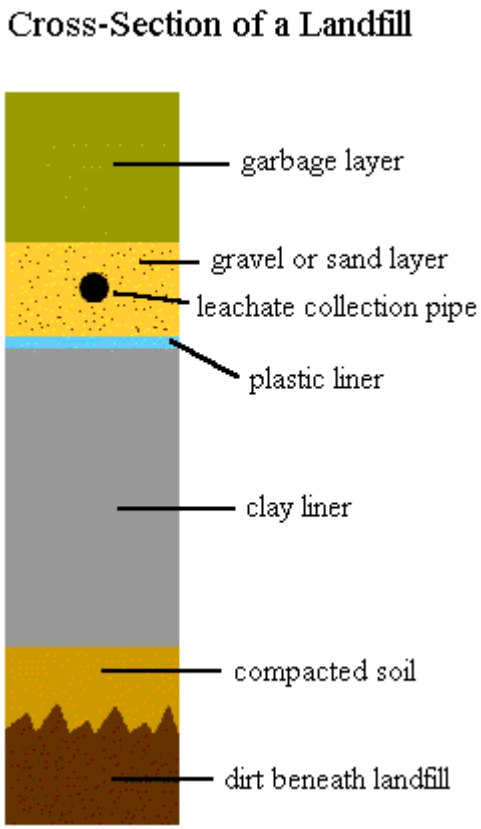
A Landfill Is No Dump!



Central Virginia Waste Management Authority

Adapted from Keep Henrico Beautiful and Henrico County Department of Public Utilities/ Solid Waste Division

Grades 1- 6: A Landfill Is No Dump!

Landfills are the most common forms of waste disposal and are an important component of an integrated waste management system. A landfill is a large area of land that is specifically designed and built to receive municipal solid waste. "Where does your trash go?" Find out, if you don't know by visiting your local landfill. What would your family do if your trash weren't picked up every week? What would happen to your garbage (and the garbage of everyone else in your area) if the landfill closed? What happens to a landfill when it is full? What does it mean to recycle and why are recyclables separated? How long does it take for different items to decompose? Why is buying products made from recycled materials important?

SOL Science: 1.1,1.3,1.4,1.8,2.1,2.8,3.1,3.5,3.7,3.11,4.1,4.5,4.8,5.1,6.1,6.11

Teacher Resources included:

1. Teacher Fact sheet www.epa.gov/epaoswer/education/quest/chapb-4.htm
2. Garbage Timeline
3. Luscious Layered Landfill Activity- Grades 1-4
4. A Landfill Is No Dump! Activity- Grades 3-6
5. Simulated Landfill Project

If possible, take students on a tour of your local landfill or study about landfills before doing the simulated landfill activity.

- Discuss with students why it is important to reduce, reuse and recycle.
- Ask that what can be recycled in their locality (community)? Mixed paper, plastic, glass, steel, cardboard, aluminum, used motor oil, latex paint, batteries, tires, scrap metal, white goods, yard waste etc.
- Ask students the difference between a dump and a landfill?
- Be sure to include vocabulary words such as leachete, decomposition, groundwater, methane gas, etc.

Simulated Landfill Project

Items needed:

4-qt. Plastic shoebox with lid (one per student)
Box of Q- tips (one per student)
Avery Address Labels (eight per student)
Washer (one per student)
Rubber bands (one per student)
Toothpicks (one per student)
Styrofoam peanuts (one per student)
Paper clips, small (one per student)
*Kite string, must be really thin (8 pieces per student)
Aluminum foil (one small square per student)
Newspaper (one small square per student)
Three (3) 40 lb. bags of topsoil
Spray bottle

Note: It has been suggested to use a thin nylon string versus cotton kite string because cotton will decompose so quickly.

Experiment:

Students will tie a string at one end around each item to be buried. They will put a label with the name of the item around the other end of the string. Fill the plastic cube half way with topsoil. Bury each item leaving the labeled end of the string out. Cover items with another layer of topsoil. Each student will write a hypothesis. See simulated landfill worksheet. (Note: You will need for the students to decide if their landfill will be covered the entire 10 day and 20 day observation period or if the "mini" simulated landfill will receive sun, air and water each day.) After 10 days have students uncover items and look at them under a microscope to see if they are decomposing. Rebury the items and make observations at the end of 20 days. After students record findings after 20 days incorporate the follow-up questions on the back of the worksheet.

Students will discover items that start to decompose and begin to understand why it is so important not to fill up valuable landfill space with items that could have been recycled into new products, the importance to reduce waste- to buy in bulk, or buy things without excessive packaging and to reuse items.

Name_____ **Date**_____

SIMULATED LANDFILL WORKSHEET

Adapted from Keep Chesterfield Clean

Hypothesis: (which items will decompose?)

Observations (with microscope)

After 10 days **After 20 days**

Objects:

1.

2.

3.

4.

5.

6.

7.

8.

Conclusion:

Follow-up Questions:

- Which items in the shoebox have decomposed the most?

- Are the decomposing items manufactured or natural? Made from renewable or nonrenewable resources?

- Which items show no sign of decomposition? Can you tell why? Can these items be recycled instead of being put into landfills?

- What are the differences between a dump and a landfill? How did your simulated landfill differ from a true sanitary landfill?

- What would you build on your landfill once it is covered? Why wouldn't you want to build a house there?