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Date _____

Kinetic and Potential Energy

Most of us think of energy as the power our bodies have to move or do work. We have a lot of energy when we are excited or excited, and less energy when we are tired or bored. But that is only one kind of energy. Energy is working all around us. It powers cars and gives us light. Energy keeps us warm and creates sound. Without energy, we could not grow, move, or even stay alive! To understand energy and how it helps make life possible, we must learn that there are two kinds of energy, kinetic and potential.

Kinetic

"Kinetic" is another word for "motion." Scientists use it to define energy that is moving. For example, waves in the ocean have kinetic energy, because they are moving. Something as big as a plane in flight has kinetic energy, but size is not important. Atoms, which are the tiniest particles of matter, are also in motion. They have kinetic energy, too.

Kinetic energy can appear in many forms.

- **Radiant energy** is kinetic energy that shows up as light, radio waves, and x-rays.
- **Thermal energy** is kinetic energy that we call "heat." Heat is actually caused by the movement of vibrating molecules.
- **Electrical energy** is kinetic energy that exists in the movement of electrical charges. Lightning and the electricity that powers your home are two examples.
- **Sound** is also kinetic energy. It is created when a force causes an object or other matter to vibrate. We hear sound because force causes our eardrums to move.
- **Motion energy** is the simplest form of kinetic energy. It comes from the movement of matter from one place to another. Water flowing is an example of motion energy. So is wind.

Potential Energy

Scientists believe that energy is not created or destroyed. It simply gets transferred from one object or substance to another. So, if an object is not moving, how can it have energy? The other category of energy is **potential energy**.

You might have learned that the word potential means a person has the ability to succeed. If you have great potential, you will likely reach your goals. Potential energy has the ability to become kinetic energy. Potential energy is stored energy that will possibly become energy in motion. It is also the "energy of position," which means that an object's power comes from gravity.

Potential energy also appears in several forms.

- **Gravitational energy** comes from the potential power gravity can have on the object. Before he jumps from a plane, a skydiver has a great deal of stored, gravitational energy. He has more gravitational energy than a bungee jumper, because he is much higher.