

Classroom Activities for Electrical Generation

Unit 3: Energy Production and Transmission



MATCHBOOK EXERCISE

Objective

To illustrate what it takes to produce 1 British Thermal Unit (BTU) of energy.

Activity

Hold up a matchbook, an object everyone is familiar with. Tear off 1 match and strike it while explaining that the heat content of the match is 1.25 BTUs. The entire book of matches has a total of 25 BTUs.

MODEL STEAM ENGINE EXERCISE

Objective

To demonstrate how heat energy is converted into electrical energy.

Activity

Fire-up model steam engine whose flywheel is connected to a small generator. Light bulb connected to the generator lights up when the flywheel starts to rotate.

VACUUM CLEANER BAG DEMONSTRATION

Purpose

Help demonstrate how a power plant captures fly ash.

Activity

Hold up a vacuum cleaner bag, and explain that it's similar to bags used by power plants to filter out fly ash from flue gases. Two big differences between the vacuum bag and those used by power plants is that the bags in power plants are 40 feet long and can withstand temperatures of up to 400 degrees.

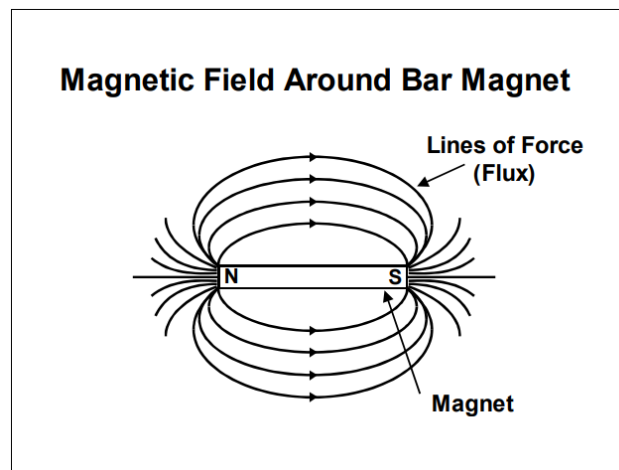
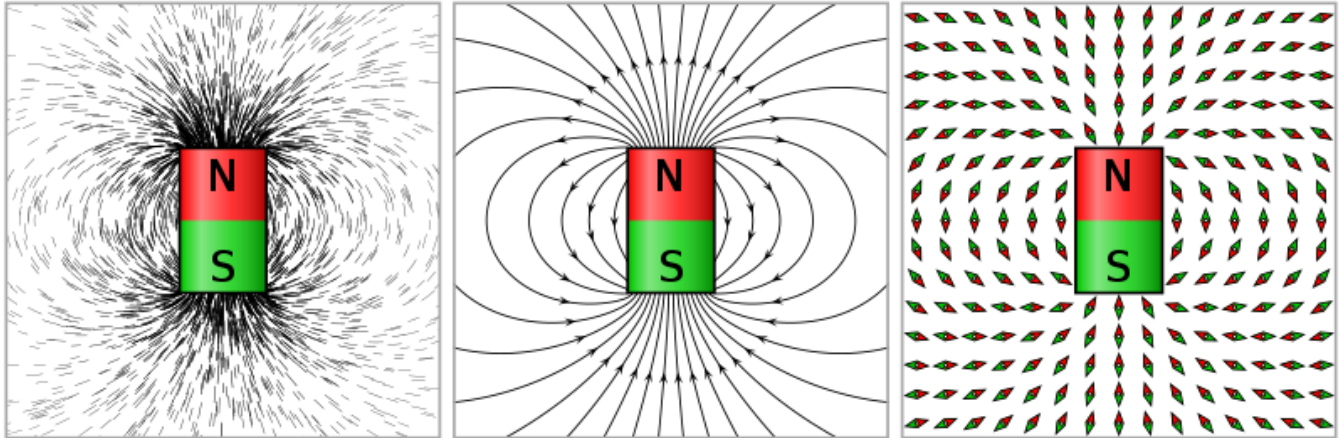
MAGNET AND IRON FILING EXERCISE

Objective

Demonstrate how bar magnet and iron filings create an electric current.

Activity

Put a bar magnet on an overhead projector and cover with a plastic sheet. Sprinkle iron filings on top of the plastic sheet to show magnetic field. Then explain that the voltage is created by passing iron through the magnetic field and explain the similarity of the process to a modern generator.



ELECTRIC SUPPLY SYSTEM

