















Foothold ideas: Conservation of Energy II

- The thermal and chemical energies of an object are grouped together as the object's *internal energy*.
- Conservation of energy of a system of interacting objects with suppressed internal degrees of freedom now takes the form

$$KE_{initial} + PE_{initial} + U_{initial}^{int} = KE_{final} + PE_{final} + U_{final}^{int}$$

Resistive forces transform energy from coherent mechanical energy of macroscopic objects into thermal and chemical reactions transform energy from chemical to other forms and back (usually thermal)
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