**Learning Goals:**

Students will be able to:

* Identify the variables that affect the capacitance and how each affects the capacitance.
* Determine the relationships between charge, voltage, and stored energy for a capacitor.
* Relate the design of the capacitor system to its ability to store energy.

Learning Goals for Capacitor Lab Advanced Activity: (I have not written an activity for these goals yet, because they are not part of my course. These learning goals would be addressed using the third tab: ***Multiple Capacitors*** and perhaps the PhET [*Circuit Construction Kit AC-DC*](https://phet.colorado.edu/en/simulation/circuit-construction-kit-ac))

* Determine the equivalent capacitance of a set of capacitors in series and in parallel in a circuit.
* Determine the energy stored in a set of capacitors in a circuit.
* Explore how varying the amount of dielectric material inserted between the conductors affects the function of the capacitor.
* Explain how a capacitor or set of capacitors would be used in a real world application.

**Background:**

My students will have completed a unit on static electricity and magnetism: http://jeffcoweb.jeffco.k12.co.us/high/evergreen/science/loeblein/phys\_syl/Sem2Unit3.html.

Capacitance is a small learning goal for Electricity unit, so I plan to assign this activity as homework after an introductory lecture.

[***Capacitor Lab***](https://phet.colorado.edu/en/simulation/capacitor-lab) **Introduction:**

This seems to be a very easy sim to allow students to explore without directions. There are no Tips for Teachers for this sim as of August 2011.

**Lesson:** Students will do this for homework.

**Post-Lesson:** At this time, I have not written clicker questions, but I think this is a good sim for probing students’ concepts with clickers.

**Follow-up sims:** [*Circuit Construction Kit AC-DC*](https://phet.colorado.edu/en/simulation/circuit-construction-kit-ac)has capacitors that students can use in circuits with other circuit components.