

## MAKING A MINI LANDFILL

<b>RATIONALE:</b>	Products that end up as solid waste are made from a variety of natural resources. Because of differences in composition and biodegradability, much of what we now throw away could be composted or recycled.
<b>SUBJECTS:</b>	Science, Social Studies
<b>GRADES:</b>	3-9
<b>LEARNING OUTCOME:</b>	Students will understand some of the energy and resources embodied in solid waste. They will learn the meaning of the terms “organic,” “biodegradable,” “renewable” and “nonrenewable resource” and why each kind of solid waste needs to be handled in a particular way.
<b>MATERIALS:</b>	Four clear glass jars Soil Garbage Drawing Paper Crayons
<b>LEARNING PROCEDURE:</b>	<p>Step A:</p> <ol style="list-style-type: none"> <li>1. Ask Students how garbage is disposed of. Discuss how the proper disposal method for each component of garbage should be determined by its natural resource content.</li> <li>2. Outline for students these four basic categories of solid waste:             <ol style="list-style-type: none"> <li>a. Organic (e.g. potato peelings)</li> <li>b. Renewable Resources/Recyclable (e.g. newspaper)</li> <li>c. Nonrenewable Resources/Recyclable (e.g. aluminum cans)</li> <li>d. Nonrenewable Resources/Hard to Recycle (e.g. plastic bottle caps)</li> </ol> </li> <li>3. Have each student choose an item that ends up as garbage. Have students draw the lifecycle of this item from raw material to disposal in a landfill.</li> <li>4. To save natural resources and to reduce sold waste, which of these four categories would you try to buy products from? Which category of products would you avoid? Take each of the examples listed (potato peelings, newspaper, aluminum can, plastic bottle cap) think of ways to avoid disposing of them in a landfill.</li> </ol> <p>Step B:</p> <ol style="list-style-type: none"> <li>1. At the grocery store, while purchasing the family’s groceries, have each student keep a record of the purchases by dividing them into the four solid waste categories.</li> <li>2. In class, have students discuss which items they should eliminate from their shopping list or how they can substitute the non-renewable/nonrecyclable items with items that use renewable resources and generate less trash for the landfill.</li> </ol> <p>Step C:</p> <ol style="list-style-type: none"> <li>1. Fill four glass jars with the same amount of soil.</li> <li>2. Label each jar with one of the four category headings:             <ol style="list-style-type: none"> <li>a. Organic</li> <li>b. Renewable/Recyclable</li> <li>c. Nonrenewable/Recyclable</li> <li>d. Nonrenewable/Hard to Recycle</li> </ol> </li> </ol>

	<p>3. Put an appropriate small sample in each jar. Cover with soil and dampen with water. Leave the lids off.</p> <p>4. Observe what happens over two or three weeks. Discuss the condition of various kinds of waste. Discuss biodegradability. Compare the mini landfill to real landfills. From your observations, discuss the environmental problems associated with waste in landfills (leachate contamination of water, smell, methane gas, garbage truck traffic, litter, scavenging birds and animals, scarcity of landfill sites, cost, loss of natural resources and energy, etc.)</p>
<b>EXTENDED LEARNING:</b>	Take a field trip to your county's landfill or recycling facility. Have your county's solid waste manager come speak to the class.
<b>PRE &amp; POST TEST QUESTIONS:</b>	<p>What does "biodegradable" mean?</p> <p>What is the difference between a dump and a sanitary landfill?</p> <p>Which natural resources are renewable? Which are not? Why?</p> <p>What are four items you use every day that you could recycle?</p>

**Additional Resource: "Making a Mini Landfill Chart"**