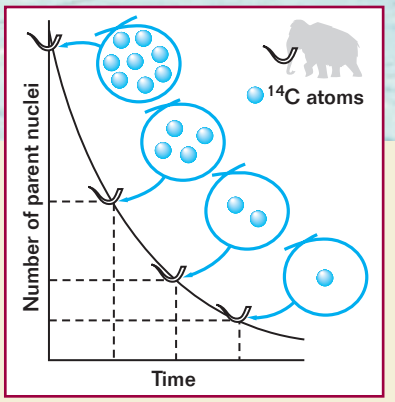
CHAPTER 22

Subatomic Physics



This reindeer sled carries the tusks of a 20 000-year-old woolly mammoth found in Russia. Scientists used a process called *carbon dating* to estimate the mammoth's age. All living organisms have the same ratio of carbon-14 atoms to carbon-12 atoms. The carbon-14 atoms decay into other atoms when an organism dies. Thus, the ratio of carbon-14 to carbon-12 can be used to date the organism.

WHAT TO EXPECT

In this chapter, you will study the atomic nucleus, radioactive decay, and the processes of fission and fusion. You will also learn about the standard model of the universe.

Why it Matters

Radioactive decay makes it possible to date organic materials that are 1000 to 25 000 years old. Nuclear fission is an important energy source today, and nuclear fusion may be an important energy source for the future.

CHAPTER PREVIEW