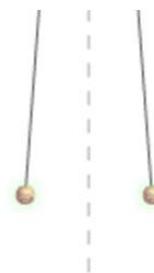
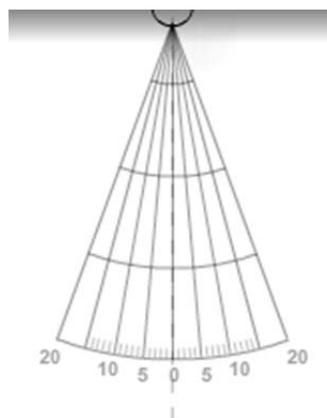


The pith balls. Hanging from the hook on the top center of the screen are two strings with pith balls at the ends. Initially, these pith balls carry no charge and hang almost straight down. But when charge is added they repel each other due to Coulomb repulsion. Whether charged or not, one of the pith balls can be moved from hook to hook by clicking and dragging on the end of the string nearest its current hook and dropping it on the other.



The protractor. On the top of the screen there is a protractor that can be moved by clicking and dragging. If the protractor is dropped onto either of the hooks, it will snap into place. To change the size of the protractor, which may be helpful in setting precise angles, use the arrow buttons on the screen.



The ruler. Below the protractor there is a ruler that can be moved by clicking and dragging on the ruler anywhere between 0 and about 35 cm. Click and dragging between 35 and 45 cm will rotate the ruler around the pivot point at zero centimeters.



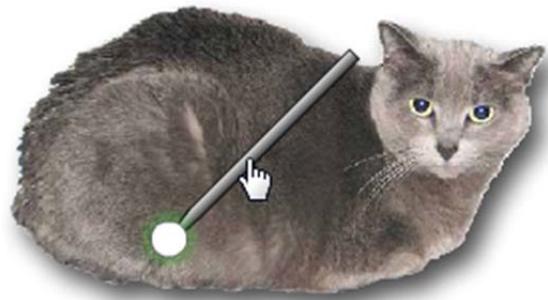
Charging rod. Roughly at the center of the screen there is a charging rod, with a metal handle and a white spherical tip. Again, this can be moved by clicking and dragging. To charge the rod, drag it back and forth over the "Charging ApparaTapus." As the rod charges, it will glow green, and the charge # collected will be displayed in the text box in the upper right hand corner of the screen. Once charged, the rod can be moved to touch and transfer all of the charge to the hanging pith balls. **Note: To transfer charge, both pith balls must both be hanging from the center hook.**



Grounding rod. To the right of the charging rod is the grounding rod which can be moved about the screen just like the charging rod. The grounding rod will remove all charge from the charging rod if it touches it. Similarly, the grounding rod will neutralize the pith balls if it comes in contact with them. (To ground the pith balls simultaneously, a second grounding rod may appear on the screen.)



Charging ApparaTapus. The large and cranky house cat on the screen is the Charging ApparaTapus. All electrostatic charge used in this lab can be collected from her fur using the charging rod.



High voltage DC power supply and plates. An electric field (visible only in this lab system) can be created using the DC power supply and the electric plates. To turn on the field, click and rotate on the knob in either direction. The polarity of the field will be determined by which direction the knob is turned. The stronger the field, the brighter the field lines will be.

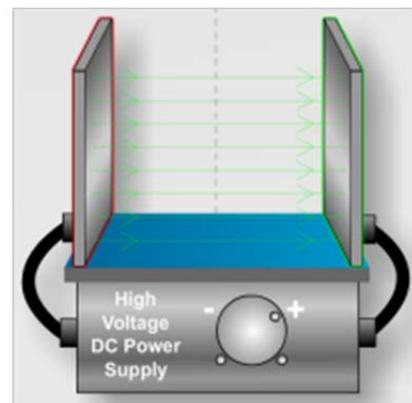


Table. There is a table in the top right corner of the lab that displays the Pith Ball Mass, the current charge on the charging rod in an arbitrary unit, and the charge on each pith ball in coulombs.

Pith Ball Mass	0.05 grams
Wand Charge #	68.5
Charge on Each Ball	$3.807e-9$ C

Snapshot. As with most of our labs, you can take a screenshot of any portion of the screen by clicking on the Snapshot icon and then clicking and dragging a box around what you want to capture. A dialog will then appear asking you what you want to call the image and where you want to save it. In most labs, a timestamp will be added to the image to keep track of it better.

