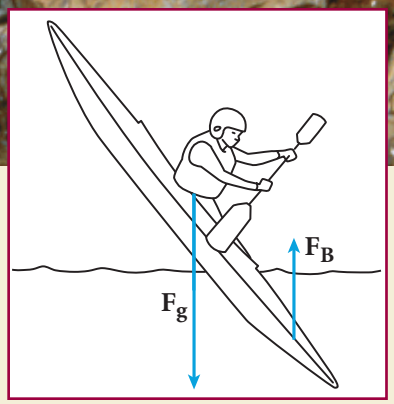
CHAPTER 8

Fluid Mechanics



Kayakers know that if their weight (F_g) exceeds the upward, buoyant force (F_B) that causes them to float, they are sunk—literally! For an object, such as a kayak, that is immersed in a fluid, buoyant force equals the weight of the fluid that the object displaces. Buoyant force causes a kayak to pop to the surface after a plunge down a waterfall.

WHAT TO EXPECT

In this chapter, you will learn about buoyant force, fluid pressure, and the basic equations that govern the behavior of fluids. This chapter will also introduce moving fluids and the continuity equation.

Why it Matters

Many kinds of hydraulic devices, such as the brakes in a car and the lifts that move heavy equipment, make use of the properties of fluids. An understanding of the properties of fluids is needed to design such devices.

CHAPTER PREVIEW