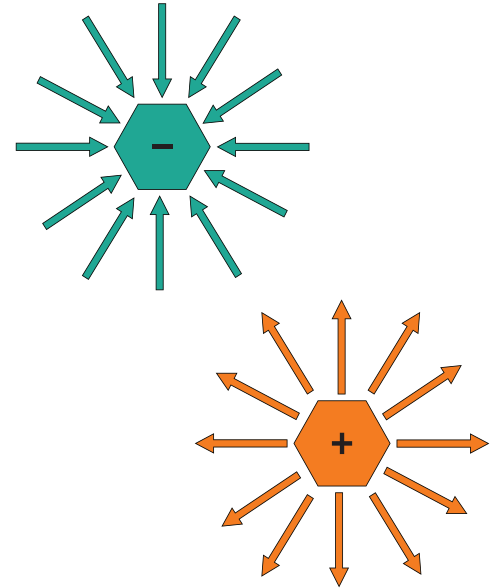


**CONCEPT** Arrange positive and negative charges in space and view the resulting electric field and electrostatic potential. Plot equipotential lines and discover their relationship to the electric field. Create models of dipoles, capacitors, and more!



## BACKGROUND

Electric field is the physical field that surrounds each electric charge and exerts force on all other charges in the field, either attracting or repelling them. Electric fields originate from electric charges, or from time-varying magnetic fields.

Electric charge is the physical property of matter that causes it to experience a force when placed in an electromagnetic field.

## EXAMPLES

- Determine the variables that affect the strength and direction of the electric field for a static arrangement of charges.
- Investigate the variables that affect the strength of the electrostatic potential (voltage).
- Explain equipotential lines and compare them to the electric field lines.
- For an arrangement of static charges, predict the electric field lines.
- Verify the prediction using vector addition.

## REAL WORLD CONNECTIONS

In daily life everybody is, to a greater or lesser degree, exposed to electromagnetic fields. Examples are the fields produced by kitchen appliances, radio transmitters and mobile phones. The use of equipment such as a Van de Graaff generator can show such electromagnetic fields. Real world applications include photocopiers, laser printers, ink jet printers, and electrostatic air filters.