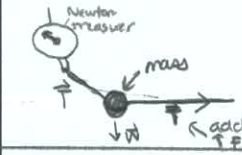
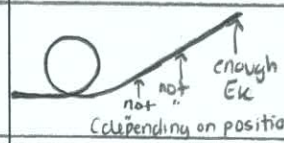
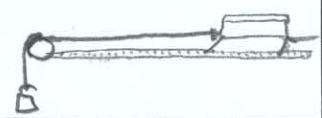
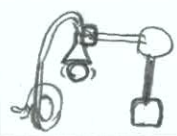
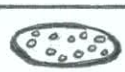
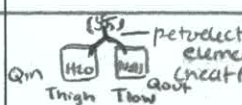
Lab name or demo	What was being measured/shown	Describe the apparatus	Other notes & description
Demo: Wt being pulled in dir ⊥ → Forces Video from Lec 3	> Newtons being measured > pulling in horizontal dir ⊥ increases N – Hor & Vert compartment = ↑ Total $\vec{F}$ > Vert (wt) & Hor (tension)		> forces unit > components of forces > mechanical equilibrium b/c the object is not moving ($\vec{a}=0$ & $\vec{v}=0$) net force = ∅
Demo: Wt & pulleys → Equilibrium Video from Lec 6	> unequal wts don't balance out (heavier one hits ground) > equal wts can balance @ any state > Equilibrium?!		> Note: make sure remember Wt balances at any position > when you add heavier wt · when it is at =, the heavier one accelerates down & lighter one ↑
Demo: Rollercoaster → Work & Energy Video from Lec 11	> Starting at various points on a ramp to build up enough kinetic energy to go and loop		> need sufficient potential energy to convert to kinetic energy to make it thru the loop > energy transfer/conversion
Demo: mass being dragged > work & energy Video from Lec 12	> as mass ↑s, the force to start the mvt also ↑s > static friction ↑s b/c it's dependent on $\vec{F}_N$ = mass -		> force = work going into system = Δ energy > the scale shows a greater force applied reading for the heavier mass b/c static friction is ↑er > violate conservation of energy > moving $\vec{v}$ constant speed (Ek constant), Ents same
Demo: Air carts – work & energy	> Air carts – dropped with wt through pulley system, cart travels in same dir ⊥ as the mass dropping down		> slower drop of mass, when attached to mass than alone > cart moves slow (other mass accelerates slower) when there is additional mass on cart = ↑ F
Demo: Forces	> there must be some force acting on the ball than just contact forces		> just a demo of videos – will be covering this concept in 1029.
Balloon experiments Pop-can experiment	> balloon, certain pressure & V > PV & T are connected b/c balloon V ↑ & ↓ depending on T > Gas inside has high T, V doesn't change, Pressure → Atm > putting can into water, sealed gas exchange, → gas cools down (ΔT) – beaker will deploy		> when balloon goes in, it shrinks, when it comes out, it expands again > P & V affected by T → expansion & compression of gases > when the can is heated (H_2O forms vapour) & then placed in bowl of water, it collapses
Clausius, Maxwell & Boltzmann	> little metal spheres are connected to plate that can vibrate > vibration of particles – similar to gas particles – bouncing particles will push lid up – reps ↑ due to vib.		> Vibration which makes metal balls bounce, creating a pressure to raise styrofoam lid
Ball vibrating on plate	> all particles (ball) vibrate around > random motion		> kinetic gas theory – random motion > 2-D → 3-D, chemical kinetics, surface physics & chem – what molecules are exposed to
H_2O & $N_2(l)$ = fan movement CARNOT PROCESS	> Ideal processes – isothermal expansion & compression > High T of liquid water		> efficiency – ideal gas / ideal state > heat reservoirs in 2 w/ two beakers > Qin & Qout – work is provided (mech.)
Mirrors	> far = upside down & close = right side up	close = Ø → far = Ø	> distance, magnification & diff. w/ focal pt & upright/upside down
Tablespoon/concave mirror & convex mirror	> further & close to the mirror affects magnification	concave →) (convex	> focal pt, center of curvature, etc.
magnifying glass	> better magnification further away → focal point (towards)		> focal pt & no inversion of image no matter the distance
Half upright, half inverted	> plastic rod viewing simple letter > First 5 letters are perfectly symmetrical up-down	DECEITFUL ↓ DECEITFUL	> perfectly symmetric up-down > they are also inverted but font makes it seem it's upright