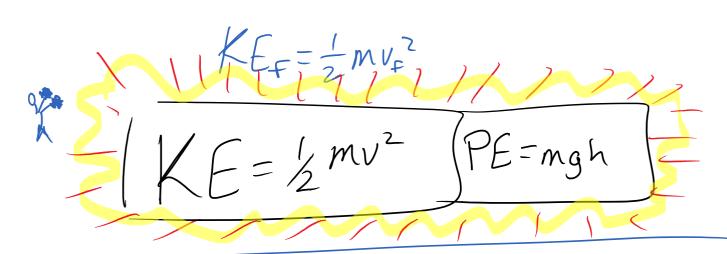
Forms of Energy (PEBKE) Potential Energy Kinetic Energy Electric magnetic Nuclear Thermal (Friction) Chemical Gravity Light Wind Elastic Pressure Potential Energy: Sound The stored ability Kinetic Energy: to move. Energy of motion Potential Gravitational Derive the formula for KE Energy € KEi=0 DDE= Work PE=mg.h If we bring EP an object from Zero to "v" 3 Kinematics KEF-KEi=W V=2= 2/2/+2ad KEF-O=F.d KEF=F.d we need to $VF^2 = 2ad$ V+2=2 Ed Isolate Fd F=m·a

 $\int m v_F^2 = Fd$

2KEF=F.d



Ex. What is the Kinetic Energy of a Owo kg soccerball that was kicked to fly 3.4m/s?

 $KE = \frac{1}{2}mv^2 = \frac{1}{2}(0.50)(3.4)^2 = \frac{1}{2}.9 \text{ J}$

Ex. How much potential energy does Mason have When he is strung up 13m above the ground?

Pt=mgh=72(9.8)(13) 792005

Work-Energy Theorem

IF a net force is acting on an object, the object will accelerate

Acceleration is the rate of change of velocity

The Force must be proportional the change (ThereFore) in Kinetic Energy

Work and Energy Page 2

DKE=F.d

Ex. Yasin (65kg) accelerates from lm/s using a 378 N Force over 12m. What is his final velocity?

$$\Delta KE = F \cdot d$$

$$KE_{f} - KE_{i} = F \cdot d$$

$$\frac{1}{2} m v_{f}^{2} - \frac{1}{2} m v_{i}^{2} = F \cdot d$$

$$\frac{1}{2} (65) v_{f}^{2} - \frac{1}{2} (65) (1)^{2} = 378 (12)$$

$$32.5 v_{f}^{2} - 32.5 = 45.36$$

$$+ 32.5$$

$$32.5 v_{f}^{2} = 45.68.5$$

$$32.5 v_{f}^{2} = 45.68.5$$

TUF= 12m/s

Proportionality

KE & m Directly proportional

-> Double the mass -> Double KE

KE ∝ v² Squared proportionality

→ Doubled the v = 4 times the KE

$$\Rightarrow \frac{1}{3}$$
 of the $V = \frac{1}{9}$ of the KE