Do You Have a Grip on That?

Tying a shoe, threading a needle, throwing a baseball, taking notes, or carrying a bucket. Think of all the tasks—large and small—that you do with your hands every day. Have you ever thought about the amazing number of ways in which you can use your hands to grip something?

Scientists have studied the different grips of primates for some time and have more than one way of classifying what they have observed. One school of thought divides grips into two major categories: power grips and precision grips. You use the power grip when you grasp an object with your palm and then curve your fingers around it. The power from the power grip comes as you apply pressure with your whole hand. This power is especially evident in the muscles of your palm that are located at the base of your thumb and that are responsible for moving your thumb. The power grip requires the full grip of the hand—when you use a hammer or open a tightly closed jar, for example.

The precision grip is a more intricate grip that requires a specific alignment of the thumb with one or more fingers. The thumb applies pressure against another finger or fingers in order to accomplish a precise motion, such as picking up a coin, or to accomplish a precise motion that also requires strength, such as placing a key in a lock and turning it.

Another school of thought subdivides the power and precision grips into as many as 12 categories by defining the grip according to the exact placement of the palm, fingers, and thumb. Figure E1.4 shows seven of the 12 grips.
Figure E1.4
Types of Grips.
These photographs show seven of the 12 ways humans can grip objects. Which grips did you see the primates use in the DVD “Observing Primates”? Which grip did you test in Primates Exploring Primates?

**Hook grasp.** The fingers are used as a hook; the thumb is not used.

**Fist grasp.** The fingers are wrapped around a narrow or small object; the thumb opposes the fingers, lying on top of them and securing the grip.

**Cylindric grasp.** The palm is used to grasp a cylindrical object; the thumb opposes all of the fingers.

**Spheric grasp.** The palm is used to grasp a spherical object; the thumb opposes the fingers.

**Tip prehension.** The tip of the thumb and one or more fingers are used like tweezers to pick up small objects; the thumb opposes one or more fingers.

**Palmar prehension.** The flat surface of the thumb is pressed against the flat surface of the finger or fingers. This grip is similar to the way the tip of a pair of pliers holds an object.

**Lateral prehension.** The thumb presses against the side of the index finger with other fingers providing additional support. Another type of lateral grip involves the sides of two fingers pressing against each other.