

## Lesson 4: Work Sheet Out of Order! Answer Key

Waste-to-energy, also called recovery, is an environmentally safe process that burns common waste items to produce electricity. Twelve steps in the waste-to-energy process are below. However, they are out of order. Your challenge is to put the steps in the correct order. Complete the steps below.

1. Use what you know to predict the correct order in the first column.
2. Watch the video at [www.thinkgreen.com/waste-to-energy](http://www.thinkgreen.com/waste-to-energy) which outlines the correct steps, and write them in the second column.
3. Highlight all steps that illustrate an energy conversion.

Predict	Correct	Steps
	7	The steam from this process is routed to a turbine generator to produce electricity.
	5	At the bottom of the boiler, ferrous metals like iron and steel are separated from the ash residue and sent to recycling facilities. The ash residue that remains is collected and safely land filled.
	12	Finally, the cleaned exhaust gas exits the stack.
	1	Trash vehicles entering a waste-to-energy facility are weighed.
	10	In the boiler, an ammonia based compound is sprayed on gas to prevent the release of nitrous oxides.
	3	Overhead cranes load the waste into refuse hoppers.
	2	Trash is inspected to make sure it contains only acceptable municipal solid waste. Then it is deposited into a storage pit.
	6	Hot gasses from burning waste rise through a boiler made of tubes. Water in the tubes is converted to steam as a result of combustion heat.
	8	The electricity is sold to the local utility company where it is used to power homes, schools and businesses.
	4	Hydraulic ramps feed the trash into furnace units where it burns on grates
	11	The gas then enters a scrubber where pollutants are removed.
	9	The steam from the turbine is returned back to the boiler system.