

Lab – Exploring the Motion of a Bowling Ball

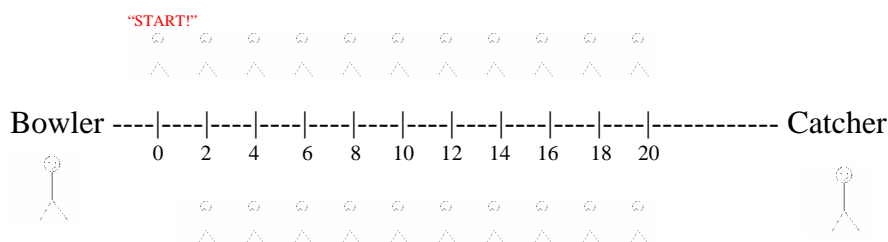
Purpose: To analyze the motion of a bowling ball.

Materials:

- Bowling Ball
- Stopwatch

Instructions:

1. FULL CLASS LAB
2. Each student will be assigned one of the following positions: bowler, starter, timer, or catcher. They will be arranged in the hallway as seen in the diagram below:



3. Three experiments will be performed in the hallway: a slow bowl, a fast bowl, and a backwards bowl.
4. For the fast and slow bowl, the bowler will roll the ball in a straight line. As it passes the zero-tile the starter will yell “start!” and all the timers will start timing on the stop watch. As the ball passes each of the timer’s position tile, they will each stop the watch and record the time. The catcher then catches the ball.
5. For the backwards bowl, timers at the final tile will switch positions with the starter. The catcher and the bowler switch duties. The same procedure is carried out.
6. Create three data tables, one for each experiment. They should each follow the format below:

Distance (tiles)	Time 1 (s)	Time 2 (s)	Average Time (s)

7. Graph the distance traveled (y-axis) versus the time (x-axis) for each experiment.
8. Draw the best-fit line for each graph and calculate the slope of each.
9. The standard conclusion should be used.