

Waste Management & Product Life Cycles

Written by Christine Berriman



Rainbow Horizons Publishing Inc.

662D Progress Av

Kingston, ON K7M 4W9

Tel: 1-800-663-3609 | Fax: 1-800-663-3608

Email: service@rainbowhorizons.com

www.rainbowhorizons.com

www.classroomcompletepress.com

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A Product's Life Cycle: Design

Before You Read

1. Match the word on the left to the definition on the right. You may use a dictionary to help.

durable	This has to do with the tools, machines and skills used or needed to make something. It is a practical hands-on way to do something rather than an idea in a book.
advertising	The machinery and buildings of a factory.
promotion	Something that will last a long time even though it is used very many times.
demand	To be able to get rid of after one or two uses.
plant	To help sell more of something or i.e., product.
technology	To praise something to large numbers of people in the hope that they will buy what it is you are praising.
disposable	How much consumers are willing to buy of some product.

durable	advertising	promotion	demand
plant	technology	disposable	

2. **Select** words from the above list to complete the following sentences:

- a) The _____ on TV was a _____ for the new product.
- b) The factory's _____ had to be changed using new _____.
- c) The product was more _____ than _____. It lasted a long time.
- d) Manufacturers try to increase the _____ for their product.

A Product's Life Cycle - Exploration, Extraction and Processing

Reading Passage - Exploration

Computer technology helps man to search for and dig up (extract) natural resources from places like **offshore oil wells**. It also helps to decide if it is a worthwhile project. If it is doable it will be done.

Because of technology more resources are found so more can be extracted.

Extraction: Minerals, Fish, Forests, Oil, Farming

Huge **fish factory ships** haul out whole **fish stocks** found by sonar.

Whole **forests** of trees are still **clear-cut** making erosion, destroying environments.

Whole farming **topsoil** is still dug away and often left as an **open-cut mine method**, to remove minerals beneath the soil.

Chemicals used in shaft mining for minerals **leak** into the environment.

Oil wells in some places are not checked. Often leaks are left to flood farmers land with oil.

Farmer's **pesticides** and fertilizers are washed into **streams** to destroy water life.

Hazardous and toxic waste solids, liquids and gases are made during extractions and **transportation** to refineries of raw materials. The natural resources that are extracted or harvested are taken by pipeline, ship, tankers, trucks, barges or train to processing plants.

Processing: Minerals, Fish, Forests, Oil, Farming

Processing plants take the raw materials of mineral ores, fish, trees, plants, animals and oil, and sift, sort, heat and cool them, hammer and plucked, cut and generally work on them to turn them into the kinds of stuff that a manufacturer can use in his factory to make his products. Raw materials go in and processed materials like bales of cotton, sheets of steel and planks of wood come out. The bits of the raw material and the processing material left over are **waste**. Most processing plants use a lot of **energy**, water and chemicals e.g. **blast furnaces** use heating fuels and lumber mills use water and chemicals. Refineries purify oil and sugar cane.

WASTE BOX

Oil from leaking oil wells

Oil spills

Hazardous chemicals and gases from processing

Hazardous Waste Produced

?? How has technology been good and bad for mankind?

Waste Management - Landfill

After You Read

Leaking Fluids Activity

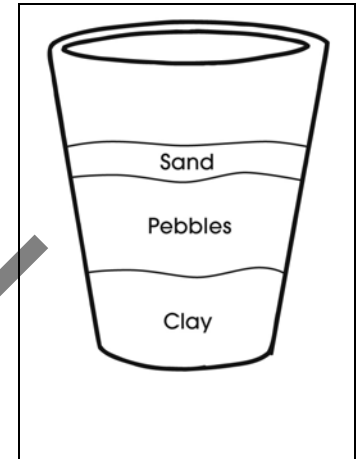
Aim: To demonstrate how landfill sites leak hazardous liquids into ground and water. Use the drawings on the previous page as models for the activity.

Materials Needed: 2 clear plastic cups, $\frac{1}{4}$ cup modeling clay, handful of little pebbles, handful of sand, food dye, water, two circles of plastic the same size as the cup.

Directions:

1. Label each, cup 1 and cup 2.
2. In each cup place a layer of modeling clay across the bottom of the cups and mold it about one inch above the bottom like a hollow cave for water to simulate an aquifer. Make one side higher up the plastic side than the other side. Leave an opening on the lower side of the clay layer to allow water to enter the underwater aquifer cave. Place Cup 2 aside for now.

CUP 1



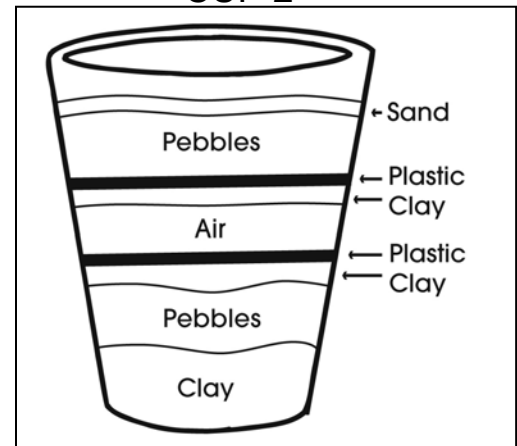
IN CUP 1 ONLY:

3. Place the pebbles over the clay.
4. Place a small layer of sand above the pebbles.
5. Place food color into cup of water and pour over cup 1 until the water seeps into the aquifer.

IN CUP 2:

1. Poke three or four sharp pencil sized holes in the top circle of plastic. These represent the pipes in a sanitized landfill.
2. Place pebbles above bottom layer of clay (groundwater).
3. Place another thin layer of clay above those pebbles.
4. Place "no holes" plastic over that clay.
5. Leave a gap then add another thin layer of clay and the "holed" plastic, more pebbles and thin layer of sand.
6. Pour colored water until it begins to seep through the holes. Look back at the drawing of the sanitized landfill and compare.

CUP 2



Concluding Thought:

Assignment:

1. Find out what kind of landfill site your town has. Where does your town draw its water? What is the course of the town's water supply? What kinds of places will rainwater pass over on its way to the river?
2. Make a map of the rivers near your town and mark where the landfill site(s) is/are.