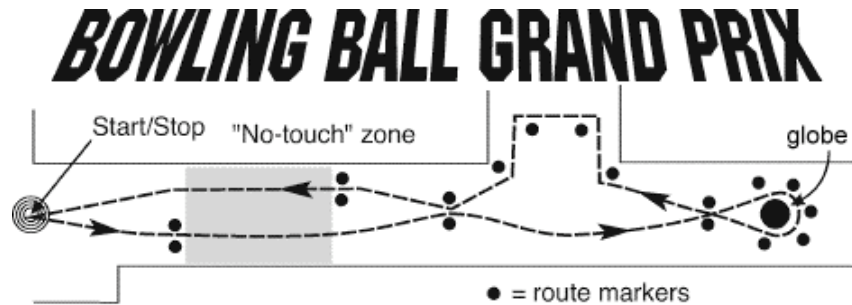




St. Louis Area Physics Teachers
 An Affiliate Organization of the American Association of Physics Teachers
 Home Event Schedule Resources



Purpose: The activity will help give students a kinesthetic feel for the inertia concept. This lab is a great way to provide students with an experience that can be very thoroughly discussed and analyzed.

Materials:

- one bowling ball (the heavier the better),
- many two-liter bottles half filled with water and capped tightly for route markers
- one broom
- stopwatches
- masking tape to mark no touch zone, start/stop, and possibly the route itself

Procedure: Create a course like the one pictured above using the bottles as route markers. Students are to navigate a bowling ball through obstacle course as quickly as possible, steering the ball with only a broom. Timing the students encourages them to go as quickly as possible, and it also makes the tendency of a 14-pound bowling ball to stay in motion more noticeable. The ball starts at rest and the run begins on the mark of the timer. The timer stops the stopwatch when the student brings the ball to rest in the stop circle. A five second penalty is added for each bottle knocked over.

Variation: Set up two identical courses and have students race in pairs, or run the race as a relay.

Once students have completed the race, they should answer the questions on the [Student question sheet](#)

Lab performance notes: The no-touch zone gives students a chance to see the ball in motion with no net force on the ball. Sharp turns help students to see that in addition to pushing the ball to give it motion in a new direction, the motion in the original direction must be stopped. Circling a globe or other round object provides an experience from which to talk about circular motion.

Take time to discuss each question thoroughly. [Answered student question sheet and points for discussion](#)

If time permits, you may run the races again after the students have discussed the activity to see if they can improve their times by applying what they have learned.