Section 7.3: Kinetic Energy

Kinetic energy is energy associated with <u>Speed</u>

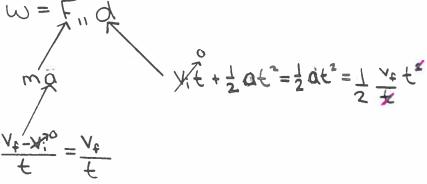
Kinetic energy is the amount of work that needs to be done to get an object _____+com__rest_

to its current speed

We can figure out the formula for kinetic energy using the formula for work and our super kinematics

skills!

 $V_i = 0$



therefore, $W = m \frac{v_f}{t} \frac{1}{2} v_f t$ $= \frac{1}{2} m V_{\phi^2}$ No vector hat! $= \frac{1}{2} m V_{\phi^2}$ Speed (m/s)

Example: The kinetic energy of a 2.1 kg rotten tomato is 1000 J.

a) What's its speed?
$$E_K = \frac{1}{2} m v^2$$
 $V = \sqrt{\frac{2 \times 1000}{2.1}}$ $V = 30.9 m/s$

b) How much work has to be done on it to bring it up to this speed?

1000 J