

# 4-H RECYCLING PROJECT



**DEARBORN COUNTY**

**SCIENCE**

## Recycling - Science Project

Recycling means the reuse of materials that we have thrown away. We can recycle glass, aluminum, tin, paper and many other materials. Recycling can mean shredding old cans and cars and melting the pieces to make new metal for new cans and new cars. It can also mean crushing bottles into tiny glass bits and melting these bits to make new glass.

There are two main reasons for recycling:

1. America is running out of raw materials to make new products. By using the same materials over and over again, we save our natural resources.
2. Recycling helps us eliminate some of our growing piles of trash. When we throw used bottles and cans away, they become trash. Since there are more people in America today, there is also much more trash. Getting rid of that trash is one of our biggest problems. By recycling, we reuse our trash, which solves part of our problem.

### Exhibit Requirements:

Beginner: members 10 - 12 years of age

Select one of the following to exhibit. Do a different one each year.

On a 22" x 28" poster or in a three-ring notebook, exhibit:

- A. A Recycling Center in your home OR
- B. How to prepare newspapers for recycling OR
- C. Explain the three R's of recycling OR
- D. Explain recycling symbols OR
- E. Read a magazine article on recycling and write a report on it (1 page) OR
- F. Bury 6 or 8 items, such as table scraps, plastic bags, toothpicks, aluminum cans, etc., in a hole in your yard. Dig it up in 6 months and write a report about what happened to the items OR
- G. Plan and have an ecological picnic with your family.

See General Poster Guidelines on page 10 of the 4-H County Handbook.

You may use photographs, sketches, diagrams, magazine pictures, computer generated materials, etc., to show what you have learned or done.

Remember to title and label your exhibit to help educate those who see it.

Turn the Recycling record sheet in with your Green Record Folder.

This is not a State Fair Project.

Intermediate: members 13 - 15 years of age

Select one of the following to exhibit. Do a different one each year.

1. On a 22" x 28" poster or in a three-ring notebook, exhibit:
  - A. How to identify plastics for recycling OR
  - B. How to conserve and recycle water OR
  - C. How to prepare glass for recycling OR
  - D. How to prepare cardboard for recycling OR
  - E. Identify excessive packaging and how to reduce. Select at least three items OR
  - F. How to make a compost pile for yard waste OR
  - G. How to identify aluminum products and which ones can be taken to the Recycling Center OR
  - H. Make a list of 25 ways youth can "Save the Earth".

See General Poster Guidelines on page 10 of the 4-H County Handbook.

You may use photographs, sketches, diagrams, magazine pictures, computer generated materials, etc., to show what you have learned or done.

Remember to title and label your exhibit to help educate those who see it.

2. Interview at least two older people, such as grandparents or great grandparents and find out how their generation handled waste disposal. Write a report.
3. Read at least three magazine or newspaper articles concerning recycling or waste disposal and write a report.

#### WASTES AND CONSEQUENCES

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Turn the Recycling record sheet in with your Green Record Folder.

This is not a State Fair Project.

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Advanced: members 16 - 19 years of age

Select one of the following to exhibit. Do a different one each year.

1. On a 22" x 28" poster or in a three-ring notebook, exhibit:
  - A. List of household hazardous waste and how to dispose of it OR
  - B. How you recycle on your farm OR
  - C. Recycling batteries OR
  - D. Cloth vs. disposable diapers OR
  - E. Landfills OR
  - F. Disposing of old tires OR
  - G. Disposing of used oil OR
  - H. Disposing of junk cars OR

- I. Disposing of old appliances OR
- J. Disposing of industrial waste OR
- K. Disposing of farm chemical wastes OR
- L. Septic systems operation and problems

You may focus on any aspect of the above topics. Make sure your information is factual and not opinion. If problems are apparent, be sure to include them; however, do not list persons names. Some problems you may encounter: no market for product; no agency to monitor; no way to recycle; no money; no expertise; neighborhood resistance; apathy; etc.

See General Poster Guidelines on page 10 of the 4-H County Handbook.

You may use photographs, sketches, diagrams, magazine pictures, computer generated materials, etc., to show what you have learned or done.

Remember to title and label your exhibit to help educate those who see it.

2. Read a book on recycling and write a three-page report.

Turn the Recycling record sheet in with your Green Record Folder.

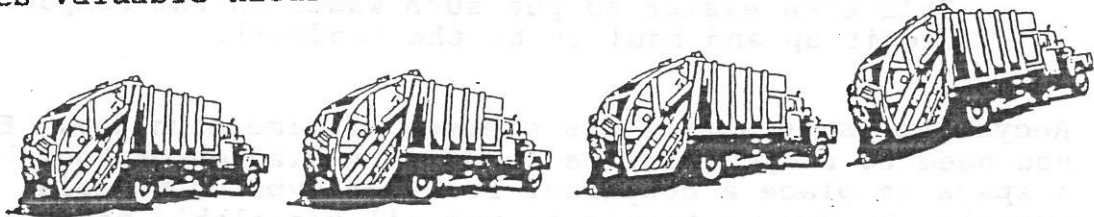
This is not a State Fair project.

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## WHY IS RECYCLING IMPORTANT?

The days of open dumps and inexpensive waste disposal are gone. Groundwater pollution from old, leaky landfills, increasing disposal costs, growing amounts of waste, and decreasing landfill space combine into a gloomy picture for solid waste management. Growing fears over what our past disposal habits have done to our environment drive us to seek new ways to dispose of our wastes safely.

Each of us throws away between 1,300 and 1,800 pounds of garbage and trash annually. That's about 4 pounds per person each day. In 1990, Americans produced over 160 million tons of wastes. That's enough waste to fill a convoy of garbage trucks, which if lined up end-to-end would reach halfway to the moon. That would reach from New York City to San Francisco thirty-nine times. Every day, the convoy gets longer. We are running out of places to safely dispose of trash, and at the same time wasting energy and valuable natural resources. Recycling saves energy, conserves valuable natural resources, and cuts down on landfill needs.

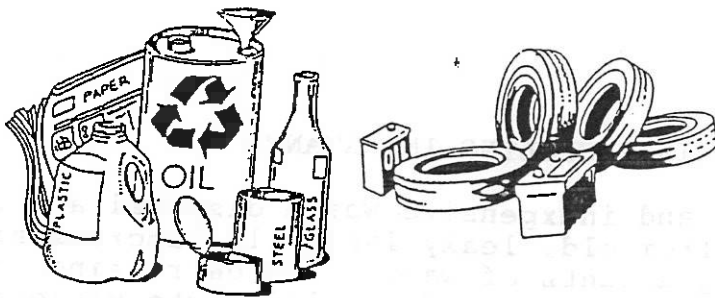


Every three months Americans throw out enough aluminum to rebuild the entire U.S. commercial air fleet. Every two weeks we throw out enough glass bottles to fill the 1,350 foot twin towers of the New York World Trade Center. Recycling aluminum uses 95 percent less energy than producing aluminum products from raw materials. It minimizes the need for mining new minerals and decreases damage to the wilderness. Recycling one glass bottle saves enough energy to light a 100-watt light bulb for four hours.



Almost half of what we throw away is recyclable. Recycling saves landfill space and energy, thus reducing acid rain, global warming, and water and air pollution. By recycling, it is possible to reduce the waste stream by nearly 80 percent. This is going to become more important than ever, because it is predicted that half the cities in the U.S. will run out of landfill space by 1994.

In addition to recycling, we can improve the waste situation by learning to "precycle," or refuse to buy products which are over packaged or not recyclable. Packaging accounts for 33 percent of the waste from our cities and towns. If we become Environmental Shoppers, and buy only the products we need, with the least amount of packaging, especially those with recycled or recyclable packaging, we can save landfill space, money, and reduce the amount of trash we discard by as much as 45 percent.



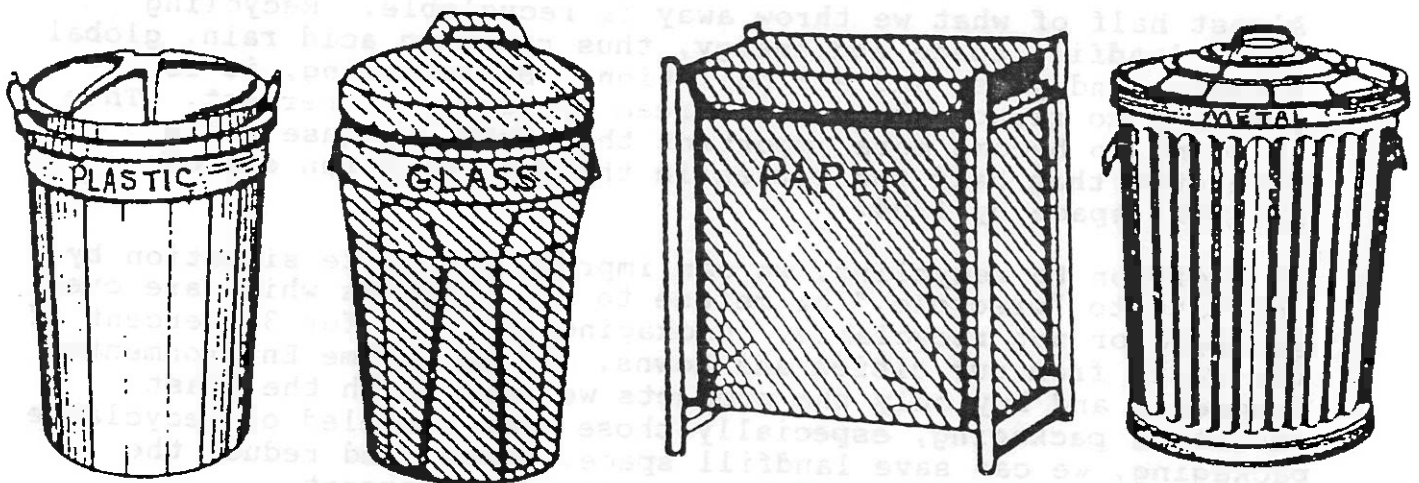
Glass, paper, metal, used motor oil and now even plastic can be recycled and returned to productive use in the manufacturing of new products. Yard wastes, particularly leaves and grass clippings, can be composted for dramatic waste reduction.



Composting provides another way for us to reduce the amount of waste we dispose of each day. Instead of taking our food scraps, grass clippings, leaves, etc. to the landfill, we can make a compost pile, and create our own natural fertilizer mulch to benefit our trees, flowers, and gardens. Not only will we reduce the amount of waste going to the landfill, we can reduce the amount of money we spend on fertilizer, and even on trash bags. It's even easier to put such waste on the compost pile than to bag it up and haul it to the landfill.

Recycling takes just a few minutes of time each day. Everything you need to recycle can be found in a kitchen or tool box. Find a space to place a container for each type of material you will recycle, or one container to put all recyclable materials in (to be sorted just before a trip to the recycling site). The space can be in a closet, under the kitchen sink, or in the garage. Rinse out bottles, jars and cans in dishwasher after you've washed the dishes. You can even mount a can crusher above the container for recyclable cans, to crush them so you will have more space.

Some recycling centers require more preparation of recyclables than others (removal of labels, jar lids, etc.). Call the one nearest you to find out what you need to do before bringing in your items.



LEARN THE 5 - R's:



**REDUCE** the amount of waste we produce

- buy only what you need
- buy "economy size" or bulk packaging
- avoid disposable products
- bring your own paper, plastic, or better yet cloth bags to the supermarket
- choose boxes with gray interior (recycled paperboard)
- look for recycle symbol, or the words "made from recycled materials" when shopping
- choose products packaged in recyclable materials
- when possible, choose product packaging that is easiest to recycle (such glass instead of plastic)

**REUSE** as much as possible

- use products that are made to be used many times, such as cloth diapers, cloth napkins, sponges, towels and rags, dishes, rechargeable batteries, etc.
- use the blank back sides of paper for scratch pads
- purchase used goods at second hand stores, garage sales, and flea markets to eliminate unnecessary production

**REJECT** over packaging and environmentally hazardous products

- avoid over packaged goods
- avoid nonrecyclable packaging and containers
- choose nonaerosol containers for spray products
- avoid disposable products

**REPAIR** broken items instead of replacing them

- mend clothes
- repair broken appliances
- make repairs promptly, before damage progresses
- service vehicles regularly to keep in good condition

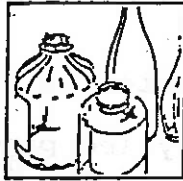
**RECYCLE** the products that are recyclable

- identify the recycling centers in your community
- identify the garages and service stations in your area that will accept and recycle used motor oil
- identify local businesses (dentists, doctors, daycare centers, etc.) which accept used magazines
- donate used clothing, furniture, etc. to thrift shops
- have a neighborhood or family garage sale annually to recycle unwanted items
- trade in old appliances and vehicles when possible
- be familiar with recyclable materials:

glass	paperboard	newspaper
aluminum	some plastics	steel
motor oil	organic matter (for composting)	



**WHAT CAN I RECYCLE?**



**GLASS**

**YES** Clear, green, and brown glass bottles and jars

**NO** Window glass, light bulbs, or ceramics

**HOW** Remove lids, clean jars (labels may stay on), and separate by color

**USED FOR** New glass bottles and jars, insulation, and road paving materials



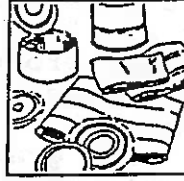
**PAPER**

**YES** Newspapers, inserts, and paper grocery bags

**NO** Magazines, junk mail, or cardboard

**HOW** Keep paper clean and dry, place in grocery bags

**USED FOR** Towels, tissue, corrugated boxes, writing papers, newsprint, insulation, boxboard, roofing materials, gypsum board



**METAL**

**YES** Tin cans, aluminum and ferrous metals

**NO** Pieces larger than one foot

**HOW** For cans, remove paper labels, remove ends, clean, flatten

**USED FOR** New cans, car parts, construction materials, and piping



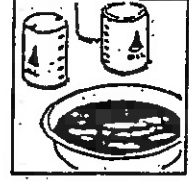
**PLASTIC**

**YES** Milk jugs and other opaque containers

**NO** Solid white or colored bottles, bags, film, or styrofoam

**HOW** Remove caps, rinse and crush

**USED FOR** Non-degradable lumber, soap bottles, industrial floor mats, car parts, insulation, tiles, piping, trash cans, traffic cones



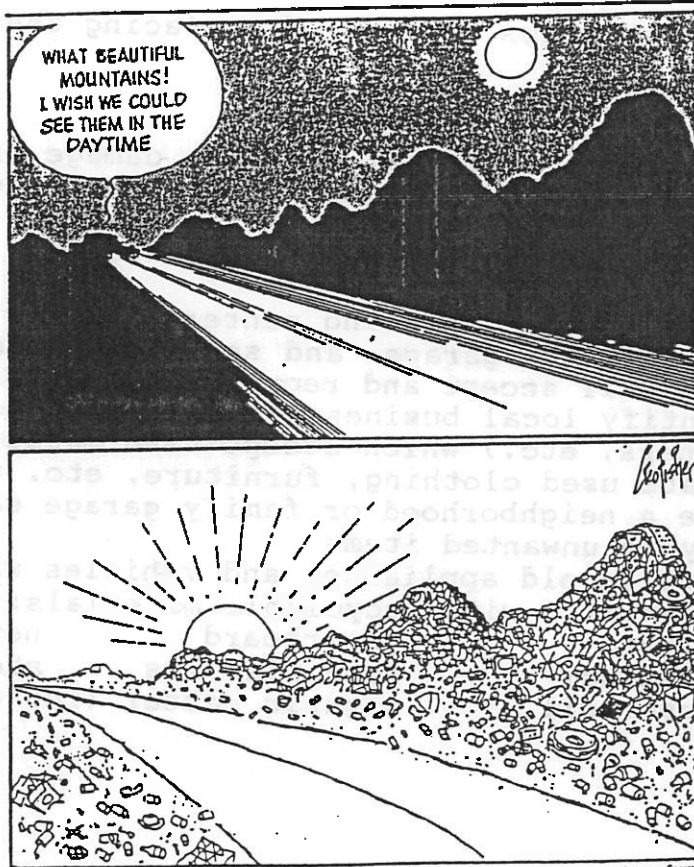
**MOTOR OIL**

**YES** Used oil from cars or motorcycles

**NO** Oil contaminated with thinner or antifreeze

**HOW** Drain into a sealable container and seal

**USED FOR** New oil, lubricants, machinery and furnace fuels





## HOME SURVEY

**INSTRUCTIONS:** Please complete this survey with your family.  
Discuss what you learn.

The purpose of this survey is to help you find ways that you and your family can work together to conserve natural resources and energy by reusing and recycling.

1. Make a list of all the disposable products that you and your family buy in one week. For additional space, continue your list on the back.
  
2. How many of these products are made of:  
wood? \_\_\_\_\_ cellophane? \_\_\_\_\_ fabric? \_\_\_\_\_  
plastic? \_\_\_\_\_ metal? \_\_\_\_\_ other materials? \_\_\_\_\_  
cardboard? \_\_\_\_\_ paper? \_\_\_\_\_  
styrofoam? \_\_\_\_\_ glass? \_\_\_\_\_
  
3. What kinds of packages did they come in?
  
4. Which items are not biodegradable?

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5. Can you think of other reusable products you could buy instead of "throw aways"?
  
6. Which of these products do you recycle? How do you recycle them?
  
7. Which of these products could you recycle that you don't already?
  
8. Besides buying reusable products and recycling, what other ways can you work to reduce the amount of materials wasted in our country today?

# EASIER TO RECYCLE



PETE

SOFT DRINK BOTTLES  
OVEN SAFE TRAYS



HDPE

MILK JUGS  
HEAVY DUTY TRASH BAGS



V

CREDIT CARDS  
GARDEN HOSES  
FOOD WRAP  
COOKING OIL BOTTLES



LDPE

DIAPER BACKING  
MILK JUG LIDS



PP

STRAWS  
DAIRY TUBS



PS

FAST FOOD PACKAGING  
PLASTIC SILVERWARE  
COMPACT DISC (CD) CASES



OTHER

LAYERED MULTI-MATERIAL:  
SQUEEZABLE CONTAINERS

# HARDER TO RECYCLE

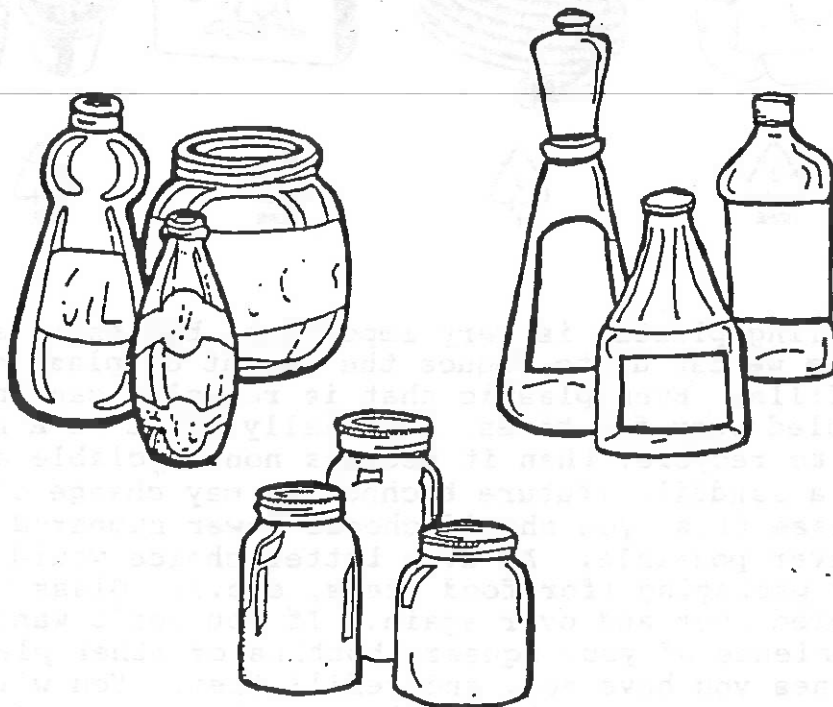
## GLASS RECYCLING

Glass is used for many purposes in our homes, such as window panes, mirrors, jars, drinking glasses, eyeglasses, and lightbulbs. At the present time, the only glass we recycle is the type of glass used for bottles and jars. This is called container glass. We should not take broken mirrors or window panes to be recycled. If these non-container types of glass are mixed in with bottles and jars it could cause an accident at the glass factory. This is because different kinds of glass have different melting characteristics.

Glass is made of the elements silicon and oxygen, the two most common elements in the earth's crust. Sand is melted to produce glass. The different colors of glass are caused by small amounts of elements other than silicon and oxygen.

Container glass is 100 percent recyclable; it can be used over and over again. Each bottle that is recycled means one less shovelful of sand that must be mined, transported to a factory, and heated at high temperatures to melt and mold. Glass factories in the Midwest use approximately 30 percent recycled glass to manufacture new bottles and jars. There are at least five of these glass manufacturing plants in Indiana.

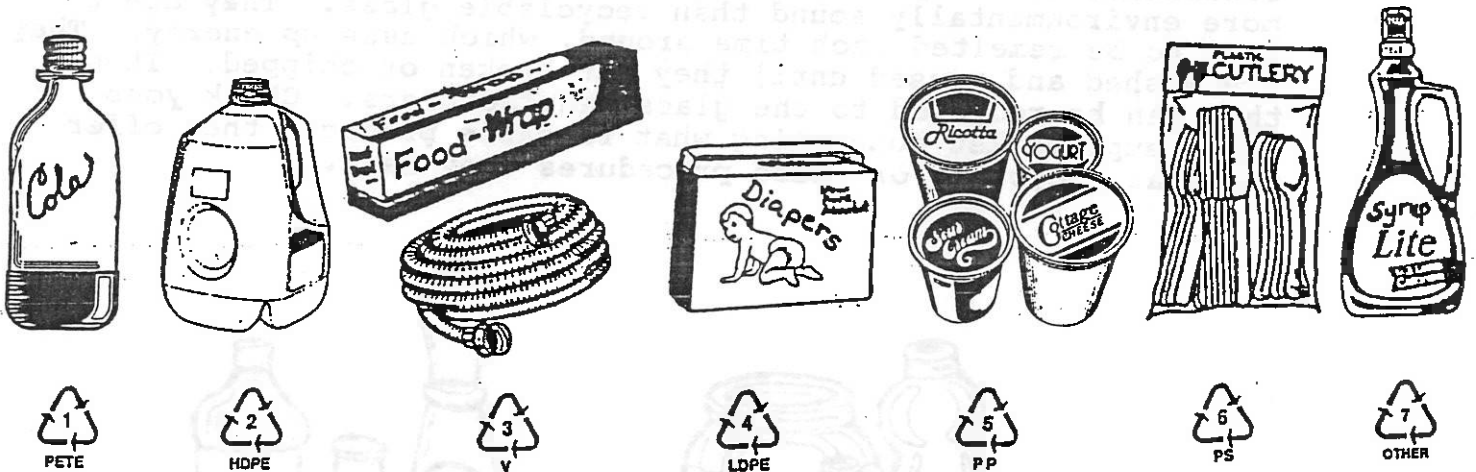
Containers with deposits, like some beverage containers, are even more environmentally sound than recyclable glass. They don't have to be remelted each time around, which uses up energy. They are washed and reused until they get broken or chipped. Then they can be recycled to the glass manufacturers. Check your local supermarket concerning what reusable products they offer and what recycling or reuse procedures they have.



## RECYCLING PLASTICS

Think of all of the plastic products you use each day. Plastic is everywhere, and in many different forms and types. There are at least 49 different types of plastic that we use in this country. Recycling technology is slowly catching up with this number, but currently only a few types of plastic can be recycled easily. Since the majority of plastics will not decompose naturally (current research has produced some corn and soy based plastics that are biodegradable), it is very important that we learn to recycle the plastics we use.

One major problem with recycling plastics is the correct separation of different types. To help meet this need, the Society for Plastics Industry came up with a numbering system. The numbers range from 1 to 7, and are enclosed in a triangle by three arrows. The symbol can usually be found embossed on the bottom of a plastic container. The lower the number, the more recyclable the material. The most recyclable are 1's and 2's. The type of plastic found in two liter bottles is a 1, and plastic milk jugs are 2's. The least recyclable of all are the 7's, which are usually multi-layered materials like those found in squeezable ketchup bottles. An Indiana law went into effect January 1990 requiring this numbering system on all plastics in the state.



Recycling plastic is very important, but there are other things we can do to reduce the amount of plastic going into our landfills. Even plastic that is recycled can only be reused and recycled very few times, especially if it is a more difficult type to recycle, then it becomes nonrecyclable and probably goes into a landfill (future technology may change this). To help decrease this, you should choose lower numbered plastic products, whenever possible. An even better choice would be to choose glass packaging (for food items, etc.). Glass containers can be recycled over and over again. If you don't want to give up the convenience of your squeeze bottles or other plastic items, keep the ones you have now, and refill them. You will be able to purchase your products in glass containers, and still have the convenience of plastic.

## RECYCLING USED MOTOR OIL

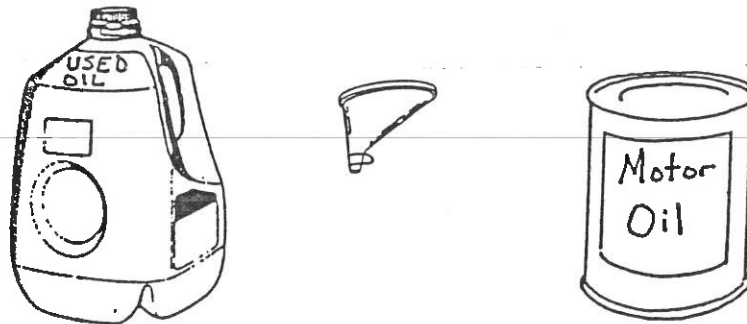
About 60 percent of all Americans change their own oil. In the past, most people would dump it on the ground or put oil in containers along with other trash for the landfill. They didn't know that putting oil into the ground could be harmful later.

Now we know that oil dumped on the ground or put into a landfill is forced by gravity to seep slowly into the soil and rock. Eventually the oil may pollute the groundwater. Because oil contains benzene, lead, and other heavy metals, which can be harmful to our health, we need to do all we can to prevent oil from seeping into our wells.

Recycling used oil has other benefits, aside from keeping our water safer. Recycling and refining (cleaning up) one gallon of used oil gives us 2.5 quarts of clean lubricating oil. It takes 42 gallons of crude oil to give us the same 2.5 quarts of usable oil.

How to recycle oil:

- \* Thoroughly clean a closed, rigid container such as a plastic milk bottle. Be sure to get all of the old liquid out and the container well rinsed.
- \* Put used oil into cleaned container.
- \* Call local gas stations and lubrication shops until you find one that will take your used oil. (They usually put it into a storage tank until another company pumps it into a truck and takes it to a refinery.)



Did You Know...?

The Exxon Valdez oil spill poured approximately 12 million gallons of oil (enough oil for 9.6 million cars) into Prince William Sound in Alaska. Each year Americans pour 35 times that amount (more than 400 million gallons, or enough for 320 million cars) of used oil on the ground and into landfills.



# Fifty Ways To Leave It Cleaner

## HOW MANY OF THESE THINGS DO YOU DO?

Place a check mark in front of each practice listed below that you do.

- 1) Use paper plates and cups instead of plastic.
- 2) Use reusable plates and cups (ceramic, metal or plastic) instead of disposables.
- 3) Make a list of local recycling centers and publicize the information in your local newspaper.
- 4) Use cloth diapers instead of disposable diapers. (Start or use a diaper service!)
- 5) Purchase glass and aluminum containers instead of plastic containers.
- 6) Write on both sides of paper before recycling it.
- 7) Select cotton swabs with paper versus plastic sticks.
- 8) Select feminine products with cardboard (or no) applicators rather than plastic applicators and wrappers.
- 9) Buy paper towels, napkins, and toilet paper made from 100% recycled fibers.
- 10) Use reusable cloth dinner napkins and kitchen towels instead of paper products.
- 11) Buy stationery made from recycled paper.
- 12) Ask convenience stores, schools, offices, churches, or other public places to put aluminum can recycling bins next to vending machines. You can earn money for your club or a charity by making regular pickups at these locations.
- 13) Reuse aluminum foil and other kinds of packaging as many times as possible before recycling or throwing away.
- 14) Use small glass jars to hold screws, nails, jewelry, spare change, and other items.
- 15) Write letters to your local newspaper encouraging them to use soy-based ink and recycled newsprint.
- 16) Make sure your local extension office or school office recycles their white office paper.
- 17) Make sure that everybody in your local extension office or school office owns their own coffee cup (instead of using polystyrene cups).
- 18) Give used magazines to nursing homes and hospitals.
- 19) Ask your local grocery store if they recycle cardboard (corrugated paper).
- 20) Don't hesitate to say "Thanks, I don't need a bag" when buying a greeting card, magazine or other small thing.
- 21) Purchase foods in bulk (large quantities) to cut down on packaging. It's cheaper too.
- 22) Buy eggs in paper rather than foam containers.
- 23) Buy butter and margarine in sticks, rather than plastic dairy tubs. Use plastic tubs for food storage.
- 24) Don't buy disposable razors, batteries and flashlights.
- 25) Buy juice in concentrate rather than big plastic containers.
- 26) Resist buying juice boxes which contain plastic, metal foil, paper and wax, which makes them nearly impossible to recycle or biodegrade.
- 27) If you see a kind of packaging that you don't like and that is wasteful, write a letter to the company's consumer relations department. Their address is often found on the product itself.
- 27) Use a metal lunch box or cloth bag instead of paper or plastic lunch boxes.
- 28) Avoid single-serving, cook-in-a-disposable-dish-or-bag food.
- 29) Carry string or canvas bags instead of using disposable paper and plastic bags at the grocery store. (Let the checker know what you're up to.)
- 30) Use handkerchiefs instead of paper tissues.
- 31) Buy toilet tissue wrapped in tissue paper rather than in plastic bags.

- 32) To cut down on the amount of junk mail your family gets, send all the different ways your name and address are printed on mailing labels to:

Mail Preference Service,  
c/o Direct Marketing Association,  
11 West 42nd Street,  
P.O. Box 3861,  
New York, NY 10163.

- 32) Composting kitchen scraps (excluding meat scraps) can cut your trash volume by 30%. Put a small bucket or container near the sink. When it gets full, take it to the compost heap or feed it to the chickens (ask your grandparents about this one)!
- 33) Add wood ashes to the compost heap, use them for traction on slippery sidewalks, and to spread around tender seedlings in the spring. Slugs don't like to cross a line of wood ashes.
- 34) Reuse plastic "clamshells" from fast food restaurants as mini-greenhouses.
- 35) Use old pantyhose to tie up tomato, pepper, and other plants.
- 36) Recycle newspapers. (Recycle everything you can!!!) Recycling one ton of newspapers saves 17 trees, 7000 gallons of water and enough energy to power the average home for six months.
- 37) Write to or visit your local elected officials and ask if they have a recycling plan in their offices. Ask if they have a "procurement" plan for paper and other supplies which contain recycled materials. Offer your services as a youth consultant.
- 38) The only glass that is recyclable is found in containers that once held food or drink. (No light bulbs, drinking glasses, fish tanks, mirrors, etc.) The energy saved by recycling one glass bottle is enough to run a TV set for three hours.
- 39) Organize a "Hazardous Waste Pickup Day" in your community. These common household products require special disposal:

From the garage:

antifreeze, brake fluid, wax polish, engine degreaser, carburetor cleaner, creosote, radiator flushes, asphalt, roofing tar, air conditioning refrigerants, car batteries.

From the house:

drain cleaners, oven cleaners, furniture polish, metal polish, window cleaners, expired prescriptions, arts & crafts supplies, photography chemicals, floor cleaners, mothballs, rug & upholstery cleaners.

From the workbench:

rust preventatives, wood preservatives, wood stripper, wood stains, paint thinner, oil-based paint, solvents, degreasers, sealants, varnishes

From the yard:

pesticides, herbicides, insect sprays, rodent killers, pool chemicals, no-pest strips, fertilizers, cesspool cleaners.

- 40) Use rechargeable batteries or try to avoid their use altogether. Manufacturing batteries can consume up to 50 times more energy than the batteries produce.
- 41) Don't buy toothpaste in a "pump package", the old fashioned tube is just fine with less packaging.
- 42) Use real cotton balls or a wash cloth to apply and remove make-up instead of non-biodegradable polyester "cotton puffs".
- 43) Recycle used motor oil by taking it to a garage or lube shop.
- 44) Turn out the lights and other energy users when leaving a room.
- 45) Help your family caulk or weather strip doors and windows.
- 46) Make a colorful "draft stopper" for the bottom of doors in your house. It consists of a long tube of fabric stuffed with rags or other reused materials.
- 47) Turn the thermostat down on the water heater. Insulate it with a "water heater blanket".
- 48) Wash clothes in cold water rather than hot water, if possible.
- 49) Wash full loads in clothes washing machines and dishwashers.
- 50) Carpool, ride a bike, walk, take the bus!
- 51) Keep adding to this list!

Information source: *Ecologue: The Environmental Catalogue and Consumer's Guide for a Safe Earth*, edited by Bruce N. Anderson. 1990. Prentice Hall Press, New York. 255p.)



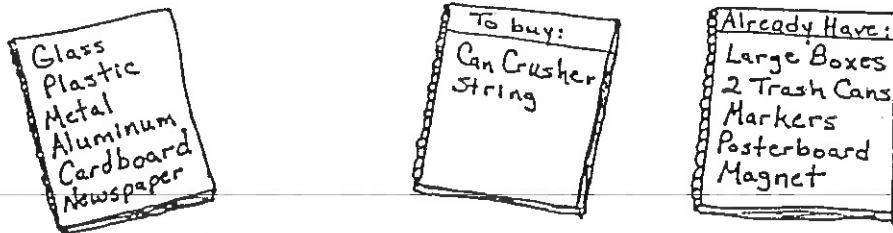
## PLANNING A HOME RECYCLING CENTER

Successful recycling requires a workable set-up for sorting recyclables in the home. We have many things to do with the little bit of free time most of us have, so we don't want to spend a lot of time on our recycling each day. We need a home recycling center that is easy to use.

To get a recycling program going at home, you need to ask yourself several questions. What kinds of things are recyclable in your community? Where are the recycling centers? What types of things do they accept? What preparation of items needs to be done before items will be accepted?

Once you have answered those questions, you are ready to plan your recycling center. Think of a room at home where you could get permission to set up a recycling center (garage, basement, mudroom, utility room, etc.). Remember, it should be close to the place where cans, bottles, and newspapers are used in the first place (so it will be easy to use). Discuss your ideas with your family, this will help you to plan an area they will all use. It will also help get them ready to begin recycling.

Make a list of all the items you will recycle. This will help you to plan for the space and items you will need. You may use garbage cans, boxes, bags, etc. to sort items. You will need to discuss any planned purchases with your parents (garbage cans, can crusher, etc.).



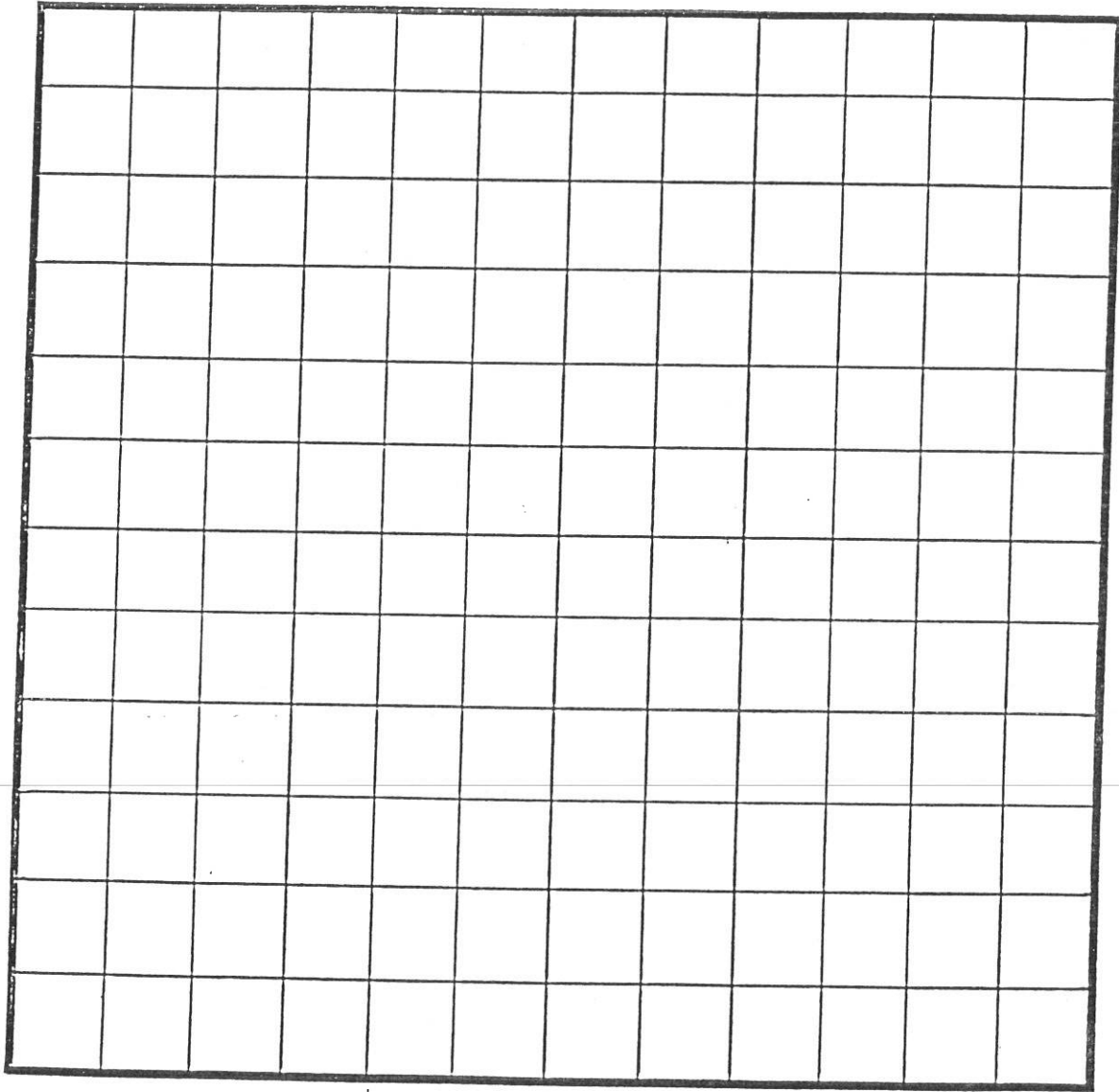
Use the grid (or one of your own) to make a floor plan for the "recycling center." Measure the room or area, your sorting bins or boxes, etc. to get your plans to scale. You can cut out construction paper templates (small scale representations) of the items to be located in your center. Be sure to include items already in the area (furniture, tools, appliances, etc.). Tape or place these templates on the grid, to check for fit, and experiment with moving them around to create the simplest floor plan. Discuss your finished floor plan with your family. Make any revisions that are needed.

Label the items in your floor plan. You may want to include wall space for mounting instructions for preparing materials, your local recycling collection sites, hours of operation, etc.



## Plan Your Own Home Recycling Center

Set up a recycling center in your garage, basement, mudroom, utility room, etc. Use the graph below and the drafting objects on the following page to make a floor plan. Arrange things in the room to make your recycling center easy to work in. The graph may be adjusted to fit the size of room you are using, or the scale may be changed. This graph is for a 12 foot by 12 foot room. Scale is  $1/2$  inch = 1 Foot.

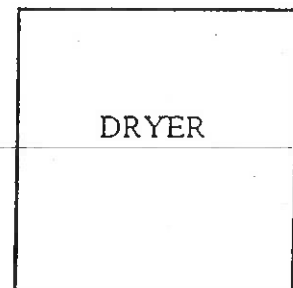
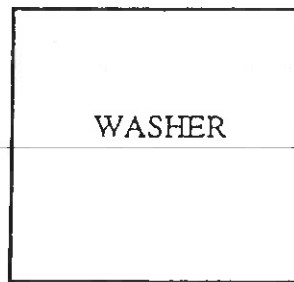
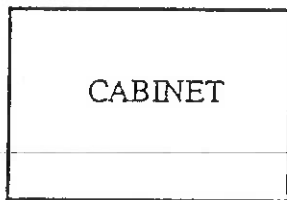
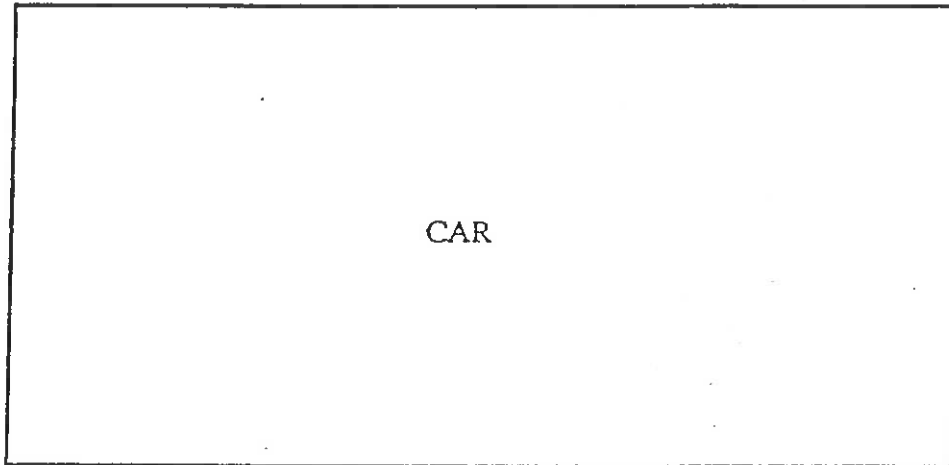




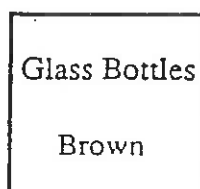
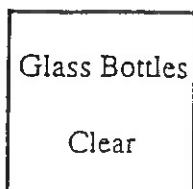
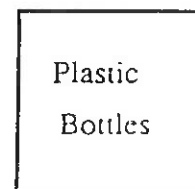
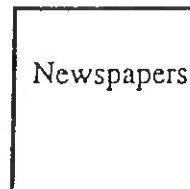
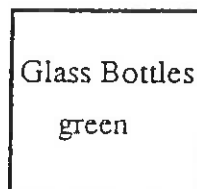
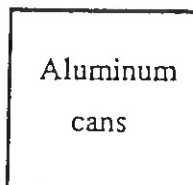
## Plan your own Home Recycling Center

### DRAFTING OBJECTS (Scale: 1/2 inch = 1 Foot)

Here are a few objects to cut out and use in your floor plan. Create other objects to fit the particular room that you are using. Remember to keep to scale. For example, if your family car measures 10 feet by 5 feet, it would measure 5 inches by 2 1/2 inches on this floor plan:  $10 \times 1/2 \text{ inch} = 5 \text{ inches}$ .  $5 \times 1/2 \text{ inch} = 2 \frac{1}{2} \text{ inches}$ . After playing with the floor plan, paste the objects onto the graph. Now, put it into reality!



### Recycling Containers:





## GLOSSARY

Acid Rain - when harmful gases from cars and power plants are released into the air and fall back to the Earth with rain or snow

Adverse Impact - unfavorable effect

Atmosphere - the layer of gases surrounding the Earth; another word for air

Biodegradable - anything that eventually decomposes and becomes part of the Earth again, like paper, or apple cores

Boycott - to refuse to buy something that was produced or caught in a harmful way

Carbon Dioxide - a gas produced when animals (including people) breathe out or any material containing carbon is burned

Chloro-fluoro-carbons (CFC's) - gases used in refrigerators, fire extinguishers, air conditioners, and plastic foam, that cause damage to the ozone layer.

Compost - a natural soil fertilizer and conditioner made from a mixture of plant and other organic wastes, decomposed under controlled conditions

Conservation - the wise use of the resources of the environment

Consumer - one who purchases goods and/or services; a customer

Decompose - to rot or decay; to break down matter through chemical change (by bacteria or fungi) into natural substances

Ecology - the study of organisms and their environment

Ecosystem - a community of plants and animals living together

Endangered Species - animals and plants in danger of becoming extinct

Energy - usable power such as heat or electricity and the resources for producing such power

Environment - all the surroundings of an organism, including other living things, climate, air water, and soil

Extinct - when animals and plants die out and are gone from the Earth forever

Fertilizer - any material put on or in the soil that improves plant growth

Fossil Fuels - fuels like coal, oil, and natural gas that were formed from plants and animals buried millions of years ago

Garbage - food waste

Geothermal - the use of the energy from natural steam (from the natural heat of the Earth) to produce electricity

Global Warming - an increase in the Earth's temperature, caused by a buildup of "greenhouse gases" in the atmosphere

Greenhouse Effect - when gases from factories, electric power plants, and cars trap the sun's heat and warm up the Earth

Groundwater - the supply of fresh water found beneath the Earth's surface often used for supplying wells and springs; water that has seeped into the soil and collected in underground spaces; 90% of the world's drinkable water

Habitat - an area that provides an animal or plant with food, water, shelter, and living space

Hazardous Waste - discarded material (trash) that is harmful to health and/or dangerous

Incineration - destruction of certain types of solid or liquid waste by controlled burning at high temperatures

Landfill - disposal sites for non-hazardous solid waste which is spread in layers, compacted to the smallest practical volume, and covered with material at the end of each operating day; a place where garbage is compacted and buried underground

Leachate - a liquid that results from water collecting contaminants as it trickles through wastes, agricultural pesticides or fertilizers

Methane - a colorless, nonpoisonous, flammable gas created by rotting of certain organic compounds when oxygen is not present

Natural - what occurs in nature, such as trees, water, air, soil

Nonrenewable Resource - a natural resource that, because of its scarcity and the great length of time it takes to form or its rapid depletion, is considered limited in amount (examples: coal, copper, petroleum)



Organic - made up of plant or animal materials

Organism - any living thing

Oxygen - a gas that makes up about 21% of the Earth's atmosphere; all living things need it to survive

Ozone Layer - a layer of gas high in the sky which protects us from the harmful ultraviolet (UV) rays of the sun that cause skin cancer and crop damage

Packaging - the sealed wrapping of a product, covering wrapper or container

- Essential Packaging - the product wrapping and sealing necessary for safe and sanitary consumption

- Modern Packaging - the excessive use of plastic and/or shrink wrap to improve the appearance in order to promote the sale to the consumer

- Natural Packaging - the product covering provided by nature (examples: banana peel, eggshell, nutshell)

- Older Packaging - the minimum packaging of a product, or buying in bulk

Pollution - the impure condition caused by contamination

Pollutants - man-made wastes that lower the quality of the environment by contaminating it

Precycle - to refuse to buy things that can't be reused or recycled (such polystyrene foam cups, containers, etc.), or things that are over packaged

Recycle - to use over and over again

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Recycling - a system which includes the separation, collection, processing, remanufacture and the eventual resale or reuse of materials which would otherwise be disposed of as municipal waste

Renewable Resource - a naturally occurring supply of something that does not get used up, like windpower, or solar energy

Resource - a supply of something that meets a need

Resource Recovery - producing energy from solid waste through burning, with the removal of some recyclable materials as a result

Sewage - solid and liquid wastes from bathtubs, toilets, and sinks

Solar Energy - energy that comes from the sun

Smog - air pollution (often seen as a dark brown haze) that comes from cars and factories

Solid Waste - unwanted, discarded material that doesn't contain enough liquid to flow freely

Synthetic - man-made from other sources; not found in nature (example: plastic)

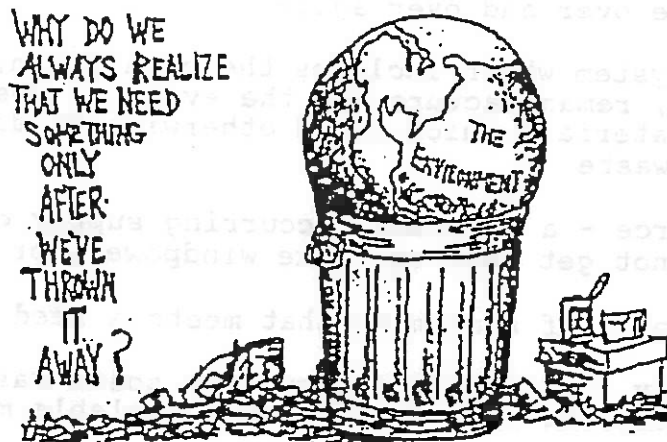
Threatened Species - plants and animals that still exist in some places, but have died out elsewhere

Toxic - poisonous; dangerous to health or environment

Toxic Waste - discarded materials, such as some chemicals or mixtures that may produce a risk or danger to health or the environment

Trash - discarded items

Wastewater - discarded water carrying dissolved or floating solids from homes, farms, businesses or industries



BY LINDA BOILEAU FOR THE FRANKFORT STATE JOURNAL, KY.

CHILDREN'S BOOKS AVAILABLE AT THE PUBLIC LIBRARY  
(Look in the Non-Fiction Section)

Keeping Our Cities Clean by Ross R. Olney  
(Garbage, Trash)

Who Keeps America Clean? (Careers)

50 Simple Things Kids Can Do to Save the Earth  
Earthworks Group

Going Green by John Elkington, Julia Hailes, Douglas Hill and  
Joel Makower  
(Pollution)

Acid Rain by Kathlyn Gay

The Greenhouse Effect by Kathlyn Gay

Trash by Charlotte Wilcox

Poisoned Land - The Problem of Hazardous Waste by Irene Kiefer

Throwing Things Away by Laurence Pringle

Recycling Plastics by Joy Palmer

Soil Erosion and Pollution by Darlene R. Stille

Air Pollution by Darlene R. Stille

Water Pollution by Darlene R. Stille

Industrial Pollution: Poisoning Our Planet  
by Eve and Albert Stwertka

Recycling Paper by Franklin Watts

Toxic Waste: Cleanup or Cover-Up  
by Malcolm E. Weiss

Wastes by Christina G. Miller and Louise A. Berry



ADVANCED LEVEL

These are just a few of the books found at the Public Library.  
Look for them in the Non-Fiction Section

Recycling: How to Reuse Wastes in Home, Industry and Society  
by Jerome Goldstein

The Earth Care Annual - 1990 - Edited by Russell Wild  
(Air Pollution, Plastics, Solid  
Waste, Diapers)

Farmland or Wasteland: A Time to Choose - by R. Neil Sampson  
(Soil Conservation and Farming)

The Farm and the City: Rivals or Allies - by The American Assembly,  
Columbia University  
(Land Use)

Environmental Jobs Handbook by Environmental Associates  
(Jobs)

Living With Your Land - A Guide to Conservation for the City's Fringe  
by John Vosburgh

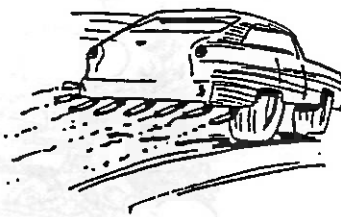
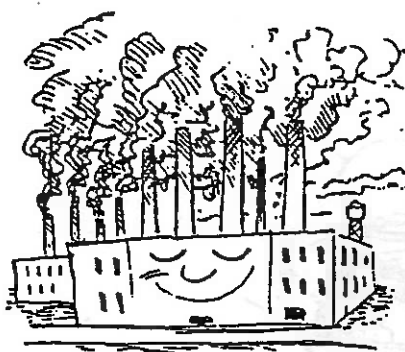
Nor Any Drop to Drink - Water - the Forgotten Crisis  
by William Ashworth  
(Water Conservation and Usage)

Water: The Nature, Uses, and Future of Our Most Precious and Abused  
Resource  
by Fred Powledge

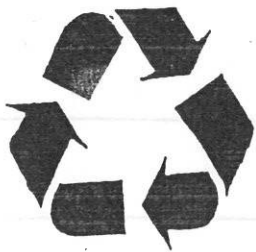
Water: The Next Resource Battle by Laurence Pringle

Future Water: An Exciting Solution to America's Most Serious  
Resource Crisis

by John R. Sheaffer and  
Leonard A. Stevens



Pollutants-Visible and Invisible



## 4-H RECYCLING RECORD SHEET

Year in Project \_\_\_\_\_

NAME \_\_\_\_\_ AGE \_\_\_\_\_

CLUB \_\_\_\_\_ Years in 4-H \_\_\_\_\_

Why did you choose this project? \_\_\_\_\_

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List at least two things you learned in this project. \_\_\_\_\_

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What experiments or activities did you do? \_\_\_\_\_

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How has this project changed the way you feel about recycling? \_\_\_\_\_

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Has your family begun recycling anything? \_\_\_\_\_ If so, what do they

recycle now? \_\_\_\_\_

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If not, why not? \_\_\_\_\_

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What did you like best about this project? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What did you like least about this project? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

How much time was required to complete this project? \_\_\_\_\_  
\_\_\_\_\_

What was the total cost of your project? \_\_\_\_\_  
\_\_\_\_\_

I have reviewed this record, and believe it to be correct.

Signature of Leader \_\_\_\_\_ Date \_\_\_\_\_

Signature of Leader \_\_\_\_\_ Date \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# TOO MUCH TRASH - THE ROAD TO INFINITY!

How much *Do* We Make? Over 150,000,000 Tons A Year!

