

Magnets and magnetic fields *Dynamics first* Equipment

List

- fur or cloth (for charging rods)
- white board or large sheet of paper with markers
- plastic rods (~ 0.5" diameter by 10" long)
- magnets (bar)

Special Instructions

In addition to the equipment listed, one will need

- 6 ferromagnetic metal bars similar in size and shape to bar magnets
- pieces of cork and other assorted ferromagnetic and nonferromagnetic objects (Include a penny or other metal that will not interact noticeably with magnets.)
- 6 “pith balls” [*i.e.*, Styrofoam balls (about 1 cm diameter) covered with aluminum foil and hung from fine insulating thread (e.g., polyester).]
- 6 foil-lined cups
- 6 small metal paper clips suspended from short sticks by a thread
- 6 magnetic compasses
- small ceramic magnets (~48) that can be stacked to form a large bar magnet
- 6 enlargements of each of 3 diagrams in tutorial (See the Handouts section in this guide.)

Notes:

Cow magnets may be substituted for bar magnets.

Students enjoy playing with magnets. They may need to be encouraged not to spend too long on the first page of the tutorial. If the bar magnets are sufficiently strong, students might inadvertently change the magnetization of the compass needles; compass direction should be checked regularly.

Magnetic tape (cassette tape) and nonmagnetic metals are interesting objects for students to investigate.

Have extra pith balls available.