# RECYCLING

## BEGINNER

### UNIT II


FLOYD COUNTY

NAME_____

# RECYCLING

## BEGINNER--UNIT 2

EXHIBIT REQUIREMENTS: Poster identifying 4 recycling codes and conduct Home Survey.

REQUIREMENTS:

Note: Posters must be on 22 inch by 28 inch posterboard. Be sure to title your poster and include your UNIT number. Use 1/4" plywood or heavy cardboard on the back of the poster to add stiffness for exhibit. All posters are to be displayed horizontally. Poster exhibits must be covered with clear plastic or other transparent covering. Include an exhibit tag and attach to the lower right hand corner.

1. Design a poster identifying 4 different recycling codes used on plastic packages. Be sure to define the codes. Attach 3 samples of each of the 4 codes (a total of 12) and label what kind of container the code was found on. (Example: Sealtest Sour Cream Container has a #2 [HDPE] code number as does a Hershey Baking Cocoa container.) Try to use small containers to avoid a lot of cutting to retrieve code symbols. Check inside of lids of different containers for code symbols. Do not use the whole container.

2. Do the Home Survey. Try to involve the other members of your family in this activity. The purpose of this activity is to help you find ways that you and your family can work together to conserve natural resources and energy by reusing and recycling.

   *Attach the Home Survey to the lower left hand corner of your poster. This is part of the poster. Then cover with transparent covering.

3. Complete record sheet and turn in at Fair.

4. Spread the word! Encourage others to reuse and recycle!

# Plastics: An Overview

Plastics are coming under careful scrutiny by environmentally conscious individuals. Scientists are developing new compounds that break plastics apart when subjected to light and microorganisms. But controversy remains as to what these products will degrade into, as well as the practice of producing anything designed to be discarded.

Only two percent of all plastics made are now recycled. Because of multi-layered packaging and the infinite number of plastic compounds, separating this material seems an impossible task. However, most commonly used plastics, such as beverage bottles and milk jugs, are each made from a single type of plastic which can be easily sorted for recycling. Recently the industry adopted a seven-category recycling code to help make the sorting process more efficient.

New technologies hold considerable promise for the future of plastics recycling. Imaginative, cost-effective uses for recycled plastics, especially polystyrenes, are opening new markets for once-discarded materials.

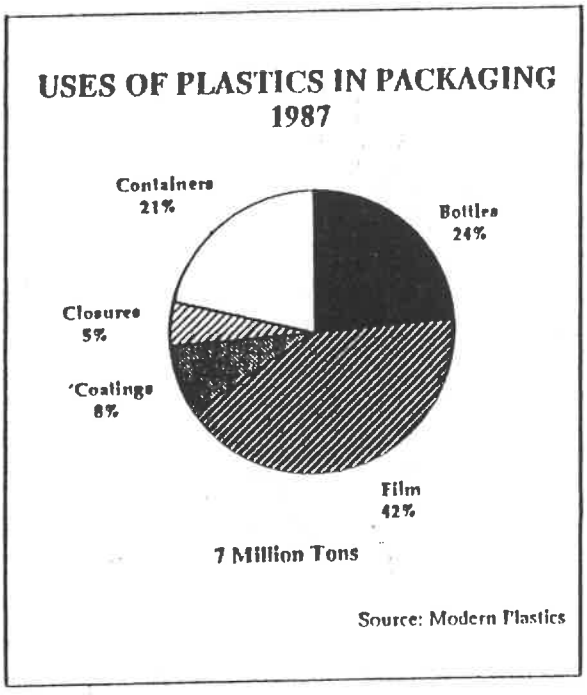
One of today's most commonly used plastic containers is the two-liter beverage bottle. Because few recycling centers in Indiana currently accept them, countless millions are needlessly landfilled within the state. Their value as a recyclable is apparent to the plastics industry; more than 100 million pounds of these bottles are recycled annually.

The bottle itself is made of polyethylene teraphthalate (PET), with a bottom base cap of high-density polyethylene (HDPE). At present, PET can be recycled into:

- Fibers--carpets, twine, rope, apparel, filters
- Textiles--belts, webbing, sails, tire cord
- Strapping
- Scouring pads
- Fence posts

PET also can be reprocessed into polyol for automobile bumpers and freezer insulation, and unsaturated polyester used in bathtubs, sinks, boat hulls, and awnings.

One popular product from recycled PET is fiberfill for cushions, pillows and insulated outerwear. Five two-liter bottles produce enough fiberfill to line an adult's ski jacket; 36 bottles can fill a sleeping bag.



The total market for fiberfill is about 250 million pounds per year, and manufacturers are eager for recycled material. Traditionally, recycled fiberfill costs half as much as material from virgin polyester.

HDPE, which is also used for milk jugs, can be recycled into new bottom base caps or products like:

- Waterproof "plastic lumber"
- Flowerpots
- Drainage pipe
- Trash cans
- Traffic barrier cones
- Signs

Some markets exist for recycling low-density polyethylene (LDPE), the thin plastic film used for sandwich, produce and garment bags.

Polyvinyl chloride, commonly known as vinyl, is another easily recyclable plastic. Uses for recycled vinyl includes:

- Drainage, sewer and irrigation pipe
- Pipe fittings
- Handrails
- Downspouts

Polystyrene foam offers considerable recycling potential. Such items as cups, plates and fast-food carry-out containers

## PLASTIC RECYCLING CODES

| CODE | MATERIAL |
|---|---|
| 1 PETE | Poly-Ethylene Terephthalate (PET) |
| 2 HDPE | High Density Polyethylene |
| 3 V | Vinyl / Polyvinyl Chloride (PVC) |
| 4 LDPE | Low Density Polyethylene |
| 5 PP | Polypropylene |
| 6 PS | Polystyrene |
| 7 OTHER | All Other Resins and Layered Multi-Material |

are beginning to be recycled in many regions in the United States.

Polystyrene foam items are being collected in special receptacles at schools, fast-food restaurants and other institutions. This material is cleaned and converted into pellets that can be used to manufacture plastic lumber, building insulation and packing materials.

**Plastics are recycled in different ways**

Plastics are shredded or baled by the local collection center before being shipped to a reclamation center.

A two-liter bottle can be reclaimed through dry or wet processes.

The dry system separates the HDPE base cups and any neck rings from the bottle. The base cups are ground and placed in one bin; neck rings in others. PET bottles are then separated by color, fed to individual grinders, then moved to air separators to remove the labels. The ground PET is then washed. The clean flakes are then sold or processed into pellets.

Wet reclamation systems feed the entire bottle into grinders. This material is washed and separated automatically into aluminum, HDPE and PET.

# Preparing Plastics for Recycling

Plastics can be tricky to recycle because there are so many kinds available. Similarly, many containers may include different types of plastics, such as two-liter beverage bottles and multi-layered plastic packaging.

However, interest in recycled plastics is growing; the industry recently adopted a standardized recycling code to help identify these materials.

Despite demand for recycled plastics in many parts of the country, the market in Indiana is relatively soft. Some recycling centers only accept polyethylene terephthalate (PET) beverage bottles and their high-density polyethylene (HDPE) base caps. Others will accept HDPE milk jugs.

To prepare plastics for recycling, remove call metal caps and neck rings. If possible, remove the labels. Rinse and drain milk jugs several times to eliminate any residues that can sour.

It is not necessary to separate the base caps from PET beverage bottles.

Beverage bottles and milk jugs can be kept in separate plastic bags for curbside collection.

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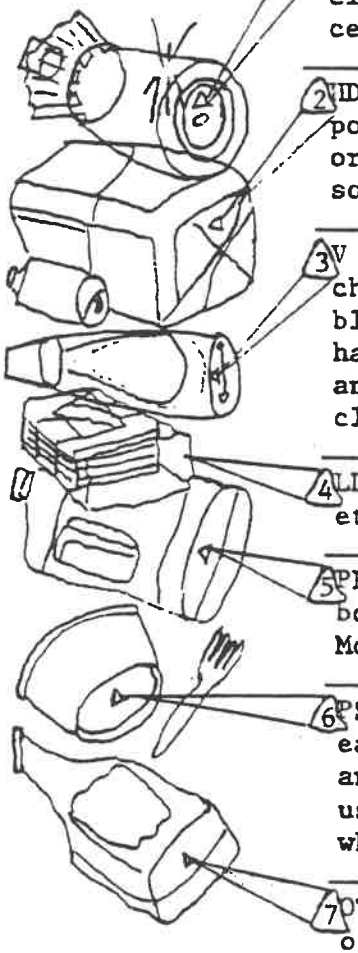
RECYCLING PLASTIC




| Sort Plastic by type: | Comment column by Recycling Task Force (opinion based on research) |
|---|---|
| 1 PET (poly-ethylene terephthalate) crystal clear. Look for the central dot. | Most easily and safely recycled |
| 2 HDPE (high density poly-ethylene) cloudy or opaque. Milk jugs, soap | Most easily and safely recycled. |
| 3 V or PVC (poly-vinyl chloride) clear or clear blue. Seam on bottom has "ears". Pinch side and the line becomes cloudy. | Toxic to melt. Suggestions:<br>-talk to mfg. about using alternate materials when ever possible |
| 4 LDPE (low density poly-ethylene) packaging film. | |
| 5 PP (poly-propylene) hazy bottles, seam on bottom. Most yougurt containers. | |
| 6 PS (poly-styrene) plastic eating utensils, plates and clear glasses. usually brittle except when Styrofoam. | Melting/burning releases ethyl benzene. When burned with paper, can get dioxins and furan (carcinogenic) |
| 7 OTHER- mixed or not one of the above. Difficult to recycle. | Recycler can't take. consumer can reduce landfilling by not buying unidentified plastics and enlisting companies to use identified plastic containers. |

## RECYCLING DEFINITIONS

| | |
|---|---|
| Adverse Impact | Unfavorable effect |
| Baling | Compressing material into a large, tightly packed bundle. Newspapers are the most commonly baled material. |
| Biodegradable | Capable of being broken down especially into harmless products by the action of living beings (as microorganisms) |
| Buy-back | Programs where material is purchased from the public. |
| Composting | An oxygen-dependent degradation process by which plant and other organic wastes decompose or rot under controlled conditions to produce a product with fertilizing and soil condition value. |
| Consumer | One who purchases goods and/or services; a customer. |
| Contaminant | A substance which causes other substances to be unfit for use by the introduction of unwholesome or undesired elements. For example, metal is a contaminant in newsprint. |
| Cullet | Broken or refuse glass, usually added to new material to facilitate melting when making glass. |
| Decompose | The breakdown of matter by bacteria and fungi. To break down into component parts or basic elements or to rot. Decomposition is needed for the continuation of life since it makes essential nutrients available for use by plants and animals. |
| Drop-Off Center | Centers where material can be brought in for recycling. |
| Energy | Usable power such as heat or electricity and the resources for producing such power. |
| Environment | The physical, chemical surrounding that create and effect on the quality of life. |
| EPA | The U.S. Environmental Protections Agency, the primary federal agency concerned with natural resources. |
| Ferrous metal | Metal containing iron. Ferrous metal will stick to a magnet. |
| Garbage | Food waste. |

| | |
|---|---|
| General Fund | Local tax revenues, generally obtained through property taxes. |
| Generate Trash | Solid waste that is disposed of by an individual or a company. |
| Groundwater | The supply of fresh water found beneath the Earth's surface often used for supplying wells and springs. It is the major source of drinking water. It is susceptible to contamination from agricultural or industrial substances draining through leachate into the groundwater supply. |
| Hazardous | Harmful to health and/or dangerous. |
| IDEM | The Indiana Department of Environmental Management. |
| 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.. |
| 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. |
| Non-ferrous metal | Metal without iron, such as aluminum. |
| 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. For example: coal, copper and petroleum. |
| Packaging | The sealed wrapping of a product, covering wrapper or container.<br>1. Essential Packaging - The product wrapping and sealing necessary for consumer protection.<br>2. Older Packaging - Minimum packaging or buying in bulk.<br>3. Modern Packaging - The excessive use of plastic and/or shrink wrap to improve the appearance in order to promote the sale to the consumer. |

4. Natural Packaging - That which occurs in nature. For example: bananas, apples, eggs.

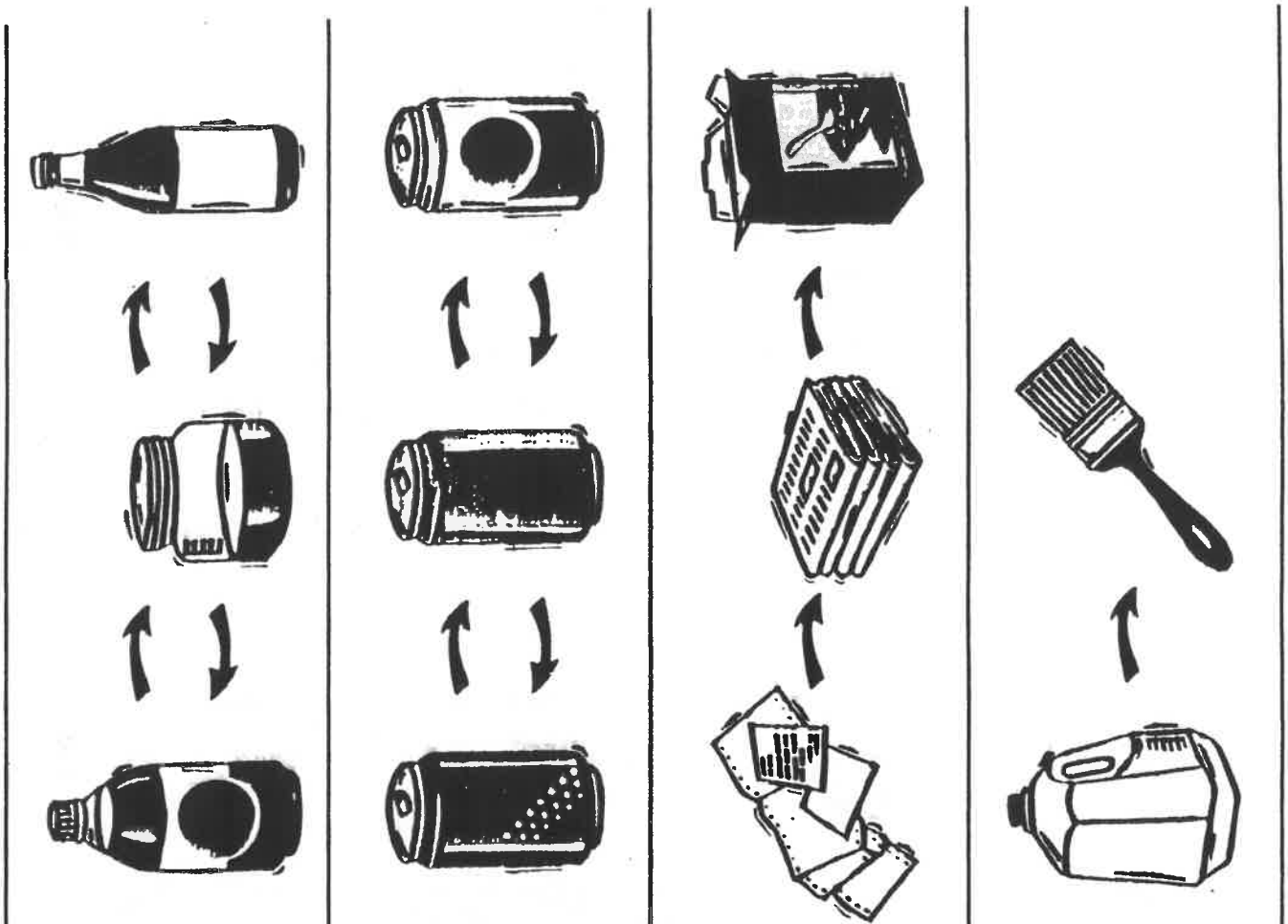
| | |
|---|---|
| Palletize | To place on a portable platform for handling, storing or moving materials and packages. |
| Pollution | The impure condition caused by contamination. A man-made or man-induced alteration of the physical, biological state. |
| Prohibited Materials | Materials that absolutely cannot be contained in a load of recycled material. As an example, ceramics are a prohibited material for glass collection. A processor could reject a load if it contains any prohibited material. |
| Recycling | A closed-loop 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. The reuse of materials that we have thrown away. |
| Resource Recovery | The generation of energy from solid waste through combustion with the extraction of some recyclable materials as a by-product. |
| Roll-Off | A bulk container for holding waste materials. Small roll-offs are picked up and emptied into a waste disposal truck; large ones are mechanically pulled onto a roll-off bin truck, trailer or transfer trailer. |
| Salability | How the manufacturer or store wraps or displays a product so that it will appeal to the customer. |
| Separation | Sorting material by its physical properties including color, luster, size, shape, brittleness, texture, structure or surface characteristics. |
| Shredding | To break up into long narrow strips. Cans and paper are usually shredded. |
| Solid Waste | Residential, commercial and industrial wastes. It does not include hazardous wastes which are covered under the Resource Conservation and Recovery Act (RCRA) and certain Indiana statutes. |
| Source Separation | Sorting specific discarded materials at the point of generation into separate containers for collection. |
| Synthetic | Manmade from other sources. For example, petroleum is taken from the ground in its natural crude oil state. By using manufacturing processes, synthetics such as gasoline or plastics are made. |

| | |
|---|---|
| Toxic Materials | A chemical or mixture that may present an unreasonable risk to health or to the environment. |
| Wasteful | Excessive, unnecessary. To use foolishly or needlessly. |
| Zoning | The legal designation of the purposes that can be conducted in an area. Recycling centers are usually in areas zoned for industry, business or commerce. |

## HOW MANY RECYCLING LIVES CAN PRODUCTS HAVE?

Recycling is the refining or reprocessing of discarded materials into new products—again and again and again. Different products have different levels of reuse—or "lives."

### SOME MATERIALS RECYCLE BETTER THAN OTHERS



**GLASS**

Glass containers are 100 percent recyclable—they never have to reach a landfill. At least 30 percent of the glass on store shelves is recycled glass.

**ALUMINUM**

Aluminum can also be endlessly recycled; using recycled instead of raw materials saves 95 percent of the energy needed to produce new cans.

**PAPER**

As paper is recycled, its quality degrades slightly, and eventually, the paper may end up in a landfill. But one ton of recycled paper saves 17 trees.

**PLASTICS**

Recycling plastic gives it an extra "life," turning a milk jug into a paint brush handle or park bench. But even recycled plastic may end up in a landfill.

# RECYCLING FOR FLOYD COUNTY

Sam Peden Community Park - Grant Line Park - 10:00 AM - 5:00 PM on Saturday and noon to 5:00 PM on Sunday. The center, sponsored by the Trash Force, a volunteer group organized by the Floyd County Community Education Council, accepts aluminum, cardboard, newspapers, clean glass containers and plastic-milk jugs and 2-liter containers. Volunteers are needed to help staff the center. To volunteer, call 944-9661 or 948-9248

Sertoma Park, on Mill Lane off Old Ford Road, accepts recycling items at different times through the year. Times and dates are published in the Indiana Weekly. They accept clean glass containers, newspapers, aluminum cans and plastic milk jugs and 2-liter bottles.

Riverside Recycling - 1001 Floyd - New Albany, In. - Hours 7:00 AM - 6:00 PM Monday - Friday, 7:00 AM - 3:00 PM Sat. and 9:00 AM - 12 Noon on Sunday. They buy aluminum cans, newspapers, corrugated boxes, glass containers, assorted metals, 2-liter plastic contaiers and plastic milk jugs.

McDonalds - Charlestown Road - Drop off container behind restaurant for corrugated cardboard.

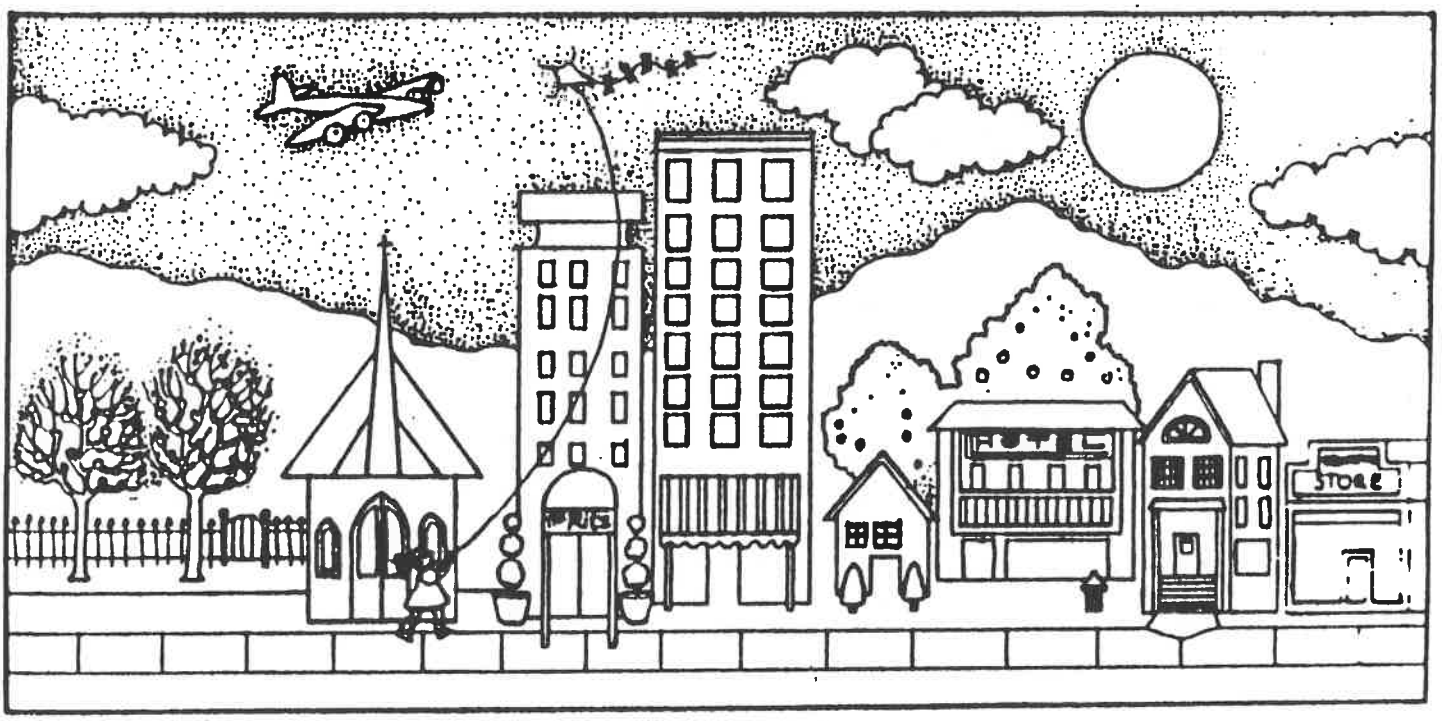
Kroger Stores - Accept plastic bags and brown paper bags.

Winn Dixie - Grant Line Road - Accept aluminum cans, plastic and brown paper bags.

K-Mart - Accept car batteries if purchasing a new battery.

Georgetown, Indiana - Drop off basket for aluminum drink cans.

Other Recycling Centers in the Kentuckiana Area are listed in the yellow pages of your phone book.



# HOME SURVEY

Name_____

1. Make a list of all the disposable products that you and your family buy in two weeks.

2. How many of these products are made of:
   wood ? _____ cellophane ? _____ fabric ? _____ metal ? _____
   plastic ? _____ cardboard ? _____ styrofoam ? _____ glass ? _____
   paper ? _____ food ? _____ other materials ? _____

3. What kinds of packages did they come in?

4. Which items are biodegradable? Place a "b" beside those that are biodegradable.
5. Can you think of other reusable products you could buy instead of "throw aways"?

6. Which of these products do you and your family recycle? How do you recycle them?

7. Which of these products could you recycle that you and your family don't already recycle?

8. Besides buying reusable products and recycling, what other ways can you work to reduce the amount of materials wasted in our country today?

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- CUT AT ABOVE LINE -

Fill out Home Survey. Cut at above line.
The Home Survey will be part of your poster exhibit.
Attach the Home Survey to the lower right hand
corner of your poster.
Place Home Survey under the plastic covering.

# RECYCLING — BEGINNER UNIT 2 RECORD SHEET

Name _____

Address _____

Year in Club Work _____ Present Age _____

Name of 4-H Club _____

Leader's Signature _____

Date _____

1. What did you learn from this project? _____

_____

_____

2. Did your family get involved with you on this project? _____

3. What did you enjoy most about this project? _____

_____

_____

_____

4. What did you dislike about this project? _____

_____

5. Demonstration or Illustrated Talk: _____

_____

_____

_____

_____

6. List the names of people you have shared your recycling knowledge with:

_____ _____

_____ _____

_____ _____

_____ _____

Signature of 4-H'er _____

Date _____