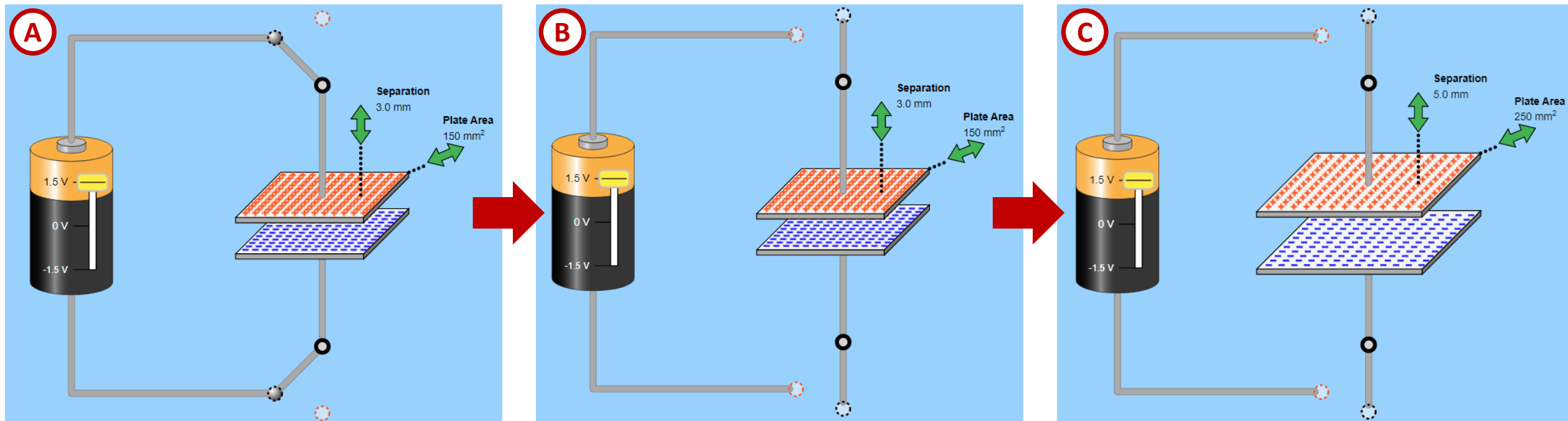


In this question you will explore the Capacitor Lab: Basics simulation to build your understanding of capacitors and the factors that influence the amount of energy stored in a capacitor.

A capacitor can either be connected to a battery or disconnected from a battery. In the following task, we will **first** load the capacitor by connecting it to the battery (A). **We refer to this as the “connected state.”** Then, **we will** disconnect the capacitor from the battery (B). **We refer to this as the “disconnected state.”** In this disconnected state we will change the shape (plate area and separation) of the capacitor (C).



Given below are the descriptions of two different connected states ( $S_1$  and  $S_2$ ) as well as the descriptions of four different disconnected states ( $D_{1A}$ ,  $D_{1B}$ ,  $D_{2A}$ , and  $D_{2B}$ ).  $D_{1A}$  and  $D_{1B}$  have been reached by loading the capacitor using  $S_1$ , disconnecting the capacitor from the battery and then changing the shape of the capacitor.  $D_{2A}$  and  $D_{2B}$  have been achieved by starting from the connected state  $S_2$ .

Use the simulation to rank the four states  $D_{1A}$ ,  $D_{1B}$ ,  $D_{2A}$ , and  $D_{2B}$  by the amount of **stored energy**. Note that the given examples cannot be directly replicated in the simulation.

