

Name: _____

Lemon Battery Lab

Physics Period: _____

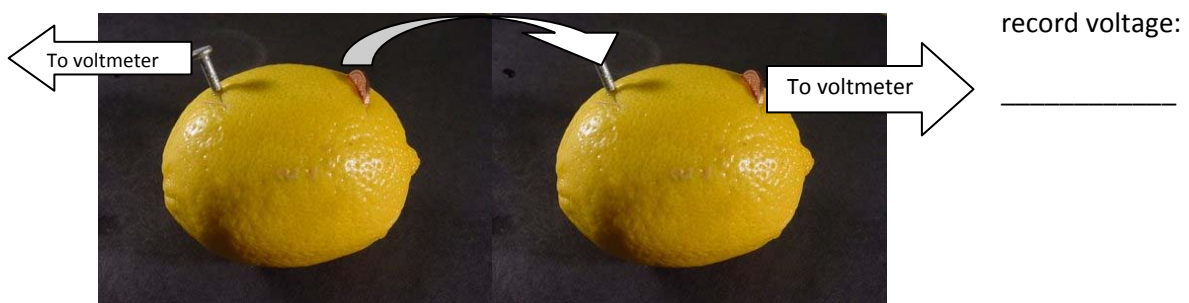
Welcome...to the future.

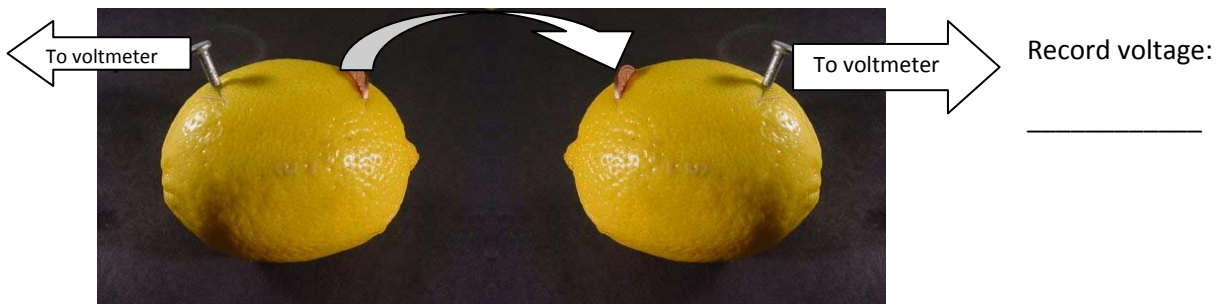
You wake up to what would be the sunrise...in another life. But after the war...after the fires...after the asteroid...after the dinosaurs...after the giant irradiated kittens...there is only night. You think to yourself...why am I pausing...in the middle of my sentences...? I sound...like William Shatner...

In front of you are the meager supplies you managed to gather after last night's giant irradiated kitten attack. They've been getting much worse after the evolution of the giant irradiated hamsters. Damn those furry fiends. You have your lucky penny, given to you by your grandfather's grandfather on your last trip through time, the nail you spent the last three days carefully coating in zinc (or a "galvanized nail."), and a lemon. This is all you have to power your iPod. Without your daily Kanye West, you will surely go mad. The circumstances are desperate, but you think back, and remember what Ms. Blake said that one day she gave you a lab with a really weird introduction...

Procedure:

1. Used the plastic knife and make a small cut on one side of the lemon. Insert the penny into this slit. The penny should be about halfway into the lemon. It needs to make contact with the pulp of the lemon.
2. Stick the nail into the other side of the lemon. Leave part of it sticking out.
3. Attach an alligator clip to the penny, and another alligator clip to the nail.
4. Use the voltmeter to find the voltage across the lemon. Use the negative terminal and the lowest voltage rating. Note: if the voltmeter is going negative, you need to switch the clips. The positive terminal is connected to the red terminal
 - a. Positive terminal: _____
 - b. Voltage: _____
5. Adjust the amount of metal in the lemon and see how it affects the voltage. Record your observations.
6. Team up with another team and make the following connections (we are connecting the batteries in *series*) and record the voltage across both batteries.





Conclusion:

Based on the two set-ups what can you conclude about the voltage when two power sources are connected in series?

Your lemon should have provided about 0.9 V. Did you get anywhere close to this? What might be some reasons? (human error is not an issue here, think about how a battery works)