


# Announcements and Upcoming Events

PRACTICE	LABS	TESTS
Unit 11 PP's (1-10)	Roller Coaster Interactive (RsVCP)	Unit 11 Test Friday (3/8/19)

## Work Done By Nonconservative Forces

Learning Target	Description
11.3	I can analyze and solve problems involving the Law of Conservation of Energy and the work done by nonconservative forces.



## Potential Energy

- Kinetic Energy (K)** is the energy of motion.

$$K = \frac{1}{2}mv^2$$

- Potential Energy (U)** is a storage system for energy.
- Gravitational Potential Energy depends on weight and height,  $h$ , but it is independent of horizontal position.

$$U_g = mgh$$

- Potential energy stored in a spring

$$U_s = \frac{1}{2}kx^2$$

## Conservation of Mechanical Energy

- Mechanical Energy** is the sum of the potential and kinetic energies of an object.

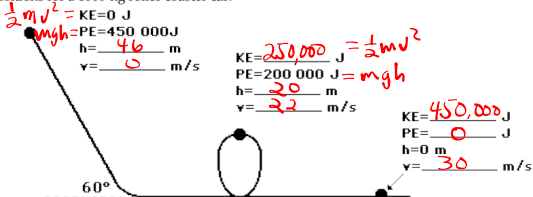
$$E = K + U$$

- In systems with conservative forces only, the mechanical energy  $E$  is conserved.

$$E_i = E_f$$

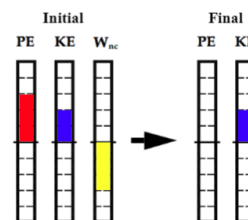
## Conservation of Energy

Use the law of conservation of energy (assume no friction) to fill in the blanks at the various marked positions for a 1000-kg roller coaster car.

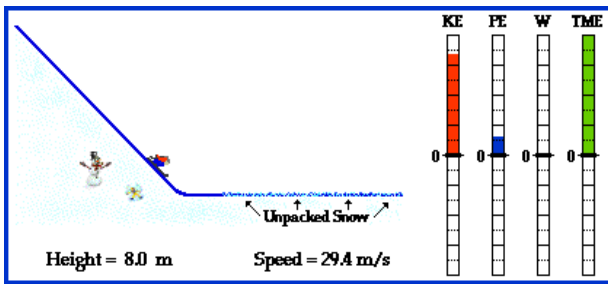


## Bar Chart Illustrations

One tool which can be utilized to express an understanding of the work-energy theorem is a bar chart. A work-energy bar chart represents the amount of energy possessed by an object by means of a vertical bar. A bar is constructed for each form of energy and the length of the bar is representative of the amount of energy present.



# Conservation of Energy



the Physics Classroom

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