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|  | **Mechanical Energy**  Mechanical energy is often confused with **Kinetic** and **Potential Energy**. We will try to make it very easy to understand and know the difference. Before that, we need to understand the word ***‘Work’.***  ***‘Work’*** is done when a force acts on an object to cause it to move, change shape, displace, or do something physical. For, example, if I push a door open for my pet dog to walk in, work is done on the door (by causing it to open). But what kind of force caused the door to open? Here is where **Mechanical Energy** comes in.  **Mechanical energy** is the sum of kinetic and potential energy in an object that is used to do work. In other words, it is energy in an object due to its motion or position, or both.  In the 'open door' example notice what happens...  https://www.eschooltoday.com/energy/kinds-of-energy/images/bullet.jpgI possess potential chemical energy (energy stored in me), and by lifting my hands to push the door, my action also had kinetic energy (energy in the motion of my hands).  https://www.eschooltoday.com/energy/kinds-of-energy/images/bullet.jpgBy pushing the door, my potential and kinetic energy was transferred into mechanical energy, which caused work to be done (door opened).  https://www.eschooltoday.com/energy/kinds-of-energy/images/bullet.jpgHere, the door gained mechanical energy, which caused the door to be displaced temporarily.  https://www.eschooltoday.com/energy/kinds-of-energy/images/bullet.jpgNote that for work to be done, an object has to supply a **force** for another object to be **displaced**.  Here is another example of a boy with an iron hammer and nail. In the illustration below…  Mechanical energy for kids https://www.eschooltoday.com/energy/kinds-of-energy/images/bullet.jpgThe iron hammer on its own has no kinetic energy, but it has some potential energy (because of its weight).  https://www.eschooltoday.com/energy/kinds-of-energy/images/bullet.jpgTo drive a nail into the piece of wood (which is work), he has to lift the iron hammer up, (this increases its potential energy because if its high position).  https://www.eschooltoday.com/energy/kinds-of-energy/images/bullet.jpgAnd force it to move at great speed downwards (now has kinetic energy) to hit the nail.  The sum of the potential and kinetic energy that the hammer acquired to drive in the nail is called the Mechanical energy, which resulted in the work done.  **Kinetic Energy**  All moving things have kinetic energy. It is energy possessed by an object due to its motion or movement. These include very large things, like planets, and very small ones, like atoms. The heavier a thing is, and the faster it moves, the more kinetic energy it has.  Now let's see this illustration below. There is a small and large ball resting on a table.  Kinetic energy example *Let us say both balls will fall into the bucket of water. What is going to happen?* **Motion energy example** *You will notice that the smaller ball makes a little splash as it falls into the bucket. The heavier ball makes a very big splash. Why?* **Note the following:** 1. Both balls had [potential energy](https://www.eschooltoday.com/energy/kinds-of-energy/what-is-gravitational-energy.html) as they rested on the table. 2. By resting up on a high table, they also had [gravitational energy.](https://www.eschooltoday.com/energy/kinds-of-energy/what-is-gravitational-energy.html) 3. By moving and falling off the table (movement), potential and gravitational energy changed to **Kinetic Energy**. Can you guess which of the balls had more kinetic energy? *(The big and heavier ball)*  Let's see another classic example.  If you are in a hot room and you turn on the fan, what do you begin to feel? Air (wind). The speedy movement of the fan's blades has kinetic energy, which is then transferred into air (wind) that you now feel.  Other examples of Kinetic Energy include a moving car, moving wheel, and a moving arrow.  <https://www.eschooltoday.com/energy/kinds-of-energy/what-is-kinetic-energy.html>  Potential Energy   * [Definition and Mathematics of Work](https://www.physicsclassroom.com/class/energy/Lesson-1/Definition-and-Mathematics-of-Work) * [Calculating the Amount of Work Done by Forces](https://www.physicsclassroom.com/class/energy/Lesson-1/Calculating-the-Amount-of-Work-Done-by-Forces) * Potential Energy * [Kinetic Energy](https://www.physicsclassroom.com/class/energy/Lesson-1/Kinetic-Energy) * [Mechanical Energy](https://www.physicsclassroom.com/class/energy/Lesson-1/Mechanical-Energy) * [Power](https://www.physicsclassroom.com/class/energy/Lesson-1/Power)   An object can store energy as the result of its position. For example, the heavy ball of a demolition machine is storing energy when it is held at an elevated position. This stored energy of position is referred to as potential energy. Similarly, a drawn bow is able to store energy as the result of its position. When assuming its *usual position* (i.e., when not drawn), there is no energy stored in the bow. Yet when its position is altered from its usual equilibrium position, the bow is able to store energy by virtue of its position. This stored energy of position is referred to as potential energy. **Potential energy** is the stored energy of position possessed by an object.  http://www.physicsclassroom.com/Class/energy/u5l1b1.gif  <https://www.physicsclassroom.com/class/energy/u5l1b.cfm> ****In a Flash**** Potential and Kinetic Diagram  *An inflated balloon has potential energy in the stretched rubber.* **Potential energy** Potential energy is the **energy stored within an object**, due to the object's position, arrangement or state.  Potential energy is one of the **two main forms of energy**, along with kinetic energy. ****Burning Questions**** Potential Energy Diagram  *Kinetic energy used to compress a spring is stored as potential energy until released.* **What is potential energy?** Potential energy is **energy that is stored** – or conserved - in an object or substance. This stored energy is based on the position, arrangement or state of the object or substance.  You can think of it as energy that has the 'potential' to do work. When the position, arrangement or state of the object changes, the stored energy will be released.  For example, it requires energy to compress a spring – but what happens to that energy once the spring has been compressed? After all, we know that energy ***cannot be created or destroyed***, it can only be ***converted from one form to another***.  Well, in the case of our spring, the kinetic energy used to compress the spring has been converted to potential energy. When we release the spring, the stored potential energy will be converted back into kinetic energy. **What are the different types of potential energy?** There are two main types of potential energy:   * Gravitational potential energy * Elastic potential energy   <https://www.solarschools.net/knowledge-bank/energy/forms/potential> |