A massive object in motion is sometimes described colloquially as "carrying force." That's technically inaccurate, but there is a germ of sensibility there. After all, it takes a force to put something into motion and it takes a force to stop it. However, that says nothing about the circumstances in which the force was exerted. Explore this by describing and comparing unequal patterns of acceleration for getting your car up to 35 m/s on a straight highway. Compare how the various forces you envision influence the final momentum. Does obtaining a particular momentum require a particular force? Explain.

Different scenarios, but final momentum…

The force exerted on the car can come from constant acceleration, as well as unequal patterns where it accelerates then maintains constant velocity, then accelerates again to reach 35 m/s. The car might also have to hit the brakes while accelerating, causing negative acceleration, then accelerate in the positive direction once again. The first scenario I envision with constant acceleration to 35 m/s would have the most momentum because momentum equals force times the change in time for each interval. The second scenario would have the second most momentum because there is no negative momentum of the car, and the third would have the least momentum because the car has negative acceleration causing a negative force.

What exactly does "particular" imply?

Momentum is a valuable concept when forces are not constant. I would think that the force of friction would be the only force we've learned so far that would be acting on the car which gives the tires grip in order for it to start gaining momentum. I think obtaining a particular momentum requires a particular force because you always need a force to start the movement of an object.

"Amount of force" expresses the proper sense but isn't precisely defined

We know that momentum is the mass*velocity of the object, in our case the mass does not change. So, the momentum is only affected by the velocity. If your velocity is changing over time then your momentum is changing as well. You will need a certain amount of force to change your velocity and thus changing your momentum.

Estimate the momentum of a baseball in flight just after the pitcher releases it and compare that to your own momentum at ordinary walking speed. Yes, estimate, and no fair looking things up online.

Good explanation, though skirting my intentions by asking the coach

The momentum of a baseball,

the baseballs mass estimated around 150 g (after asking baseball coach), and the average MLB player throws a fastball around 40 m/s

Convert the mass of baseball g to kg,

150 g*1kg/1000g = 0.150 kg

so, P= (0.140)(40 m/s), approx. =5.6 kg *m/s

Im around 150 lbs and on a late day to class a walking speed of 2 m/s

convert lbs to kg,

150 lbs *1 kg/2 lbs, approx. = 75 kg

so, P=(75kg)(40m/s)= 150 kg*m/s

Meaning my momentum is greater because my mass is greater than the baseball

Good estimations, trouble with units

If momentum (P) = mv, and we estimate a baseball to weight 0.5lb (=0.2kg) and its velocity to be 40 m/s (I assumed it was thrown less than half the distance of a soccer field). Then it's momentum = 0.2kg(40m/s) = 8 N.

With the same formula, if I weigh 150lbs and I roughly walk a 1 m/s, then the momentum = 60kg(1m/s) = 60 N.

The momentum at ordinary walking speed is more than that of a baseball in flight.

More units trouble

the average pitcher in baseball will throw lets say ~90mph ~40.23(m/s)

the average weight of a baseball is just under half a pound if i remember correctly so ~5-6 ounces ~0.2(N)

the average walking speed for a human is about ~3 mph ~1.5(m/s)

lets use 200lbs for our weight ~900(N)

We will use the formula for momentum P=mv for both velocities

baseball: P=0.2N(40.23m/s) ~ 0.8N/s

human: P=900N(1.5m/s) ~ 1200N/s