

# Recycling

Program Name                                  Middletown ABLE

Staff Responsible for Lesson   Chris Woodard

Technology	Study / Life skills	EL-Civics	Career Pathways	Police	Paramedic	Fire Rescue	Medical Asst.	EKG / Cardio	Phlebotomy	Practical Nursing	Healthcare	Admin	Pharmacy Tech	IMT	AMT	HVAC	Welding	Other:	
		<b>X</b>																	
Date(s) Used				2/21 and 2/22															
Civics Category				II. Civic Participation															
Civics Objective				<b>II. 30 Community Resources-Service</b> Take part in community through service projects such as neighborhood cleanup, recycling, helping the homeless, beautification, etc.															
Time Frame to Complete Lesson				1 class period (2 hours)															
EFL(s)				2-4															
Standard(s)/Components of Performance				Listen Actively Speak So Others Can Understand															
Benchmark(s)				L2.1. Demonstrate comprehension of simple phrases and sentences with familiar vocabulary L2.3. Use verbal strategies to demonstrate lack of comprehension L2.4. Respond to simple personal questions L3.1. Demonstrate comprehension of sentences on simple topics L3.3. Use verbal strategies to demonstrate comprehension or lack of comprehension L3.4. Respond appropriately to simple questions and one-step directions L4. 1. Demonstrate comprehension of familiar topics L4.3. Use verbal strategies to demonstrate comprehension or lack of comprehension S2.2. Pronounce common consonant and vowel sounds S2.4. Use words necessary for daily life															

	<p>S2.5. Use one-to two-word questions, learned questions, and repetition to ensure listeners understand.</p> <p>S3.2. Pronounce long and short vowels, blends, and diphthongs.</p> <p>S3.4. Use an increasing vocabulary for everyday situations</p> <p>S3.5. Use rephrasing to enhance communication</p> <p>S4.2. Communicate meaning by using common contractions and stressed syllables in a word</p> <p>S4.3. Use grammatical structures to communicate meaning</p> <p>S4.4. Use descriptive words</p> <p>S4.5. Repeat, rephrase, or use circumlocution to ensure listeners understand</p>
Materials	<ul style="list-style-type: none"> <li>• Computers with internet access</li> <li>• Teacher-created list of words related to recycling. Use <a href="http://www.googletranslate.com">www.googletranslate.com</a> to translate if needed.</li> <li>• Websites about local recycling. In Butler County, we used <a href="http://rumpkecleanandgreen.com/">http://rumpkecleanandgreen.com/</a> and <a href="http://www.rumpkerecycling.com/">http://www.rumpkerecycling.com/</a> and <a href="http://www.rumpke.com">http://www.rumpke.com</a></li> <li>• Why you should recycle flyer (Rumpke 2010 Residential Recycling Flyer) available from <a href="http://www.rumpke.com/pdfs/Residential%20Recycling%20Opizza%20plastics.pdf">www.rumpke.com/pdfs/Residential%20Recycling%20Opizza%20plastics.pdf</a></li> <li>• Top 10 Reasons to Recycle flyer (Rumpke Top 10)</li> <li>• Teacher-created crossword puzzle or word search about recycling (made using <a href="http://www.puzzlemaker.com">www.puzzlemaker.com</a>)</li> <li>• Example recycling bags, bins etc. from local trash collection agency</li> </ul>
Activities	<ol style="list-style-type: none"> <li>1. Distribute and discuss list of vocabulary words related to recycling.</li> <li>2. Discuss recycling - it's meaning, if students recycle, what materials can be recycled etc. refer to websites like: <a href="http://www.rumpkerecycling.com">www.rumpkerecycling.com</a>. Show sample bins, bags, and materials.</li> <li>3. Look at additional sites like: <a href="http://www.rumpkecleanandgreen.com">http://www.rumpkecleanandgreen.com</a> and <a href="http://www.rumpke.com">www.rumpke.com</a></li> </ol>

	<p>4. Using computers locate information about local trash collection services in your local area. Learn how to start services, cancel services, public buy back centers, etc. Example: <a href="http://www.rumpkerecycling.com">www.rumpkerecycling.com</a> click locator/drop off</p> <p>5. Students can complete the web activities available at <a href="http://rumpkecleanandgreen.com/index.php/educating-generations/">http://rumpkecleanandgreen.com/index.php/educating-generations/</a> Choices include a word search, recycle/trash sort, and natural resource - product matching activity. Another option is a teacher-created word search geared specifically to the class vocabulary list.</p>
<p>Assessment/ Evidence</p>	<p>Class discussion and student q&amp;a Web activity of choice from: <a href="http://rumpkecleanandgreen.com/index.php/educating-generations/">http://rumpkecleanandgreen.com/index.php/educating-generations/</a></p>
<p>Reflection</p>	<p>Useful information since most students live in apartments that do NOT recycle trash</p>

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## Why Recycle? Top 10 Reasons to Recycle

- **Good for the Environment:** Recycling requires far less energy, uses fewer natural resources, and keeps waste from piling up in landfills.
- **Reduces Waste:** The average American discards seven and half pounds of garbage every day. Most of this garbage goes into landfills, where it is compacted and buried.
- **Saves Energy:** Recycling offers significant energy savings over manufacturing with virgin materials. (Manufacturing with recycling aluminum cans uses 95% less energy).
- **Preserves Landfill Space:** no one wants to live next door to a landfill. Recycling preserves existing landfill space.
- **Prevents Global Warming:** In 2000, recycling of solid waste prevented the release of 32.9 million metric tons of carbon equivalent (MMTCE, the unit of measure for green house gases) into the air.
- **Reduces Water Pollution:** making goods from recycled materials generates far less water pollution than manufacturing from virgin materials.
- **Protects Wildlife:** using recycled materials reduces the need to damage forests, wetlands, rivers, and other places essential to wildlife.
- **Good for the Economy:** American companies rely on recycling programs to provide the raw materials they need to make new products.
- **Creates Jobs:** Recycling in the U.S. is a \$236 billion a year industry. More than 56,000 recycling and reuse enterprises employ 1.1 million workers nationwide.
- **Creates New Demand:** Recycling and buying recycled products creates demand for more recycled products, decreasing waste and helping our economy.

Source: National Recycling Coalition  
April 2009



# recycling

L T E E B J N D O R R G E O J  
 S A I T T A E F L E E R H Y D  
 P E N M S B C V T C C R H P P  
 U O C D B A X B W Y Y K G V E  
 T N L R F E W K S C C S B J G  
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 E F I L D L I W N H L I J I T  
 N Y M X G M Z F F E K P F X F  
 P D K E T B S E Z U U O J M K

**ALUMINUM  
 LANDFILLS  
 RECYCLING  
 USEABLE**

**BIN  
 POLLUTION  
 RESOURCES  
 WASTE**

**CONVENIENT  
 RECYCLABLES  
 TIMBER  
 WILDLIFE**

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# Recycling Fact Sheet

## Recycling Saves Energy

Energy savings are a very important environmental benefit of recycling, since using energy requires the consumption of scarce fossil fuels and involves emissions of numerous air and water pollutants. The steps in supplying recycled materials to industry (including collection, processing and transportation) typically use less energy than the steps in supplying virgin materials to industry (including extraction, refining, transportation and processing).

Additional energy savings associated with recycling accrue in the manufacturing process itself, since the materials have already undergone processing. We need to calculate the "upstream" saving to paint the true picture of energy savings from recycling as opposed to producing a product from virgin materials.

Recycling paper cuts energy usage in half. Recycling 1 ton of paper saves 380 gallons of oil. Recycling one aluminum can saves the energy equivalent of one cup of gasoline. Recycling used aluminum cans requires only about five percent of the energy needed to produce aluminum from bauxite. Annually, enough energy is saved by recycling steel to supply the city of Los Angeles with almost a decade worth of electricity. Recycling one ton of glass saves the equivalent of nine gallons of fuel oil.

## Top 10 Reasons to Recycle

### Good for Our Economy

American companies rely on recycling programs to provide the raw materials they need to make new products.

### Creates Jobs

Recycling in the U.S. is a \$236 billion a year industry. More than 56,000 recycling and reuse enterprises employ 1.1 million workers nationwide.

### Reduces Waste

The average American discards seven and a half pounds of garbage every day. Most of this garbage goes into to landfills, where it's compacted and buried.

### Good for the Environment

Recycling requires far less energy, uses fewer natural resources, and keeps waste from piling up in landfills.

### Saves Energy

Recycling offers significant energy savings over manufacturing with virgin materials. (Manufacturing with recycled aluminum cans uses 95% less energy.)

### Preserves Landfill Space

No one wants to live next door to a landfill. Recycling preserves existing landfill space.

### Prevents Global Warming

In 2000, recycling of solid waste prevented the release of 32.9 million metric tons of carbon equivalent (MMTCE, the unit of measure for greenhouse gases) into the air.

### Reduces Water Pollution

Making goods from recycled materials generates far less water pollution than manufacturing from virgin materials.

## Protects Wildlife

Using recycled materials reduces the need to damage forests, wetlands, rivers and other places essential to wildlife.

## Creates New Demand

Recycling and buying recycled products creates demand for more recycled products, decreasing waste and helping our economy.

## General

- The Washington, DC-based Institute for Local Self-Reliance, calculates that recycling creates 36 jobs per 10,000 tons of material recycled compared to 6 jobs for every 10,000 of tons brought to traditional disposal facilities.

## Aluminum Cans

- The American public throws away enough aluminum to rebuild the entire US commercial air fleet every 3 months.
- Recycling aluminum reduces energy use by 90%.
- Energy saved from recycling one aluminum can will run a TV for 3 hours.
- Recycling one aluminum can saves the energy equivalent of one cup of gasoline.
- Recycling aluminum reduces air pollution by 95%.

## Paper

- Recycling 1 ton of paper saves 17 trees, 7,000 gallons of water, 380 gallons of oil, three cubic yards of landfill space, and 4000 kilowatts of energy. This represents a 64% energy savings, a 58% water savings, and 60 pounds less of air pollution!
- Recycling paper reduces air pollution by 74% and water pollution by 35%.
- Americans use more than 67 million tons of paper per year, or 580 pounds per person.
- Paper products use up at least 35% of the worlds commercial wood harvest.
- More than 1/3 of all fiber used to make paper comes from recycled paper.
- America's daily use of computer paper could go around the world 40 times.
- It takes more than 500,000 trees to make the newspapers Americans use in one Sunday.
- The amount of wood and paper we throw away each year is enough to heat 50,000,000 homes for 20 years.
- Each ton (2000 pounds) of recycled paper can save 17 trees, and 7000 gallons of water.
- The 17 trees saved (above) can absorb a total of 250 pounds of carbon dioxide from the air each year. Burning that same ton of paper would create 1500 pounds of carbon dioxide.
- The construction costs of a paper mill designed to use waste paper is 50 to 80% less than the cost of a mill using new pulp.

## Steel

- Annually, enough energy is saved by recycling steel to supply the city of Los Angeles with almost a decade worth of electricity.
- Recycling one pound of steel saves enough energy to light a 60 watt light bulb for 26 hours.
- Recycling one ton of steel saves 2500 pounds of iron ore, 1000 pounds of coal and 40 pounds of limestone.
- Recycling steel saves 40% of water used to make steel from ores.
- Recycling steel reduces air pollution by 86% and water pollution by 76%.



## Glass

- The energy saved from recycling one glass bottle will operate a 100-watt light bulb for four hours.
- Recycling one ton of glass saves the equivalent of nine gallons of fuel oil.
- Recycling glass reduces air pollution by 14-20%.
- Recycling glass saves 25-30% of the energy used to make glass from virgin materials.

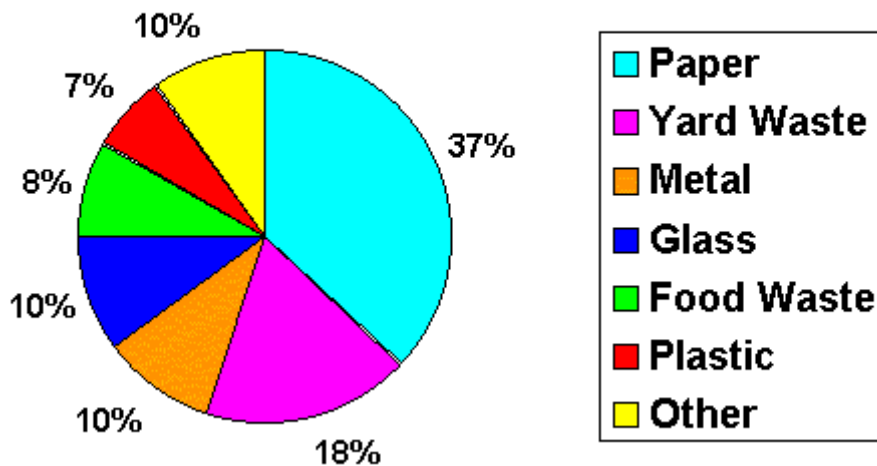
## Plastic

- It takes 5 recycled 2-liter PET bottles to make one square foot of carpet.
- PET bottles and containers are actually a form of polyester, which is why it is so easy to recycle bottles into T-shirts, sweaters, and socks.
- It takes 35 2-liter recycled PET bottles to make the soft filling inside a sleeping bag, called "fiberfill."
- About 1,200 soda bottles could carpet the average living room.
- Plastic makes up eight percent of our trash by weight, but is 24% of the volume!
- According to the EPA, recycling a pound of PET saves approximately 12,000 BTU's.
- We use enough plastic wrap to wrap all of Texas every year
- Recycling plastic saves twice as much energy as burning it in an incinerator.

## Trash and Landfills

- Although 75% of our trash can be recycled, the EPA set a national goal of 25% for 1992. \* Every year, each American throws out about 1,200 pounds of organic garbage that can be composted.
- New Jersey has the highest recycling rate of all the states--56%!

## Compositon Of An Average Dump



- The U.S. is the #1 trash producing country in the world at 1,609 pounds per person per year. This means that 5% of the world's people generate 40% of the world's waste.
- This chart shows the composition of an average garbage dump. Notice how much of it is recyclable!!
- The highest point in Ohio is "Mount Rumpke," which is actually a mountain of trash at the Rumpke sanitary landfill!

- The US population discards each year 16,000,000,000 diapers, 1,600,000,000 pens, 2,000,000,000 razor blades, 220,000,000 car tires, and enough aluminum to rebuild the US commercial air fleet four times over.
- Speaking of diapers, a cloth diaper washed at home costs 3¢ per use. A disposable diaper costs 22¢ per use. The difference can add up; a typical baby will use about 10,000 diapers!
- Between 5 and 15% of what we throw away contains hazardous substances.
- Out of every \$10 spent buying things, \$1 (10%) goes for packaging that is thrown away. Packaging represents about 65% of household trash.
- On average, it costs \$30 per ton to recycle trash, \$50 to send it to the landfill. (MOA)
- Americans generate and throw away 9 times as much waste as does a person in Africa or Central America, but we also generate two to three times the amount of waste as people living in industrial countries with a comparable or better standard of living as us.
- A typical family consumes 182 gallons of pop, 29 gallons of juice, 104 gallons of milk, and 26 gallons of bottled water a year. That's a lot of containers -- make sure they're recycled!
- More than 20,000,000 Hershey's Kisses are wrapped each day, using 133 square miles of tinfoil. All that foil is recyclable, but not many people realize it.

Source: Pennsylvania Dept. of Environmental Protection, State of Maine, US Environmental Protection Agency, University of Massachusetts, Reynolds Metal Company, NASA, Center for Ecological Technology, and Recycling Rules!!