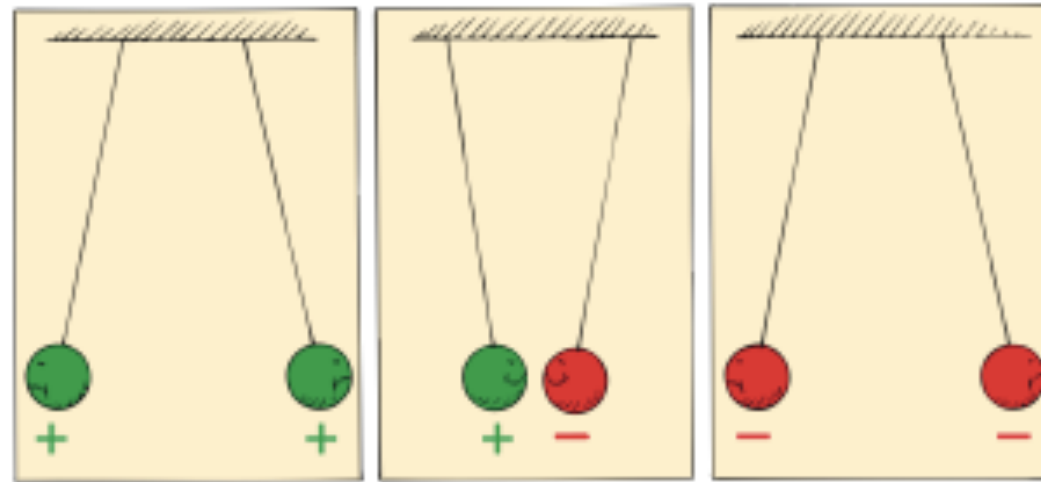# Coulomb's Law

Charges

- The fundamental rule at the base of all electrical phenomena is that *like charges repel and opposite charges attract*

- If you place two charged particles near each other, each will exert a **force** on the other.

Coulomb's Law

- We can calculate the force between charged particles using Coulomb's Law.

$$F = k \frac{q_1 q_2}{r^2}$$

- k = 9.00 * 10^9 Nm^2/C^2
- q_1 and q_2 are charges, measured in [C]
- 1 C (coulomb) is the charge of 6.24 billion billion electrons
- r = distance between the charges [m]

Ex 1: Consider two small charged objects, one with a charge of 5 C and the other of unknown charge. When they are separated by a distance of 1.2 m, each exerts a force of 2.8 N on the other. What is the charge of the second object?

Ex 2: A particle with a charge of 2.01 μC and a particle with a charge of 604 nC exert a force of 5.83 N on each other. What is the distance between the two particles?