A system can transfer energy to another system by simply transferring matter to it (since matter is equivalent to energy, in accordance with its mass). However, when energy is transferred by means other than matter-transfer, the transfer produces changes in the second system, as a result of work done on it. This work manifests itself as the effect of force(s) applied through distances within the target system. For example, a system can emit energy to another by transferring (radiating) [electromagnetic energy](http://en.wikipedia.org/wiki/Electromagnetic_energy), but this creates forces upon the particles that absorb the radiation. Similarly, a system may transfer energy to another by physically impacting it, but in that case the energy of motion in an object, called [kinetic energy](http://en.wikipedia.org/wiki/Kinetic_energy), results in forces acting over distances (new energy) to appear in another object that is struck. Transfer of [thermal energy](http://en.wikipedia.org/wiki/Thermal_energy) by [heat](http://en.wikipedia.org/wiki/Heat) occurs by both of these mechanisms: heat can be transferred by electromagnetic radiation, or by physical contact in which direct particle-particle impacts transfer kinetic energy.

