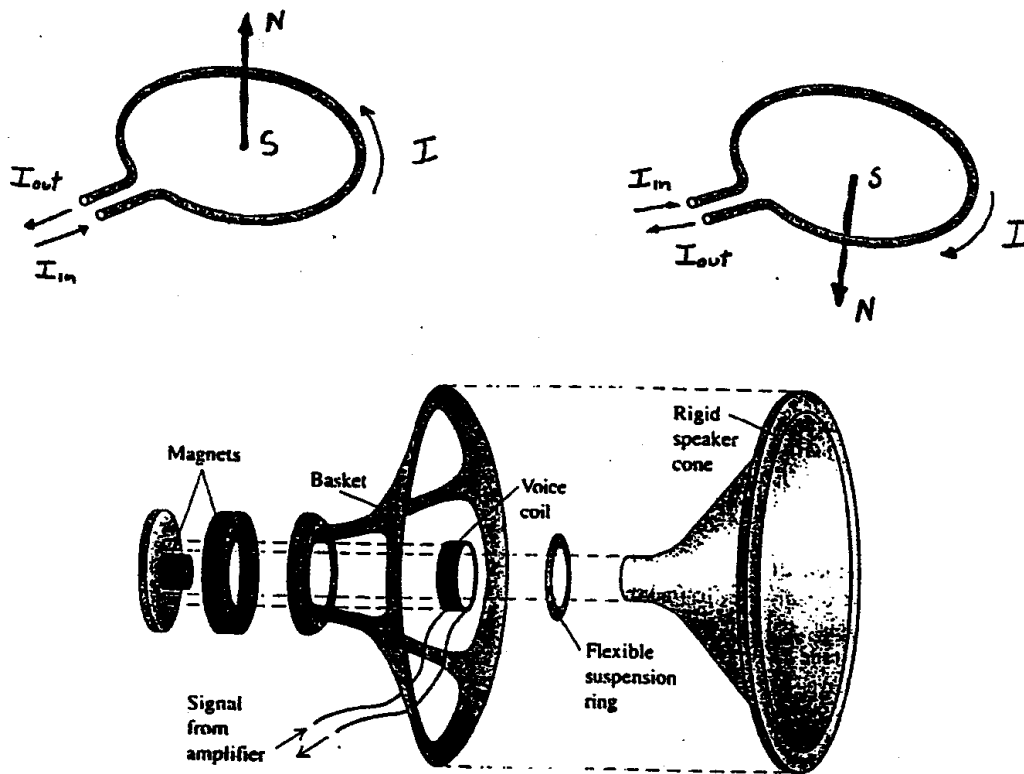


Speaker Basics

A basic speaker consists of two main parts: the **voice coil** and **cone**. The voice coil is a circular coil of wire with many turns. When a current goes through this coil, it acts like a bar magnet. The magnetic field of the voice coil reverses when the current goes the other way (as in the diagram). When the voice coil is placed near another magnet, the voice coil is attracted and repelled depending on which way the current is going in the voice coil. This is how the speaker vibrates. The music signal is carried in the current that goes through the voice coil. So, the voice coil will vibrate in a matching pattern to the music variations.

The speaker cone is attached to the voice coil. The main function of the speaker cone is to transfer the voice coil's vibrations to the air. The vibrations created produce the sounds that we hear.



(Turn over for instructions on building a speaker from a Styrofoam cup)

Building A Speaker

Materials Needed:

Wire
Magnet
Wooden Dowels (2)
Styrofoam Cup
Tape or Hot Glue
Sandpaper

1. Take a length of wire and wrap it around a round object such as a whiteboard marker. Do at least 30 tight turns. Leave at least 15 cm of wire on the ends of the coil. (There is a line at the bottom of the page to let you measure with.) These ends will be the leads to the speaker
2. Carefully tape (or hot glue) the coil to the base of the cup in a few places to hold it in place.
3. Tape (or hot glue) wooden supports across the base of the cup. You will attach the magnet to these supports.
4. Tape (or hot glue) one magnet to the wooden supports.
5. Carefully scrape the insulation off the ends of the leads using sandpaper.
6. Hook the speaker up to the stereo and listen to see if it works.

