

Charging an Electroscope by Conduction and Induction

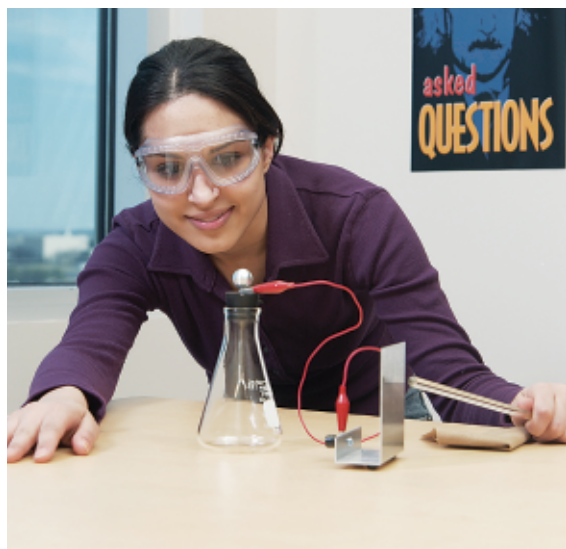
- 13.** Charge a polystyrene rod with a wool cloth, and touch it briefly against the knob of the electroscope. Record your observations.
- 14.** Touch the knob of the electroscope with your hand. Observe what happens.
- 15.** Bring a charged polystyrene rod near, but not touching, the electroscope knob. Observe what happens.
- 16.** Continue holding the polystyrene rod near the electroscope knob. Briefly touch the knob of the electroscope with your finger. Observe what happens. Remove the rod, and observe what happens.
- 17.** Discharge the electroscope by connecting a wire from it to a grounded object. Your teacher will tell you where to connect the wire.
- 18.** Charge a glass rod with a silk cloth, and repeat the procedure in steps 13–17 using the glass rod instead of the polystyrene rod.

Conductors, Insulators, and Capacitors

- 19.** Set up the apparatus as shown in **Figure 2**. (You will not use the second capacitor plate until step 22.) The insulated wire has an alligator clip at each end. One alligator clip connects to the rod beneath the ball on the electroscope. Run the insulated copper wire from the other alligator clip to one of the plates of the demonstration capacitor.
- 20.** Follow the procedure in steps 13–17, but this time bring the rod near the capacitor plate. Observe what happens to the leaves of the electroscope when the rod is brought near the capacitor plate. Record your observations.

Figure 2

Step 20: Use insulated wire to connect the electroscope to one plate of the capacitor. Touch the charged rod to the plate.



- 21.** Replace the copper wire with a piece of thread. Follow the procedure in steps 13–17, but this time bring the rod near the capacitor plate. Observe what happens to the leaves of the electroscope when the rod is brought near the capacitor plate. Record your observations.
- 22.** Connect the rod beneath the knob of the electroscope to one plate of the demonstration capacitor with a short piece of copper wire. Touch the charged polystyrene rod to the plate, and observe what happens to the leaves of the electroscope. Bring the second plate of the capacitor near, but not touching, the first. Observe what happens, and record your observations in your notebook.
- 23.** Remove the second capacitor plate. Observe what happens. Record your observations in your notebook.