

Kinetic and Potential Energy



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The Kinetic Molecular theory of heat is based on the particle model of matter. Particles make up solids, liquids and gases and are held together by electrostatic forces. These particles are attracted to one another at certain distances and then repel each other when they become too close together.

Energy is the sum of two types of energy: Potential and Kinetic Energy.

$$\text{Total Energy} = \text{Kinetic Energy} + \text{Potential Energy}$$



What is kinetic and potential energy?

Kinetic energy is energy due to motion while potential energy is a molecule's total energy due to its attractive force (stored energy).

The energy of a molecular body is converted between these two forms with the total energy, of the moving molecule, remaining constant as long as no work is done.



What are the Postulates of the Kinetic Molecular Theory?

There are seven postulates and they are:

- Heat is a form of energy.
- Energy is carried by molecules
- Molecules have two types of energy: potential and kinetic.
- Potential energy results from the electric force between molecules.
- Kinetic Energy results from the motion of the molecules.
- Energy is continually converted between these two forms
- Molecules of matter are always moving.



The Principle of Heat Transfer

The Conservation of Energy states that energy can neither be created nor destroyed, but changes from one form to another. For example, when frozen pasta is put into a pot of boiling water, some heat is lost from the water and is transferred to

the frozen pasta.

This information will be important in understanding why and how heat transfer works.

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