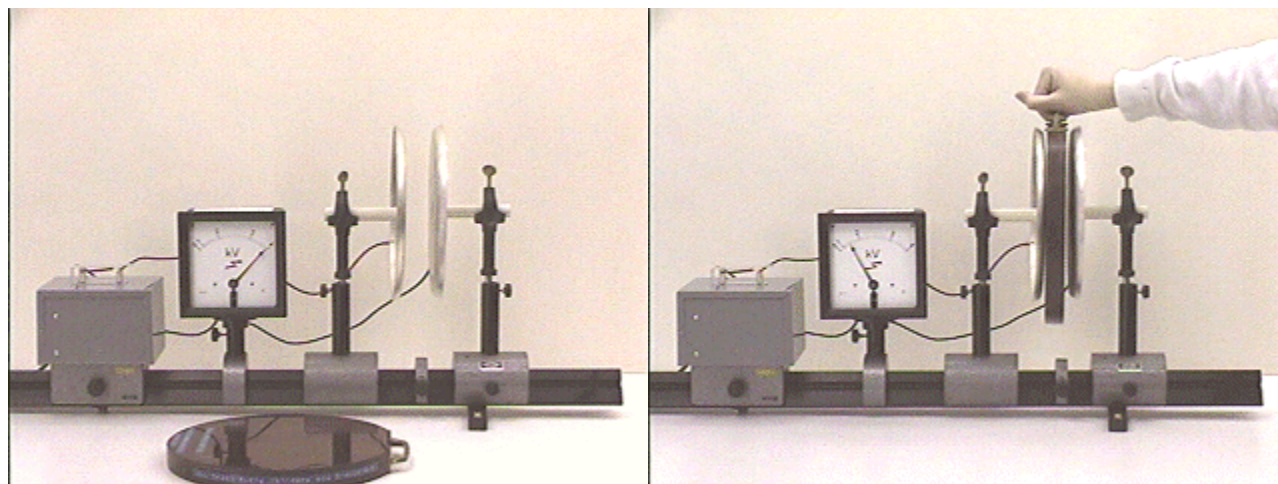


Answer #110

The answer is (b): the voltage will become lower, as seen by comparing the two photographs below.



By inserting the dielectric into the capacitor, you increase its capacitance. According to the equation for the charge stored in a capacitor, $Q = C V$, because the charge remains the same and the capacitance rises, the voltage becomes less. According to the equation for the energy stored in a capacitor, $E = 1/2 C V^2 = 1/2 Q V$, this means that a capacitor can store the same charge at a lower voltage, or equivalently, it can store more charge at the same voltage. This also indicates that the amount of energy required to store the same charge decreases when a dielectric is used. Use of a dielectric therefore increases the ability of a capacitor to store charge and therefore provides an additional way to store the energy - namely by polarization of the dielectric.

Click your mouse on the photograph at the right to see a video of the "action."

[Archive 6](#)

[Question of the Week](#)

[Outreach Index Page](#)

[Lecture-Demonstration Home Page](#)



For questions and comments regarding the *Question of the Week* contact [Dr. Richard E. Berg](#) by e-mail or using phone number or regular mail address given on the [Lecture-Demonstration Home Page](#).