

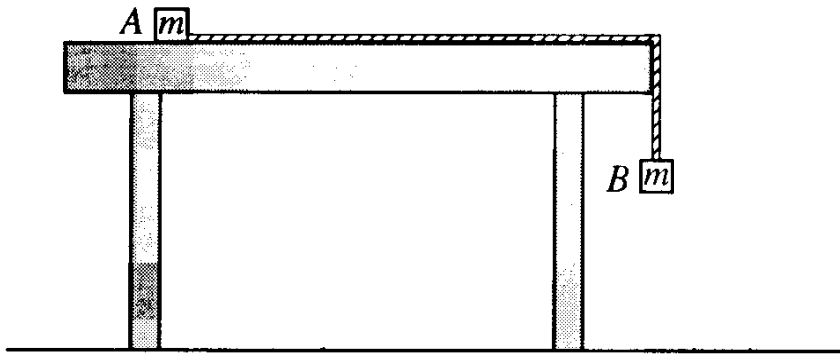
Unit 3: Newtonian Mechanics – Newton's Laws

LAB 2: Newton's Second Law

Objective: Determine the mass of an object

Equipment:

- A super pulley with “massless”¹ cord
- PASCO motion sensor, track, and car
- An unknown mass and multiple additional masses
- The general set up is shown. Placement of sensors, tracks, and pulley is up to the experimenter, because that's just how we roll. (Pulley humor)



SAFETY: Do not allow the car to roll unless you are running the experiment. The car should be stopped before colliding with the pulley, and mass B should be stopped before it hits the ground.

Procedure:

- Set up your system as shown with the track on the table running directly under the cord. Your cord should pass over a pulley at the edge of the table. Mass A should be unknown and should sit in the car. Mass B should be known.
- Design an experiment to determine the relationship between the net force exerted on an object, its inertial mass, and its acceleration.
- You must find the mass of the object graphically.

¹ For the purposes of this experiment, we will take the mass of the cord to be negligible.