EXPERIENCE

4-H NATURAL RESOURCES

What about Waste?

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4-H Leader's/Teacher's Guide

A Cornell Cooperative Extension Publication

Contents

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Helping You Put Knowledge to Work

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This project is part of a series designed to introduce youth to a variety of subjects in environmental sciences by involving them in activities that heighten their awareness of the natural world. Leaders, teachers, parents, and camp counselors need no background in environmental sciences to work on these activities with youth.

Introduction

Only 6% of the world's population lives in the United States, yet we produce 50% of the world's garbage. Why? We Americans buy more than we need. We also throw out many things unnecessarily. There is no longer unlimited space in our country to dump all the garbage we produce. In addition, resources such as oil and minerals, which we use to make many products, are limited. We need to change our habits and reduce the garbage that we produce and send to **landfills.**

For years, **solid waste** has been burned as well as dumped into oceans and rivers and on land. These methods of disposing of waste contribute to air and water **pollution**.

We can all help out by **reducing, reusing, recycling,** and **composting.** The more we reduce, reuse, recycle, and compost, the more slowly our landfills will fill up.

Reduce

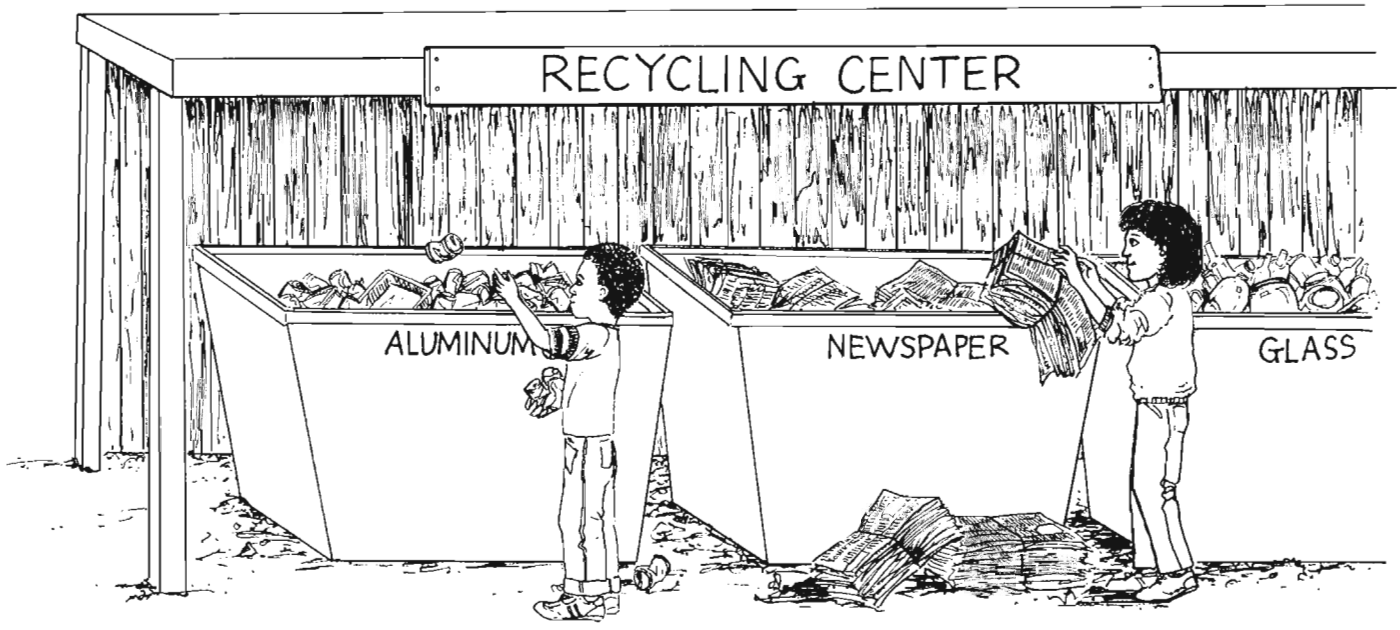
If we are careful not to buy products that have excessive wrapping or extra packaging, we will produce much less **packaging wastes**. Reducing the amount of overpackaged items that we buy is the first step toward decreasing the solid waste we produce.

Reuse

A lot of objects can be reused instead of being thrown out. Items such as paper and plastic bags, jars, bottles, cans, and boxes can be used to serve another purpose. Containers of all shapes and sizes have more than one life.

Recycle

Items such as glass, paper, aluminum, steel, and plastic can be recycled—that is, used to make new products. Find out what materials your community is recycling and how and when those materials are collected.Youth can participate in a **recycling program** with their family, at camp, or in school by collecting recyclable materials such as glass, newspapers, plastics, and aluminum and sorting them. Sorted items are then brought to a recycling center, also called a **material recovery facility.** A factory that recycles glass does not want newspaper mixed in with bottles, so sorting items correctly is an important responsibility.



Compost

Kitchen, garden, and **yard wastes** can be composted. Composting is the breaking down of **organic material,** such as kitchen and garden wastes, into a substance that resembles soil. This substance, called **compost,** is rich in nutrients and can be used to help your garden and house plants grow. By placing kitchen and garden wastes in a bin or pile to make compost, you send less garbage to landfills.

Reducing, reusing, recycling, and ***composting*** wastes are solutions to our country's trash problems. You can help solve the trash problems in your community by teaching the youth in your family, camp, club, or classroom about solid waste and its disposal.

Facts about Resources and Wastes

• 62,860 trees must be cut to provide enough wood pulp for one day's edition of the *New York Times.*

• We save money and energy by using recycled rather than raw materials in manufacturing. When we recycle aluminum, we use 95% less energy than when aluminum is mined from **ore.**

- 80% of the trash in the United States is dumped in landfills.
- From 1984 to 1988, 30% of the landfills in the United States were closed because they were either unsafe or filled to capacity. More are closed every week.
- Each person in the United States produces 1,825 pounds (828 kilograms) of garbage per year.
- Approximately 24% of the garbage that we throw out could be composted.

Getting Started

As with any environmental problem, it's important that we support the efforts of the local, state, and federal governments to find solutions. We must also try to change our individual behaviors that contribute to the problem. The first step in changing our "trash habits" is to become aware of the solid waste crisis. This project is designed to make youth aware of the waste disposal problem and how their habits contribute to it. Once aware of the problem, youth may want to learn how they can help solve it. Two other 4-H manuals, *Composting: Wastes to Resources* and *Recycling: Mining Resources from Trash,* are available to help families, camps, schools, and youth groups set up composting and recycling projects.

Most of the activities in this project take between thirty minutes and one hour. The materials required are commonly found around the home or at your camp or school. Very little money is needed. Follow-up questions are included with each activity to stimulate thought and discussion and to help reinforce learning.

Before beginning the activities, you may want to get the youth in your group thinking about the solid waste problem by asking the following questions. Possible responses follow each question.

Discussion Questions

How can we reduce the amount of waste that we send to landfills?

• Reduce, reuse, recycle, compost; buy items that are sturdy and long lasting.

Why do we need to reuse, recycle, and compost?

• **Virgin resources,** which come directly from nature, are becoming scarce. We can preserve our virgin resources by recycling materials that have already been mined or harvested.

• Landfills are filling up at alarming rates.

• Improper dumping creates environmental problems.

• Recycling materials takes less energy than using resources directly from nature.

Why not burn all garbage?

• We would be burning a lot of valuable **natural resources,** which we could reuse, recycle, or compost. Our natural resources are becoming scarce.

• Burning wastes may release dangerous materials into the air. This causes air pollution.

• When garbage is burned, **toxic** materials present in the garbage are concentrated into small amounts of ash. It is very difficult to dispose of this ash safely.

How can we reuse garbage that we might normally throw away?

• Empty containers and bottles can be used to store things and to hold plants, flowers, food leftovers, or pens and pencils. Rubber tires can be made into swings or bumpers for boats. In some countries, old tires are used to make soles for sandals.

How can we produce less garbage in our camp, school, or home?

• Buy products that are sold in large reusable containers and that are not overpackaged.

• Reduce, reuse, recycle, and compost!

How does nature recycle?

• In nature, fallen leaves and other dead materials are broken down by small animals in the soil. The dead materials gradually turn into a rich, brown soil in which new plants grow. This natural process is very similar to the composting that *you* can do with kitchen and yard wastes.

Why should we compost kitchen wastes?

• It's easy to set aside kitchen scraps for a **compost heap.** As a result, we send less waste to landfills and we enrich the soil for our plants and gardens.

Activity 1.
Making Paper

Where does paper come from? Paper is made from **wood pulp,** which comes from trees. Although trees are a **renewable resource,** it takes many years to replace a single tree. Paper products add to our garbage problem. When paper is exposed to air and water, it breaks down easily. In landfills, however, garbage is compacted so that it is not exposed to air and water. Paper in landfills may take hundreds of years to break down. For this reason, it's better to recycle paper than to discard it in landfills.

In this activity, youth will "recycle" paper—that is, they will make new paper from used paper.

What Youth Discover

- Paper can be recycled.

What You Need

- 10 sheets of newspaper
- a large pot
- 2 cups of water
- a blender (or an egg beater or large spoon if you have no blender)
- a deep pan, a little larger in area than the screen
- optional: 2 tablespoons liquid starch (to make stiffer paper)
- a piece of screen, about 5 inches by 10 inches (12.5 cm by 25 cm)
- additional pieces of newspaper for blotting
- a round jar or rolling pin

What to Do

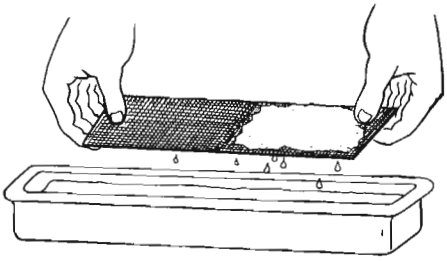
1. Tear the 10 sheets of newspaper into very small pieces. Place them in the large pot. Pour in the water and let the mixture sit for a few hours, until the paper is soggy.

2. Blend the water and the soggy paper in the blender in small amounts, or mix them thoroughly with the egg beater or the spoon. The mixture should have the consistency of oatmeal.

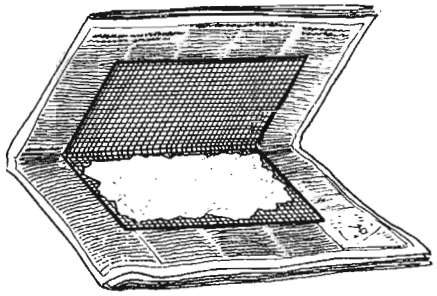
3. Pour the mixture into the pan and add the starch if you want stiffer paper. Stir for about 3 minutes.

4. Slide the screen under the pulp. Move the screen around until the pulp covers half of the screen. You can also spread handfuls of pulp on the screen. The pulp should be about 1/8 inch (3 mm) thick.

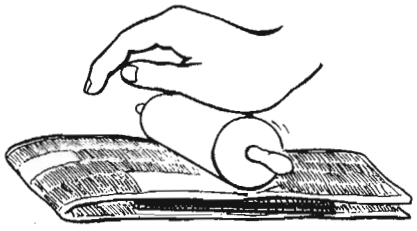
5. Lift the screen out carefully. Hold it level and let it drain for about one minute.



6. Fold the other half of the screen over the pulp and place it on several layers of newspaper. Put more newspaper on top.



7. Roll the rolling pin or the jar over the newspaper "sandwich" to squeeze out the rest of the water.



8. Take off the top newspaper. Remove the pulp from the folded screen. It will be your paper!

9. Allow your recycled paper to dry overnight before you write on it.

Follow-up Question

What kinds of paper are you recycling in your home, school, or camp?

Activity 2.
Garbage Gobblers

Leaves drop from trees, grass clippings are left after you mow the lawn, and plants and animals die. Can you imagine how the world would look if leaves and other dead things never rotted and turned back into soil? The piles would be higher than the trees themselves! Fortunately, tiny plants and animals live in the soil and, with the help of air and water, break down the dead materials. This process produces a rich, dark, soil-like material called compost. These same tiny plants and animals can help you compost your kitchen wastes.

In this activity, you will see that some wastes break down faster than others and some wastes never break down. Once you start this activity, allow time for the wastes to break down. You should notice some results by the end of one week.

Note: Meat scraps and grease should not be put in compost piles! They will attract unwanted animals and inhibit the composting process.

What Youth Discover

- **Microorganisms,** fungi, and small animals living in the soil help break down some wastes into compost.
- Some kitchen wastes break down quickly whereas others take a long time.

What You Need

- flower pots or yogurt containers
- soil that contains organic material (for example, decaying leaves or twigs), dug up from the woods or your backyard
- sterile potting soil, perlite or vermiculite (sterile mix)
- organic wastes, such as apple cores, banana peels, orange peels
- paper wastes, such as paper napkins, shredded newspaper, paper bags
- plastic wastes, such as plastic bags, or styrofoam chips or cups
- metal wastes, such as aluminum foil
- labels to stick on the flower pots
- the record sheet included with this activity

What to Do

1. Fill half the pots half full with soil. Fill the other half of the pots half full with sterile mix.

2. Gather your organic, paper, plastic, and metal wastes. Place one-half of each waste in a pot with soil and the other half in a pot with sterile mix. For example, place one apple core in a soil pot and one apple core in a sterile mix pot. Place three styrofoam chips in another soil pot and three styrofoam chips in another sterile mix pot. Label each pot with the name of the waste in it.

3. Cover the wastes in soil with more soil, filling the pots to the top. In the same way, cover the wastes in sterile mix with more sterile mix. Add water to all the pots so that the soil and sterile mix are damp but not wet to the touch. Check the pots every few days to be sure they are still moist.

4. After one week, examine the wastes in each pot. Which wastes are breaking down? Did the wastes in the soil break down faster than the wastes in the sterile mix? Why do you think there is a difference?

Soil **Sterile mix**

5. Record your observations on the record sheet. Cover the wastes again and continue to check them once a week for as long as you want.

Follow-up Question

Would you add soil or sterile mix to garden and yard wastes in a compost pile to help wastes break down? Why?

Garbage Gobblers Record

Name: _____ Date experiment started: _____

Fill in the following table each time you check your pots. Under "Waste," write the name of the item that you buried in the pot. Under "Compost," describe the condition of the item buried in compost each time you check it. Include such things as how decomposed the item looks, what color it is, and whether or not you see fungi (spots or thin strands) on it. Under "Sterile Mix," describe in the same way the condition of the item buried in sterile mix.

Date: _____ Time since waste was buried: _____

	Waste	*Compost*	*Sterile Mix*
1.	_____	_____	_____
		_____	_____
		_____	_____
2.	_____	_____	_____
		_____	_____
		_____	_____
3.	_____	_____	_____
		_____	_____
		_____	_____
4.	_____	_____	_____
		_____	_____
		_____	_____
5.	_____	_____	_____
		_____	_____
		_____	_____

Which items broke down most quickly?

Which items didn't break down at all?

In general, did items break down more quickly in compost or in sterile mix? Why do you think this is true?

Activity 3.
Trash Bag Investigation

Where does our garbage go? Can we reduce the amount of waste we send to landfills by doing other things with our garbage? Explore the many alternatives we have for dealing with waste with your youth group. By discussing each item in a bag of garbage, you and your youth group can decide which items weren't useful in the first place, which items can be reused, recycled, or composted, and which items should be sent to a landfill or an incinerator. We will always create trash, but it would be great if we learned to reduce the amount of waste we produce and to deal responsibly with the rest.

What Youth Discover

- Many items, including extra packaging, may not have been necessary in the first place.
- Many items can be reused, recycled, or composted.

What You Need

- 1 large paper or plastic bag filled with the following: (**Note**: Make sure the garbage is clean.)
  - 1 plastic container (for example, a yogurt container or a milk jug)
  - 1 plastic bag
  - newspaper
  - office paper (white or colored high quality paper)
  - a piece of old fruit or vegetable
  - a glass bottle or jar
  - a deposit bottle
  - other "waste" items that you may have on hand
- chalk and a blackboard or a pencil and a large piece of paper

What to Do

1. Assign one person to record the group's findings on a blackboard or a large piece of paper.

2. Pull out one item at a time from the garbage bag.

3. Discuss the following questions with your group: Was the item really necessary in the first place? *Must* the item be sent to the landfill? What can be done with the item? (You will be surprised by the good uses your group will suggest.) Include the following recommendations in your discussion:

- **The plastic container:**

Reuse, as a drinking cup, as a craft project, or for storing things.

Recycle. Some communities now recycle plastic; the technology that is used is becoming more widespread.

- **The plastic bag:**

Reuse, such as for carrying lunches or storing things. Reuse grocery bags for your purchases at the supermarket.

- **Newspaper:**

Reuse, to protect a table or section of floor, to start fires, or for a craft project.

Recycle newspaper.

- **Office and computer paper:**

Reuse as scrap paper.

Recycle.

- **Old fruit, vegetables, egg shells, and other food wastes:**

Compost, or feed to farm animals.

- **The glass bottle:**

Reuse, then *recycle.*

- **The deposit bottle:**

Recycle, by returning it to the store for a deposit.

Follow-up Question

What would happen to our garbage problem if more people knew about reducing, reusing, recycling, and composting wastes?

Activity 4.
Waste Watchers

How much garbage do you produce? We don't usually think about how much waste we send to our landfills or incinerators. Once it is bagged and taken away, garbage is of little concern to most Americans. This activity shows youth that even a small group of people affect the **waste stream.** In this activity, you and your group will calculate how much trash you actually contribute to a landfill or send to an incinerator. By dividing wastes into categories (glass, plastic, paper, aluminum), it is easy to see how much garbage can be reused, recycled, and composted.

What Youth Discover

- We produce a lot of waste.
- Garbage can be sorted, then reused, recycled, or composted.

What You Need

- a large bag for each youth
- a paper and a pencil
- a scale
- a telephone (to call a local county office such as the Sanitation Department, the Department of Public Works, or the Department of Environmental Conservation)
- the record sheet included with this activity

What to Do

Ask each youth in your group to carry a bag for one day and put into it all the items that she or he would normally throw away. At the end of the day, have each group member weigh the bag. Have older youth sort the contents of the bag into the categories shown on the record sheet, weigh the materials in each category, and record the results on the record sheet.

Discuss the following questions with older youth:

- What types of garbage did you produce the most of?
- Which items in your bag will last a long time in the landfill?
- How could some of your garbage have been packaged differently to create less waste?
- Which items in your bag could have been reused?
- How did it feel carrying your garbage all day? Imagine the strain garbage puts on the landfill and, later, on the environment.

After the youth in your group have weighed their bags, have them complete the record sheet.

Follow-up Activity

Have the youth in your group put together all the facts they learned and share the information with their parents, camp director, teacher, principal, or youth group leader.

Waste Watchers Record

Name: _____ Today's date: _____

How Much Did You Collect?

	Total Pounds per Day	x 7 = Total Pounds per Week	x 52 = Total Pounds per Year
Newspaper			
Magazines			
Other paper			
Metal food cans			
Metal drink cans			
Glass jars			
Glass bottles			
Other glass			
Plastic milk bottles			
Plastic soda bottles			
Plastic bags			
Plastic food wrappers			
Other plastics			
Food wastes			
Leaves/grass/yard materials			
Other kitchen/yard/garden wastes (list)			
Total			

Total pounds in one year _____

1. How much garbage did you produce in one day? ____ pounds

2. How many people are in your group? ____ people

3. How much garbage was produced by your group in one day? ____ pounds

4. Multiply the amount of garbage collected by your group in one day (#3) by 7 to find out how much garbage your group produces in one week.

____ pounds x 7 = ____ pounds

5. Multiply the amount of garbage the group generates in one week (#4) by 52 (the number of weeks in one year). This is the amount of garbage your group produces in one year.

____ pounds x 52 = ____ pounds

This is a large amount of trash!

6. Where does your garbage come from (for example, the mess hall, the cafeteria, a craft room, the classroom, the cabins)?

7. How is garbage disposed of in your community? (You may need to call a department in your city, town, or county to find out.) Is it disposed of by burning, landfilling, composting, recycling, or shipping to other states?

8. Is there a recycling program in your area? ___No ___Yes.

Who runs it?

9. What materials are collected for recycling?

10. How can you and your group get involved in recycling?

Activity 5.
Trash Trivia Game

In the previous activities, youth have seen immediate effects on the waste stream of reducing, reusing, recycling, and composting. In this activity, youth are exposed to facts about solid waste. The game also reviews what the youth have learned from other activities in this project.

What Youth Discover

- Facts and figures about solid waste
- The magnitude of the solid waste problem

What You Need

- 38 game cards provided with this activity (make photocopies of the cards if more are needed)
- a timer
- a pencil or a pen
- the score sheet included with this activity

What to Do

1. Divide your group into two to four teams with three to four youth per team.

2. Decide which team will go first, second, etc.

3. Have a member from the second team pick a card and read the question and the three possible answers. The correct answer is bolded. The first team has 30 seconds to answer the trivia question.

4. If the members of the first team answer correctly, the team takes another turn. Otherwise, the second team takes a turn. The third team picks a card and reads the question and answers to the second team. (If there are only two teams, they alternate turns.)

5. Each team gets one point for a correct answer. Record the points on the Trash Trivia Score Sheet.

Trash Trivia Cards

What country has 6% of the world's population and produces 50% of the world's garbage?

A. Russia

B. China

C. The United States

What percentage of landfills in the United States were closed between 1984 and 1988?

A. 30%

B. 5%

C. 50%

How many trees must be cut to provide paper for one edition of the *New York Times?*

A. 62 trees

B. 628 trees

C. 62,860 trees

What is New York's largest export?

A. Food

B. Waste paper

C. Shoes

How many trees are saved when one ton of paper is recycled?

A. 5 trees

B. 17 trees

C. 100 trees

How many pounds of glass does each person in the United States use each year?

A. 100 pounds

B. 10 pounds

C. 50 pounds

How many tons of dangerous waste are produced by American industries each year?

A. 3,000 tons

B. 1 million tons

C. 250 million tons

What percentage of Japan's waste stream was recycled in one very effective program?

A. 30%

B. 50%

C. 80%

What percentage of our waste goes to landfills?

A. 25%

B. 50%

C. 80%

How many tons of solid waste does New York State produce in one day?

A. 270 tons

B. 2,700 tons

C. 27,000 tons

When you pay $11.00 for groceries, how much of that money pays for the product packaging?

A. 10¢

B. $1.00

C. $5.00

Shouldn't we put all our wastes in a landfill?

A. Yes. Out of sight, out of mind.

B. No, everyone should dig a hole in his or her backyard.

C. No! Fewer and fewer communities allow landfills to be built. Land is in demand for housing and recreational use. Many communities are concerned about pollutants that seep from a landfill site.

What percentage of our garbage is plant matter and can be composted?

A. 24%

B. 80%

C. 3%

Name something that is made from recycled glass. *(Don't read the answer.)*

Bottles, bricks, building materials, road-building materials, fiberglass insulation

According to the law, by what year should all communities in New York State have started recycling programs?

A. 1980

B. 1992

C. 2000

In how many weeks is the average aluminum can remelted and back on the supermarket shelves?

A. 2 weeks

B. 30 weeks

C. 6 weeks

Why should you recycle your glass and metal drink containers? *(Don't read the answer.)*

Much less energy is used to make a bottle or can from recycled materials than from raw materials. We may run out of raw materials to make glass and cans if we do not recycle.

Which process uses less energy—producing aluminum cans from ore, or producing cans from recycled aluminum?

A. Both processes use the same amount of energy.

B. Less energy is used when aluminum is mined from ore.

C. Less energy (90% to 95% less) is used when aluminum cans are recycled.

When you buy a product, what percentage of its total cost is for packaging expenses?

A. Up to 50% of the total cost

B. 70% of the total cost

C. 3% of the total cost

How many tons of solid waste does the world currently produce each year?

A. 7 tons

B. 1,000 tons

C. 1/2 to 1 billion tons

What percentage of trash is discarded packaging wastes?

A. 70%

B. 30% to 40%

C. 5%

Which process uses less energy—making paper from old paper, or making paper from freshly cut trees?

A. Making paper from trees uses less energy.

B. There is no difference.

C. Making paper from old paper uses less energy (1/2 to 2/3 less energy).

Which process causes more air pollution—making paper from trees, or recycling paper?

A. Making paper from trees causes more air pollution (95% more).

B. Recycling paper causes more air pollution.

C. Both processes cause the same amount of pollution.

Approximately how many pounds of solid waste per person are put in landfills each year in the United States?

A. 2,000 pounds

B. 100 pounds

C. 500 pounds

How many tons of paper that could be recycled are thrown away each year in the United States?

A. 40 million tons

B. 1 million tons

C. 1 billion tons

In a landfill in the northeastern United States, how many years does it take for plastic to break down?

A. More than 300 years

B. 5 years

C. 50 years

In a landfill in the northeastern United States, how many years does it take for an aluminum can to break down?

A. More than 200 years

B. 10 to 30 years

C. 100 years

Name an item that could be reused but is normally thrown away. *(Don't read the answers.)*

yogurt container **rubber tire**

styrofoam package **coffee can**

plastic bag **glass bottle**

(and many other items)

How many weeks does it take for a banana peel to turn to compost?

A. 1 to 6 weeks

B. 20 weeks

C. 50 weeks

What should you do when you have finished a can of soda pop?

A. Crumple it up and throw it on the ground. It will rot in a while.

B. Throw it in a trash can with other paper wrappers and garbage.

C. Place it where you keep other cans to be recycled, or return it for a deposit.

In a landfill in the northeastern United States, how long does it take for a cigarette filter to break down?

A. 5 months

B. 10 weeks

C. More than 10 years

What two items should you keep out of your compost?

A. Apple cores

B. Egg shells

C. Aluminum cans

D. Meat scraps

What natural resource is used to make paper?

A. Grass

B. Trees

C. Stones

Why shouldn't we dump our wastes in the ocean?

A. Garbage breaks down faster in a landfill.

B. Wastes pollute the ocean and harm animals and plants that live there.

C. It makes tidal waves.

What animal is not supposed to be in your compost pile?

A. A worm

B. A rodent

C. A spider

What can you do with compost made from your kitchen and yard wastes?

A. Send it to the landfill.

B. Use it to enrich the soil in your garden.

C. Feed it to your dog.

Where is natural compost found?

A. In the air

B. In the soil

C. Under your bed

If we recycled the aluminum trash that Americans throw away every three months, we could:

A. Rebuild the entire U.S. airline fleet.

B. Save a lot of energy.

C. Conserve valuable resources.

D. All of the above.

Trash Trivia Score Sheet

Team #1	Team #2	Team #3	Team #4
Total _____	Total _____	Total _____	Total _____

Additional Activities

• Take your group on field trips to a recycling center, a managed landfill, a composting site, an incinerator (**waste to energy facility**), or a paper mill.

• Make a recycling plan for your camp, school, or home. How will wastes be separated? How will they be picked up? How can you get everyone to participate and to follow the plan correctly?

• Have the youth in your group find out more facts about solid waste and make up their own trivia questions.

Vocabulary

Compost. A rich soil-like mixture that is produced when organic materials, such as yard, garden, and kitchen wastes, break down.

Compost heap. A pile of yard and garden or kitchen wastes (not including meats) that are left to break down, or rot.

Composting. Converting organic wastes into a fertile soil-like material.

Garden wastes. Plants and plant parts from the garden that can be composted (for example, weeds, over-ripe vegetables, wilted or bug-eaten greens, and old flowers).

Incinerator. See **waste to energy facility.**

Kitchen wastes. Leftover food scraps, such as potato peels, apple cores, moldy food, and wilted lettuce, which can be composted. (Meat scraps and grease should *not* be added to compost.)

Landfill. A large area of ground where garbage is placed and then covered with a layer of dirt. Landfills reach a certain capacity and then have to be closed. Landfills can be dangerous to the environment when toxic chemicals leak into the soil.

Material recovery facility. A building to which valuable materials, such as plastic, glass, paper, and metal, are brought and then sorted for resale to different recycling plants.

Microorganisms. Tiny living things that can be seen through a microscope.

Natural resources. Things in the world around you, such as trees, water, animals, and soil, which are used to make many products and are appreciated by people for their beauty.

Ore. A material from which valuable minerals can be mined.

Organic material. Matter that comes from living things, for example, leaves, vegetable scraps, and banana peels.

Packaging wastes. Plastic wrappers, styrofoam, and other materials that are used to cover or protect a product and are then thrown out.

Pollution. In our environment, the condition of being dirty, especially as a result of wastes. For example, burning garbage makes the air dirty and less healthy to breathe, causing air pollution. Dumping garbage into a lake, stream, or ocean makes the water dirty and unhealthy for fish and other water animals and plants, causing water pollution.

Recycling. Making items such as glass, aluminum, paper, steel, and plastic into new products.

Recycling program. A program that ensures that wastes will be used to make new products. A recycling program often involves collecting and sorting wastes such as glass, aluminum cans, plastic, and paper. These items are then brought to factories which make them into usable products. For example, a glass recycling factory crushes and melts old bottles and makes them into new bottles.

Reducing. Decreasing the solid waste we produce by buying only what we need and by buying products that are not overpackaged.

Renewable resource. Something we use from nature that can be replenished. For example, trees are a renewable resource; a tree can be planted in the place of one that has been cut down. Oil is not a renewable resource; it takes millions of years for oil to form.

Reusing. Finding another use for an item already used once instead of throwing the item out.

Solid waste. Household trash, yard and kitchen wastes, old machinery and equipment, and many agricultural and industrial wastes—the things that people throw out.

Toxic. Poisonous.

Virgin resources. Things that are taken from nature, then processed and used by people. For example, wood is a virgin resource. Trees must be cut down before lumber or paper can be produced. Aluminum is also a virgin resource. Ore must be mined before cans or construction materials can be manufactured. Both paper and aluminum are recyclable!

Waste stream. Everything, liquid and solid, that is disposed of by people and industries.

Waste to energy facility (incinerator). A place where waste is burned and energy is recovered.

Wood pulp. A mushy paste of chopped up wood which is used to make paper.

Yard wastes. Grass clippings, dead leaves, small branches, and weeds.

Other Resources

Cobb, Vicki. *Lots of Rot!* New York: J.B. Lippincott, 1981.

Composting: Wastes to Resources. Ithaca, N.Y.: Cornell Cooperative Extension, 1990. Available from Distribution Center, 7 Cornell Business and Technology Park, Ithaca, NY 14850.

Here Today, Here Tomorrow: Revisited. New Jersey Department of Environmental Protection, Division of Solid Waste Management, 1989.

Nutrition Comes Alive, Level 6, A Case of Waste. Ithaca, N.Y.: Division of Nutritional Sciences, Cornell University, 1986.

Recycle for Reuse. 4-H leader-member-family guide. Madison, Wis.: Cooperative Extension Service, University of Wisconsin Extension.

Recycling: Mining Resources from Trash. Ithaca, N.Y.: Cornell Cooperative Extension, 1990. Available from Distribution Center, 7 Cornell Business and Technology Park, Ithaca, NY 14850.

Recycling Study Guide. Wisconsin Department of Natural Resources, January, 1988.

Waste—Choices for Communities. Washington, D.C.: Concern, Inc., 1988.

Woodsy's Wastewise. Cornell Cooperative Extension. A slide program (with script) on solid waste for 7- to 12-year-olds. Available from AV Distribution, 8 Cornell Business and Technology Park, Ithaca, NY 14850.

What about Waste? Project Record

Name: _____ Date: _____

What did you learn about waste through this project?

Will you change your "trash habits" as a result of what you've discovered here? ___No ___Yes.

What changes will you make?

How will you reduce the amount of waste you produce?

How will you reuse products?

What will you recycle?

Do you plan to compost your yard, garden, and kitchen wastes? ___No ___Yes.

What was most interesting to you about this activity?

Cornell Cooperative Extension 4-H Natural Resources Publications

Fisheries and Aquatic Resources

Basic Fly Tying. Available from Media Services. 147L-5-5, 19 pages.

Exploring Freshwater Fisheries. Available from Media Services. 147L-5-7, 24 pages.

Let's Go Fishing. Available from Media Services. 147L-5-6, 33 pages.

Let's Go Ice Fishing. Available from Media Services. 147L-5-15, 20 pages.

Sportfishing and Aquatic Resources Education Program (SAREP) Fishing Journal. Available from DNR.

Sportfishing and Aquatic Resources Education Program (SAREP) Leader's Manual. Available from DNR, 245 pages.

Sportfishing and Aquatic Resources Education Program (SAREP) Member's Manual. Available from DNR, 161 pages.

Water Wise: Lessons in Water Resources. Available from DNR, 87 pages.

Water Worlds. Available from Media Services. 147L- and 147M-5-18.

Forestry

Backyard Maple Syrup. Available from Media Services. Conservation Corner Leaflet 13, 147CIRL-13.

Firewood: From Woodlot to Woodpile. Available from Media Services. 147L-5-12.

4-H Wood Sample Collection. Available from Media Services. 147M-5-3A.

Know Your Trees. Available from Media Services. 147L-5-3 (Leader's Guide and Checklist), 71 pages; 147J-85 (Member's Project Guide) and 147M-5-3 (Member's Record Book).

Nature Trails. Available from Media Services. 147L-5-4, 24 pages.

Understanding Forest Ecosystems. Available from Media Services. 147L-5-13, 42 pages.

Wildlife

Birds in Your Backyard. Available from Media Services. 147L- and 147M-5-17.

Birds of Prey. Available from Media Services. 147L-5-9, 28 pages.

Bluebirds in New York. Available from DNR, 27 pages.

4-H Shooting Sports Notebook. Available from Cornell Cooperative Extension county offices. 204 pages.

Understanding Predation and Northeastern Birds of Prey. Available from Media Services. 147-IB-175, 48 pages.

Understanding Wildlife Sign. Slide set. Available from Instructional Materials Services. Set includes 35 slides, with script and cassette.

Wildlife Discovery. Available from Media Services. 147L- and 147M-5-19.

Wildlife Habitat Enhancement. Available from Media Services. 147L-5-16, 23 pages.

Wildlife in Today's Landscapes. *In press,* will be available from Media Services, Fall 1990.

Solid Waste

Composting: Wastes to Resources. Available from Media Services. 147CWRF.

Recycling in Your School Makes Good Sense. Slide set. Available from Audio Visual Center. Set includes 46 slides, cassette, and script.

Recycling: Mining Resources from Trash. *In press.* Will be available from Media Services.

What about Waste? Available from Media Services. 147WAW.

Woodsy's Resource Goldmine. Slide set. Available from Audio Visual Center. Set includes 52 slides, cassette, and script.

Woodsy's Wastewise. Slide set #303. Available from Audio Visual Center.

Other

Renewable Natural Resource-Based Businesses for Enterprising Youth. Available from DNR, 22 pages.