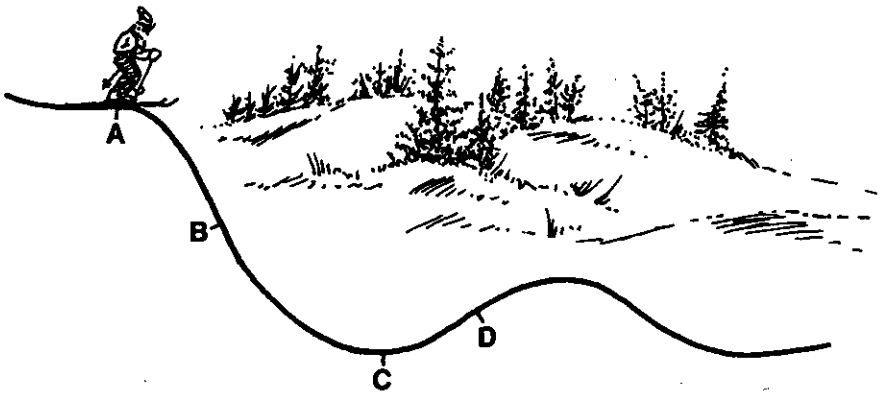
KINETIC AND POTENTIAL ENERGY CHANGES



Label the points at which:

_____The skier is gaining speed

_____ The point at which the skier is moving the fastest

_____ The point at which the skier has the greatest amount of potential energy

_____ The point at which the potential energy is changing to kinetic energy

_____ The point at which the skier has the greatest amount of kinetic energy

____ The point at which kinetic energy is changing to potential energy

Explain why the skier will never return to the height of point A.

Where and how is mechanical energy "lost?"

A tennis ball undergoes several energy changes as it travels towards a player, is struck, and rapidly speeds back over the net. Describe these energy changes using the concepts of kinetic and potential energy

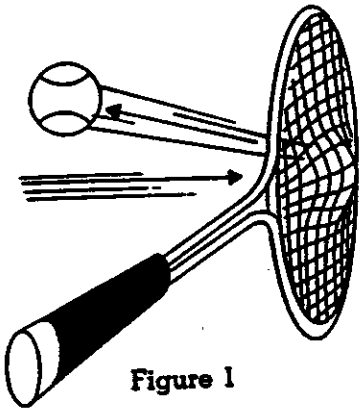
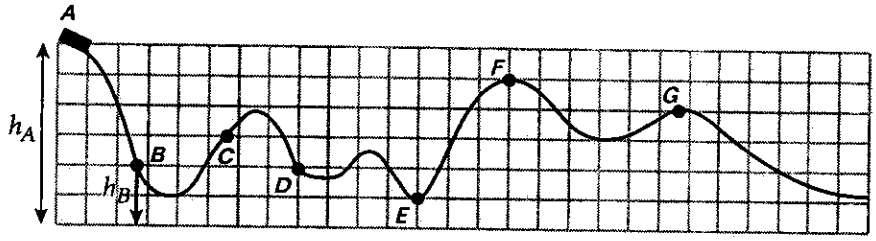


Figure 1

CONSERVATION OF ENERGY DIAGRAM SKILLS



A roller coaster with a mass of m moves along a smooth track as diagrammed in the graph. The car leaves point A with no initial velocity and travels to other points along the track. The zero energy level is taken as the energy of point A.

1a) What is the car's kinetic energy at point A?

b) What is the potential energy associated with the car at point A?

c) What is the car's kinetic energy at point B?

d) What is the cat's potential energy at point B?

2a) What is the speed of the car at point A?

b) What is the speed of the car at point B?

3. Assume the mass of the car is 65 kg, and it starts at 30 m above the ground (each square is 5 m). Use the graph above to find the kinetic energy, potential energy, and velocity for points C,D,E<F,G

Location	**KE_A**	**PE_A**	**$KE_{location}$**	**$PE_{location}$**	**$V_{location}$**
A					
B					
C					
D					
E					
F					
G					

4. For each location, what do you notice about the sum of the kinetic and potential energies?