



Project Zero

e-SMARTkids



ACTIVITY

Bag It—Paper or Plastic?

When the grocery clerk asks you “Paper or plastic?” do you think about the energy that was used to make those bags?

- About 700 paper bags can be made from one 15-year-old tree. A large grocery store can use that many bags before lunch! Trees are considered a renewable resource if they are replanted regularly, but it still takes energy to make those bags.
- Plastic bags start out as either oil or natural gas. Oil and natural gas are fossil fuels that are nonrenewable energy resources.

Take out a paper and pencil (remember to use both sides of the paper!) and write down all the ways you can think of that energy is used to make a paper bag. For example, logging trees to make paper bags uses big machinery that runs on fossil fuels. Then do the same for plastic bags.

After you finish your list, check yours against the one on the next page.

Continue >



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ACTIVITY

Bag It—Paper or Plastic?(continued)

Energy Used for Paper Bags

- Logging trees uses big machinery that runs on fossil fuel.
- Building roads to get to those trees uses fossil fuels, as do the machines needed to drag the trees out of the forest.
- The mill uses energy to heat and dry the logs and to chip them into small pieces. They are cooked with lots of heat and pressure to make pulp—that takes energy, too.
- The pulp is washed with thousands of gallons of water, which takes energy to pump and deliver and dispose of.
- Once the paper is made, it takes energy to cut and print and make into bags at the bag factory.
- It takes energy to deliver the bags to the store.
- If you throw paper bags away, it takes energy to deliver them to the dump or landfill.

Energy Used for Plastic Bags

- Oil needs to be pumped from the ground with large fuel-burning machinery.
- The oil is then delivered by truck or pipeline to a refining facility. It takes energy to build the pipeline and to drive the truck
- The refining facility, which usually runs on electricity, makes the oil into pellets.
- A component of oil called polyethylene is used to make plastic bags. A machine heats the polyethylene to a very high temperature—this takes heat energy.
- Other energy-using machines cut the bags, cut holes for handles, and print things on the bags.
- Then trucks use energy to deliver the bags to warehouses and stores.
- If you throw plastic bags away, it takes energy to get them to the dump or landfill.