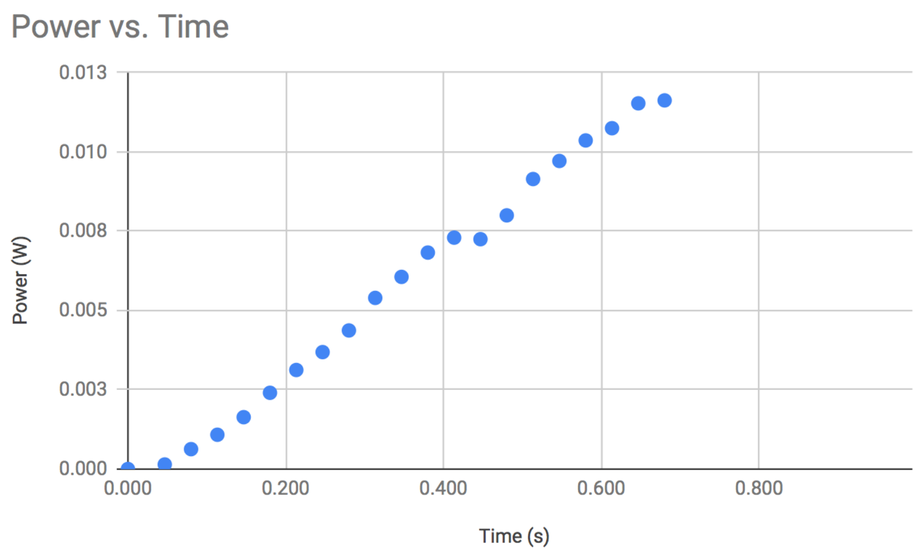
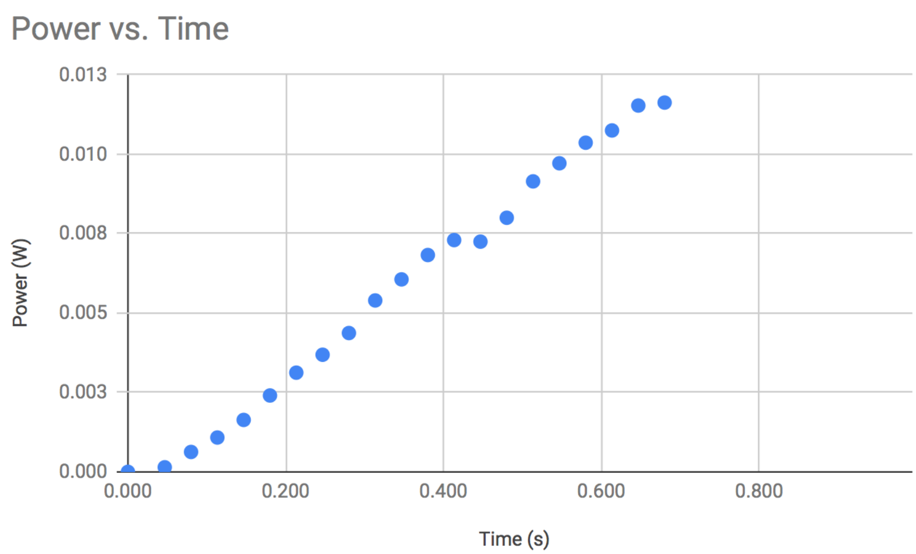
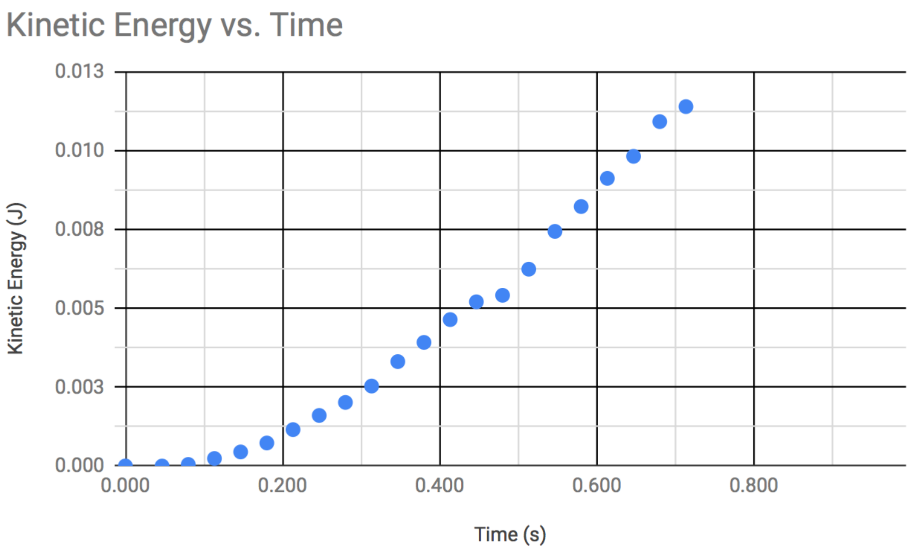
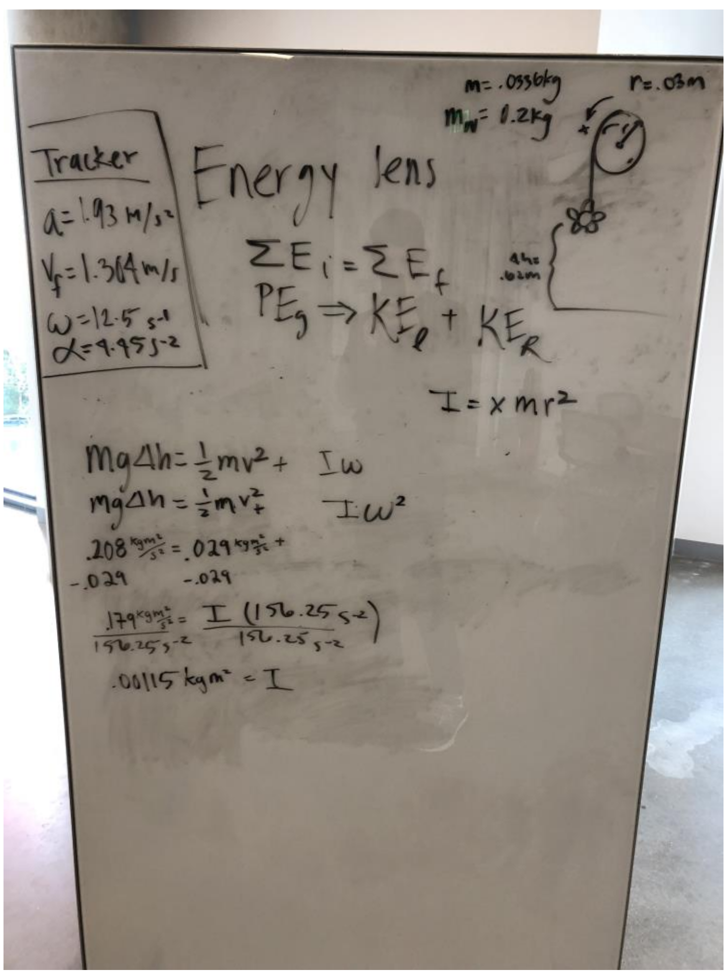
Lena Freid, Sebastian Barragan, Abigail Greene, Frank Brown

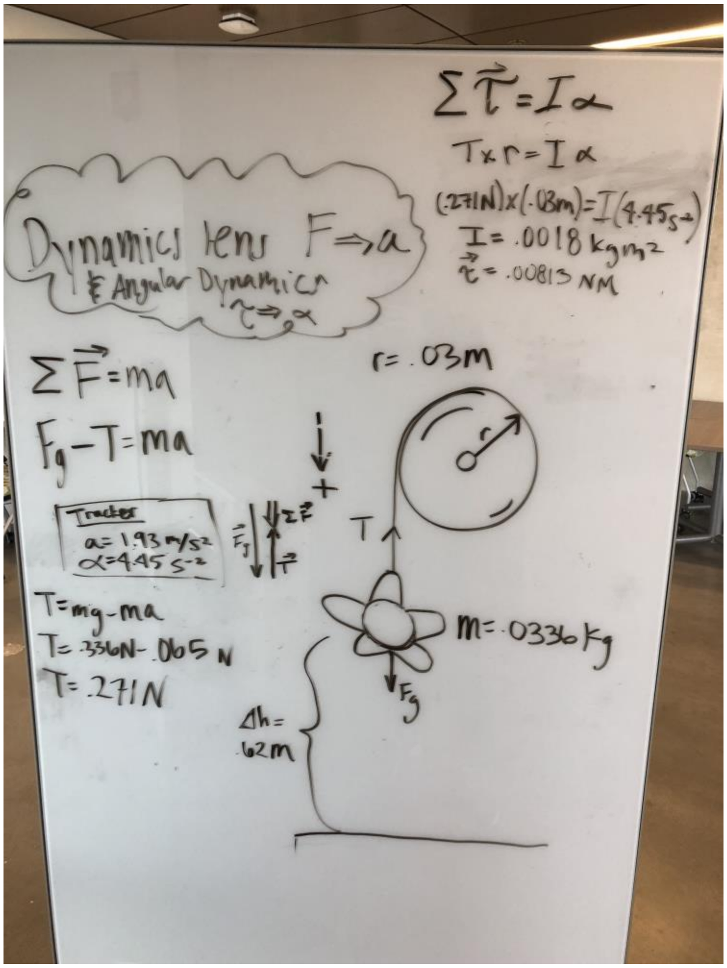

Power vs. Time
Power (W)
0.013
0.010
0.008
0.005
0.003
0.000
0.000
0.200
0.400
0.600
0.800
Time (s)


Power vs. Time
Power (W)
0.013
0.010
0.008
0.005
0.003
0.000
0.000
0.200
0.400
0.600
0.800
Time (s)



Power is increasing as evidenced in the power vs time graph because the slope of the kinetic vs time graph is increasing. Power is the time derivative of energy.





The first side of the board shows the relevant data we got from tracker as well as how we used the energy lens to solve for the moment of inertia. The inertia of the wheel was not exactly a uniform disk or hoop so we had to solve for it by dropping the work done by friction. When we did this with our known values we got a moment of inertia equal to .00115 kgm^2. We then solved for T using the dynamics lens because forces cause acceleration. Once we found our tension we were able to find torque using the angular dynamics lens because torques cause angular acceleration. The torque applied on the wheel was equal to the cross product of the perpendicular force (Tension) and the radius of the wheel. Since Tracker gave us the value of the angular acceleration we were able to double check the value of the moment of inertia we got earlier and it was .0018 kgm^2 which is close enough to our first value considering experimental error.