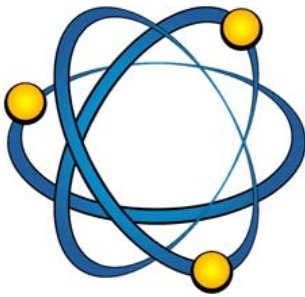


6-1 Properties of Fields

A field is a quantity that attaches a quantity to each point in space.

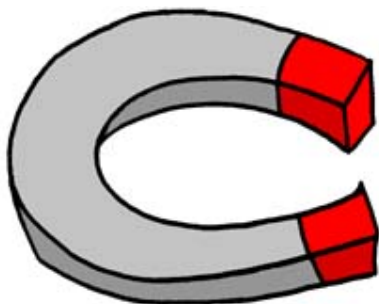
Fields add to the controversy about “action at a distance.”

6-2 Examples of Fields



Gravitational Fields

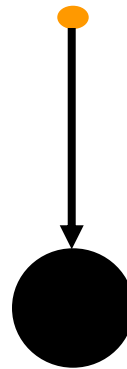
Electric Fields



Magnetic Fields

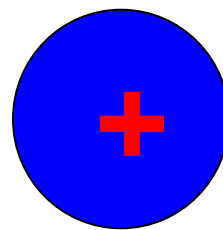
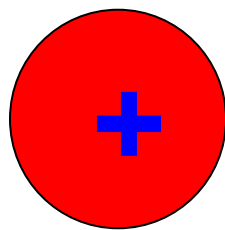
6-3 Electric Fields

A small positive test charge is placed in the electric field.



If the positive charge is attracted, the unknown charge is negative. If it is repelled, the unknown charge is positive.

When the acceleration of the positive test charge is measured, the magnitude of the unknown charge is calculated using Coulomb's Law.



6-4 Magnitude and Direction of Electric and Magnetic Fields.

Right Hand Rules

Curl the fingers of your right hand like a coil of wire is wound. The current generated by the coil will flow in the direction of your thumb.



For a current through a wire in a magnetic field, if you place your thumb in the direction of the current and spread your fingers flat in the direction of the magnetic field, the palm of your hand will push in the direction of the magnetic force on the wire.

6-5 Flow in a Field

In a field, matter flows from higher to lower potential.

Electrons flow from an accumulation of negative charge to a neutral area.



Matter falls from a higher gravitational potential to a lower

Heat flows from a hotter body to a colder.

