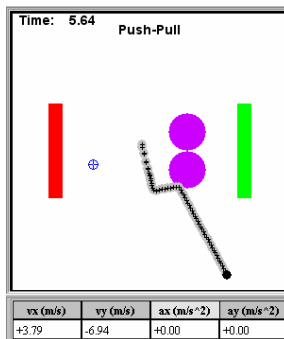


## Worksheet for Exploration 4.3: Change the Force Applied to Get to the Goal



Drag the crosshair cursor close to the black ball (**position is given in meters and time is given in seconds**). Notice that the cursor exerts a force, that is, a push or a pull, on the ball depending on the force you select. The ball will bounce off the purple spheres and will bounce off the soft walls around the animation. The animation will end if the ball hits either rectangle. The blue arrow represents the net force. [Restart](#).

- Try and get the ball to hit the green rectangle and not the red rectangle.
- Given an applied force, how does the ball move?
  - You should describe both the velocity and acceleration.
- Does the ball always move the way you expect? Why or why not?
  - Using either attraction or repulsion, give the ball a good kick (get it moving). Now see if you can bring it to a stop in the allotted time. Discuss why this is difficult, after all you see objects come to rest all the time even with forces applied to them.
  - Allow the ball to hit a wall, it bounces off. What do you notice about the magnitude of the speed before the collision and after here?