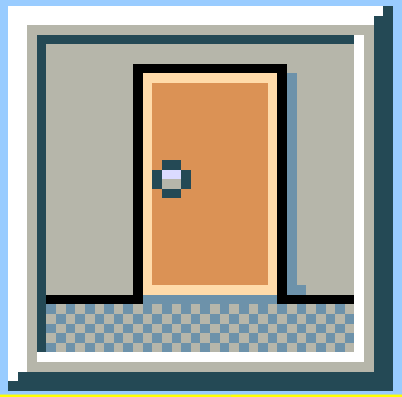
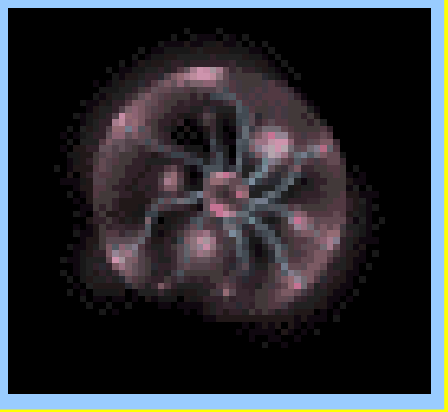
Energy

- **Kinetic Energy (K)** – Energy of Motion
- **Potential Energy (P)** – Stored up Energy
- **Total Energy (T)**– Kinetic plus Potential Energy





Energy

- **Kinetic Energy (K)**– Energy of Motion

Which ball has Kinetic Energy?

Energy

- **Kinetic Energy (K)**– Energy of Motion

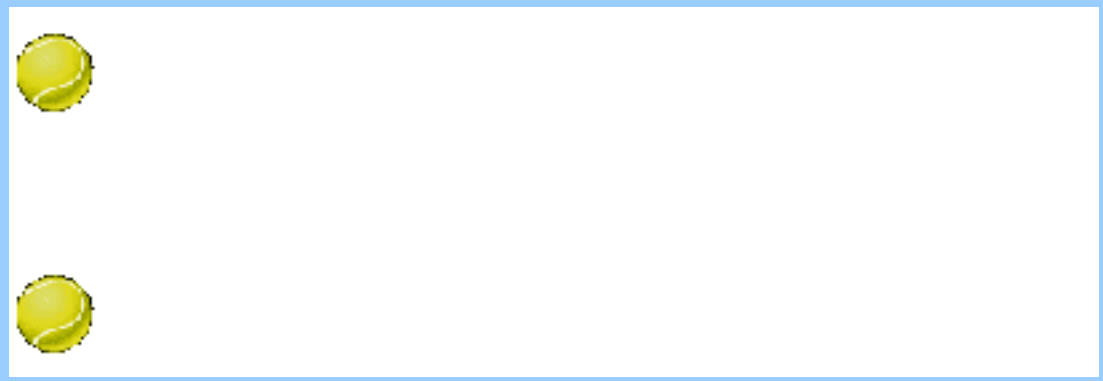
No Kinetic Energy 

Kinetic Energy 

Energy

- **Kinetic Energy (K)**– Energy of Motion

Which ball has more Kinetic Energy?



Energy

- **Kinetic Energy (K)**– Energy of Motion

Less Kinetic Energy

More Kinetic Energy

Energy

- **Kinetic Energy (K)**– Energy of Motion

K=1/2 m v^2

Less Kinetic Energy

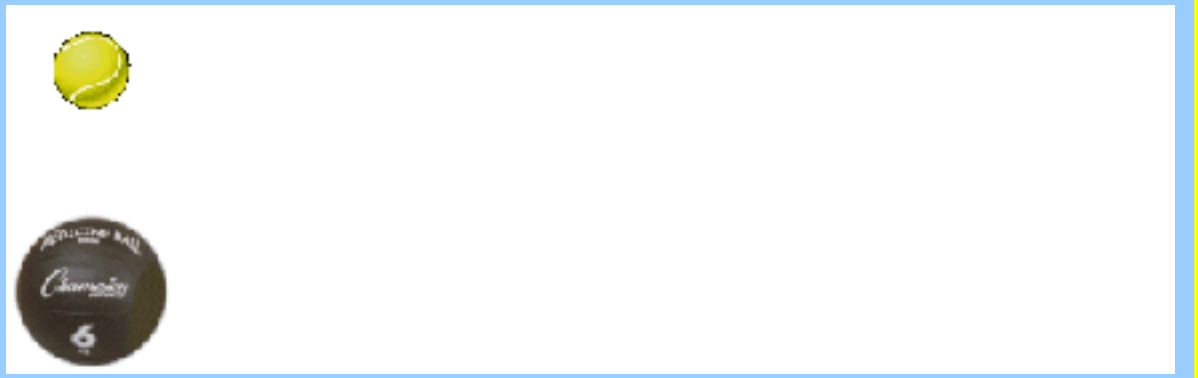
More Kinetic Energy

If the lower ball is moving twice as fast, how much more kinetic energy does it have?

Energy

- **Kinetic Energy (K)**– Energy of Motion

Which ball has more Kinetic Energy?



Energy

- **Kinetic Energy (K)**– Energy of Motion

Less Kinetic Energy

More Kinetic Energy

Energy

- **Potential Energy (P)**– Stored up Energy

Potential Energy

Potential Energy

Potential Energy

Potential Energy

Potential Energy

Energy

- **Potential Energy (P)**– Stored up Energy

Which ball has more **Potential Energy (P)**?

Weight → W

Height → h

P = W h

h = 2

W = 10

W = 1

P = ?

P = ?

Energy

- **Potential Energy (P)**– Stored up Energy

Which ball has more **Potential Energy (P)**?

Weight → W

Height → h

P = W h

h = 2

W = 10

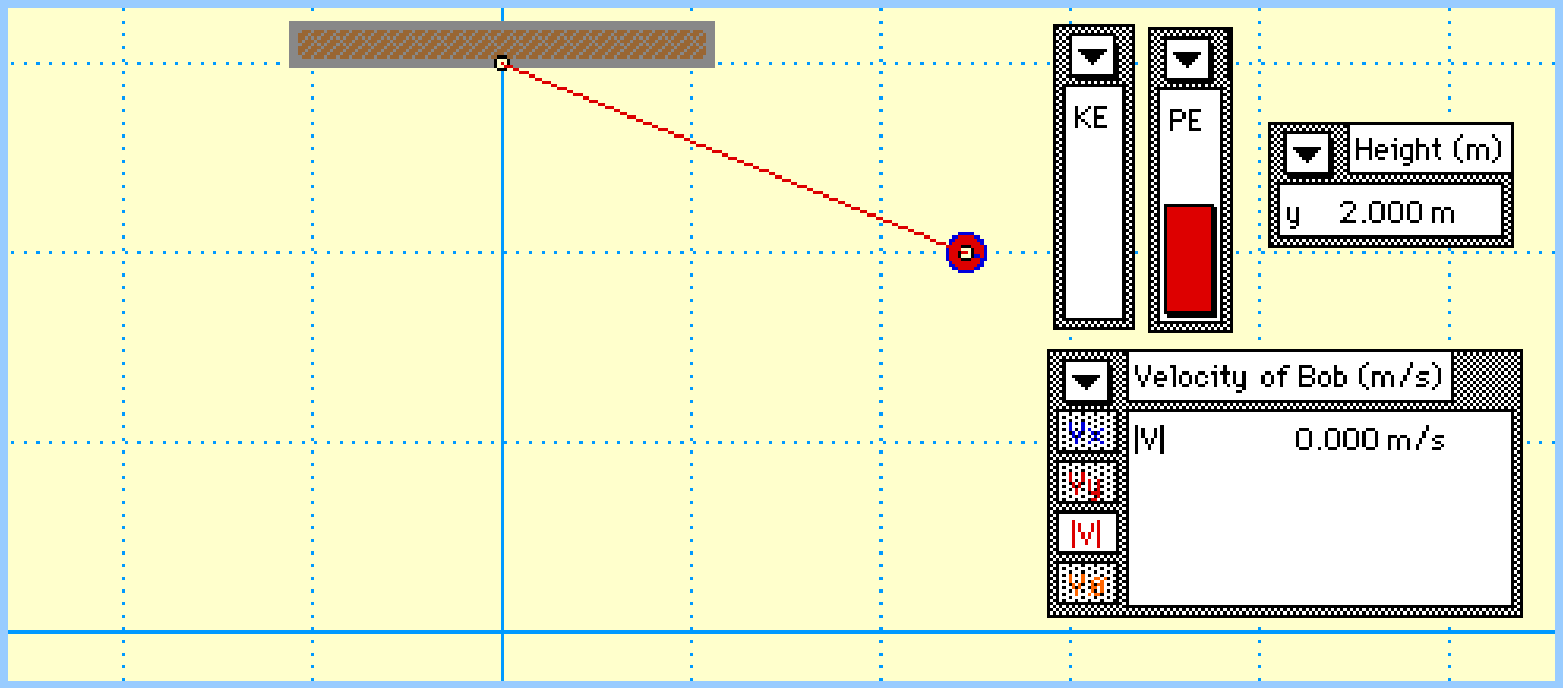
W = 1

P = 20

P = 2

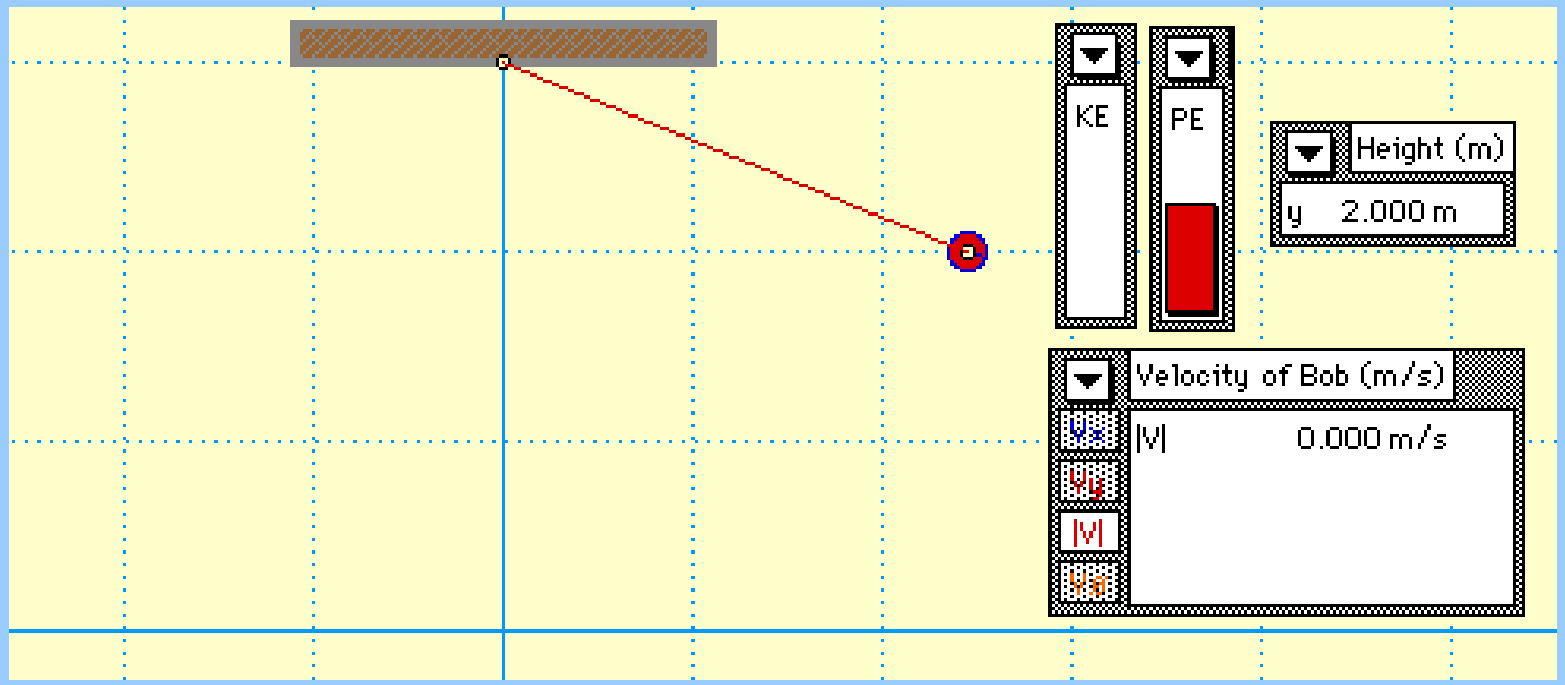
Energy

- **Total Energy** – **Kinetic** plus **Potential** Energy



Energy

- **Total Energy** – **Kinetic** plus **Potential** Energy



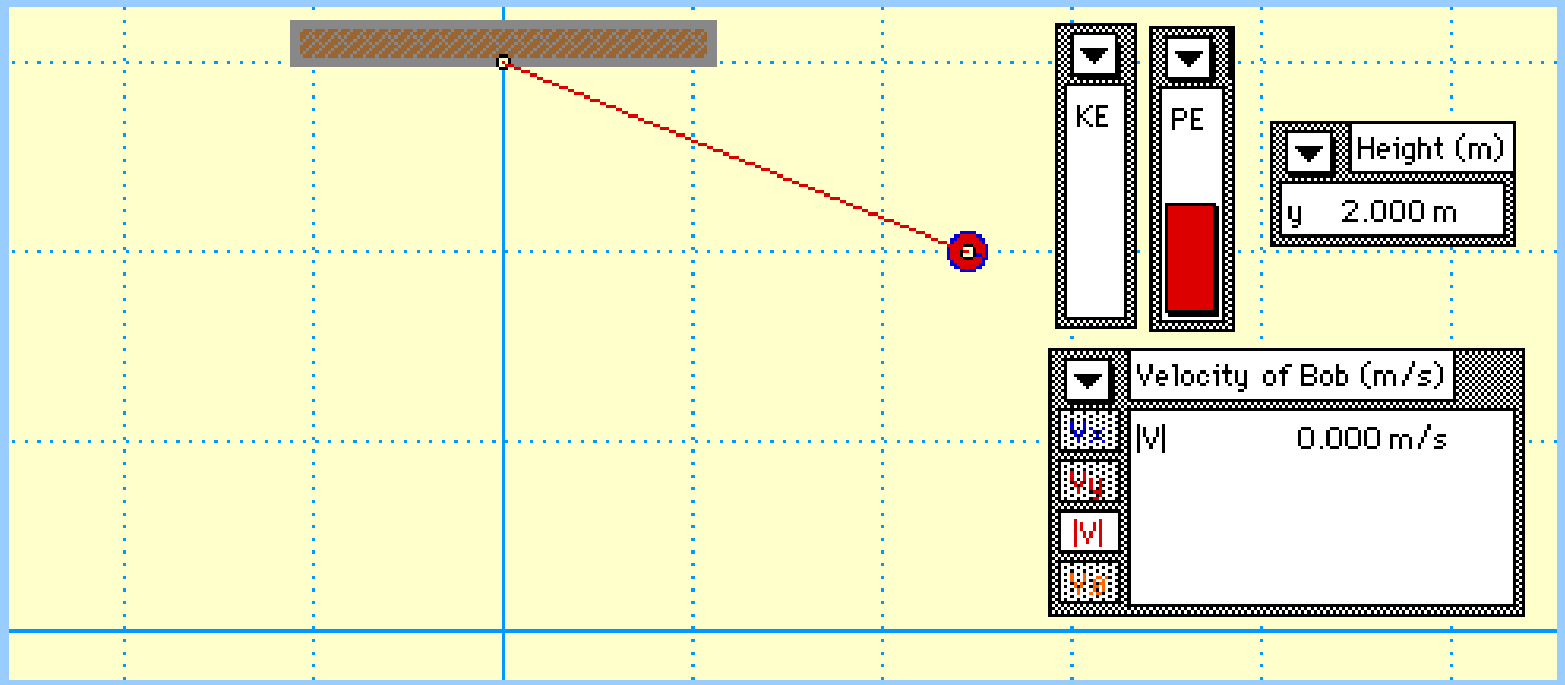
T (at top) = T (at bottom)

P + K = P + K

100 + 0 = ? + ?

Energy

- **Total Energy** – **Kinetic** plus **Potential** Energy



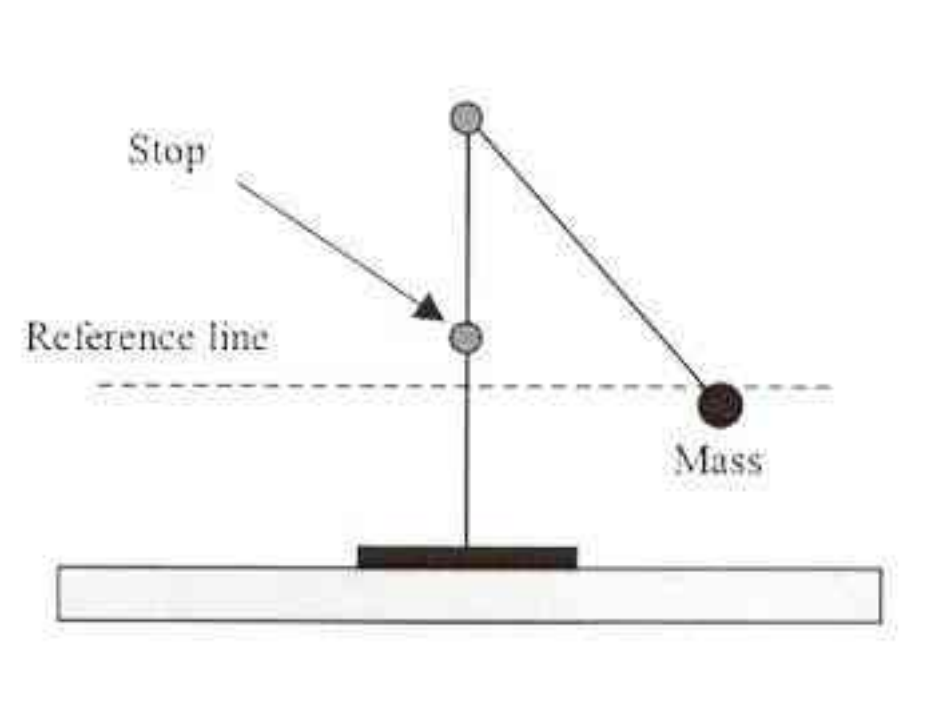
T (at top) = T (at bottom)

P + K = P + K

100 + 0 = 0 + 100

Energy

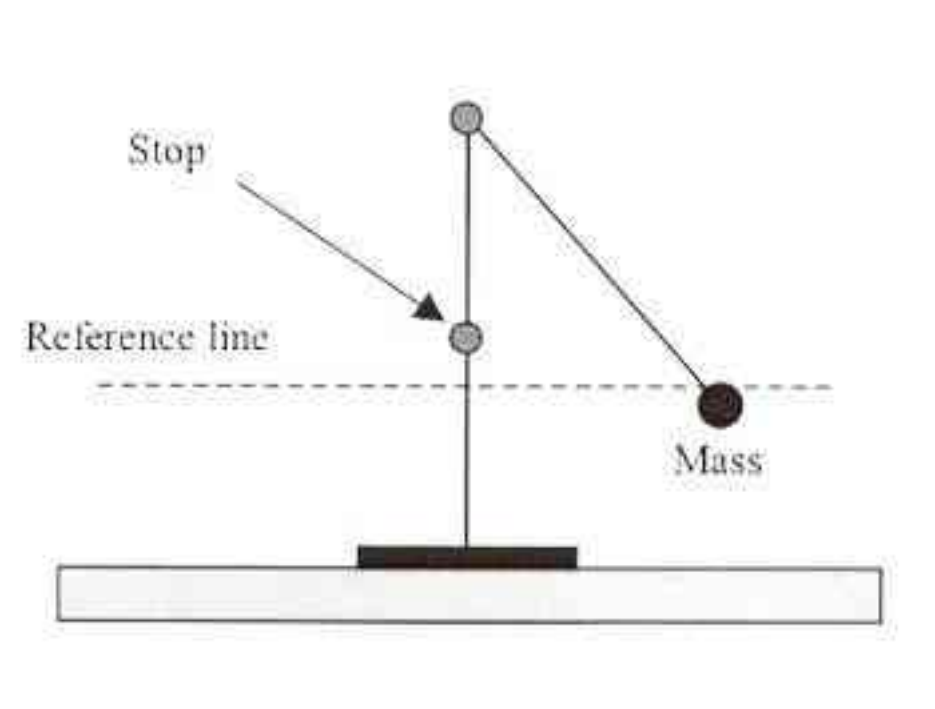
- **Total Energy** – **Kinetic** plus **Potential** Energy



How high will it go?

Energy

- **Total Energy** – **Kinetic** plus **Potential** Energy

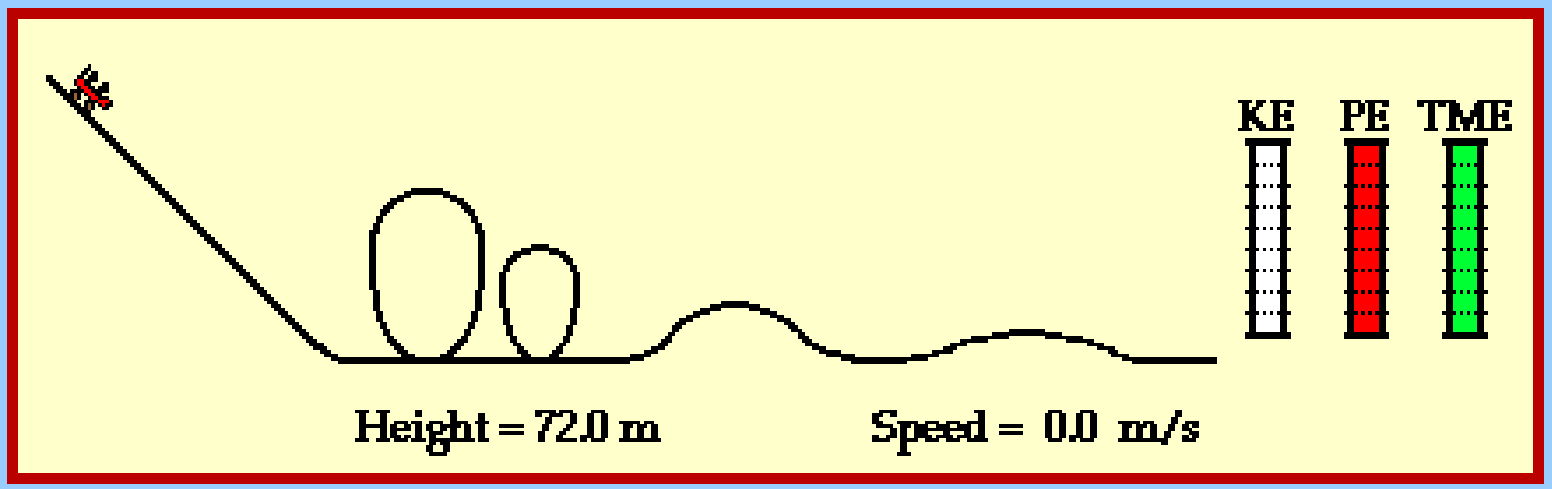


$$\text{Total}_{initial} = \text{Total}_{final}$$

$$(P + \cancel{K}^{0})_{initial} = (P + \cancel{K}^{0})_{final}$$

Energy

- **Total Energy** – **Kinetic** plus **Potential** Energy



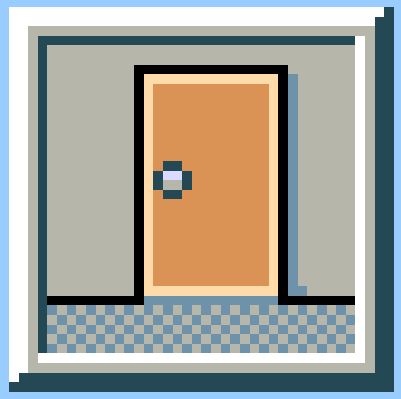
Loop – The - Loop

Where to Start?

Energy

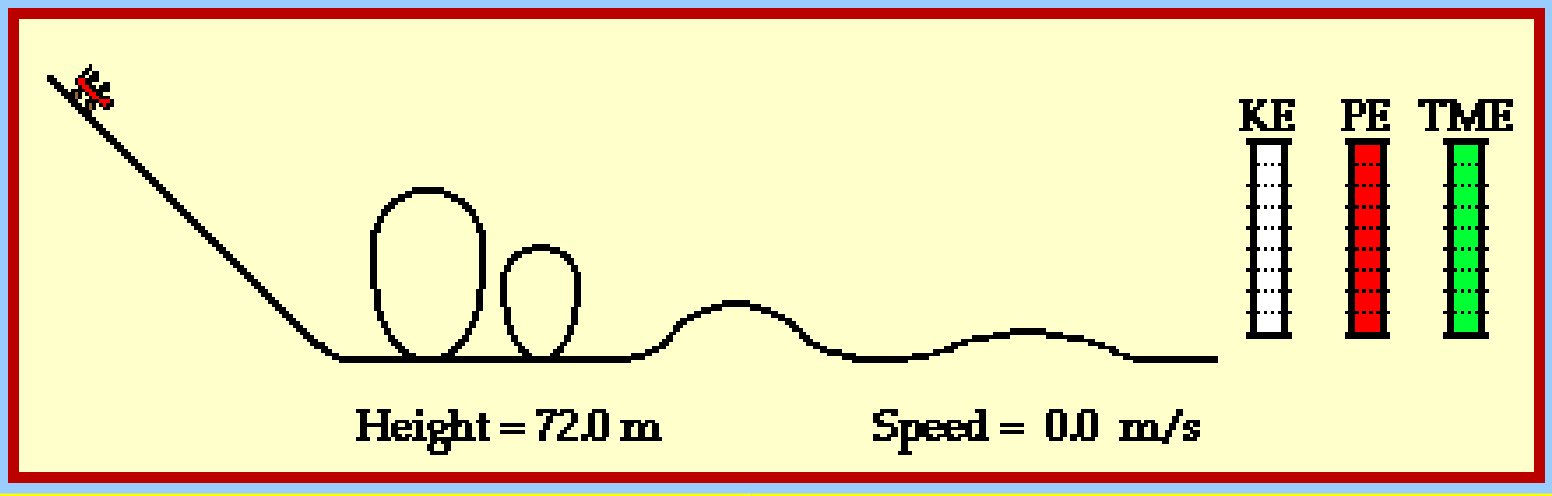
- **Total Energy** – **Kinetic** plus **Potential** Energy

The Bomb!



Energy

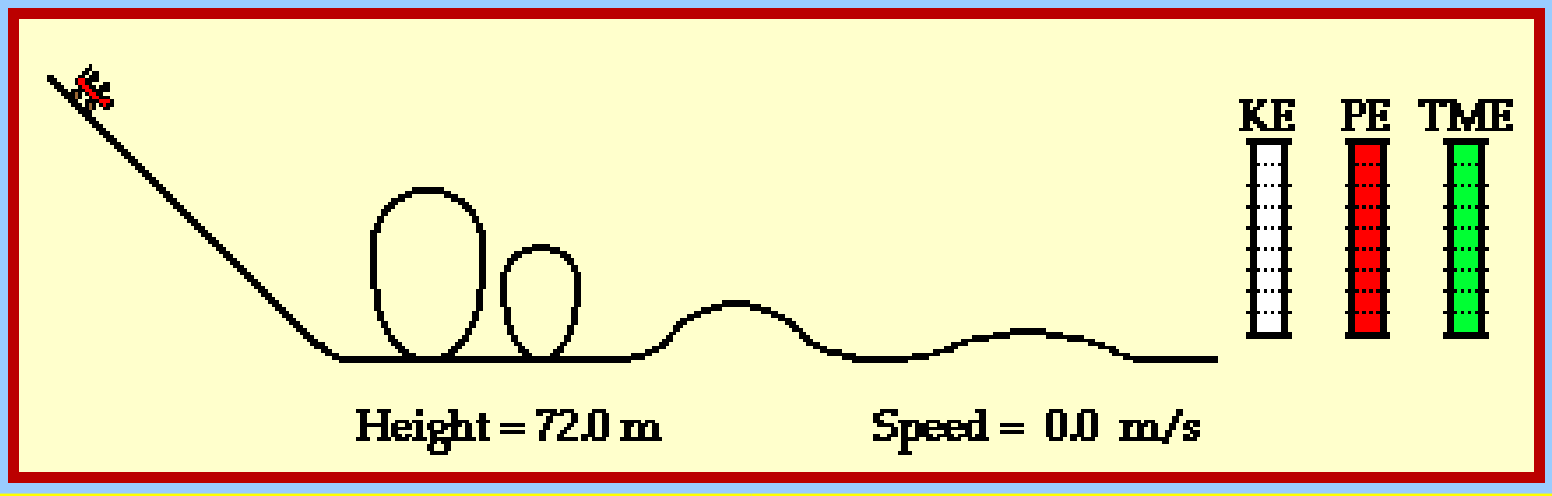
- **Kinetic Energy – ???**



Energy

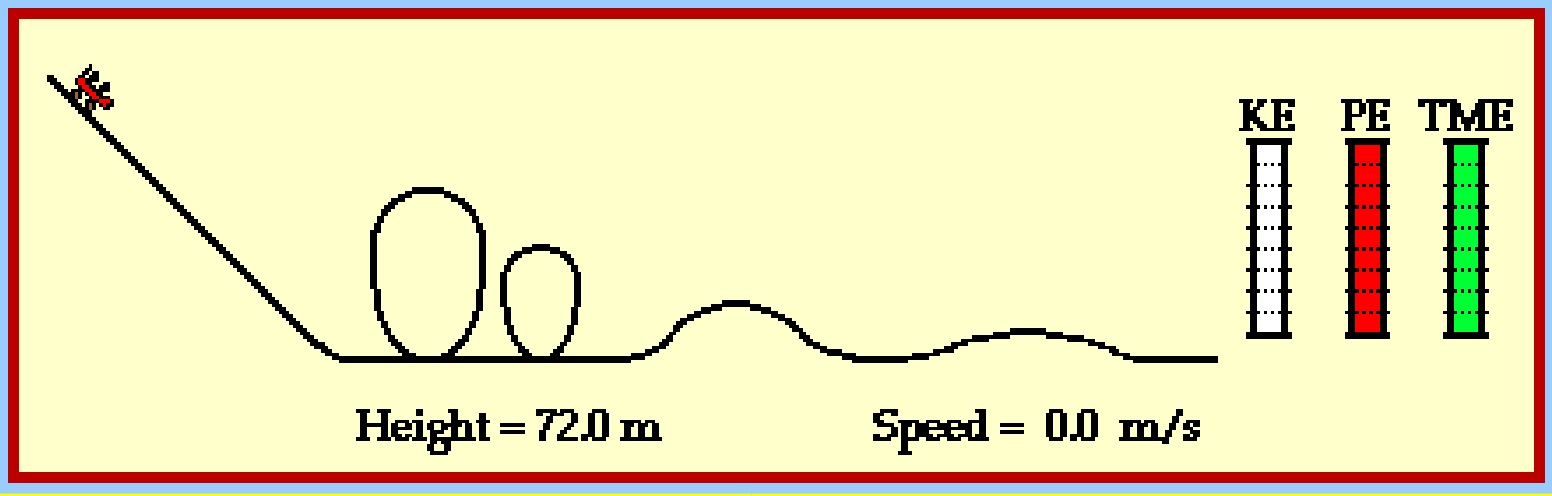
- **Kinetic Energy** – Energy of Motion

- **Potential Energy** – ???



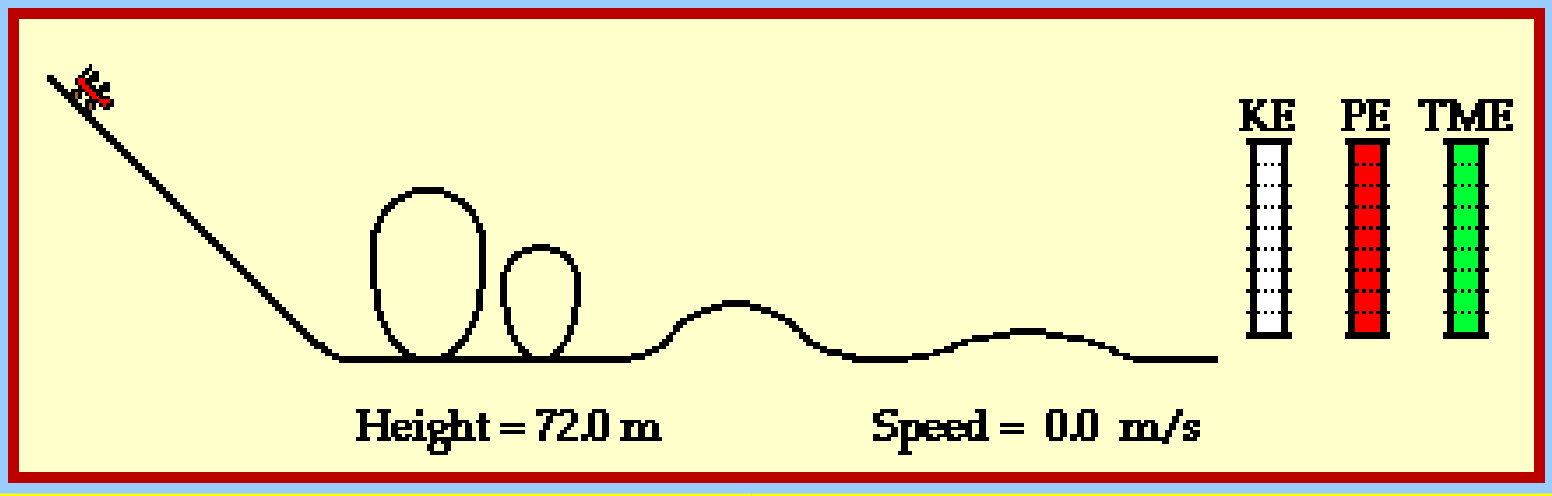
Energy

- **Kinetic Energy** – Energy of Motion
- **Potential Energy** – Stored up Energy
- **Total Energy** – **???**



Energy

- **Kinetic Energy** – Energy of Motion
- **Potential Energy** – Stored up Energy
- **Total Energy** – Kinetic plus Potential Energy



Energy