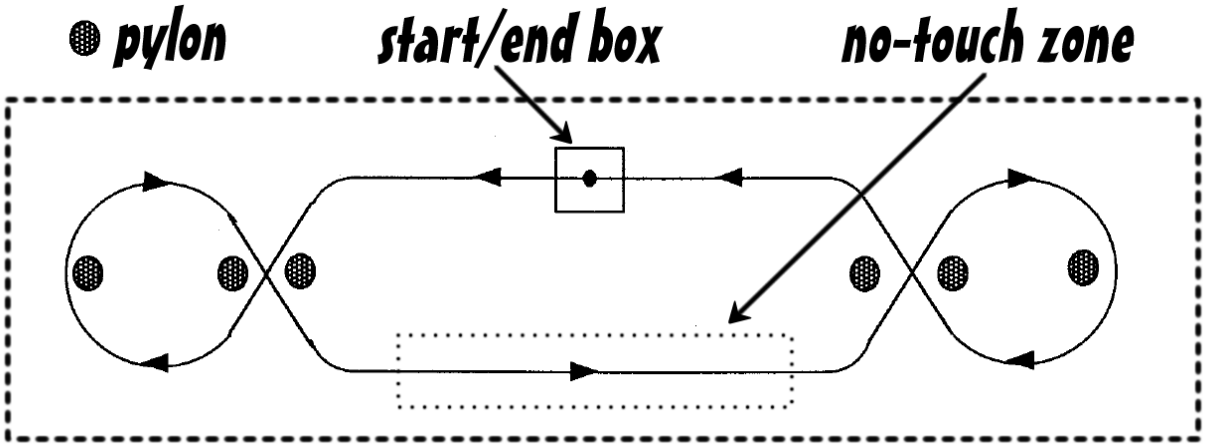
MOMENTUM BALL CLASS: H003(blue) H004 (green)

NAME(S): _____

The object of this competition is to push a bowling ball/basketball around the course as quickly as you can by touching it only with a broom. The following penalties will apply:

- ☑ hitting a pylon: 1 s for the 1st one hit, 2 s for the 2nd, 3 s for the 3rd, etc.
- ☑ touching the ball with your foot or hand: 5 s per occurrence.
- ☑ touching the ball in the no touch zone: 5 s per occurrence.
- ☑ overshooting the finish square (completely entering and then exiting): 10 s.
- ☑ going out of bounds (hitting the wall or going past the end line): 2 s. The ball is replaced where it went out; the clock keeps running.




The course is approximately 25 meters long, and the width of the hallway.

You will compete in your lab groups. Each team member will get one timed run. One member from each team will use a basketball instead of a bowling ball. Each group will be allowed to drop their worst bowling ball time. The team with the shortest total time will be declared the victor.

Before the competition, you will have 5 minutes to discuss what strategy you want to use to complete the course. Order will be chosen at random and will follow a snake order until all students have gone.

All teams that compete will get 25/30. The top 5 teams will get 1, 2, 3, 4, 5 points respectively. To get the full 25 points, each team member must turn in answers to the questions on the back individually. Failure to turn in questions will result in a deduction of 10 points from that student's grade

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1: _____ Time: _____

2: _____ Time: _____

3: _____ Time: _____

4: _____ Time: _____

5: _____ Time: _____

Total time: _____

Rank: _____

## Questions (answers are to be typed and turned in the class after the competition has completed)

1. If we used a more massive ball do you think the average time to get around the course would be faster, slower, or the same as the trials conducted in class? Justify your reasoning.
2. Describe the motion (speed and path) of the ball in the "no-touch" zone.
3. Why is it so hard to stop the bowling ball in the square?
4. Describe how you stopped the ball at the end. Where do you think the ball would have stopped if you didn't apply any force to it?
5. Using words and a picture, how do you get the ball to speed up?
6. Using words and a picture, how do you get the ball to slow down?
7. Using words and a picture, how do you get the ball to make a sharp right turn?
8. Using words and a picture, how do you get the ball to make the figure eights?
9. If you don't begin slowing the ball soon enough for a turn, describe the path the ball "wants" to take using words and a picture.