Name: _____

Period: _____

Energy Review

1. Power	A. Tells you how good an energy transfer is; ratio of W_{out} to W_{in}.
2. Kinetic Energy	B. Due to being above the ground.
3. Work	C. Units for work or energy.
4. Potential Energy	D. Energy transferred by a force.
5. Efficiency	E. How fast energy is transferred or used.
6. Joules	F. Energy due to motion.

1. Nuclear	A. Any Potential or Kinetic energy.
2. Thermal	B. Due to splitting or combining atoms.
3. Radiant	C. Held in molecular bonds.
4. Mechanical	D. Heat energy.
5. Chemical	E. Electromagnetic radiation (light energy).
6. Electrical	F. Moving electrons.

How can you know that an object has energy?

What kind of Energy: E_p, E_k, Work, or None?

___ An object sitting on the edge of a table.

___ A bullet shot up into the air before it gets to the top.

___ A ball after it hits the ground and stops.

___ Pushing an object up a ramp.

___ After pushing an object up a ramp.

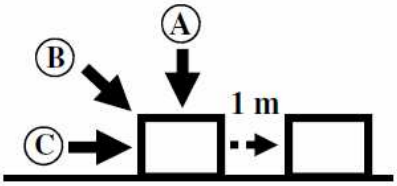
___ What a rock loses as it falls.

___ What it takes to stop or start an object.

___ How much energy an object loses if there is no friction.

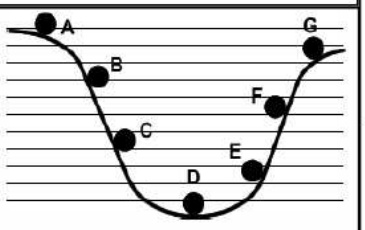
True or False: "An object at rest has potential energy".

A 4 kg rock is held 2 m above the ground for 3 seconds. How much work was done?



Which force does the most work?

Which force does the least work?



At A it has a lot of:

At D is has a lot of:

As it moves from G to D it is losing:

Which has more Ep: C or F?

Which has more E_k: C or F?

How does the E_p of A compare with the E_k of D?

What Kind of Thermal Transfer?
1. Conduction; 2. Convection; 3. Radiation

___ From a light bulb.

___ Holding onto an ice cube.

___ Causes ocean currents.

___ Putting your hand on a hot car.

___ A fan cooling you down.

___ If your hand is next to, but not touching a brick

Use arrows to show the heat transfers

20K	55K	
	25°C	
	40°C	
Ice	55°C	

If molecules have kinetic energy than they must be _____ing.

Which have more kinetic energy: hot objects or cold objects?

Which feels colder: a cold insulator or a cold conductor?

A 8 kg cart is rolling 5 m/s. Calculate its kinetic energy.

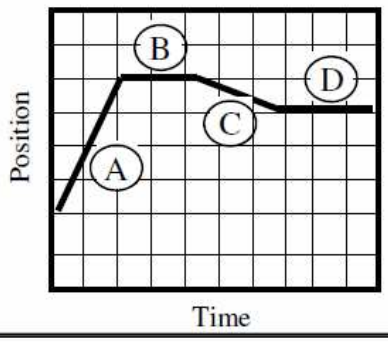
A rock is pushed 4 meters by a 10 N force.
A) How much work was done?

B) If done in 5 seconds, how much power was used?

C) If it was pushed on a flat surface, what kind of energy did it gain?

A 2 kg rock on a 6 meter ledge has how much potential energy?

Position vs. Time



Which segments show:

At rest:

Moving:

A lot of kinetic energy:

No kinetic energy:

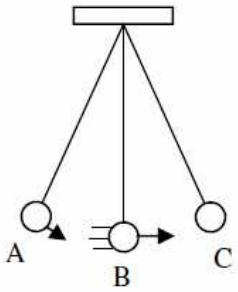
Very little kinetic energy:

What kind of energy does it have at A?

What kind of energy does it have at B?

If there is no friction, how do these amounts compare?

Write a Conservation of Energy equation from A to B.



Light bulb A uses 120 J of energy in 2 seconds. How powerful is the light bulb?

Light bulb B uses 120 J of energy in 12 seconds. How powerful is the light bulb?

Which light bulb used more energy?
Which light bulb is more powerful?

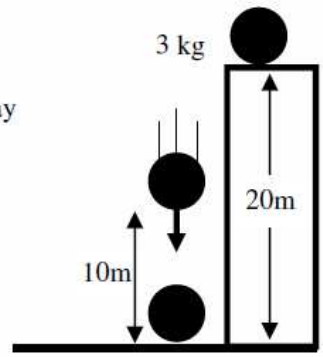
True or false? Something more powerful can do more work or use more energy.

How much potential energy does the ball have at the top?

How much Ep does it have half-way down?

How much E_k does it have at the bottom just before it hits?

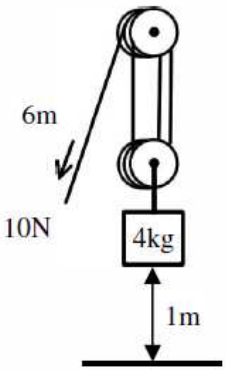
Find the velocity of the ball at the bottom.



What kind of energy is being put into lifting the object?
Calculate it.

What kind of energy is the pulley getting out by lifting the object?
Calculate it.

Calculate the efficiency of the pulley.



Where did the extra energy go?

Did you use less or more energy using the simple machine?

A person pushes a 2 kg cart until it is moving 3 m/s.

A) Find how much energy was given to the cart.

B) If it took 2 seconds to give this energy to the cart, calculate the power used to move the cart.

Given the following Conservation of Energy equations, describe what happened to the object.

A) $0 + W = Ek$

B) $Ek = Ep$

C) $Ek - W = Ek$

D) $Ep - W = Ek$

E) $Ek - W = 0$

A 4kg object at rest on the ground is pushed by a force for 8 m. The object ends up going 4 m/s.

Write the Law of Conservation of Energy. → _____

Put in what kind of energy it has before and after. → _____

If $E_b \neq E_A$, add or subtract Work. → _____

Put in the equations for each kind of energy. → _____

Find the size of the force.