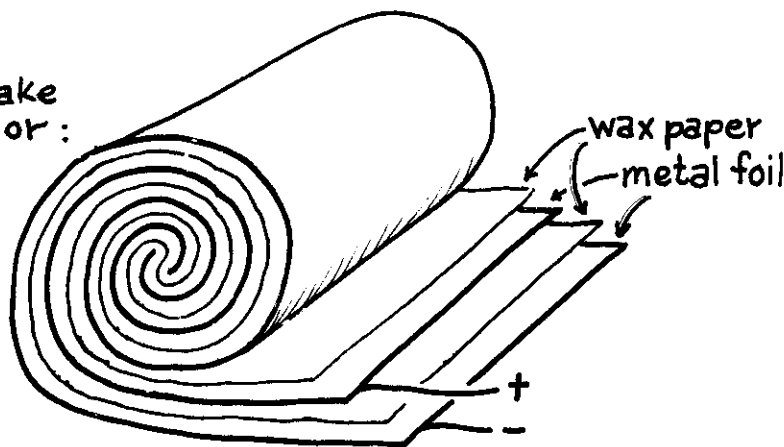


## ANSWER: ENERGY IN A CAPACITOR

The answer is: a. Where did the energy come from to make the bigger spark? Energy came from the work someone did in pulling the + plate away from the - plate. No one added any electricity to the condenser by pulling the plates apart. Instead, the work done in overcoming the mutual attraction between the oppositely charged plates in pulling them apart went into the electric field between the plates. We say the *voltage* between the plates is increased. Voltage is an electric energy potential difference, like the gravitational energy potential difference related to falling objects. In our case the electrons "fall" from the - to the + plate, so if there is more distance between the plates there is farther to fall and therefore more potential difference.

Another way to talk about this is to say the capacitance of the capacitor was decreased but the charge held constant, so the voltage increased—but that just amounts to saying what has been said in different words.

How to make  
a capacitor:



A capacitor is not like a resistor or a battery. A capacitor does not allow electric current to pass through it because the conductors are separated, so it is not like a resistor, which does allow current to pass. A capacitor does not make electric current; it must be charged, so it is not like a generator which makes current without being charged. A capacitor is not like a battery which puts out one voltage because a capacitor can be charged to have many different voltages. It is a storehouse for electrical energy.