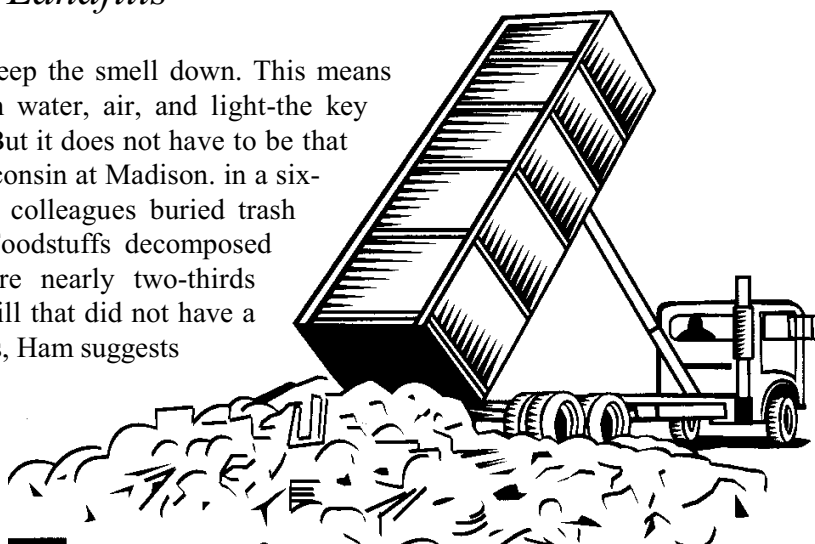


Shedding Light on Landfills

Currently, landfills are tightly sealed to keep the smell down. This means that garbage is almost completely protected from water, air, and light—the key elements needed for decomposition to take place. But it does not have to be that way, argues Robert Ham, of the University of Wisconsin at Madison. In a six-year study that has just concluded, Ham and his colleagues buried trash samples at three locations around the country. Foodstuffs decomposed quickly at all the sites, and even diapers were nearly two-thirds decomposed after just two years at a Florida landfill that did not have a protective clay cap. Rather than sealing off landfills, Ham suggests that municipalities allow some water in to help the trash decay. Waste methane generated by the decomposition could then be tapped as an energy source. But there are drawbacks to this method: First, this causes more odor to come from the landfill which can be very annoying to people living in the area; Second, controlled composting costs more than just burying the trash and letting future generations worry about it.



HELPFUL HINTS

Factors that affect the rate of a reaction include temperature, surface area, concentration, and the presence of a catalyst or inhibitor.

Analyzing Ideas

1. a. Factors that affect the rate of a reaction fall into four categories. In which category does a protective clay cap belong? Explain why you say this.

b

How would allowing sunlight affect the landfill? Why is this so? (Think of things left in the sun for many years)

2. According to the law of conservation of mass, mass is neither created nor destroyed. Yet the decomposed trash takes up less space and weighs less. How is mass conserved when trash decomposes?

USEFUL TERMS

municipality
a city or town
methane
a gas made from organic substances

Thinking Logically

3. Why would it be costly to capture the methane released from landfills? Why might it be useful?

Drawing Conclusions

4. Do you think Ham's idea should be implemented? Explain.
