

Chapter 19.3 Environmental Science – **HAZARDOUS WASTE** Chart

Directions: Fill in the information from the classroom or online chart.

Environmental Science Standard and element:

SEV5. Students will recognize that human beings are part of the global ecosystem and will evaluate the effects of human activities and technology on ecosystems.

e.) Describe the effects and potential implications of pollution and resource depletion on the environment at the local and global levels (e.g. air and water pollution, solid waste disposal, depletion of the stratospheric ozone, global warming, and land uses).

STUDENT CHECKLIST

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|--|----------|---------|
| 1.) Put the chart in your Science Notebook behind the Chapter 19 Word Study after it has been checked. | _____yes | _____no |
| 2.) The CHART was accurate and complete with no abbreviated information. | _____yes | _____no |
| 3.) The Information was written neatly and large and dark enough to be easily seen. | _____yes | _____no |
| 4.) All information was complete with no grammar or spelling errors. | _____yes | _____no |

WHAT ARE HAZARDOUS WASTES? Hazardous wastes are wastes that are a risk to the health of humans or other living organisms.

Types of Hazardous Waste

- dyes, cleansers, and solvents
- PCBs (polychlorinated biphenyls) from older electrical equipment, such as heating systems and television sets
- plastics, solvents, lubricants, and sealants
- toxic heavy metals, such as lead, mercury, cadmium, and zinc
- pesticides
- radioactive wastes from spent fuel that was used to generate electricity

TWO IMPORTANT HAZARDOUS WASTE ACTS

Resource Conservation and Recovery Act

- Requires producers of hazardous waste to keep records of how their wastes are handled.
- The RCRA also requires all hazardous waste treatment and disposal facilities to be built and operated according to standards that are designed to prevent the facilities from polluting the environment.

The Superfund Act

- In 1980, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act, more commonly known as the Superfund Act.
- This act gives the EPA the right to sue the owners of hazardous waste sites who had

illegally dumped waste.

- **It also allows the EPA to force the owners to pay for the cleanup.**
- **Cleaning up improperly discard waste is difficult and extremely expensive.**
- **The act also created a fund of money to pay for cleaning up abandoned hazardous waste sites.**
- **Cleanup has been completed at only 75 of the roughly 1,200 approved or proposed Superfund sites.**

PREVENTING HAZARDOUS WASTE

- **One way to prevent hazardous waste is to produce less of it.**
- **For example, manufacturers discovered they can redesign manufacturing methods to produce less or no hazardous waste.**
- **Such techniques save the manufacturers money by cutting the cost of materials as well as in cutting the cost of waste disposal.**
- **Another way to prevent hazardous waste is to find a way to reuse it.**
- **For example, a company that would usually throw away a cleaning solvent after one use can instead sell it to another company that produces a product that is not harmed by small amounts of contamination in the solvent.**

LAND DISPOSAL FOR HAZARDOUS WASTES

- **Most of the hazardous waste produced in the United States is disposed of on land.**
- **Hazardous wastes in concentrated or solid forms are often put in barrels and buried in special landfills.**
- **Deep-well injections is another method of waste disposal where hazardous wastes are pumped deep into the ground, where they are absorbed into a dry layer of rock below the level of groundwater.**
- **A surface impoundment is also a method of hazardous waste disposal where a natural depression or a human-made excavation is made that serves as a disposal facility that holds an accumulation of wastes.**
- **Surface impoundments are basically ponds with sealed bottoms.**

Biologically Treating Hazardous Waste

- **Some hazardous wastes can be absorbed, broken down, or their toxicity can be reduced when they are treated with biological and chemical agents.**

Incinerating Hazardous Waste

- **Some hazardous wastes are disposed of by burning in specially designed incinerators.**
- **Incineration can be a safe way, but it is generally the most expensive form of disposing waste.**
- **Incinerators produce ash that needs to be buried in a hazardous waste landfill.**

Exporting Hazardous Waste

- **Hazardous wastes can now be exported through international trade agreements to facilities in another countries that specialize in treating, disposing of, or recycling a particular hazardous waste.**

Hazardous Wastes at Home

- **Household produces can also create hazardous waste.**
- **Some household products should be disposed of in specially designed hazardous waste landfills, and not down the drain or put in the trash and sent to a solid-waste landfill. These include motor oil, paints, batteries, computers, mobile phones, pesticides, fertilizers, cleaners, and antifreeze.**