Demo 19-07  Right Hand Rule

The right-hand rule for magnetic field around a current-carrying wire is illustrated in this demonstration. When the right hand encircles the wire with the thumb pointing in the direction of the positive current, the fingers will point around the wire in the direction of the magnetic field lines, as shown in Figure 1.

Figure 1
We'll use this vertical copper wire to demonstrate the right-hand rule of magnetic field production.

A small compass near the wire reacts when a current runs upward in the wire. As the compass is moved in a circle around the wire, the needle shows the magnetic field is tangential to the circle at all places, and points in the direction the fingers of a right hand would curl if the thumb were pointing in the direction of the current through the wire.

Reversing the direction of the current leaves the shape of the pattern unchanged, but the field lines now point in the opposite direction,

as predicted by the right-hand rule.

**Equipment**

1. Length of copper wire passing through the center of a clear horizontal plastic plate and then having its ends attached to the opposite edges of the plate at terminal posts.
2. Appropriate electrical leads.
3. Heavy-duty switch.
4. DC power.
5. Transparent compass needle.
6. Overhead projector and screen.
7. AC power.