Newton's Laws

The scientist, Sir Isaac Newton, helped to organize the thinking about forces by formulating three laws. In his book Newton describes his three laws of motion. Newton's Laws are all around us. To prove this, you will conduct 8 different activities showing everyday examples of these laws.

Lab Procedure

1. You will start at a lab station and then move from station to station until you have completed all 8 activities.
2. You will have 3 minutes to do the activity at each lab station.
3. Perform the activity as directed.
4. Write a description of what you observe in your notebook.
5. Determine which of Newton's Laws of Motion is being demonstrated.
6. Record this in your table.
7. Move to each of the other lab stations and repeat steps 3 – 7.

Lab Activities

Station 1 (Newton's First Law of Motion)

1. Place the note card on the table so about 1/3 of the card extends over the edge of the table.
2. Place the penny on the card that is on the table.
3. Predict what will happen to the penny when the card is removed.
4. As quickly as you can, pull the card from under the penny.
5. Observe the motion of the penny.

Station 2 (Newton's First Law of Motion)

1. Hold your right hand next to your right ear with palm up.
2. Place a penny on your elbow.
3. Quickly straighten your arm and catch the penny.

Station 3 (Newton's First Law of Motion)

1. Balance the meter stick on one hand and the ruler on the other hand.
2. Which is easier to balance?

Station 4 (Newton's First Law of Motion)

1. Place the note card on top of the beaker.
2. Place the penny on the card, above the beaker.
3. Predict what happens when the card is rapidly removed.
4. Pull the card out as rapidly as you can.
5. Observe the motion of the penny.

Station 5 (Newton's Second Law of Motion)

1. Place a penny near one end of your lab table.
2. Use your finger to propel the penny toward the other end of the lab table trying to get it to stop exactly at the edge of the lab table.

Station 6 (Newton's Second Law of Motion)

1. At the same time, drop the flat piece of paper & the wadded up piece of paper onto the lab table.
Which hits first?

Station 7 (Newton's Third Law of Motion)

1. Blow up the balloon
2. Release the balloon
3. Return the balloon to your teacher.

Station 8 (Newton's Third Law of Motion)

1. Stand with each of your feet on a separate sheet of paper.
2. Start to run.
3. Observe the paper

Data Table

Table #	Law #	What you did	Observations

Post Lab Questions

A. After you have completed all 8 stations, go back to your individual desk and read through your observations for each of the activities for Newton's First Law of Motion. Find the one thing that happens in each of the activities. Record in the table. Repeat for the Second Law activities and then the Third Law activities.

	What observed in common
Newton's First Law of Motion	
Newton's Second Law of Motion	
Newton's Third Law of Motion	

B. At station 4, what supplied the force necessary to make the nut drop into the beaker?

C. At station 5, what supplied the force necessary to slow the penny down as it slid along the top of the table?

D. Why is a meter stick easier to balance than a ruler?

E. How many laws of motion did Sir Isaac Newton write?

F. What are Newton's three laws of motion?