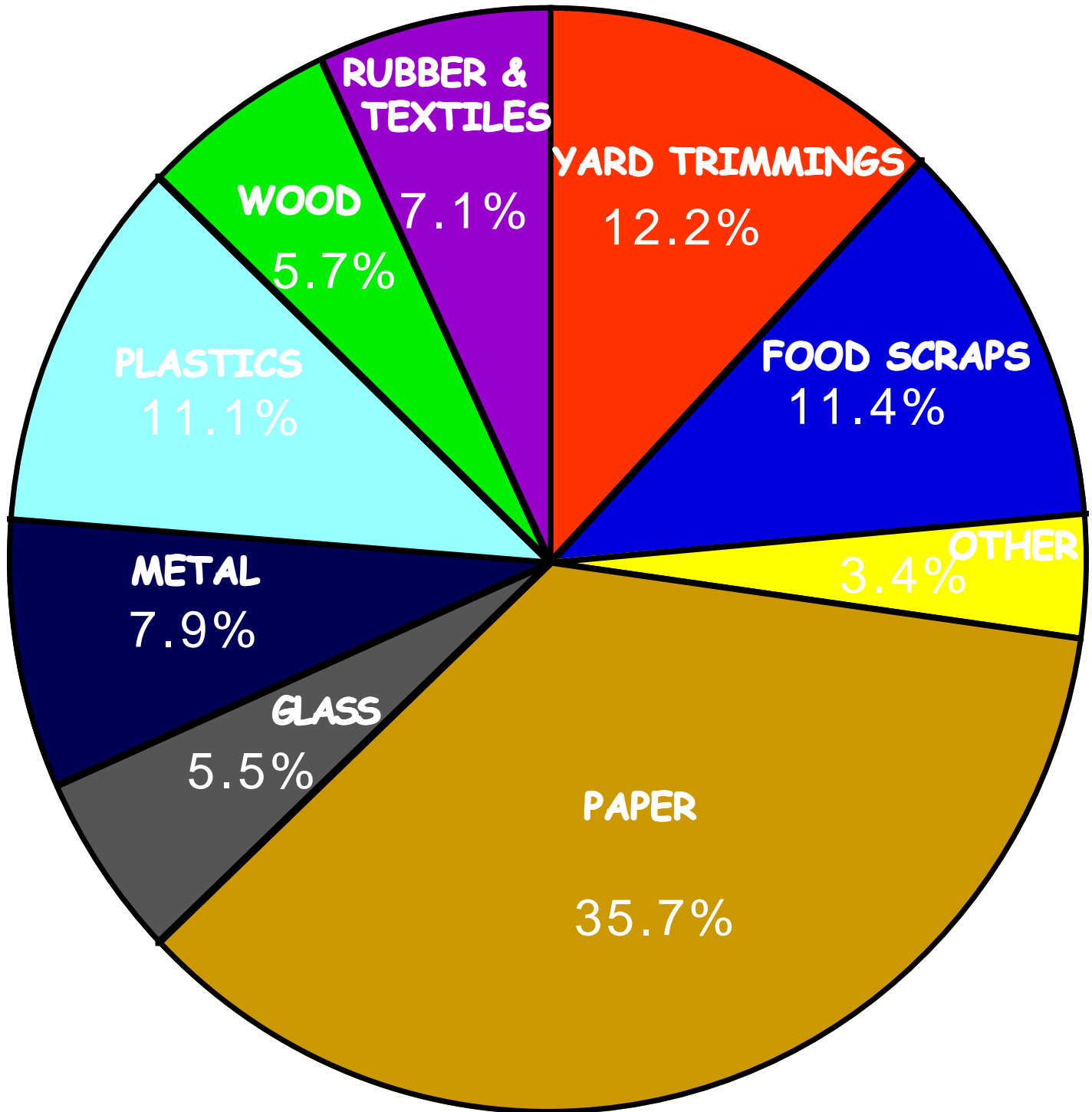
Set up a table with items from the eight categories of MSW: paper, yard waste, metals, glass, plastics, wood, food wastes, and other. Make signs for each category, and have students separate the waste items into the appropriate piles.

ENRICHMENT

Ask students to look through magazines for pictures of items from each MSW category. Have each student draw a garbage pizza on poster board and glue the pictures on the appropriate sections. Display the posters in the cafeteria.

Plan a classroom project to reduce the amount of paper in MSW. Discuss ways students could reduce paper use and waste at school (e.g., don't waste paper, use both sides of paper, start a reuse box for all kinds of paper, start a paper recycling program, ask the principal if the school uses recycled paper, etc.).

MUNICIPAL SOLID WASTE GENERATED IN THE UNITED STATES



Template for the Garbage Pizza. Please enlarge as needed.
(Information from the Environmental Protection Agency--2001.)

LESS TOXIC ALTERNATIVES



At school and at home, hazardous chemicals are used every day for a variety of purposes. The problem is, you may not think of common-use items like pesticides and household cleaners as hazardous to your health or to the environment. Unfortunately, when these materials are disposed of improperly (poured down the drain or dumped on the ground) they can pose a substantial threat to our groundwater and soil.

By reducing the hazardous chemicals we use every day, we can help eliminate the potential problems they might cause to our environment. Here are some **Less Toxic Alternatives** that you can use to promote a healthy environment. For more ideas visit www.knb.org.

GENERAL CLEANER

Combine a quart of water with 1/2 cup white vinegar, 2 tablespoons of lemon juice, or 1-2 tablespoons of rubbing alcohol.



SURFACE CLEANER

Mix vinegar with salt and water.

TOILET BOWL CLEANER

Scrub with a solution of 1/2 cup borax in a gallon of water for cleaning and disinfecting; clean around rim frequently with a baking soda solution.

SCOURING POWDER

Use baking soda or salt.

FLOOR CLEANER

WOOD FLOORS: (sealed with polyurethane): Clean with 1/4 cup white vinegar and a gallon of water; dry immediately.

VINYL FLOORS: Combine 1/4 cup TSP (trisodium phosphate), 1/4 cup borax, or 1/2 cup white vinegar with a gallon of warm water.



FURNITURE POLISH

FINISHED WOOD: Use a mild vegetable oil soap, or combine one part lemon juice with two parts vegetable or olive oil and polish with a clean, soft cloth.

PAINTED WOOD: Mix one teaspoon of washing soda in a gallon of hot water.

METAL CLEANER

BRASS & COPPER: Use a paste of lemon juice and salt.

SILVER: Rub with toothpaste or baking soda and a soft cloth; rinse and polish with clean dry cloth.

GLASS CLEANER

Combine a quart of water with 1/4 to 1/2 cup of white vinegar, 1 to 2 tablespoons of lemon juice or 1 to 2 tablespoons of rubbing alcohol.



INSECT REPELLENTS

ANTS: Locate where the ants are entering the house and pour a barrier of cinnamon, cream of tartar, red chili pepper or salt.

GARDEN PESTS: Use environmentally-friendly insecticidal soaps that have a low toxicity to humans, animals and birds.



ABOUT US....

Keep Nebraska Beautiful (KNB) is a nonprofit organization dedicated to public education. Headquartered in Lincoln, KNB has been active since 1964 and became an affiliate of Keep America Beautiful in 1980. Along with 21 affiliates across the state, our educational efforts focus primarily on solid waste issues such as recycling and litter reduction. KNB also actively participates in community improvement projects and beautification efforts. Our mission is "To empower Nebraskans to take greater responsibility for enhancing their community environments."

To accomplish our goal, Keep Nebraska Beautiful and its affiliates sponsor community cleanups, organize beautification efforts, and provide environmental education programs across the state. Here are some other programs offered by Keep Nebraska Beautiful:

WASTE IN PLACE - This educational resource is available to teachers as a curriculum supplement for grades K-6. Focusing on waste and waste management, *Waste in Place* promotes critical thinking and enhances problem-solving skills so our future leaders can better understand waste management. The lesson plans include hands-on projects so students can become more familiar with topics such as recycling, preventing litter, and sanitary landfilling.

LITTER FREE SCHOOL ZONES - This program encourages students to keep their school grounds litter-free through education, awareness, and litter cleanups. Participating schools receive a "Litter Free School Zone" sign to place outside their school.

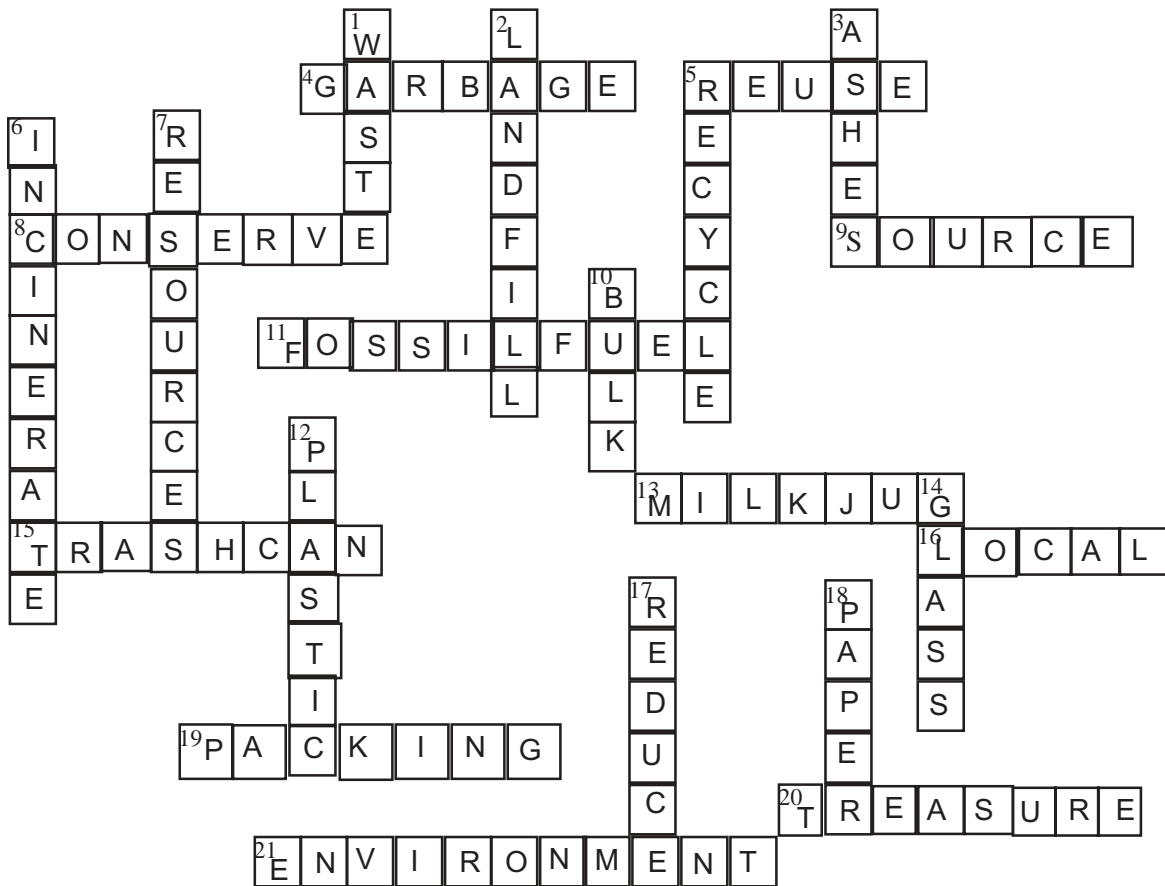
NEBRASKA MATERIALS EXCHANGE - The goal of this program is to divert usable or recyclable material from the landfill by promoting recycling and reuse. The Materials Exchange is active in helping schools and nonprofit organizations find much needed materials like computers, desks, binders, and sports equipment from businesses or other organizations no longer using the items.

GROW BIG RED GARDENS - This state-wide beautification effort encourages communities, businesses, civic organizations, and individuals to show their Husker spirit and Nebraska pride by planting gardens using red flowers. Gardens can be planted in public areas such as schools, parks, medians, and along highways.

For more information about these and other programs offered by Keep Nebraska Beautiful and ideas about how you and your students can participate, please visit our website at www.knb.org or email us for further information at info@knb.org.

CROSSWORD PUZZLE ANSWER KEY

Here are the answers to the crossword puzzle on page 5.



Keep Nebraska Beautiful Affiliates

For more information about litter cleanups, beautification projects and educational activities in your area, please contact these local affiliates. For contact information, visit our affiliates page at www.knb.org.

- Keep Alliance Beautiful • Keep Beatrice Beautiful • Keep Broken Bow Beautiful**
Keep Chadron Beautiful • Keep Columbus Beautiful • Keep Creighton Beautiful
Keep Fremont Beautiful • Grand Island Area Clean Community System
Keep Keith County Beautiful • Keep Kimball Beautiful • Keep Lexington Beautiful
Keep Lincoln/Lancaster County Beautiful • Keep Loup Basin Beautiful
Keep Norfolk Beautiful • Keep North Platte/Lincoln County Beautiful
Keep Northeast Nebraska Beautiful • Keep Omaha Beautiful • Keep Schuyler Beautiful
Keep Scottsbluff-Gering Beautiful • Keep Sheridan County Beautiful
Keep Sidney Beautiful