Kinetic and potential energy

Science, Physics

When something is able to change its environment or itself, it has energy. When you think of energy, you might think of action- or objects in motion, like the baseball that shatters a window. There are different forms of energy. Turn on an electric light and a dark room becomes bright. Turn on a music player and sound comes through your headphones. In both situations, energy moves from one place to another; effect and reaction. The two different types of energy are kinetic and potential energy. Kinetic energy is the energy a moving object has because of its motion. The kinetic energy of a moving object depends on the object's mass and its speed. The kinetic energy of a moving object can be calculated from this equation: Kinetic energy (in joules) = ½ mass (in kg) x [speed (in m/s)]² $KE= \frac{1}{2} mv^2$ In this equation ^, the symbol v represents speed. Example Find the kinetic energy of the ball having mass 0, 5 kg and velocity 10m/s. $E_k= \frac{1}{2}mv^2$ $E_k= 1/2. 0, 5. (10)^2$ $E_k= 25$joule Stored energy due to position is called potential energy. For example, a heavy ball of a demolition machine is storing energy when it is held at an elevated position. Just as there are different types of energy, there are 3 different types of potential energy; elastic potential energy, chemical potential energy, and gravitational potential energy. Elastic potential energy is energy stored by something that can stretch or compress, such as a rubber band or spring. Energy stored in chemical bonds is chemical potential energy. [pic] Energy is stored in the bonds that hold the carbon and hydrogen atoms together and is released when the gas burned. Gravitational potential energy (GPE) is energy stored y objects due to their position above Earth's surface. The GPE of an object depends on the object's mass and height above the ground. GPE can be calculated using the

following equation: GPE (J) = Mass (kg) * acceleration of gravity (m/s²) * height (m) GPE= mgh In this equation, the acceleration of gravity has the symbol g. On Earth, the acceleration of gravity has the value 9. 8 m/s². like all forms of energy, GPE is measured in joules.