

Landfill Ooze



The first known regulation against throwing waste in the streets and the establishment of dumps for refuse took place about 500 B.C. in Greece.

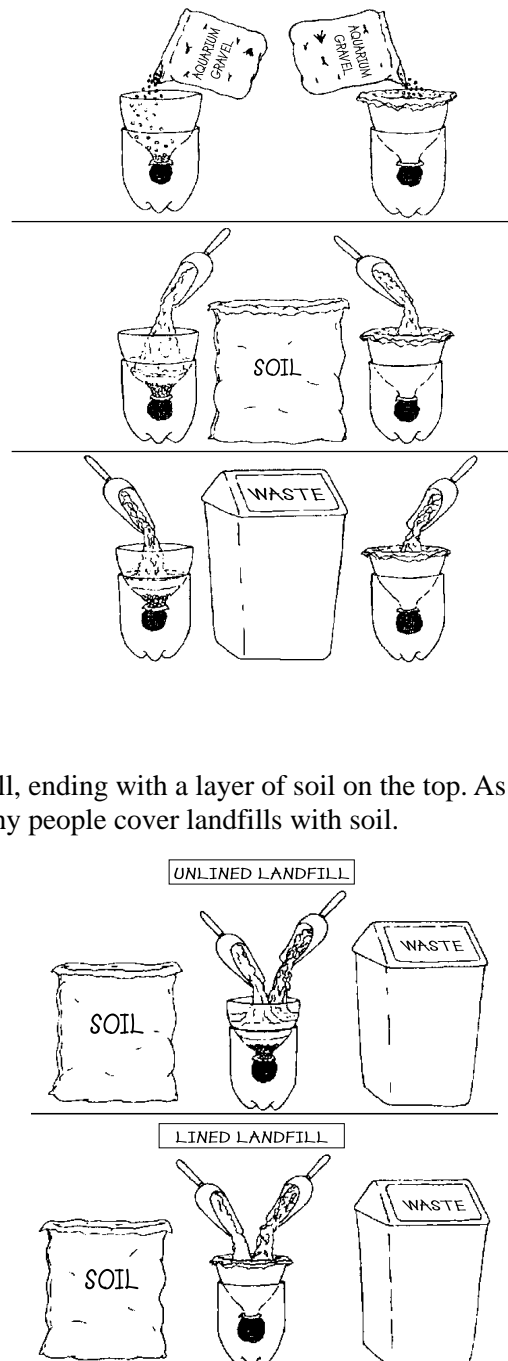
Equipment/Materials

- | | |
|---|-------------------------------|
| two 1- to 3-liter plastic soft drink containers | soil |
| 44-in. x 4-in. piece of cheesecloth | pea gravel or aquarium gravel |
| rubber bands | household waste |
| two plastic kitchen trash bags | water |
| clear plastic wrap | |

Time Required: Approximately 15 minutes to construct the models; minutes daily for a week in observation, variable time for evaluation; discussion

Procedure

- Cut across the plastic soft drink containers, dividing them into approximately equal sizes.
- Put a piece of cheesecloth over the narrow end of one of the funnels and anchor it in place with a rubber band.
- Invert the funnel into the bottom of the container, seating it firmly in place
- Place approximately 1/2 cup of pea gravel or aquarium gravel in the funnel as a base.
- Add about 1 inch of soil on top of the gravel.
- Place about 1 inch of household waste in a layer over the soil. Avoid fats and meat scraps. They become rancid quickly and produce extremely foul decay odors.
- Alternate layers of soil and household waste until the funnel is full, ending with a layer of soil on the top. As the “landfill” is being built, encourage participants to consider why people cover landfills with soil.
To combat odors, rodents, flies, etc.
- This model represents an unlined landfill.
- Repeat this process, but place two layers of plastic bag material inside the second funnel after the cheesecloth has been secured in place. This model represents a lined landfill.
- Select a warm, well-lighted area and place the models on tables that have been covered with plastic and newspaper to prevent damage from any leaks or spills.
- Water each landfill model with approximately 1/2 cup of water daily during the observation period. Do not over-fill the funnels.
- At the end of the observation period, prick the bottom of the liner with a stiff piece of wire shoved down through the landfill model and observe any changes in the treated container.



Observation and Discussion

1. Have the participants observe each of the models for a few minutes each day and record their observations. Emphasize the use of all senses (except perhaps taste and touch) in recording observations.
2. Lead them in discussing their observations and conclusions.
3. Challenge them to consider what the leachate from the landfills represents.
4. Consider possible differences between the lined and unlined landfill models with respect to smell, appearance, and amounts of leachate or overflow experienced.

Landfill Ooze Observation and Evaluation Form



The first known regulation against throwing waste in the streets and establishment of dumps for refuse took place about 500 B.C. in Greece.

1. Briefly describe the models, recording your observations on a daily basis for at least a week. Skip days when the group does not meet.

Day 1: _____

Day 2: _____

Day 3: _____

Day 4: _____

Day 5: _____

Day 6: _____

Day 7: _____

2. Do you think that a leachate forms in real landfills as it has in the model?

3. How can people protect groundwater from landfill leachates?

4. Did the addition of a liner help control the leachate?

5. Did the lined model produce a leachate that moved into the lower container (groundwater)?

6. Did the landfill models differ in odor, decomposition rate or other factors you could observe?

7. What happened when the liner was damaged?

8. Could this become a problem in real landfills?

9. How could we reduce the problems associated with landfills in our landscape?

10. Do you have any other observations you would like to add?