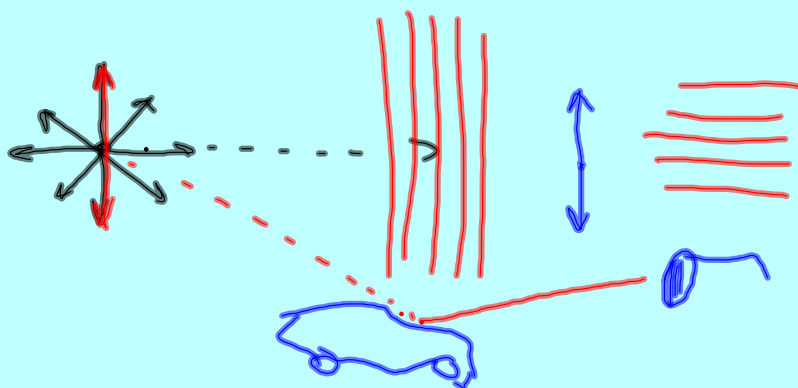


KO:

Wave
Explain what polarization is and give 2 examples.



when a transverse wave vibrates
in only plane

speaker intro

demo large speaker
Project:

Purpose: Learn about electromagnetism and sound waves by creating a home made speaker that plays music.

Materials: You **must** use a black takeout box and a speaker cone made from a Styrofoam bowl.

Other Materials Provided: neodymium magnet; magnetic wire; support for magnet; paper for cylinder; plastic wrap; hot glue

Extra Points will be awarded to improvements made to the design.

Deliverables:

1. **A working speaker (per team).** (20 pts)
2. **A 2 page typed paper per team with the following** (40pts)

Page 1:

- a. Large sketch of the magnetic field lines around the magnet (at least 3 colors).
- b. Large sketch of magnetic field lines around the coil (at least 3 colors)..
- c. Large sketch of **your** design with all parts labeled (at least 3 colors).

Page 2:

- d. **Essay of how the speaker works (at least 250 words)**
 - i. Explain the physics of how your speaker works (use terms like: magnetic field, electromagnet, current, sound wave, compression, rarefaction, transistor amplifier)
 - ii. Suggest improvements in the design.

Extra credit (up to 5 points):

1) improve your speaker design and demonstrate that it's better. (Can't just add more wire)

Feel the beat:

- play a song with mostly vocals
- play a song with a heavy beat

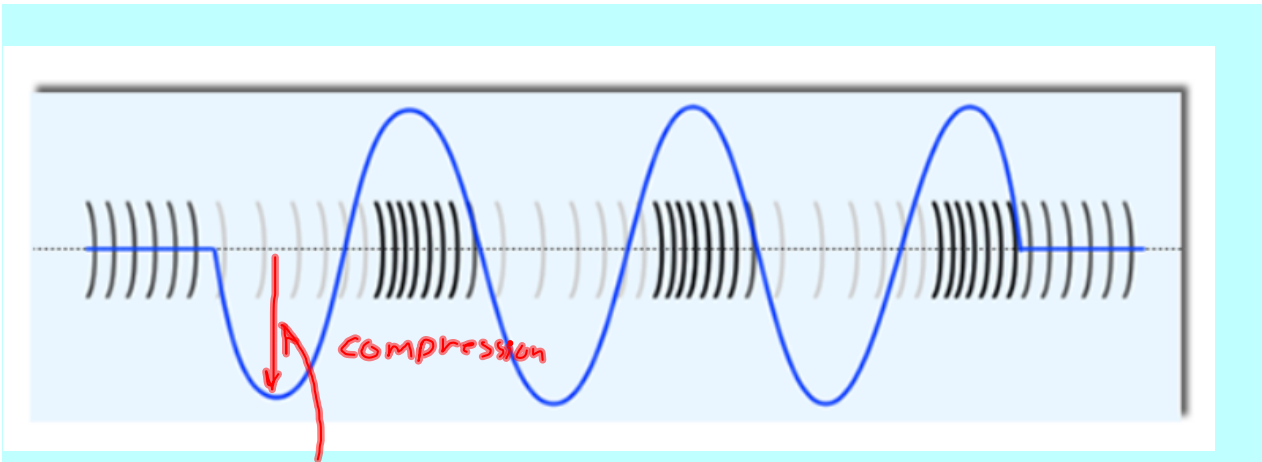
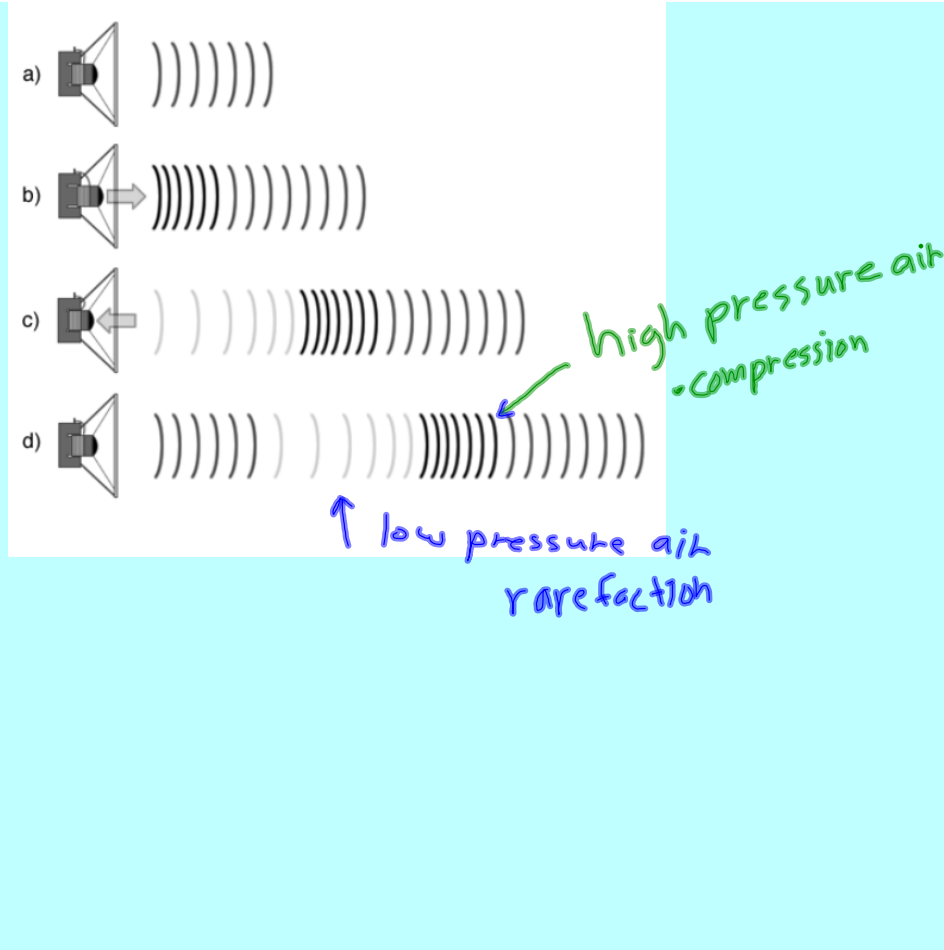
Lightly touch the speaker cone

Write down what you feel for each of the above.

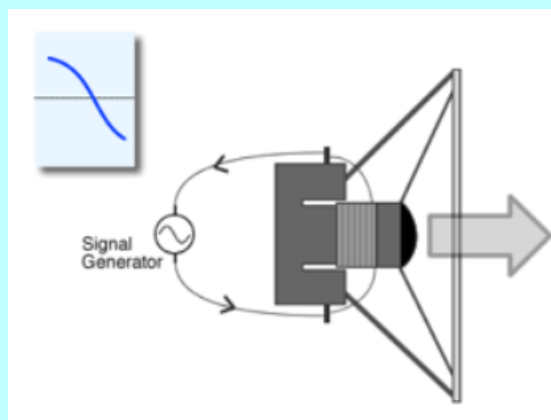
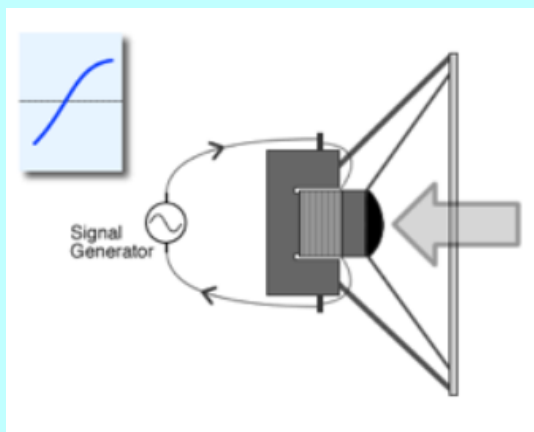
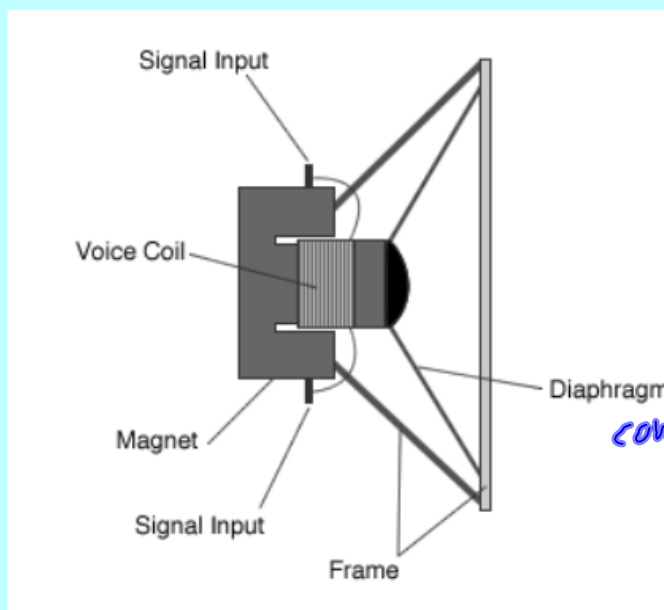
group sign ups

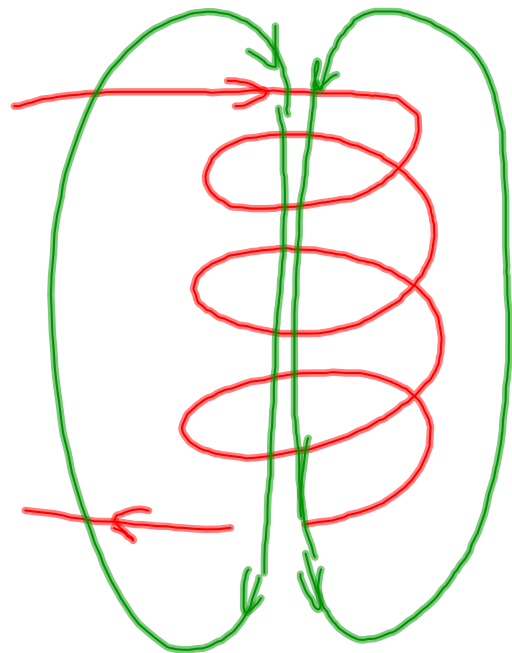
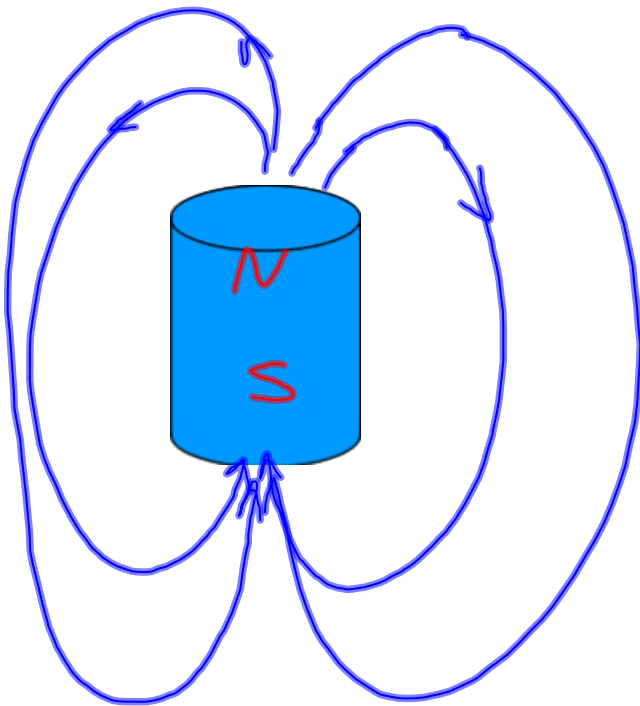
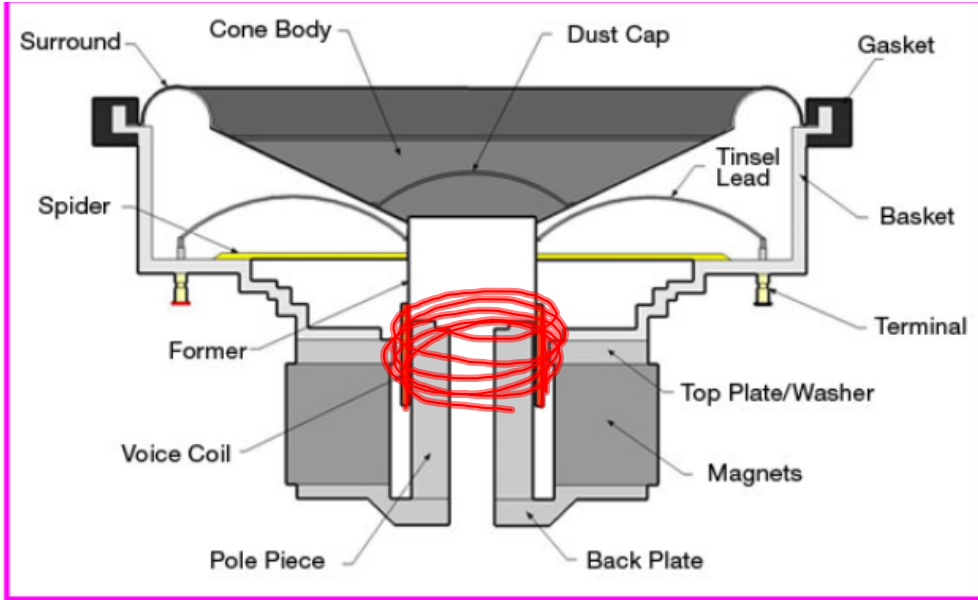
Vocals: small λ or high f

bass: air moving Large λ
See cone moving low f



amplitude: strength/power of a wave





Homemade speakers

- groups of two
- must check off each of the steps of the procedures

Need:

-- drill specialist

Speakers:

- build and test your speakers
- test your speaker with the high-power amplifier
- written assignment due a week from Friday (20 points)

-
- before you get any wire you need to get your kit off list stamped by me



