DESIGN AN INCREDIBLE EDIBLE LANDFILL

Experience and understand how high-tech landfills are designed.

Modern landfills have several layers that separate waste from the surrounding environment (water, soil and air) to reduce contamination. This activity uses kid-friendly foods to demonstrate each layer's purpose and encourages students to think about where their trash ends up.

MATERIALS

- Pre-made pie crust in a tin
- Graham crackers
- Licorice
- Fruit roll-ups
- Vanilla and chocolate pudding cups
- M&Ms
- Oreos

METHOD

1. Use the pre-made crust in pie pan to represent compacted clay soil. Clay soils provide landfills with a watertight base to prevent leachate (contaminated liquid) from polluting groundwater or soil.
2. Line the crust with fruit roll-ups to represent a high-density plastic used to line the bottom of a landfill. The plastic liner is impermeable and resistant to the harmful compounds found in the leachate.
3. Add licorice to represent leaching tubes, which collect leachate that has percolated through the trash and channels it to a treatment center.
4. Cover the licorice with graham cracker crumbs to simulate sand or gravel used to drain leachate by gravity to the pipe collection system.
5. Mix vanilla pudding and M&Ms (or use your imagination) to create a mixture that simulates the trash that gets dumped in the landfill.
6. Crush Oreos to represent topsoil. Alternate the trash and topsoil in thin layers. Trash arrives daily at landfills and is compacted to decrease the volume. At the end of each day, a layer of topsoil covers the trash to reduce odor and deter scavengers (e.g., rodents, birds).
7. Add a layer of chocolate pudding to represent the landfill cap. When the landfill reaches its permitted height, a layer of compacted clay and a drainage layer (combination of geomembrane and gravel or sand) are placed on top of the landfill to drain precipitation but prevent it from entering the landfill.
8. Sprinkle crushed Oreos on top of the edible landfill to represent protective cover soil. As the landfill is completed, the cover soil protects the landfill cap, and native grasses are planted to prevent erosion.
9. Eat your creation!

LEARN MORE

Where is your local landfill? How much trash can be stored and when will the landfill be complete?

How can you reduce the amount of trash that ends up in a landfill?

Think about what you toss in the trash. Why is it important for environmental engineers to separate trash from the environment in a landfill?

NOTES

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