Name_____ Date_____ Period___

Snappy Science: Rubber Bands

Procedure

1. Find the mass of the rubber bands. Record them in the data table below.
2. Assign roles:
    a. Launcher
    b. Timer (it is best to have multiple timers)
3. Using a piece of chalk, draw a line on the ground. This is where you will stand, and launch the rubber bands.
4. Hook one end of the rubber band to the front edge of the ruler. Then stretch the rubber band to 15 cm.

. Remember the angle and height at which you hold the ruler because you will need to keep it the same for each rubber band launch.

5. The TIMER will count down "3-2-1-Launch"

. Start the timer while the LAUNCHER releases the rubber band.

a. Stop the timer when the rubber band comes to a complete stop.

b. Record the flight time in the data table below.

i. If you have more than one timer, record the average flight time.

6. Measure the distance from the chalk line to the final position of the rubber band.
7. Record the distance traveled in the data table below.
8. Do this two more times.
9. After your three trials, change the rubber band.
10. Repeat this process for all the rubber bands.

Data Table 1: Rubber Band Mass

Mass of rubber band #1 _____	Mass of rubber band #2 _____	Mass of rubber band #3 _____

Data Table 2: Rubber Band Launch

Rubber band	Trial	Time (seconds)	Distance (cm)	Velocity (m/s)
1	1			
	2			
	3			
2	1			
	2			
	3			
	1			

3	2			
	3			

Graph the velocity for all nine trials. Use three different colors, one per rubber band.

Analyze and Interpreting Data

1. Examine the data in your data table, and the graph above. Do you notice any patterns? Describe the pattern.

2. What do you think might be the cause of the observed phenomena?

Rubber Bands Are Loaded with Potential Energy!

By Science Buddies on April 5, 2012

Introduction

If you've ever been shot with a rubber band then you know it has energy in it—enough energy to smack you in the arm and cause a sting! But have you ever wondered what the relationship is between a stretched rubber band at rest and the energy it holds? The energy the rubber band has stored is related to the distance the rubber band will fly after being released. So can you guess one way to test how much energy a stretched rubber band contains?

Energy

No mechanical contraption would be any fun if it did not work. But "work," in the physics sense, takes energy. Consider a rope and pulley that bring a bucket up a well. The energy that makes this mechanical system work is provided by a person who pulls up the rope.

There are actually two different kinds of energy: potential energy, which is stored energy, and kinetic energy, which is energy in motion. A great example of the difference between kinetic and potential energy is from the classic "snake-in-a-can" prank. This is an old joke where you give someone a can of peanuts and tell them to open it, but inside is actually a long spring that pops out when the lid is twisted off. Because the spring is usually decorated to look like a snake, this prank usually causes the victim to jump back and shout in surprise! When the snaky spring is compressed and secured inside the unopened can, it has potential energy. But when the can is opened, the potential energy quickly converts to kinetic energy as the fake snake jumps out.