

Getting to Know Physics!

Over the course of the year, you are going to learn a great deal about a LOT of topics. It may seem strange how all of the topics relate, but they are all physics and at the core, deal with very similar properties. The topics we will cover this year are:

First Semester	Second Semester
<ul style="list-style-type: none">• One Dimensional Motion• Projectiles• Newton's Laws• Momentum and Impulse• Energy• Circular Motion• Relativity	<ul style="list-style-type: none">• Electrostatics• Electricity• Magnetism• Sound• Light Topics• Modern Physics• Mirrors and Lenses

In order to get a feel for all of the topics, we are going to start the year with a few demos and hands on activities. All of these demos and activities will come back to haunt us later in the year when we explore the reasons behind them more fully, but now we are just going to have a little bit of fun with them.

To make sure that you thinking scientifically and to make sure that you can find my website (bookmark it now!) tonight you are going to go online and answer a few survey questions about these stations based off of your observations so take notes! Don't worry if you don't know everything yet – I know that you are not a physics whiz kid (yet) but you can question the world and make an educated guess!

The survey is found at mrsgiegler.weebly.com. You will need to go to Physics 432 → Units → 1D Motion. Simply click on the link and you will be good to go! Make sure to follow directions and click submit at the end. This survey must be completed by _____.

Now onto the fun!

DEMOS!

<i>Flying Saucers</i>	
1. What did you see happen?	
2. Why did the demo do that?	
3. Which unit?	

<i>Super Strong Ping Pong</i>	
1. What did you see happen?	
2. Why did the demo do that?	
3. Which unit?	

STATIONS!

For each of the different stations that you and your physics friends travel to, you need to try to accomplish the challenge at hand. Make observations and record what you are seeing.

Ball Launcher:

Without launching the ball yet, place the cup where you think it will land. Launch the ball and then see how close it comes to your cup. Then try to determine which angle allows the ball to move the farthest horizontally.

1. Which unit?

Knock Block:

Stack all of the blocks except for one. Now, using your extra block try to get the bottom block without touching the stacked blocks. Try to figure what conditions work best and why that might be.

1. Which unit?

Straw Oboe:

Make two cuts at one end of the straw to form a V. Blow through that end with pursed lips while you cut off the other end of the straw. Note what happens to the sound. Why do you think this happens – compare with the music sticks.

1. Which unit?

Music Sticks

Whack the tubes against the table to create a song...but why do different tubes have different sounds?

1. Which unit?

Magnet Drop:

Drop the magnet through the plastic tube and then through the copper tube. Compare what happens as the magnet falls through each tube. Why do you think that happens? Try to test your theory and see if you are correct.

1. Which unit?

Mystery Calculator:

Type something on the calculator and then look through the dark plastic at the screen. Once you have done this, rotate the dark plastic as you continue to look at the screen. Use the other pieces of the dark screen and experiment to see what happens when they are on top of each other as you hold them up to the light. Try rotating one of them to see any changes. What happens if more than two are stacked together?

1. Which unit?

Stringin' It

Turn the toy on and the string should start to move. Try to make it into a pattern. How many loops can you get? We will take a look at this one together. Why does it seem like the rope comes to a stop?

2. Which unit?

Groan Tubes

Determine what these toys do. Then as you go to create the noise, suddenly drop it. (Make sure a lab partner catches it!) Does the toy still work? Why or why not?

1. Which unit?

Toy Cars

In front of you, you should see a large group of toy cars. Classify these into two groups – try to think like a physicist.

1. Which unit?

