

### Potential Energy=U

Energy associated with particles in a system where particles exert forces on one another

Gravitational Force between 2 masses (Often 1 mass and a planet)

U:

Elastic U: State of stretch or compression on elastic/springlike object.

### Work and U

$$\Delta U = -W$$

Elastic: Change in elastic potential energy equals the negative of the work done by the spring force.

Gravity: Change in gravitational potential energy equals the negative of the work done by gravity.

### Conservation and Non-Conservative Forces

Conservative Two or more objects with force that are able to be arranged in a way that transfers energy between kinetic energy and another form of energy, that can be reversed, and may be repeated.

Non-Conservative Mass on surface with friction. The mass slides, kinetic energy is transformed to thermal by work done by friction. Friction can not change thermal back to kinetic energy.

Path Independence of Conservative Forces Closed Path Test: The net work done by a conservative force on a closed path is zero.

Work done on a conservative force does not depend on the path taken.

