

Electricity Unit Outline (1/19)

I. Electricity as energy

A. Energy: ability to move something some distance **or** to produce a change

II. Charges

A. all matter made of positive (+) and negative (-) charges

B. law of charges

1. opposite charges attract
2. same charges repel

III. Electric Fields

A. electric field: force extending beyond both positive and negative charges

IV. Properties of current electricity

A. current: charges flow steadily (static: charges don't flow steadily)

B. circuit: complete path for electricity to flow

C. types of materials

1. conductors: materials through which electricity **can** flow
2. insulators: materials through which electricity **cannot** flow

V. Producing current electricity

A. turbines → generators

B. solar panels

C. batteries

1. mechanical

2. light

3. Chemical

VI. Electromagnetism (EM)

A. moving electrons make magnetic field (i.e. electromagnets)

B. moving magnetic field (through or across conductor) can create electric field. (i.e. electric generator)

IV. Electrical safety

A. household safety devices

1. circuit breakers
2. fuses (older houses)

B. lightning safety

1. indoor: paths into house [phone lines, plumbing pipes, electrical wiring]
2. outdoor: **get inside!** (or vehicle); get low, avoid tall objects