

## **Greening Our Schools: Recycling**

*The best way to get rid of pollution is to prevent it in the first place.  
Until then, once is not enough.*

*Begin a classroom recycle program. Find out what recycle options are available in your community. If they are very limited (aluminum and plastics 1 & 2 only,) research the reasons why other options do not exist. Is it possible to encourage the community to provide another service for recycling?*

*Strive for zero waste. Then you won't need to recycle.*

### **Recycle Jeopardy!**

**Introduction:** Recycle Jeopardy is based upon the popular game. This version has been developed to complement your pre-existing recycling unit (grades 4-6) or to challenge older students and adults.

**Teacher Notes:** Assign these categories to student groups as research project prior to conducting the game. As the teacher, review the answers to the various questions within each category to better guide their efforts. Once the groups have been established and the research has been completed, the students should share their work for the purpose of instructing the class. Additional resources are offered at the conclusion of the activity. This activity assumes that students will not know everything. They will be required to synthesize prior knowledge and to work as a team.

#### **Play the Game.**

1. Cut each category card.
2. Place each category header in a row across the top of a large sheet of recycled cardboard or a bulletin board.
3. Under each category header place the appropriate points cards in columns. Do not put up the questions.
4. Begin the play by selecting one of the teams to go first (You have a variety of well-practiced methods for this process).
5. Have the team select their category and level and then you read the question and the answer options where applicable. Some questions are multiple-choice, while others ask for their input. Teams will be allowed to consult for a pre-determined time if necessary. (If desirable, show the questions and multiple answers where

applicable on an overhead transparency.) Each category has five questions and double jeopardy will be indicated on some of the questions.

6. In the event of a tie, three questions are provided to resolve the tie.
1. **Waste Wizards** category examines facts and trends of recycling as well as some of the language.
2. **Masters of the Compost** explores the world of composting, the organisms including worms and vermicomposting.
3. **Once is Not Enough** digs deeper into recycling and by closing the loop with products made from recycled resources.
4. **Not In My Back Yard** is concerned with the landfills process.
5. **How Green is my Waste** addresses options for reducing impacts from waste, particularly as it has changed from research.
6. **Paper News** recognizes that even though many use the Internet for news sources, paper and newspaper create a large percentage of waste entering the waste stream.
7. **Not Just Scrap** looks at metal and automobile related waste.
8. **New E** is not environment but electronic waste that is rapidly becoming a substantial concern for many reasons.

## **Tie Breakers**

### **What is EPA?**

**EPA is the** Environmental Protection Agency, which is a government agency and its mission is to protect human health and the environment. Since 1970, EPA has been working for a cleaner, healthier environment for the American people. <http://www.epa.gov/>

### **What does MSW stand for?**

Across the country, many communities, businesses, and individuals have found creative ways to reduce and better manage Municipal Solid Waste (MSW) - **more commonly known as trash or garbage** - through a coordinated mix of practices that includes source reduction, recycling (including composting), and disposal. <http://www.epa.gov/epaoswer/non-hw/muncpl/index.htm>

### **When should Earth Day be celebrated?**

Although Earth Day is celebrated April 22, the purpose of Earth Day is to promote environmental citizenship and year-round progressive action worldwide. <http://www.earthday.net/>

<b>Waste Wizards 20 points</b>	<b>Waste Wizards 40 points</b>
<b>Waste Wizards 60 points</b>	<b>Waste Wizards 80 points</b>
<b>Waste Wizards 100 points</b>	<b>Waste Wizards</b>

<b>Masters of the Compost 20 points</b>	<b>Masters of the Compost 40 points</b>
<b>Masters of the Compost 60 points</b>	<b>Masters of the Compost 80 points</b>
<b>Masters of the Compost 100 points</b>	<b>Masters of the Compost</b>

<b>Once is Not Enough 20 points</b>	<b>Once is Not Enough 40 points</b>
<b>Once is Not Enough 60 points</b>	<b>Once is Not Enough 80 points</b>
<b>Once is Not Enough 100 points</b>	<b>Once is Not Enough</b>

<b>Not in My Back Yard 20 points</b>	<b>Not in My Back Yard 40 points</b>
<b>Not in My Back Yard 60 points</b>	<b>Not in My Back Yard 80 points</b>
<b>Not in My Back Yard 100 points</b>	<b>Not in My Back Yard</b>

<b>How Green Is My Waste?</b> <b>20 points</b>	<b>How Green Is My Waste?</b> <b>40 points</b>
<b>How Green Is My Waste?</b> <b>60 points</b>	<b>How Green Is My Waste?</b> <b>80 points</b>
<b>How Green Is My Waste?</b> <b>100 points</b>	<b>How Green Is My Waste?</b>

<b>Paper News</b> <b>20 points</b>	<b>Paper News</b> <b>40 points</b>
<b>Paper News</b> <b>60 points</b>	<b>Paper News</b> <b>80 points</b>
<b>Paper News</b> <b>100 points</b>	<b>Paper News</b>

<b>Not Just Scrap 20 points</b>	<b>Not Just Scrap 40 points</b>
<b>Not Just Scrap 60 points</b>	<b>Not Just Scrap 80 points</b>
<b>Not Just Scrap 100 points</b>	<b>Not Just Scrap</b>

<b>New E 20 points</b>	<b>New E 40 points</b>
<b>New E 60 points</b>	<b>New E 80 points</b>
<b>New E 100 points</b>	<b>New E</b>

**Waste Wizards 20 points**

**PET is the standard technical term for what product?**

**Waste Wizards 40 points**

**In 2001 US residents produced how many pounds of waster per person per day?**

- |                               |                                |
|-------------------------------|--------------------------------|
| 2.7 pounds per person per day | 10.1 pounds per person per day |
| 4.4 pounds per person per day | 22.9 pounds per person per day |

**Waste Wizards 60 points**

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

- |    |     |
|----|-----|
| 5  | 50  |
| 17 | 100 |

**Waste Wizards 80 points **DOUBLE JEOPARDY!****

**What percentage of trash is made up of discarded paper?**

- |     |     |
|-----|-----|
| 70% | 17% |
| 36% | 8%  |

**Waste Wizards 100 points**

**What is source reduction?**

**Masters of the Compost 20 points**

**What kitchen products should not be put into a compost bin?**

**Masters of the Compost 40 points**

**What is vermicomposting?**

**Masters of the Compost 60 points**

**How much food do worms consume daily?**

**Masters of the Compost 80 points**

**Yard trimmings and food waste together constitute for how much of the U.S. municipal solid waste stream going into landfills?**

10%	38%
23%	51%

**Masters of the Compost 100 points**

**Worms and heat help speed up decomposition in compost bins. Name two other organisms that contribute to decomposition in a worm bin?**

**Once is Not Enough 20 points**

**What is recycling?**

**Once is Not Enough 40 points** [DOUBLE JEOPARDY!](#)

**What do the numbers on the bottoms of plastic bottles and containers mean?**

**Once is Not Enough 60 points**

**What does recycled newspaper become?**

**Once is Not Enough 80 points**

**Plastic lumber and park benches are made by recycling which plastic?**

**Once is Not Enough 100 points**

**Scientists are experimenting with recycling restaurant cooking grease to make what new energy source?**

**Not in My Back Yard! 20 points**

**What is a landfill?**

**Not in My Back Yard! 40 points**

**Name four ways to prevent the need for landfills? (Hint they start with the letter R)**

**Not in My Back Yard! 60 points**

**What is the average time it takes for a pair of leather shoes to decompose in a landfill?**

5 months

12 years

1 year

40 years

**Not in My Back Yard! 80 points**

**What material in the waste stream accounts for 23% of the fill entering landfills?**

Yard waste

Food waste

Paper waste

Plastic waste

**Not in My Back Yard! 100 points**

**Which of these manmade structures can be seen with the naked eye from outer space?**

500 mile race track

The Great Wall of China

The Panama Canal

Fresh Kills landfill in New York

**How Green is My Waste? 20 points**

**What is an alternative to sending food waste to the landfill?**

**How Green is My Waste? 40 points**

**What is the best way to dispose of books?**

**How Green is My Waste? 60 points**

**What are two substitutes for Styrofoam for packing and shipping?**

**How Green is My Waste? 80 points**

**What farm products are being used to make plastics?**

**How Green is My Waste? 100 points**

**What is the largest source of oil pollution?**

Freight liner/ship oil spills

Spills at gas stations

Recreational boats on lakes

Do-it-yourself oil changes

**Paper News 20 points**

**What is the most common item made from recycled newspaper?**

**Paper News 40 points**

**What is the average amount of newspaper Americans use each year?**

23 pounds

50 pounds

99 pounds

136 pounds

**Paper News 60 points**

**What are two ways shredded newspapers can be used at home?**

**Paper News 80 points**

**If a freight train were stretched along the tracks, how long would the train be if it were filled with paper being recycled each day in the United States.**

5 miles

7.5 miles

15 miles

23 miles

**Paper News 100 points**

**What is 100 % post-consumer content paper?**

**Not Just Scrap 20 points**

**You can earn money by recycling this product?**

**Not Just Scrap 40 points**

**What is the most recycled drink container on the planet made from?**

**Not Just Scrap 60 points DOUBLE JEOPARDY!**

**What percent of metal and tires in an automobile can be recycled?**

45%

63%

17%

100%

**Not Just Scrap 80 points**

**How can an earth-smart person dispose of an out-of-service stove or refrigerator?**

**Not Just Scrap 100 points**

**What is one use for recycled, old tires?**

**New E 20 points**

Where do most (90%) of the old/obsolete computers go when we are finished with them?

**New E 40 points**

Currently (2005) what is the average number of cell phones being discarded/thrown away?

1 million

50 million

130 million

180 million

**New E 60 points**

The average television set will decompose in a landfill in how many years?

15 years

100 years

223 years

Never

**New E 80 points**

What is e-waste?

**New E 100 points**

What is one way to reduce the flow of e-waste to landfills?

## Answer Sheet

### Waste Wizards

- 20 points** PET is Polyethylene Terephthalate or Plastic  
Source: <http://www.deq.state.or.us/wmc/solwaste/rethinkrecyc/4-5/RR4-517.pdf>
- 40 points** 4.4 pounds per person per day Source: <http://www.epa.gov/epaoswer/non-hw/muncpl/facts.htm>
- 60 points** 17 trees are saved when one ton of paper is recycled  
Source: <http://www.illinoisrecycles.org/facts.html>
- 80 points** Approximately 36% % of trash is made up of discarded paper.  
Source: <http://www.epa.gov/epaoswer/non-hw/muncpl/facts.htm>
- 100 points** Waste prevention, or "source reduction," means consuming and throwing away less. Source reduction actually prevents the generation of waste in the first place, so it is the most preferred method of waste management and goes a long way toward protecting the environment. Source: <http://www.epa.gov/epaoswer/non-hw/muncpl/reduce.htm> - reduce

### Masters of the Compost

- 20 points** Neither meat scraps, dairy products, nor pet waste should not be placed into a compost bin as they attract pests and contribute to unpleasant odors.  
Source: <http://www.compostguide.com/>
- 40 points** Vermicomposting is the process of composting food waste with worms.  
Source: <http://www.illinoisbiz.biz/com/recycling/pdf/BM-Worm.pdf>
- 60 points** Worms can eat ½ their weight in food each day. Source: same as above
- 80 points** Yard trimmings and food waste together constitute 23% of the U.S. municipal solid waste (MSW) stream going into landfills.
- 100 points** During decomposition organic materials are broken down through the activities and appetites of various invertebrates that will naturally appear in compost, such as mites, millipedes and centipedes, beetles, sowbugs, earwigs, ants, earthworms, slugs, and snails. Source: <http://www.ciwmb.ca.gov/Publications/Schools/56001007.pdf>

### Once is Not Enough

- 20 points** Recycling is a series of activities or a process that includes collecting recyclable materials that would otherwise be considered waste, sorting and processing recyclables into raw materials such as fibers, and manufacturing raw materials into new products.  
Source: <http://www.epa.gov/epaoswer/non-hw/muncpl/recycle.htm>
- 40 points** Plastic bottles and containers have a coding system that distinguishes between the different types of plastics. Plastics are numbers 1-7.  
Source: <http://www.deq.state.or.us/wmc/solwaste/rethinkrecyc/4-5/RR4-517.pdf>
- 60 points** Recycled newspaper is reprocessed into newsprint and wrapping paper, manufactured into molded packaging, shredded and fire-proofing added for blown-in insulation or manufactured into dry wall surfacing  
Source: [http://www.co.grays-harbor.wa.us/info/pub\\_svcs/Recycle/WhenYouRecycle.htm](http://www.co.grays-harbor.wa.us/info/pub_svcs/Recycle/WhenYouRecycle.htm)
- 80 points** Number 2 plastics are HDPE or milk jugs, but it also includes many water jugs, shampoo bottles, bleach bottles, detergent and fabric softener jugs. Thirty-five percent of HDPE is recycled back into bottles and the rest is remanufactured into pipes, park benches, plastic lumber, other outdoor products and carpets.  
Source: <http://www.dnr.state.oh.us/recycling/awareness/facts/plastic.htm>
- 100 points** Cooking grease is being used to fuel buses and cars as a biofuel.  
Source: <http://www.greaseworks.org/biodiesel>

### Not in My Back Yard

- 20 points** Landfills are man-made areas where waste is placed into the land.  
Source: <http://www.epa.gov/epaoswer/non-hw/muncpl/disposal.htm>
- 40 points** Reduce, Reuse, Recycle and Rebuy Source: <http://www.ktb.org/press/FourRsHandout.pdf>
- 60 points** It takes a leather shoes 40 – 50 years to decompose in a landfill  
Source: <http://www.deq.state.or.us/wmc/solwaste/rethinkrecyc/K-3/RRK-308.pdf>
- 80 points** Paper waste accounts for 23% of the waste entering landfills  
Source: <http://www.epa.gov/epaoswer/non-hw/muncpl/facts.htm>
- 100 points** The Great Wall of China and New York's Fresh Kills Landfill can be seen from space.  
Source: <http://www.citygreen.net/biocyclearticle.htm>

## How Green is My Waste?

- 20 points** Composting food waste, prepare less food at meals and eat everything served either at the meal or as leftovers.
- 40 points** Trade books, resell books at garage sales, donate books for charity, or buy fewer books and use the library.
- 60 points** You may know of others but these are commonly discussed-- Cornstarch peanuts, newspaper Source: <http://www.greeningschools.org/docs/whatcolorisyourwaste.pdf>
- 80 points** Soy and corn products are being used to make plastic like items replacing oil-based plastics. These products will decompose.  
Source: [http://www.wisagclassroom.org/Corn Plastic.pdf](http://www.wisagclassroom.org/Corn%20Plastic.pdf)
- 100 points** Do-it-yourself oil changes. Frequently this oil is improperly disposed of getting into the sewer system, groundwater, aquifers, and nearby streams and lakes.  
Source: <http://www.earth911.org/master.asp?s=lib&a=oil/doiyourself.asp>

## Paper News

- 20 points** More paper. Paper fibers are made from shredded paper, turned into sludge and processed to make more paper.  
Source: <http://www.eia.doe.gov/kids/energyfacts/saving/recycling/solidwaste/paperandglass.html>
- 40 points** Each year American's use 99 pounds of newspaper.  
Source: <http://www.green-network.com/tips/paper.htm>
- 60 points** Shredded newspaper can be used as packaging, in compost, to make homemade paper, insulation, vermicomposting bedding. Landscaping mulch and pet bedding (these are some suggestions)
- 80 points** A freight train would be 15 miles long if it were filled with paper being recycled each day in the United States. Source: <http://www.illinoisrecycles.org/facts.html>
- 100 points** All of the material used to make the paper has been used before (recycled) and that is really quite an achievement.  
Source: <http://www.exploratorium.edu/exploring/paper/handmade.html>

## Not Just Scrap

- 20 points** Aluminum cans Source: <http://www.earth911.org/master.asp?s=lib&a=aluminum/default.asp>
- 40 points** Aluminum cans Source: <http://www.earth911.org/master.asp?s=lib&a=aluminum/default.asp>
- 60 points** 100% Source: <http://www.recycleroom.org/fun.html>
- 80 points** Recycle it. There are more than 12,000 places to recycle out-of-service appliances across the country. Source: <http://www.recycleroom.org/fun.html>
- 100 points** Tires can be shredded into crumbs to be reprocessed for running tracks or roads, tread on athletic shoes, and possibly new tires (not retreads)  
Source: <http://www.dnr.state.oh.us/recycling/awareness/facts/tires>

## New E

- 20 points** Trash, landfills Source: <http://environment.about.com/cs/ewaste/a/ewaste.htm>
- 40 points** 130 million Source: <http://epa.gov/epaoswer/hazwaste/recycle/ecycling/index.htm>
- 60 points** Never when you consider the plastics and metals used to make the computers.  
Source: <http://www.deq.state.or.us/wmc/solwaste/rethinkrecyc/K-3/RRK-308.pdf>
- 80 points** Electronic waste, which is one of the fastest growing sources of landfill waste and it consists of computers, cell phones, televisions, stereo equipment and much more.  
Source: <http://environment.about.com/cs/ewaste/a/ewaste.htm>
- 100 points** Use the item longer, donate the item, upgrade the item without replacing it, reconsider the need for the item, buy replacements from companies who will recycle the parts often by disassembling the components. These common-sense suggestions are offered through a variety of resources.

## Additional resources:

<b>Division of Recycling &amp; Litter Prevention, Ohio Department of Natural Resources (tire recycling)</b>	<a href="http://www.dnr.state.oh.us/recycling/awareness/facts/tires/">http://www.dnr.state.oh.us/recycling/awareness/facts/tires/</a>
<b>Earth 911</b>	<a href="http://www.earth911.org/master.asp">http://www.earth911.org/master.asp</a>
<b>Earth 911 (aluminum)</b>	<a href="http://www.earth911.org/master.asp?s=lib&amp;a=aluminum/default.asp">http://www.earth911.org/master.asp?s=lib&amp;a=aluminum/default.asp</a> <a href="http://www.freecycle.org/">http://www.freecycle.org/</a>
<b>FreeCycle</b>	<a href="http://www.greeningschools.org">http://www.greeningschools.org</a>
<b>Greening Schools</b>	
<b>IL EPA</b>	<a href="http://www.epa.state.il.us/land/citizen-involvement/recycling/index.html">http://www.epa.state.il.us/land/citizen-involvement/recycling/index.html</a>
<b>Illinois County Recycling Coordinators</b>	<a href="http://www.illinoisbiz.biz/com/recycling/localcontacts/lc_index.html">http://www.illinoisbiz.biz/com/recycling/localcontacts/lc_index.html</a> <a href="http://www.illinoisrecycles.org/links.html">http://www.illinoisrecycles.org/links.html</a>
<b>Illinois Recycling Association</b>	
<b>Plastics Polymers (What do the numbers mean?)</b>	<a href="http://www.deq.state.or.us/wmc/solwaste/rethinkrecyc/4-5/RR4-517.pdf">http://www.deq.state.or.us/wmc/solwaste/rethinkrecyc/4-5/RR4-517.pdf</a>
<b>Roscoe's Recycle Room (steel)</b>	<a href="http://www.recycleroom.org/welcome.html">http://www.recycleroom.org/welcome.html</a>
<b>US EPA</b>	<a href="http://www.epa.gov/epaoswer/non-hw/muncpl/reduce.htm">http://www.epa.gov/epaoswer/non-hw/muncpl/reduce.htm</a>
<b>Worm Guide: A vermicomposting Guide for Teachers (70 page pdf)</b>	<a href="http://www.ciwmb.ca.gov/Publications/Schools/56001007.pdf">http://www.ciwmb.ca.gov/Publications/Schools/56001007.pdf</a>
<b>ZeroWaste</b>	<a href="http://www.zerowasteamerica.org/index.html">http://www.zerowasteamerica.org/index.html</a>