

Austin Gregory  
*Tip Speed*

The purpose of the experiment is to find out how close the theoretical and actual velocity of a ball launch, using two different wheel diameters to launch a ball. You need to start by finding the theoretical velocity. The main thing that I want to find out from this experiment is if the theoretical outcomes are the same as actual outcomes. My hypothesis is that if the velocity is equal to the radians per second then the actual velocity will be less than the theoretical.

To find the theoretical velocity you need to run the equation  $v=wr$ . After that a hopper needs to be made to feed the ball to the launcher. Put the all thread through the ball bearings in the 8 in. and 6 in. (2 together) wheels to saucer the wheels. To analyze the data I will record with a video each time the ball is shot. To get the actual velocity I used speed formula. The theoretical velocity for the 8" wheel is 65.8 ft./s and the theoretical velocity 6" wheel was 49.375 ft./s.

The actual velocity for the 8 in. wheel was 38.6 ft./s, 16.5 ft./s, 16.03, and 17.53 ft./s. The 6 in. wheels actual velocity was 90 ft./s, 22.22 ft./s, 23.15 ft./s, and 18.97 ft./s

My hypothesis was proven right but not fully that's because I thought they all actual velocities would be less than the theoretical velocity, but one of the in. actual velocities was above the theoretical velocity. I don't think the project was a complete success.