

ROLLER COASTER LAB

OBJECTIVE-

1. Accurately define potential and kinetic energy.
2. Explain the relationship of height to potential energy and the resulting kinetic energy.
3. Understand the effects of weight and speed on momentum.

MATERIALS-

1. 4 meters of clear $\frac{1}{4}$ inch vinyl tubing
2. BB's
3. meter stick
4. masking tape
5. scale/balance

PROCEDURES/ RESULTS

1. Each group will design a roller coaster with the most total centimeters in height using $\frac{1}{4}$ inch vinyl tubing. The first hill must measure $1 \frac{1}{2}$ meters in height with two more hills following. A BB must be able to complete the course without stopping.
2. Each group will draw their roller coaster with the heights of each hill indicated along with their total height for the first three hills.
3. What is the mass of the BB _____g _____kg
4. Calculate the following for the top of first hill and half way down the hill.

TOP

a. P.E. =

b. K.E. =

c. T.E. =

d. VELOCITY =

HALF WAY

P.E. =

K.E. =

T.E. =

VELOCITY =