Name: _____

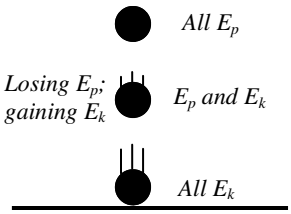
Period: _____

Unit 8:2

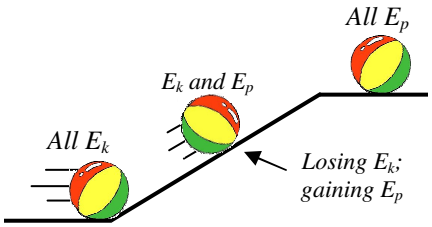
Energy Transfers: Work and Power

Energy Transfers

Energy has to come from somewhere. Energy comes from other forms of energy. This is known as ***energy transfer.***



Falling objects lose Potential Energy (E_p) and gain Kinetic Energy (E_k).



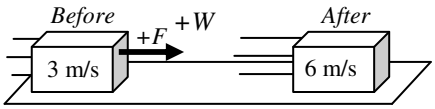
As objects go up they lose Kinetic Energy (E_k) and gain Potential Energy (E_p).

In fire, chemical energy becomes thermal energy (heat) and radiant energy (light).

Work

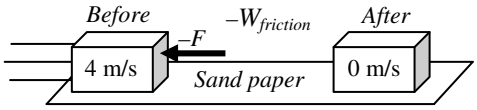
Work is energy transferred by **forces**. Any force that changes an object's energy is doing work.

Work (forces) can add energy.



*A force can do **positive work,** **increasing** an object's kinetic **energy**.*

Work (forces) can remove energy.



*Friction can do **negative work,** **decreasing** an object's kinetic **energy**.*

Work (*in Joules*) → **W = Fd** ← Force (*in Newtons*); distance (*in meters*)

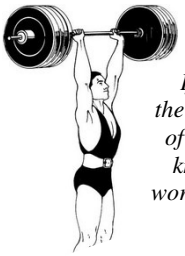
Work equals force times distance.

Ex: A 1000 Newton force pushes a car 5 meters. How much work was done?

F = 1000 N d = 50 m W = _____	W = Fd W = (1000 N)(50 m) = 5,000 J (joules) *(5,000 J of work gives 5,000 J of E_k to the car.)*

Work is Energy

Sometimes you don't know the work done, but you know the result of the work. The work done = the change of energy.



If we calculate the potential energy of the weights, we know the work

If the object is not moving no work is being done.

If the person does not move the nail, d = 0, so

Only <u>part</u> of this