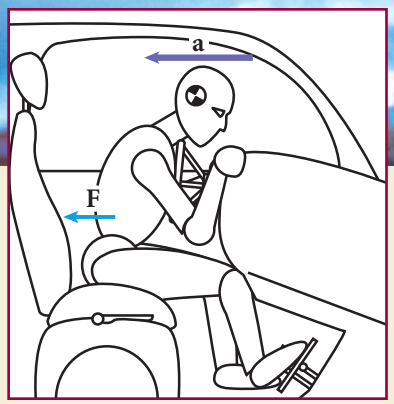
CHAPTER 4

Forces and the Laws of Motion



At General Motors' Milford Proving Grounds in Michigan, technicians place a crash-test dummy behind the steering wheel of a new car. When the car crashes, the dummy continues moving forward and hits the dashboard. The dashboard then exerts a force on the dummy that accelerates the dummy backward, as shown in the illustration. Sensors in the dummy record the forces and accelerations involved in the collision.

WHAT TO EXPECT

In this chapter, you will learn to analyze interactions by identifying the forces involved. Then, you can predict and understand many types of motion.

Why it Matters

Forces play an important role in engineering. For example, technicians study the accelerations and forces involved in car crashes in order to design safer cars and more-effective restraint systems.

CHAPTER PREVIEW