Newton's 2nd Law:

The acceleration of an object depends on the net force it is feeling and its mass.

more net force = more acceleration

more mass = less acceleration

Net Force = mass × acceleration

(Newtons) (kilograms) (m/s^2) } units

N kg

$$F_{net} = m \cdot a$$

If you know	You can find	By using	Units
m (kg), a (m/s^2)	F_{net}	$F_{net} = m \cdot a$	N (+direction)
F (N), a (m/s^2)	m	$m = \frac{F}{a}$	kg
F (N), m (kg)	a	$a = \frac{F}{m}$	m/s^2 (+direction)

Mr. Begar pushes an elephant with 224.8 N of force. The elephant is 3,221 kg. How quickly will it accelerate?

① $F = 224.8\ N, \quad m = 3221\ kg$

② a

③ $a = \frac{F}{m}$

④ $a = \frac{224.8}{3221} = 0.07$

⑤ $a = 0.07\ \frac{m}{s^2}$ North

RGM Measurements (today & Wednesday)

1. Do not work on the construction
2. If necessary, pick one part of your RGM to measure
3. Attach an arduino + breadboard + LED + piezo sensor to your RGM – make sure it functions!
4. Use your computer to measure the output from the piezo (serial monitor)

5. If everything works, modify the breadboard to be more complicated
6. Attach a force sensor to your computer and use it to determine the force of RGM