When we throw something away, Where is “Away”?

In Oklahoma, it is almost always a landfill. What is a landfill?

Dump – open pit in the ground where trash in buried – animals, smell, etc.

Landfill – carefully designed structure built into or on top of the ground where trash is isolated from the surrounding environment. This isolation is accomplished with a bottom liner and daily covering of soil.

Sanitary landfill – clay liner

Municipal solid waste landfill – plastic liner

The purpose of a landfill is to bury the trash in such a way that it will be isolated from groundwater, will be kept dry and will not be in contact with air. Under these conditions, trash will not decompose much.

Before a landfill can be constructed, there are several requirements the landfill location must meet:

- the area of land necessary for the landfill
- the composition of the underlying soil and bedrock
- the flow of surface water over the site
- the impact of the proposed landfill on the local environment and wildlife
- the historical or archaeological value of the proposed site

After all of the environmental considerations have been met, money must be raised to build the landfill. This can be from bonds or raising taxes. The cost of building a new landfill varies by location, but can range from $½ million to $1 million for the engineering and design and then there is the cost for the liner. One recent landfill liner was $75,000 per acre.

There are many parts to a landfill. Each of these parts is designed to address specific problems that are encountered in a landfill.

- **Bottom liner system** - separates trash and subsequent leachate from groundwater
- **Cells (old and new)** - where the trash is stored within the landfill
- **Storm water drainage system** - collects rain water that falls on the landfill
- **Leachate collection system** - collects water that has percolated through the landfill itself and contains contaminating substances (**leachate**)
- **Methane collection system** - collects methane gas that is formed during the breakdown of trash
- **Covering or cap** - seals off the top of the landfill

Trash put in a landfill will stay there for a very long time. Inside a landfill, there is little oxygen and little moisture. Under these conditions, trash does not break down very rapidly. In fact, when old landfills have been excavated or sampled, 40-year-old newspapers have been found with

easily readable print. Landfills are not designed to break down trash, merely to bury it. When a landfill closes, the site, especially the groundwater, must be monitored and maintained for up to 30 years!

As customers enter the site, their trucks are weighed at the scale house. Customers are charged **tipping fees** for using the site. The tipping fees vary from $10 to $40 per ton. These fees are used to pay for bonds or operation costs.

Along the site, there are drop-off stations for materials that are not wanted or legally banned by the landfill. A multi-material drop-off station is used for tires, motor oil, lead-acid batteries and drywall. Some of these materials can be recycled.

In addition, there is a household hazardous waste drop-off station for chemicals (paints, pesticides, other chemicals) that are banned from the landfill. These chemicals are disposed by private companies. Some paints can be recycled and some organic chemicals can be burned in incinerators or power plants.

Other structures alongside the landfill are the borrowed area that supplies the soil for the landfill, the runoff collection pond, leachate collection ponds, and methane station.

So, should all our trash go to the landfill?

There are better options for a lot of our trash.

Americans throw away about 4.5 pounds of trash per person per day! Where else could some of these materials go?

Recycling Bin!

What types of materials can be recycled?

Plastics #1-#7 the number refers to the type of plastic. (No Styrofoam unless you take it to a goodwill drop-off *OKC area only)

> Only 7% of plastic used gets recycled. Each ton of recycled plastic saves over 16 barrels of oil, and requires approximately 60% less energy to produce than virgin plastic. It also creates fewer greenhouse gas emissions, and helps to significantly reduce the amount of plastic clogging landfills and contaminating oceans.
>
> One pound of recycled plastic saves enough energy to charge a smart phone for 31 weeks!
>
> One pound of recycled milk jugs save enough energy to charge an electric car for 6 hours!
>
> One pound of recycled plastic saves enough energy to power a 60w light bulb for 6 days!

Paper – office paper, mixed paper, junk mail, newspapers, magazines, books, etc.

Almost 33% of the waste stream is paper, but 67% of it gets recycled.

Recycling one ton of paper saves:

- 17 trees
- enough energy to power the average American home for six months.
- 7,000 gallons of water.
- 3.3 cubic yards of landfill space.
- 500 pounds of air pollution

Cardboard – corrugated and paperboard such as cereal boxes, etc.

About 78% of corrugated cardboard is recycled

Glass – bottles and jars any color. Sometimes must be sorted by color. No broken glass, mirrors, dishes, etc.

28% of glass containers get recycled. 80% of the glass that is recycled is used to make new glass bottles.

Metals – Aluminum cans , tin cans, clean aluminum foil or foil trays

Almost 55% of aluminum is recycled. It can take as little as 60 days for a recycled aluminum can to be back on the shelf as a new product.

28% of a new steel can is made from recycled steel. Almost 31% of steel products get recycled.

All items should be empty and rinsed. You do not have to remove labels. Leave the caps on plastic bottles so they don't get lost during transportation.

Composting

What can go in a compost pile?

Fruit and vegetable scraps, table scraps (no meat or bones), egg shells, coffee grounds, tea grounds, yard waste (weeds**, leaves, grass clippings, flower cuttings, etc.) shredded paper, pine needles, wood ash, dryer lint, sawdust, etc.

For composting to work, you need several things:

1. Greens (Nitrogen) grass clippings, table scraps, green plant materials
2. Browns (Carbon) dried leaves, egg shells, paper, sawdust, ashes, coffee filters/grounds, pine needles

3. Water – add water or let mother nature
4. Oxygen - turn the pile for faster decomposition

It works best if you add your materials in layers of browns and greens. Water and turn more frequently if you want your compost to breakdown more quickly.

Compost can be ready to use in about 3 months with frequent watering and turning if the pile is in a location that gets hot. It can take years if left in a pile and not tended to.

Household Hazardous Waste

Leftover household products that contain corrosive, toxic, ignitable, or reactive ingredients are considered to be household hazardous waste (HHW). Products, such as paints, cleaners, oils, batteries, and pesticides that contain potentially hazardous ingredients require special care when you dispose of them.

Improper disposal of HHW can include pouring them down the drain, on the ground, into storm sewers, or in some cases putting them out with the trash. The dangers of such disposal methods might not be immediately obvious, but improper disposal of these wastes can pollute the environment and pose a threat to human health. Many communities in the United States offer a variety of options for conveniently and safely managing HHW.

City of OKC

What we can take:

Propane, gasoline, lubricants, motor oil, brake fluid, degreasers, antifreeze
pesticides, herbicides, fertilizer
CFL and fluorescent lightbulbs
swimming pool chemicals
furniture polish, household cleaners (including oven, drain and toilet bowl cleaners)
mercury
paint and thinner
Do not pour chemicals into a single container. Leave them in their original packages.
Some household products, although harmless in themselves, can be toxic when mixed.

What we can't take:

radioactive waste
biomedical waste
commercial hazardous waste
refrigerant and compressed gas containers
tires
computer equipment (For information about computer recycling visit

Special Disposal items:
E-waste
Batteries
CFL bulbs
Plastic bags

Play the game!

So who has heard of the 3 R's: Reduce, Reuse, Recycle

That is the key to dealing with our waste!

1. **Reduce** – how can we reduce our waste?
    a. Buy items with less packaging
    b. Don't buy single-serving
    c. Don't buy single use items
    d. Buy containers that can be reused or recycled
    e. Look for items that can be reused over and over again, thermos jars, cloth towels and napkins, real plates, etc.
    f. Use cloth bags when shopping
    g. Opt out from junk mail
    h. Use both sides of the paper
2. **Reuse**
    a. Save plastic and paper bags to use again
    b. Store leftover in Tupperware style containers
    c. Take hangers back to the drycleaner
    d. Use the backside of paper for scratch pads
    e. Compost
    f. Share newspapers, books, magazines,
    g. Reuse packing materials like peanuts
    h. Purchase used rather than new items (craigslist, yard sales, goodwill, etc.)
    i. Organize a swap event with friends
    j. When finished with something, loan it, give it, donate it, etc.
3. **When all else fails, Recycle**

Complete the cycle by buying items that encourage the 3 R loop. Items with recycled contents, etc.

Practice what your preach!

Celebrate America Recycles Day every November 15th

"Where is Away" Game…

TEAM 1

Compostable items Team 1

1. Banana Peel
2. Potato Peels
3. Onion Skins
4. Wilted Jack O Lantern
5. Ashes
6. Egg Shells
7. Leaves
8. Used Tea Bag

Recyclable Items Team 1

Plastic #1 (typically)

9. Sports Drink Bottle
10. 2-Liter
11. Water Bottle
12. Peanut Butter Jar
13. Juice Bottle

Plastic #2 (typically)

14. Detergent Bottle
15. Yogurt Container
16. Shampoo and Conditioner

Aluminum

17. Energy Drink
18. Aluminum Foil

Steel

19. Fruit Can
20. Canned pet food

Glass

21. Glass Jar
22. Cola Bottle
23. Soy Sauce

Cardboard

24. Shoe Box
25. Box of Pasta

Paper

26. Newspaper
27. Brown Paper Sack
28. Shredded Paper

Items to Trash/Landfill Team 1

29. Greasy Pizza Box
30. Styrofoam Box
31. Broken Glass
32. Dog waste
33. Meat Waste
34. Fish Waste
35. Candy Wrappers
36. Sandwich Baggie
37. Renovation Debris

Household Hazardous Waste Collection Team 1

38. CFL Lightbulbs
39. Pesticide
40. Pool Chemicals
41. Cell phone -
42. Rechargeable Batteries
43. Tires

Other/Special/E-waste/Donate Team 1

44. Book

TEAM 2

Compostable items Team 2

45. Orange Peel
46. Corn cob
47. Peanut Shells
48. Celery Stalks
49. Pencil Shavings
50. Wilted Flowers
51. Apple Core
52. Grass clippings

Recyclable Items Team 2

Plastic #1 (typically)

53. Cooking Oil
54. Ketchup Bottle
55. TV Dinner Tray
56. Plastic Cup
57. Garden Flower Containers

Plastic #2 (typically)

58. Milk Jug
59. Spray Cleaner
60. Bleach

Aluminum

61. Aluminum Soda Can
62. Aluminum Pan

Steel

63. Tuna Can
64. Vegetable Can

Glass

65. Glass Bottle
66. Pickle Jar
67. Pasta Sauce

Cardboard

68. Cardboard Box
69. Cereal Box

Paper

70. Office Paper
71. Magazines
72. Phone Book

Items to Trash/Landfill Team 2

73. Waxed Carton
74. Tissues
75. Dirty Diaper
76. Litter Box Waste
77. Poultry Waste
78. Cheese Waste
79. Bag of Chips
80. Gum Wrapper
81. Construction Debris

Household Hazardous Waste/Special/E-waste Collection Team 2

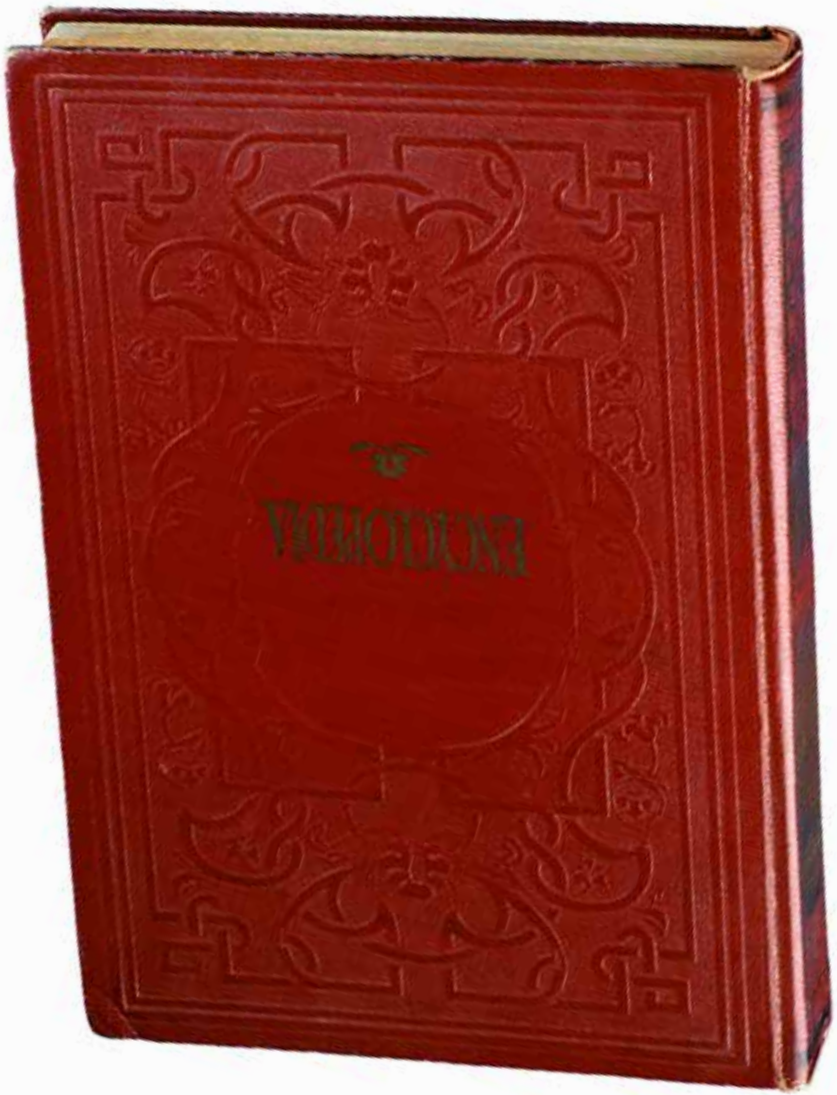
82. Paint Can
83. Chemicals
84. Gasoline
85. Computers
86. Plastic Bags

Donate Team 2

87. Old Toy
88. Shirt

TEAM 1

TEAM 1


ENCICLOPEDIA

TEAM 1

TEAM 1

TEAM 1

TEAM 1


Rechargeable
Caution:
Do not disassemble, short circuit or dispose of in fire.
Rechargeable
Caution:
Do not disassemble, short circuit or dispose of in fire.
Do not mix with different battery types.
Rechargeable
Caution:
Do not disassemble, short circuit or dispose of in fire.
Do not mix with different battery types.

TEAM 1

TEAM 1

TEAM 1

TEAM 1

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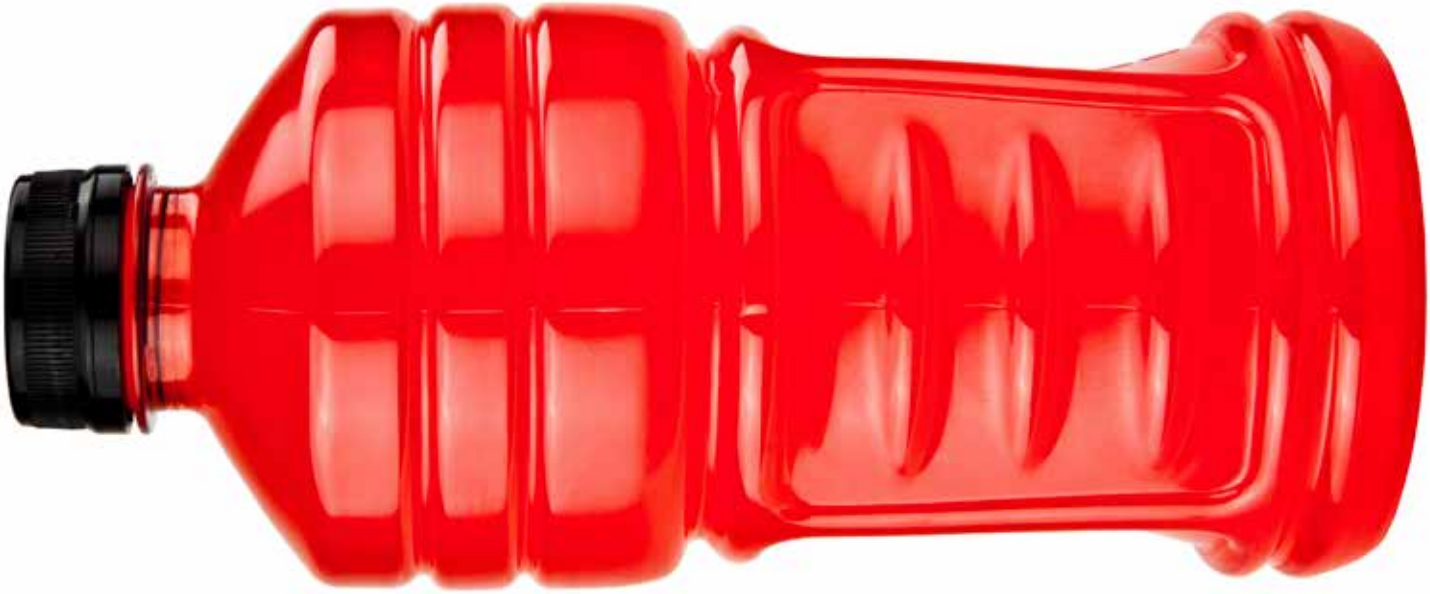
TEAM 1



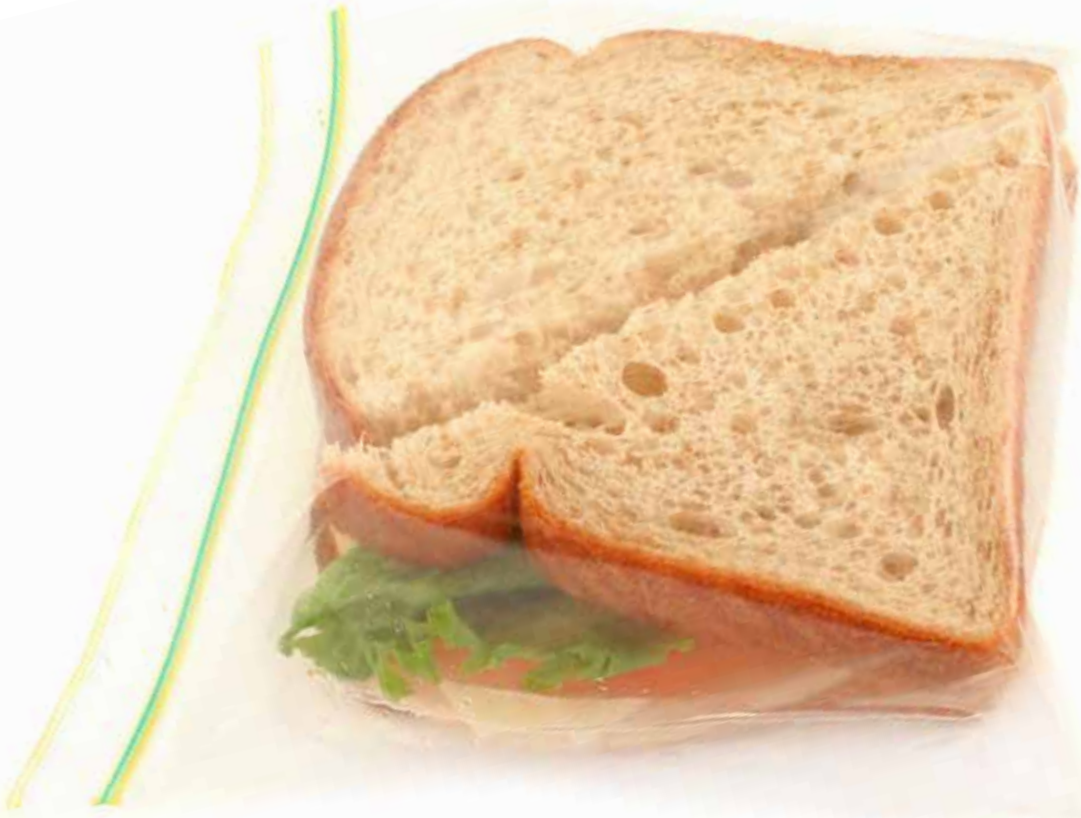
TEAM 1

TEAM 1


Energy drink
Energy drink
Energy drink

TEAM 1

TEAM 1



TEAM 1

TEAM 1


CORROSIVE
UN 2796
SULFURIC ACID
LESS THAN 51%
8

TEAM 1

TEAM 1


NEWS
Recession
Credit Crunch
Economic Crisis

TEAM 1

TEAM 1

TEAM 1

TEAM 1

TEAM 1

TEAM 1


Extra Cheese
Sausage
Mushroom
Ham
H/G Peppers
Pepperoni
B/O Olives
Onions
Special
CUSTOMER #

TEAM 1

TEAM 1

TEAM 1

TEAM 1

TEAM 1

TEAM 1


CHURCH

TEAM 1

TEAM 1

TEAM 1

TEAM 1

TEAM 1

TEAM 1

TEAM 1

TEAM 1

TEAM 2

TEAM 2


KETCHUP

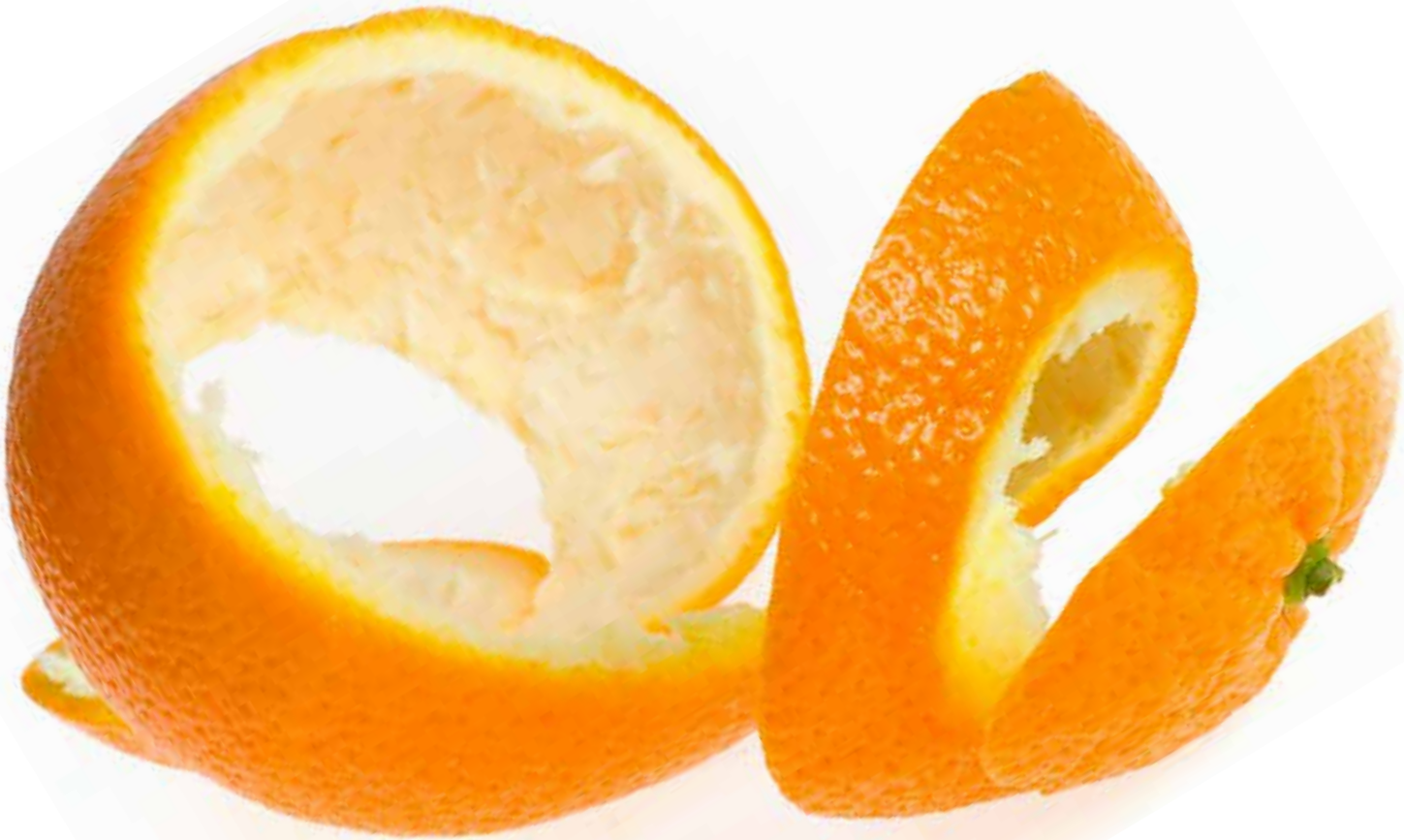
TEAM 2

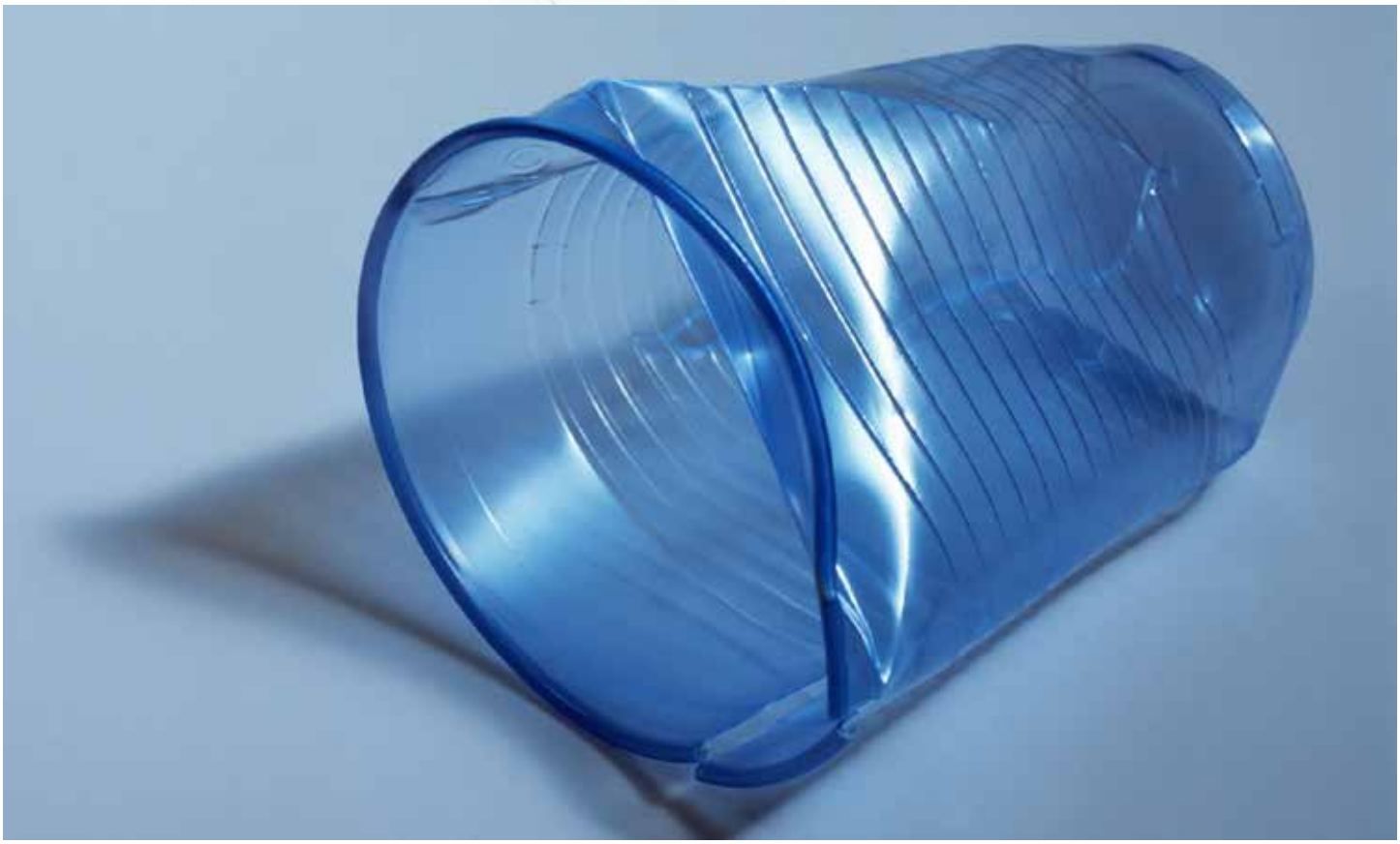
TEAM 2


MAGAZINES

TEAM 2

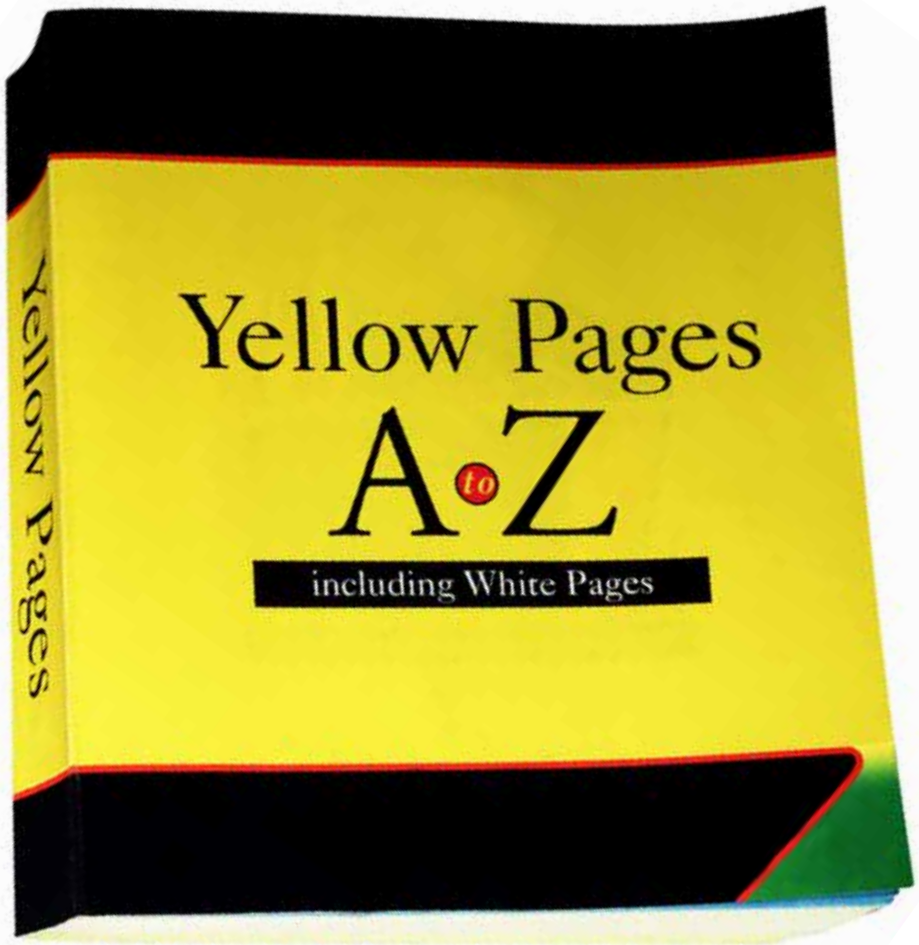
TEAM 2





TEAM 2

TEAM 2


Yellow Pages
A to Z
including White Pages
Yellow Pages

TEAM 2

TEAM 2

TEAM 2

TEAM 2

TEAM 2

TEAM 2

TEAM 2

TEAM 2

TEAM 2

TEAM 2

TEAM 2

TEAM 2


BLEACH

TEAM 2

TEAM 2

TEAM 2

TEAM 2

TEAM 2

TEAM 2


0.33L
CARBONATED FLAVOR SOFT DRINK
FRESH
COLA
DRINK

TEAM 2

TEAM 2

TEAM 2

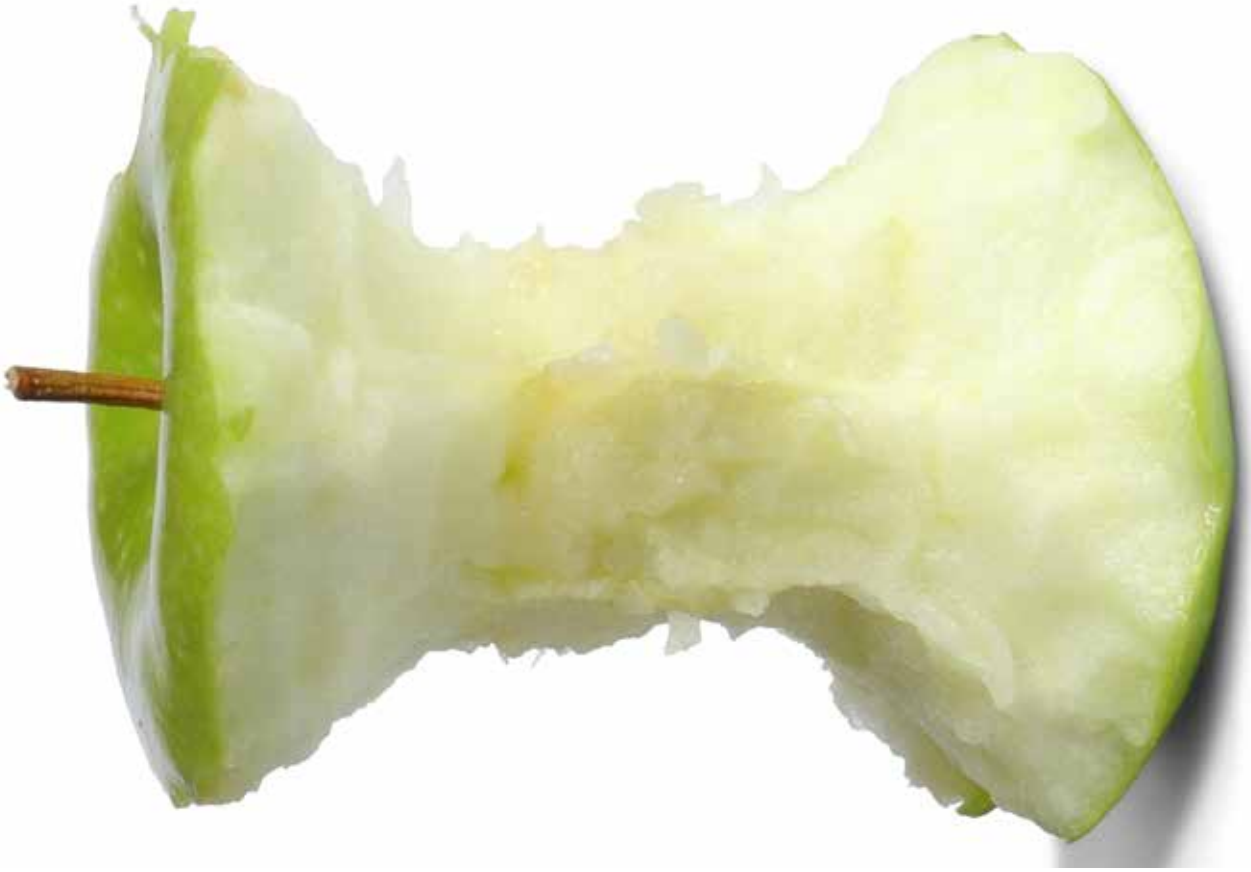
TEAM 2

TEAM 2

TEAM 2

TEAM 2

TEAM 2




GASOLINE
DANGER \ EXTREMELY FLAMMABLE
VAPORS CAN EXPLODE · HARMFUL OR FATAL
IF SWALLOWED \ CAUTION

TEAM 2

TEAM 2


GRADE A • PASTEURIZED HOMOGENIZED
Nutrition Facts
Serving Size 1 carton
Amount Per Serving
Calories 120 Calories from Fat 45
% Daily Value*
Total Fat 5g 8%
Saturated Fat 2.5g 16%
Trans Fat 0g
Cholesterol 20mg 8%
Sodium 105mg 5%
Total Carbohydrate 11g 4%
Dietary Fiber 0g 0%
Sugars 11g
Protein 9g
Vitamin A 10% • Vitamin C 2%
Calcium 30% • Vitamin D 25%

TEAM 2

TEAM 2

TEAM 2

TEAM 2

TEAM 2

TEAM 2

TEAM 2

TEAM 2


HAZARDOUS WASTE


THIS TRASH GOES TO A
LANDFILL
Please think twice.


SELL BOX
DONATION BOX
GIVE TO COUSIN

COMPOST

FOOD WASTE ONLY

RECYCLE

HERE