A stick, hinged at its lower end, has a ball resting on its upper end and a cup mounted near the end, as shown in Figure 1.† When the stick is released from this position, and its upper end is allowed to fall downward, the ball falls into the cup, showing that the end of the stick has moved downward with an acceleration greater than the acceleration of gravity. This demonstration is sometimes called the “falling chimney” because of the similarity of this system with the toppling chimney system. The action is repeated in slow motion.

This stick rotates freely on a hinge at its base. A small metal ball rests on a golf tee at the end of the stick and a cup is fastened to the stick a little farther down.

When the support is knocked out from under the ball, the cup falls faster than the ball and beats it to the table. The ball lands in the cup.

Here is the action repeated in slow motion.

**Equipment**

1. Meter stick hinged at one end to a horizontal base with a golf tee mounted at its other end with an appropriate angle. A clear plastic cup with a padded bottom is also mounted at the desired position on the meter stick.
2. Support rod with appropriate length.
3. Ball bearing or large marble.