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Module 04: Hazardous Waste

Urban EcoLab

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April 2021

## Teacher Background

Center for Urban Resilience

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### Repository Citation

Center for Urban Resilience, "Teacher Background" (2021). *Module 04: Hazardous Waste*. 5.  
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**Teacher background information:**

This may be the first time students have formally defined these terms. You can encourage students to write definitions for these terms first. See below:

**Reduce**

Waste prevention, or "source reduction," means consuming and throwing away less. It includes:

- purchasing durable, long-lasting goods;
- seeking products and packaging that are as free of toxics as possible;
- redesigning products to use less raw material in production, have a longer life, or be used again after its original use.
- Using less materials or consuming less manufactured goods

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.

**Reuse**

Reusing items -- by repairing them, donating them to charity and community groups, or selling them -- also reduces waste. Reusing products, when possible, is even better than recycling because the item does not need to be reprocessed before it can be used again. The reuse movement has always been strong in Europe and was the norm for Americans during the Second World War when rationing was common. The emergence of plastics in the 1960's radically changed consumer practices in the United States. Manufactured goods could be produced at very low cost. Advertising drove enhanced consumer demand that led to intensified cycles of personal consumption. The reuse movement gained momentum in the 1970's and has gained in popularity as the once inexpensive plastic consumables have become more expensive. Many communities maintain swap-shops that allow people to trade and exchange reusable items.

**Recycle**

Recycling is the extension of the manufacturing cycle of goods by using the base materials in goods to produce another round of consumption. This makes good environmental sense because recycling:

- Conserves resources for our children's future.
- Prevents emissions of many greenhouse gases and water pollutants.
- Saves energy.
- Supplies valuable raw materials to industry.
- Creates jobs.
- Stimulates the development of greener technologies.
- Reduces the need for new landfills and incinerators. Recycling turns materials that would otherwise become waste into valuable

resources. In addition, it generates a host of environmental, financial, and social benefits. Materials like glass, metal, plastics, and paper are collected, separated and sent to facilities that can process them into [new materials or products](#).

Recycling is one of the best environmental success stories of the late 20th century. Recycling, including [composting](#), diverted 82 million tons of material away from landfills and incinerators in 2006, up from 34 million tons in 1990. By 2006, about 8,660 curbside collection programs served roughly half of the American population. Curbside programs, along with drop-off and buy-back centers, resulted in a diversion of about 32 percent of the nation's solid waste in 2005.

### **Compost**

Compost is organic material that can be used as a soil amendment or as a medium to grow plants. Mature compost is a stable material with a content called humus that is dark brown or black and has a soil-like, earthy smell. It is created by: combining organic wastes (e.g., yard trimmings, food wastes, manures) in proper ratios into piles, rows, or vessels; adding bulking agents (e.g., wood chips) as necessary to accelerate the breakdown of organic materials; and allowing the finished material to fully stabilize and mature through a curing process.

Natural composting, or biological decomposition, began with the first plants on earth and has been going on ever since. As vegetation falls to the ground, it slowly decays, providing minerals and nutrients needed for plants, animals, and microorganisms. Mature compost, however, includes the production of high temperatures to destroy pathogens and weed seeds that natural decomposition does not destroy.