CHAPTER 1

Observing Matter

Imagine a chemical that

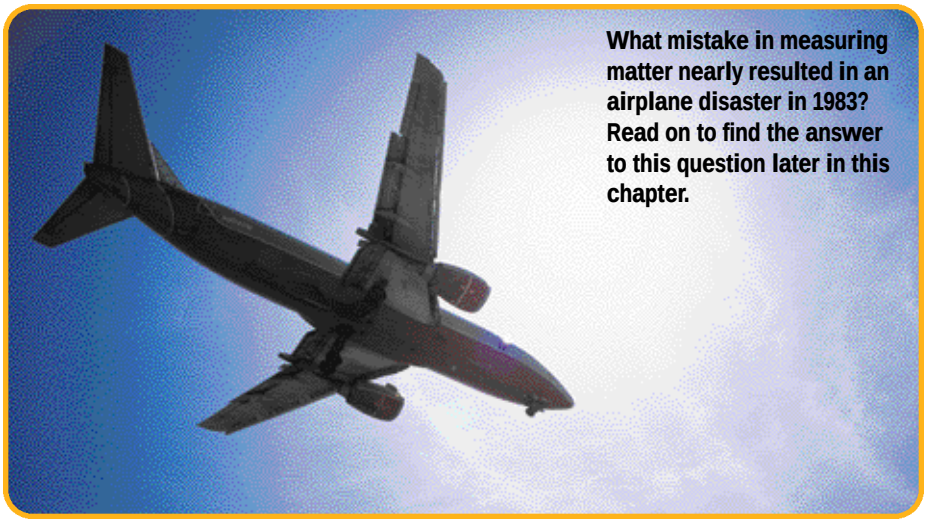
- **is a key ingredient in most pesticides**
- **contributes to environmental hazards, such as acid rain, the greenhouse effect, and soil erosion**
- **helps to spread pollutants that are present in all contaminated rivers, lakes, and oceans**
- **is used in vast quantities by every industry on Earth**
- **can produce painful burns to exposed skin**
- **causes severe illness or death in either very low or very high concentrations in the body**
- **is legally discarded as waste by individuals, businesses, and industries**
- **has been studied extensively by scientists throughout the world**

In 1996, a high school student wrote a report about this chemical, dihydrogen monoxide, for a science fair project. The information in the student's report was completely factual. As a result, 86% of those who read the report—43 out of 50 students—voted in favour of banning the chemical. What they did not realize was that "dihydrogen monoxide" is simply another name for water.

What if you did not know that water and dihydrogen monoxide are the same thing? What knowledge and skills can help you distinguish genuine environmental issues from pranks like this one? What other strategies can help you interpret all the facts, opinions, half-truths, and falsehoods that you encounter every day?

This chapter will reacquaint you with the science of chemistry. You will revisit important concepts and skills from previous grades. You will also prepare to extend your knowledge and skills in new directions.

Chapter Preview



What mistake in measuring matter nearly resulted in an airplane disaster in 1983? Read on to find the answer to this question later in this chapter.