Potential and Kinetic Energy

#	TERM	DEFINITION
1	Energy	The ability to do work or cause change
2	Kinetic Energy	The energy of motion
3	Potential Energy	Stored energy
4	Law of Conservation of Energy	Energy is neither created nor destroyed, it only changes form

POTENTIAL ENERGY

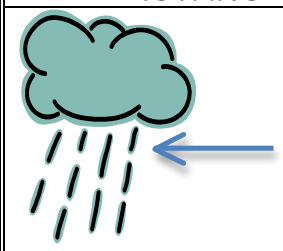
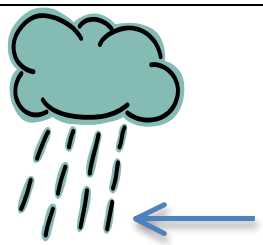
Since Potential energy is _paused_ and not in motion, think of it like _money_ in the bank. It's there when you are ready to __spend__ it. One form of potential energy having to do with its position is called __gravitational____ potential energy. The __higher___ an object is above the Earth's surface, the ____more_____ potential energy it has. As a rock falls off a cliff, more and more of its _potential_ energy changes into __kinetic energy___.

Identify which of the two examples has more Potential energy and which has less Potential energy

MASS		DISTANCE FROM THE GROUND	
			
Potential Energy	Potential Energy	Potential Energy	Potential Energy
More	Less	Less	More

KINETIC ENERGY

The law of Conservation of Energy states that energy cannot be __created__ or ___destroyed___, but can only __change form_____. Therefore, as potential energy __decreases___, it is not gone, but transformed into moving energy called ___kinetic___ energy. Think of the energy as money. If potential energy is four quarters, then kinetic is ___ten dimes_____. The coins may be different, but they still equal ___one dollar__. If there is __more___ of potential energy, then you can get ___more___ of kinetic energy out of it.
Discuss the tire/marble lab and draw picture below.

MASS		DISTANCE FROM THE GROUND	
			
Kinetic Energy	Kinetic Energy	Kinetic Energy	Kinetic Energy
More	Less	Less	More

Circle the Potential Energy in each scenario, and draw two lines under the Kinetic Energy. Then make up two more and identify each as potential or kinetic in the same way.

1.	The energy in a battery	Using the battery to power a camera
2.	Exercising	Eating food that your body stores
3.	A car driving down the road	Gasoline in the gas tank of a car
4.	Shooting a bow and arrow	An arrow stretched back ready to fly
5.	Throwing a football to your friend	A friend caught the ball that his friend threw
6.	A roller coaster at the top of its track	The roller coaster moving down the track
7.	A rock rolling down a hill	A rock at the bottom of the hill
8.	Resting/Sitting	Running/Walking
9.		
10.		

Describe how energy changes from the time a player throws a basketball to the time it passes through a hoop.

When the ball is poised in the player's hands, it is potential energy. When he throws the ball, the potential energy turns into kinetic energy. As the ball loses its momentum to gravity and stops propelling forward, it pauses over the hoop and becomes gravitational potential energy for a moment. Then, as the ball begins to fall again, it becomes kinetic energy until, after bouncing a few times, stops and becomes potential energy again.