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[Paper vs. Plastic - The Shopping Bag Debate](#) | [How To Eat Organic On A Budget](#) | [Cooking with Essential Oils](#)
[Back to the Main Page](#)

Paper vs. Plastic - The Shopping Bag Debate

You step up to the register, the cashier asks if you've found everything ok and then the inevitable question is asked: "Will it be plastic?"

What decision did you make? Was it an informed choice? Was it the best ecological choice? Well, to answer that, we need to s beginning and review each option and its impact on the environment.

The Origin of Paper Bags:

Paper comes from trees - and lots of them. The logging industry is huge and the process to get that paper bag to the grocery and environmentally taxing. First, the trees are found, marked and felled. Machinery is then used to remove the logs from the whether it by logging trucks or, in more remote areas, helicopters.

Machinery requires fossil fuel and roads (which destroys habitat) thereby creating stress on the forests' inhabitants (Even logg area has a large impact on the entire ecological chain in surrounding areas).

Trees must dry at least three years before they can be used. Machinery is used to strip the bark, which is then chipped into o squares and cooked under tremendous heat and pressure. This wood stew is then "digested" with a limestone and sulphurous eight hours. The steam and moisture is vented to the outside atmosphere, and the original wood becomes pulp. It takes appr three tons of wood chips to make one ton of pulp.

The pulp is then washed and bleached, both stages requiring thousands of gallons of clean water. Coloring is added to more w then combined in a ratio of 1 part pulp to 400 parts water to make paper. The pulp/water mixture is dumped into a web of br the water showers through, leaving the pulp, which, in turn, is rolled into paper.

Whew! And that's just to make the paper. We must include all of the chemicals, electricity, and fossil fuels used in the shipme material and in the production and shipment of a finished paper bag.

Where does a paper bag end its useful life?

Paper, when thrown away, can either be recycled or end up in the landfill. If it ends up in the landfill, over time (and usually r years) it will break down. If it ends up in the recycling center, the following process occurs:

First the paper must be returned to pulp. This is done by the use of several different chemicals including sodium hydroxide, h₂ peroxide, and sodium silicate. These chemicals bleach and spread out the pulp fibers. These fibers are then run through clean screening sequences that remove any contaminants. The pulp must then be washed with clean water to remove ink particles removed from the paper by the chemical process.

Flotation is a common method to remove ink. The pulp is submerged in clean water and heated. The ink attaches to air bubbli must then be removed before they break and let the ink float back to the pulp.

Most recycling centers treat the water they use to remove contaminants. Screens and mechanical cleaners are the typical met Another, more environmentally friendly method is called 'sludge handling'. Sludge is composed of water, inks, pigments and s of waste. The materials are separated and cleaned. By including this process, it reduces any waste that may have to be taken landfill. These waste materials can be used in bricks, fertilizers and other useful products.

Other uses for paper bags:

If well packed a single grocery size paper bag can hold the same volume of up to 4 plastic bags. Reuse them as trash can line craft projects. They also make great weed barriers and eventually break down and naturally compost.

It is also important to note that paper bags can be composted (provided they don't have a lot of printing on them). You can throw them straight into the compost pile, or fill with yard waste. Simply pitch the whole bag, green waste and all, into the compost pile.

Where does that plastic bag come from?

Plastic is a petroleum product - it comes from oil. As we all know, the oil industry is no small potatoes and is the cause of world financial and political turmoil.

Traps of oil are located around the planet. Once a trap is located, a hole is drilled and a pipe is rammed into the oil deposit. It is forced to the top of the surface due to both the pressure inside the chamber and the weight of the earth above. Once a pump is installed the whole operation is fairly simple and little oil is lost. The pumped oil is either piped or trucked to a refining facility where plastic is made.

Plastic is a by-product of oil refining and accounts for 4% of the world's total oil production. It is a 'biogeochemical' manipulation of the properties of oil, into polymers. Plastic polymers are manufactured into five main types: plastic bags are made from polyethylene. Polyethylene, as a raw material, can be manipulated into any shape, size, form or color. It is watertight and can be made UV resistant. Anything can be printed on it and it can be reused.

For the most part, the whole process of making plastic bags requires only electricity (minus the large, fuel burning heavy machinery required to acquire the oil). The electricity used in the actual production and manufacturing of plastic bags comes from coal fired power plants, which, it is interesting to note, 50% of that electricity is generated from the burning of old tires (made from rubber which is essentially, plastic).

Where does plastic go when thrown away?

Like paper, plastic bags can end up in two places: the landfill or the recycling center. If a plastic bag ends up in a landfill, it will stay there for thousands of years. Plastic does not compost. With plastic products in the mix, garbage does not have a chance to break down over time. Landfills are considered airtight, which explains why after 20 years you can find a hot dog that is still fully intact and a receipt with articles clearly legible.

Plastic is fabulous in that it is recyclable. All you have to do is basically re-melt and re-form. The re-melting process also sterilizes plastic thus allowing any recycled plastic to be made into hospital grade products. Plastic can be recycled many times before it becomes brittle - then it can be made into something as functional as a mousepad or a doormat. Please note that not all plastic bags can be recycled and many stores that collect them, simply send them to the landfill for lack of another alternative.

Plastic's Impact:

Plastic impacts the environment two ways. The first is through the use of electricity during manufacturing. More than half of the electricity needed to make plastic bags is generated by nuclear fission. Nuclear energy has its arguments (that's a whole other issue) that do not directly harm the environment. The main drawback is the disposal of radioactive waste. So far this has been done in deep underground caves or in deep sea trenches where the nuclear waste is subducted into the earth's mantle and incinerated.

Plastic not being recycled can be burned yielding from 10,000 to 20,000 btu per pound (60% of which can be recovered) creating electricity. This can reduce the overall sulphur emissions from coal.

The burning of plastics has its cons. Inks and additives found in plastic can create dioxins when burned as well as emit heavy metal ash itself is toxic and needs to be disposed of in toxic waste dumps. And then, does this use justify the continued use of limited resources?

Plastic also impacts the environment through landfills. Plastic does not break down - your yogurt container will always be there. Biodegradable plastic is really non-existent. What happens here is that wood fibers are mixed with plastic fibers. When the bag breaks down, the wood fibers break down leaving millions of tiny plastic pieces to mix in the earth.

An argument can be made that plastic decreases landfill mass. Plastics as a whole make up 18% of waste by volume and 7% by weight (plastic bags themselves are light and take up very little space). If plastic were to be replaced by other materials, trash weight would increase by 150%, packaging would weigh 300% more and energy consumed by the industry would increase by 100%.

Plastic has other benefits. Reduction in aircraft weight saves an average of 10,000 gallons of fuel per plane, per annum, the way it has since 1970, plastic has been responsible for doubling automobile fuel economy.

Conclusion:

Both paper and plastic bags consume large amounts of natural resources and the majority will eventually end up in the landfill. Paper can be recycled to some extent and can be utilized around the house. We've read several studies comparing the two choices and they don't all agree. Some feel plastic is the better overall choice, others paper. It's really tough to say. Paper may consume more resources to produce, however, it is also more recyclable than plastic if you include the fact that paper can be composted and plastic bags

In our opinion, neither one is the winner. The best choice overall, is a **reusable bag**. They're made from renewable resources, save energy, are light, durable (each holds up to 40 lbs) and last for years. Some can be machine-washed and are great to keep in the car. Use them at the beach, farmers market and, of course, supermarket. Plus, many supermarkets will give you up to 5¢ credit. Typically, a bag will pay for itself in a year and a half if you buy groceries once a week. We have, just this week, heard that in some countries, supermarkets are beginning to charge customers for every bag at checkout. If this practice makes its way to the U.S., then string bags are an even smarter financial choice.

Taking all the above information into consideration, feel confident that you are making an informed decision the next time you go to the supermarket. The most important thing to remember is to utilize every possible use for both the plastic and paper bags to lengthen their life and minimize the impact on both the environment and our natural resources.

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