

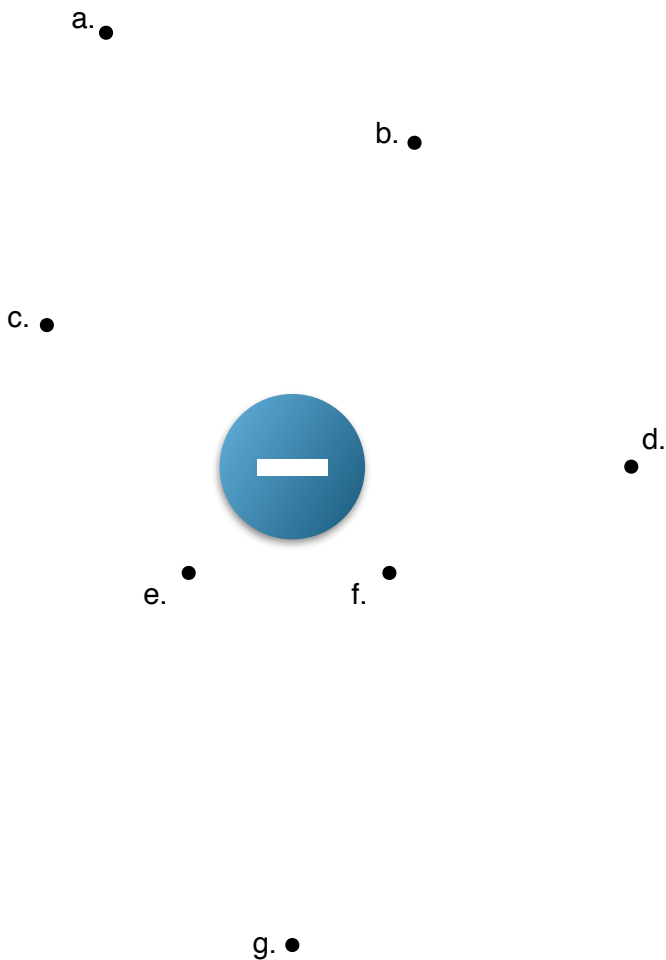
Mapping Electric Fields

An *electric field* (\mathbf{E}) is a vector field defined by the ratio of the *electric force* (\mathbf{F}_e) a charged particle feels when placed in that field and the magnitude of the *charge* (q) on that particle

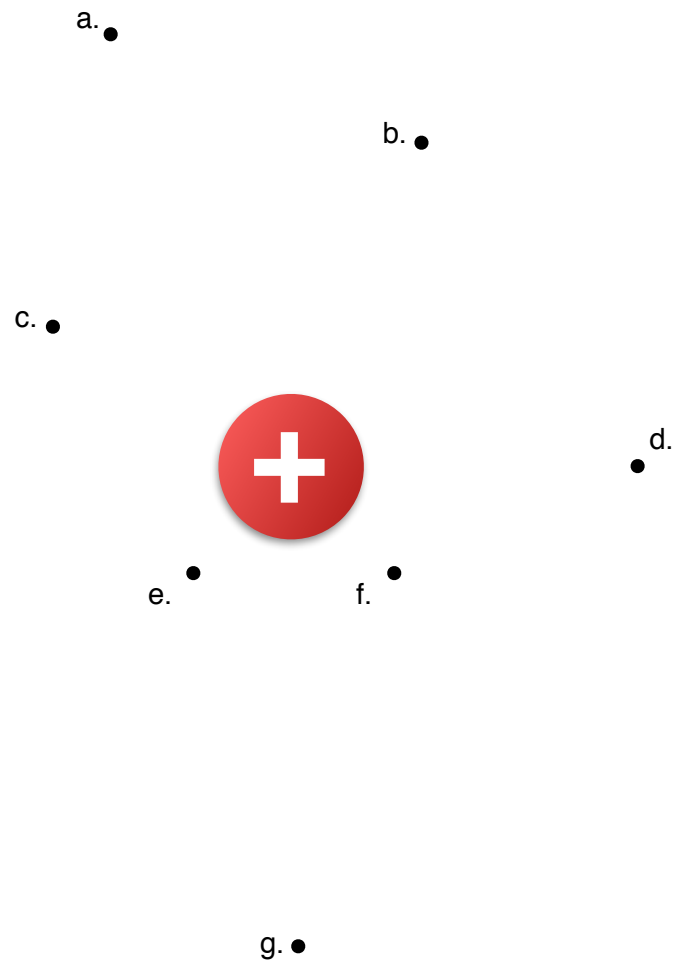
$$\mathbf{E} = \mathbf{F}_e/q$$

So a strong electric field would be measured by a strong electric force on a known charge. The electric field, being a field, lends itself nicely to maps, and, just like a weather map can show which way the wind is blowing, an electric field map shows which way a charge is pushed by an electric field. The diagrams below represent the space around different charged objects. The dots represent different points around the charged object(s) where you place a small, positive charge in order to test the electric field. At each dot, draw an arrow to represent the direction of the net electric force your positive test charge would feel.

1)



2)



3)

a. ●

b. ●

c. ●



d. ●

e. ●

f. ●

g. ●



h. ●

i. ●

j. ●

4)

a. ●

b. ●

c. ●



d. ●

e. ●

f. ●

g. ●



h. ●

i. ●

j. ●