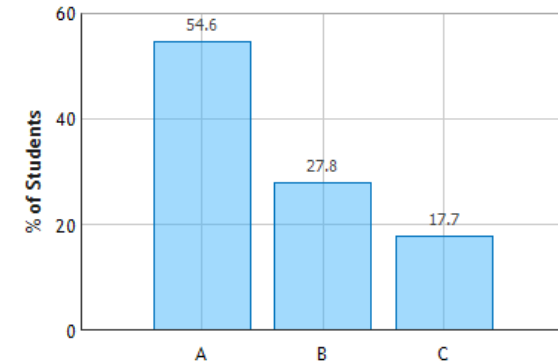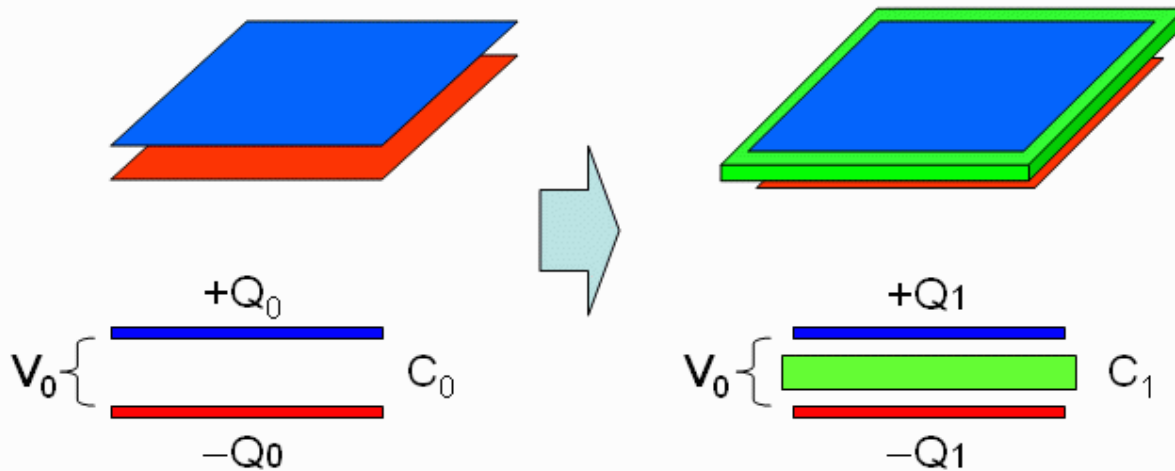Two parallel plates are given a charge Q_0 such that the potential difference between the plates is V_0. If a conductor is slid between plates, does C change?

A) $C_1 > C_o$ B) $C_1 = C_o$ C) $C_1 < C_o$

We can determine C from either case

        same V (preflight)
        same Q (lecture)

C depends only on geometry !

$$E_0 = Q_0 / \varepsilon_0 A$$

Same Q:

$$V_0 = E_0 d$$
$$V_1 = E_0(d - t)$$

$$\longrightarrow$$

$$C_0 = Q_0 / E_0 d$$
$$C_1 = Q_0 /(E_0(d - t))$$

$$\longrightarrow$$

$$C_0 = \varepsilon_0 A /d$$
$$C_1 = \varepsilon_0 A /(d - t)$$