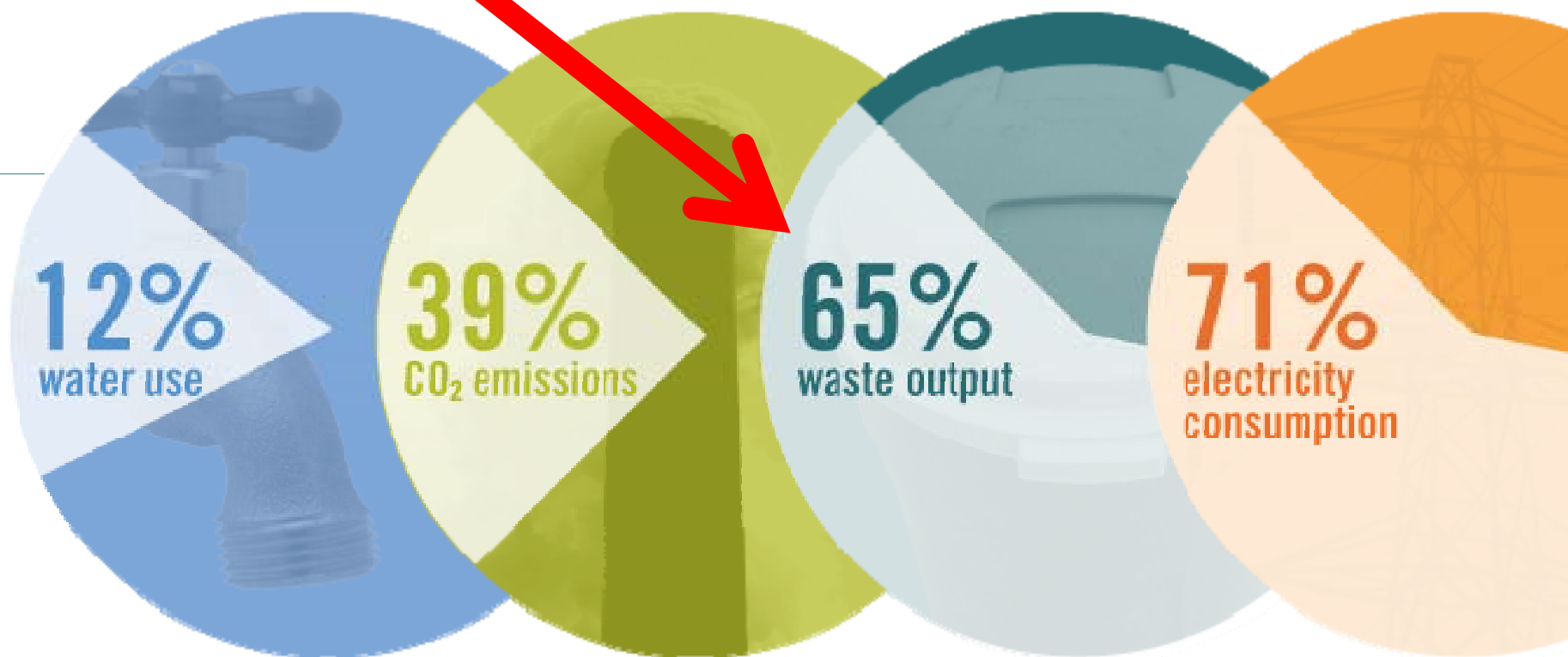


Houston Recycling: Where Are We?



Steve Stelzer AIA, LEED® AP
Program Director,
Public Works & Engineering, Code Enforcement
Green Building Resource Center

U.S. Building Impacts:





Houston Green Office Challenge



Waste

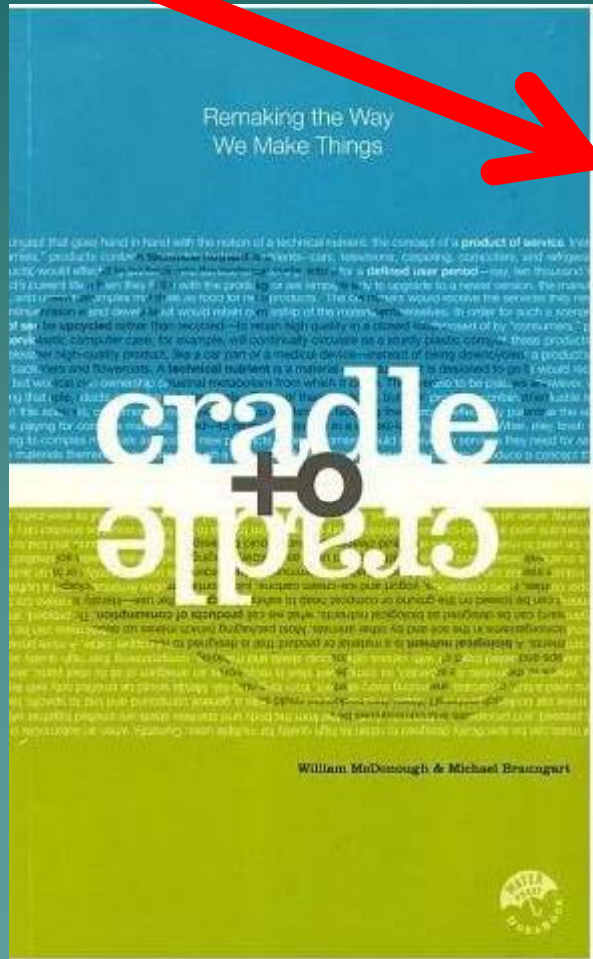


- Audit your waste stream
- Write a green purchasing policy
- Start a recycling program
- Purchase post-consumer recycled copy paper and paper products
- Use both sides when printing
- Say "no" to junk mail
- Think before you print
- Donate/recycle unused electronics
- Purchase reusable kitchen supplies and refillable beverage containers



Green Reading List

Number 1



Cradle to Cradle: Remaking the Way We Make Things Wm. McDonough & M. Braungart

Intro: This Book Is Not A Tree

1: A Question of Design

2: Why Being “Less Bad” Is No Good

3: Eco-Effectiveness

4: **Waste Equals Food**

5: Respect Diversity

6: Putting Eco-Effectiveness into Practice

Green Reading List



April 24,
2012

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The Progressive Forum, Houston, is a civic speaker organization dedicated to enriching our democracy and culture by presenting the great minds we believe are advancing the success of the individual, our species, and life on the planet.

William McDonough

Founding Partner, William McDonough + Partners

Co-Author: *Cradle to Cradle: Remaking the Way We Make Things*

Tuesday, April 24, 2012 at 7:30
Wortham Center, Cullen Theater

Associate Presenter: Architecture Center Houston Foundation

A preeminent leader of the sustainability movement, William McDonough is an architect, designer, and pioneer. He co-authored the landmark classic, *Cradle to Cradle: Remaking the Way We Make Things*, a manifesto calling for the transformation of industry towards ecologically intelligent design. He designed the city-size **Ford Motor Rouge River Plant** which installed the world's largest green roof, saving the company millions a year in utility costs. His designs call for solar and energy efficiency, as he provided for Brad Pitts' houses of the **Make It Right Foundation New Orleans**. Currently under construction is the **NASA Ames Research Sustainability Base** in Moffett Field, California, designed to be a net positive energy building. In 1999, *Time* magazine recognized him as a "Hero for the Planet." He's received three Presidential awards, the Presidential Award for Sustainable Development (1996), the Presidential Green Chemistry Challenge Award (2003), and the U.S. National Design Award (2004). He and his partners are calling for "The next industrial revolution." McDonough will sign books and greet fans at the end of the evening.

Questions for William McDonough

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Past speakers have included:

- Lester K. Born
- Ken Burns
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- Jared Diamond
- Sylvia Earle
- Elizabeth Edwards
- Tim Flannery
- Jane Goodall
- Al Gore
- Brian Greene
- James Hansen
- Seymour Hersh
- Arianna Huffington
- Molly Ivins
- Garrison Keillor
- Robert F. Kennedy, Jr.
- Joe Klein
- George Lakoff
- Richard Leakey
- Bill McKibben
- Bill Moyers
- Nancy Pelosi
- T. Boone Pickens
- Michael Pollan
- Robert Redford
- Frank Rich
- Eric Schlosser
- Anna Deavere Smith
- George Soros
- Gloria Steinem
- John Paul Stevens
- Alice Waters
- Larry Wilmore
- Edward O. Wilson

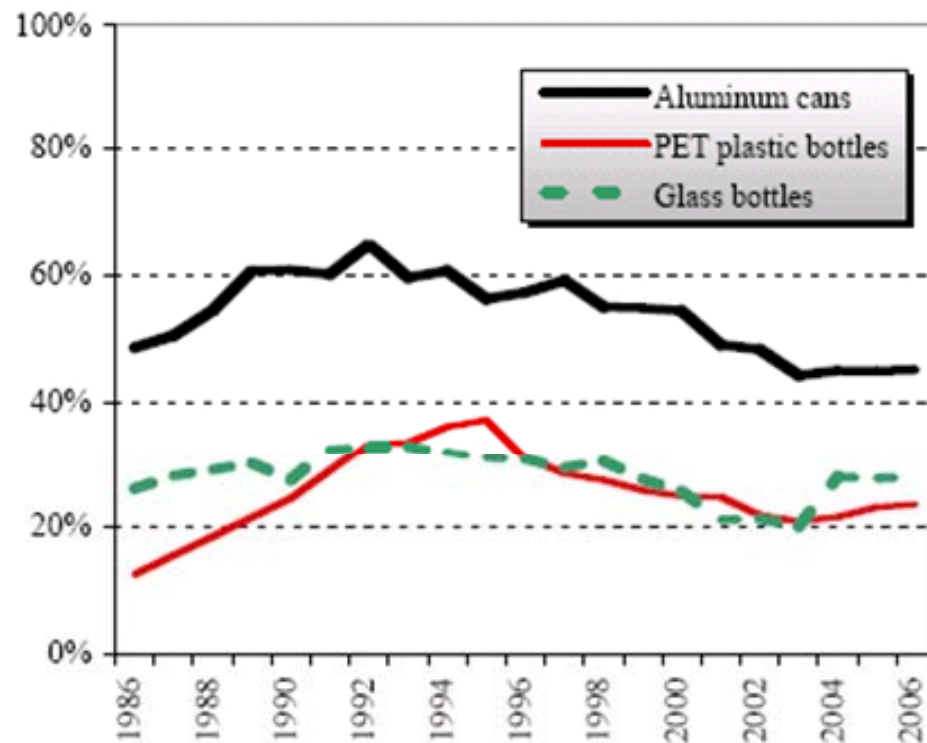
New York Times Covers
Progressive Forum



The Container Market

Aluminum, plastic, and glass recycling rates

Aluminum, Plastic, and Glass Recycling Rates,
1986-2006



© Container Recycling Institute, 2008.

Aluminum cans are the most-recycled major container type in the United States, with a 45% U.S. recycling rate. This rate is down nine percentage points from the 54.5% aluminum can recycling rate in 2000, and it is down twenty percentage points from the peak of 65% in 1992.

PET plastic bottles had a 23.5% recycling rate in 2006, compared to 24.8% in 2000. This rate is down from a peak of 37.3% in 1995.

Glass was recycled at an average rate of 27.8% in 2006.



The Aluminum Can Market



Four tons of bauxite.....



.....produces two tons
of alumina.....



.....which, in turn,
produces one ton of
aluminum.

Photos: Norsk Hydro, Noranda



Electrolytic reduction is carried out at 950 degrees Celsius in a fluorinated bath under high electrical current.

This takes place in “pots” where carbon cathodes act as the negative electrode.

Anodes are consumed during the process when they react with oxygen from the alumina.

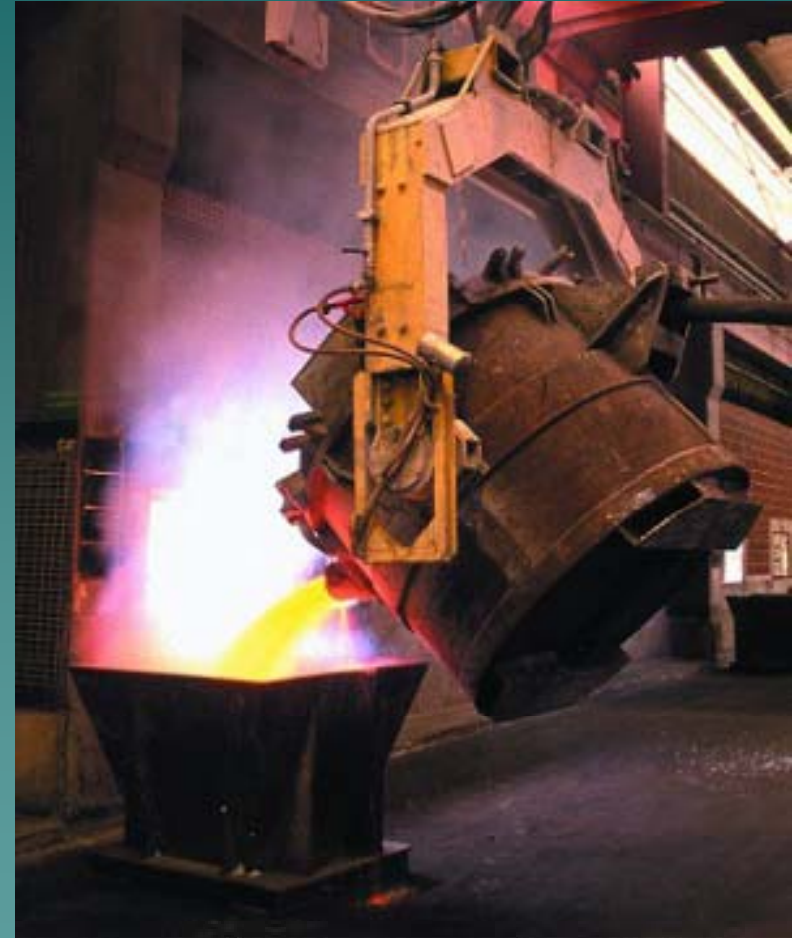


Photo: Norsk Hydro



The Aluminum Can Market

The U.S. aluminum industry consumed about 1 quadrillion Btu of energy in 1998 including losses associated with the generation and transmission of electricity at utilities. This amount represents slightly more than 1% of domestic energy use and 3.3% of all U.S. manufacturing energy use.



The Aluminum Can Market

According to the Can Manufacturer's Institute, an industry organization, recycling saves 95 percent of the energy used to make cans from virgin ore.



Recycling Aluminum: A Boon to the Environment



Photo: Norsk Hydro

- One-third of all aluminum on the U.S. market is recycled scrap.
- This recycled aluminum offsets the need for *two dozen* 400,000-ton primary smelters.



The Aluminum Can Market

A used aluminum can is recycled and back on the grocery shelf as a new can, in as little as 60 days. That's closed loop recycling at its finest!



The Aluminum Can Market

Because so many of them are recycled, aluminum cans account for less than 1% of the total U.S. waste stream, according to EPA estimates.



The Aluminum Can Market

June 15, 2011 - The U.S. recycling rate for aluminum beverage cans has reached its highest level in a decade, with 58.1% of all cans recycled last year - a rate that is more than double that of any other beverage container



The Aluminum Can Market

- 32 aluminum cans make a pound
- a conservative estimate of a 32 gallon bag weighing 5 pounds at the current market rate of 0.50 cents per pound ($0.50 \text{ cents} * 5 \text{ lbs} = \2.50 per bag).
- Flattening the cans usually double the bag weight to an average of around 10 pounds! Now that can add up to \$5 dollars of easy money per bag



The Aluminum Can Market

The North American packaging market uses 5 billion pounds of aluminum per year.

- Beverage/food cans are the top packaging application.
- Household/institutional foils are second.



The Plastic Container Market



SYMBOLS OF CONFUSION

- In a master stroke of deceptive communications, the Society of the Plastics Industry in 1988 appropriated the chasing arrow triangle, a universal symbol used on plastics *suggests recycled content* and real-world recyclability, yet it *means* something different.



The Plastic Container Market



The symbol simply indicates which *family* of plastic resins a product or component is made of. The suggestion of recycled content is *completely false*. After two decades of miscommunication, plastics are by far the most likely material to be labeled with a “recycled” symbol, yet they are among the *least likely materials to actually be recycled*.



The Plastic Container Market

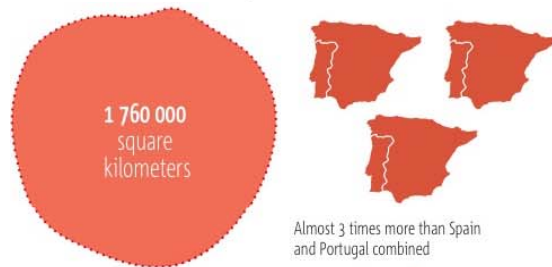


The Great Pacific Garbage Patch

Is an area of marine debris, laying approximately 135° to 155° West and 35° to 42° North. Although it shifts every year and exact position is hard to tell. It lies within North Pacific Gyre and does not go anywhere, as it is confined by its currents.

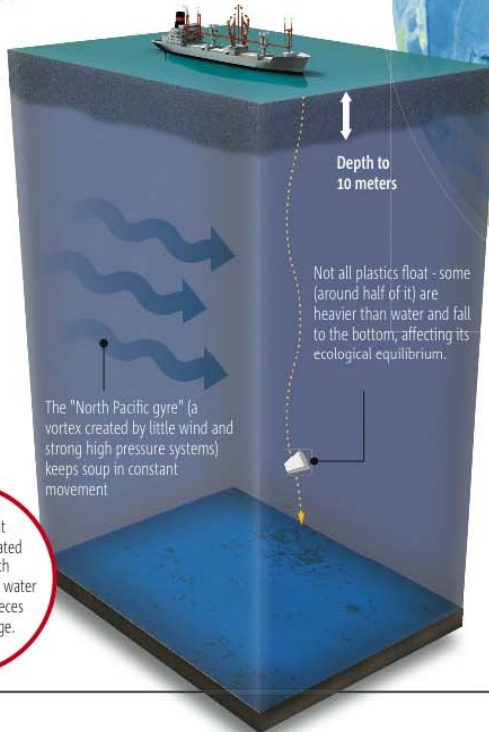
The area

The Patch is around 2200 kilometers long and 800 kilometers wide

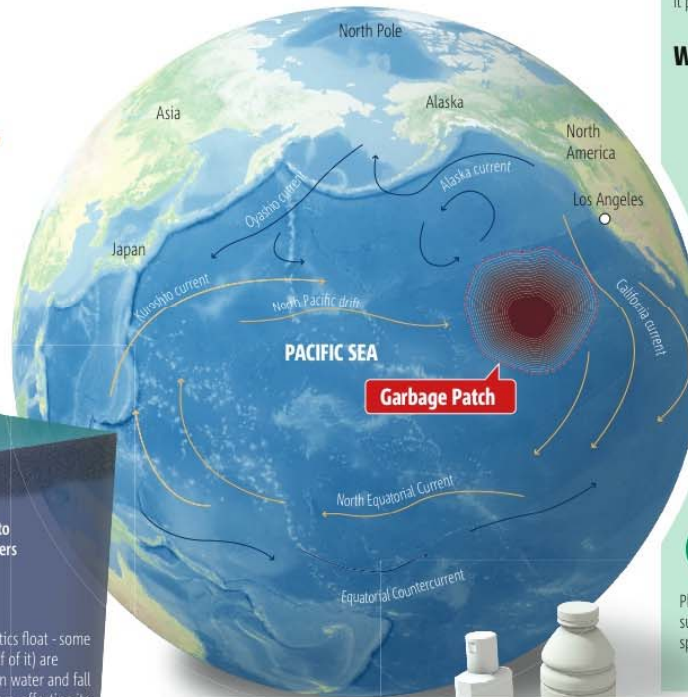


Plastic Soup

Consists of both larger and disintegrated plastic objects and particles, both on the surface, in the water column below it and on the bottom.



UN Environment Programme estimated recently that each square mile of ocean water contains 46,000 pieces of floating garbage.



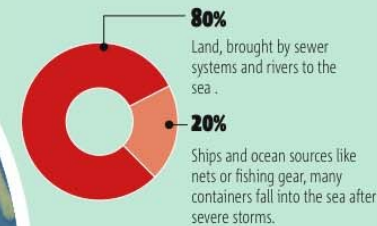
Problems created by plastic:

- It fouls beaches worldwide and scares tourists away.
- Plastic entangles marine animals and drowns them, strangles them and makes them immovable.
- Plastic litter washed ashore destroys habitats of coastal species.
- Plastic litter gets inside ships propellers and keels, making ship maintenance more expensive.
- Plastic does not biodegrade, plastic things make an ideal vessel and enable invasive species to move to further regions.

How does it form?

Currents in the Pacific Ocean create a circular effect that pulls debris from North America, Asia and the Hawaiian Islands. Then it pushes it into a floating pile of 100 million tons of trash.

Where does it all come from?



Interesting facts

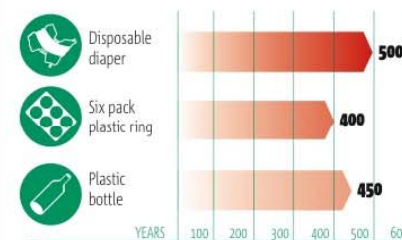
Less than 5% of plastic is recycled. In the Central North Pacific Gyre, small pieces of plastic outweighed surface zooplankton by a factor of 6 to 1 in 1999. But the ratio in 2010 may already be 60 to 1.



Photodegradation

Plastic never biodegrades, it doesn't break down into natural substances. But it goes through a photodegradation process, splits into ever smaller and smaller parts, which are still plastic.

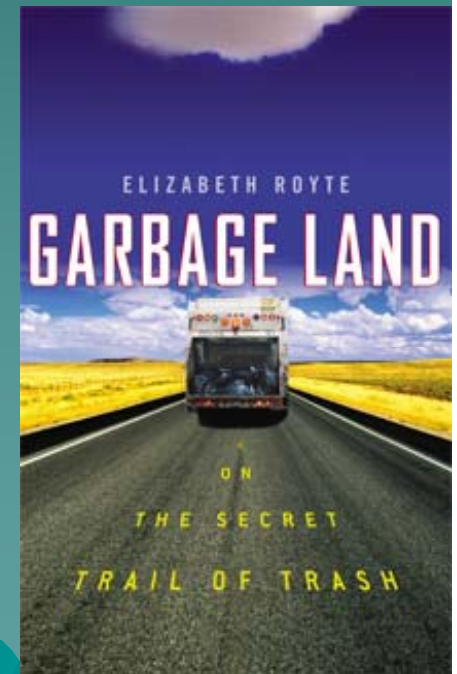
How long does it take to photodegrade plastic:



The Food/Yard Waste Market



Anthropology students digging in drier landfills have discovered forty-year-old hot dogs that look just like the ones currently sold in the Times Square subway station. Seventy-year-old newspapers can still be read. Cling wrap still clings. Most landfills are more like mummifiers than composters, it turns out. Achieving a rich, moist brown humus in a sanitary landfill is nothing but a romantic fantasy.....





Lot's of
people
getting
on board.

Tell your
friends.



Recycling is a Relationship



You want to dispose of it.
Someone else is collecting it.
Someone else is taking it.

Without your proper disposal, and
without someone taking it,
we don't have recycling.



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