

**Purpose:** *In this lab you will build a simple speaker. The purpose of building the speaker is to help you understand how they work and to help you learn what factors affect the operation of a speaker.*

### **Post Lab Questions**

1. What are at least 2 different ways you could improve the quality of sound from your speaker?

Increase the size of the coil. Fasten the coil to the plate more securely.

2. Does your audio device produce DC or AC? Justify your answer.

The device creates alternating current (AC). This is evident since the coil is vibrating back and forth which means the current in the coil is continuously changing.

3. Explain, in detail, how your speaker works.

The device creates alternating current (AC) which is sent to the coil. Since the coil is in a magnetic field, as the current changes different forces are applied to the coil causing the coil to vibrate back and forth with the changing current. This vibration is amplified by the plate creating sound waves.

4. You have built a motor and a generator. Is your speaker more like a motor or a generator? Justify your answer.

The speaker is more like a motor because electrical impulses on the coil cause the coil to move while it is in a magnetic field much like the armature of a motor moves in the presence of a magnetic field. .

5. Your speaker converts Electrical energy to Mechanical energy which produces sound waves. What device would you have if you operated your speaker in reverse?

A speaker operated in reverse would be a microphone. In a microphone, the plate vibrates due to sound waves which cause a magnet to move inside a coil. This changing magnetic field would create electrical pulses that flow down a wire to an amplifier where the sound is either recorded or broadcast.