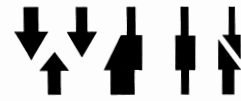


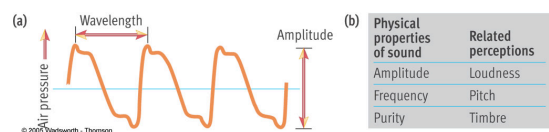
Sensation and Perception

- Chapter 4
- Sensation
- Perception



If a tree falls...?

Sound waves



Hearing Ranges

Species	Low	High
Human	20 hz	20,000 hz
Dog	67	45,000
Cat	45	64,000
Mouse	1,000	91,000
Bat	2,000	110,000
Goldfish	20	3,000
Bullfrog	100	3,000
Canary	250	8,000
Chicken	125	2,000

Piano frequencies

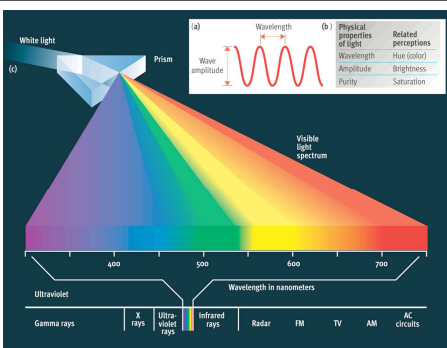
- Lowest note on piano: 28 Hz
- Middle C: 262 Hz
- A above middle C: 440 Hz (A440)
- Highest note on piano: 4,000 Hz (kHz)
- (All approximations)

Guitar Frequencies

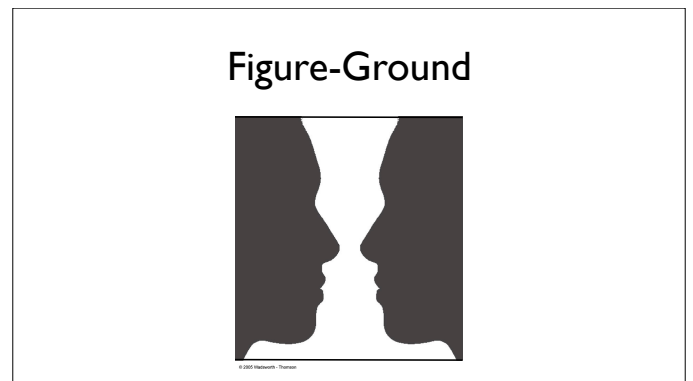
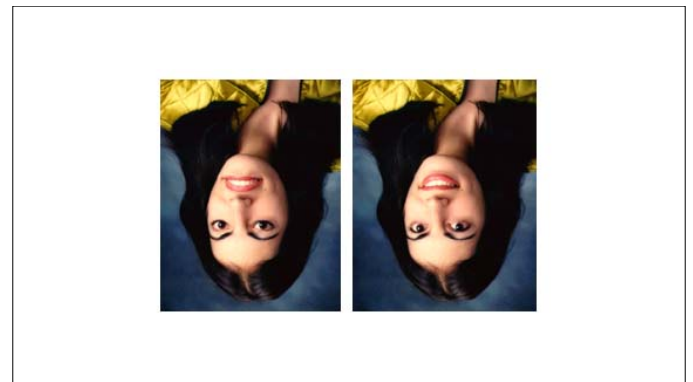
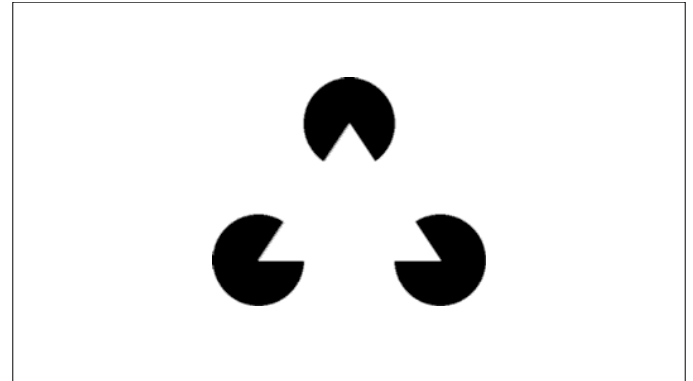
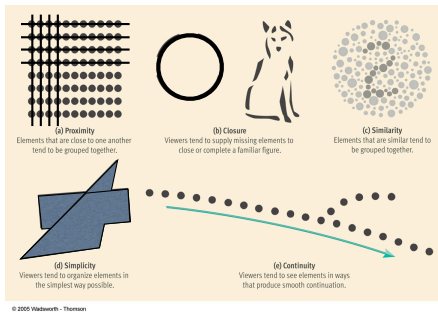
- Low E: 82 Hz
- A: 110 Hz
- D: 147 Hz
- G: 196 Hz
- B: 247 Hz
- High E: 330 Hz
- Highest note possible: approx. 1,200 Hz

High-frequency sounds

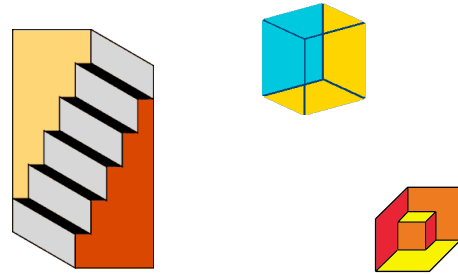
8,000 hz	16,746 hz
10,000 hz	17,742 hz
12,000 hz	18,798 hz
14,080 hz	19,916 hz
14,918 hz	21,101 hz
15,805 hz	22,357 hz



Gestalt principles



Reversible Figures

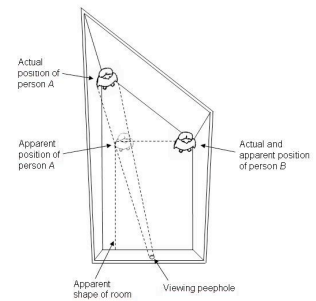


Perceptual constancies

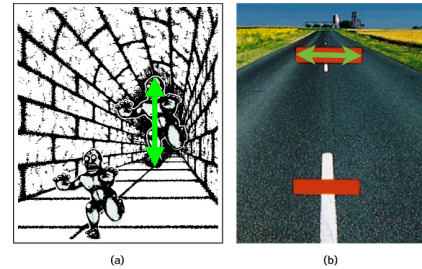
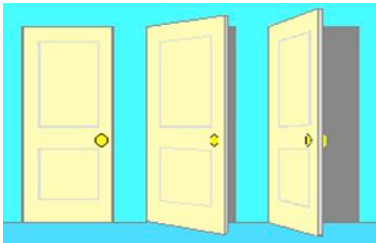
- Size constancy
- Shape constancy



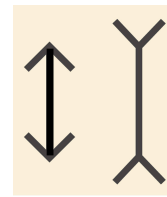
Ames Room



Shape constancy

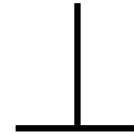


Mueller-Lyer Illusion

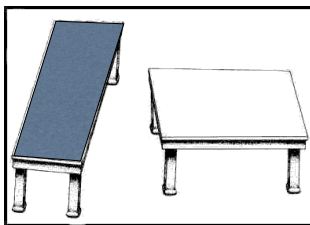




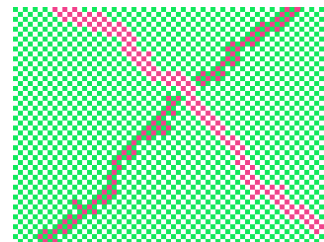
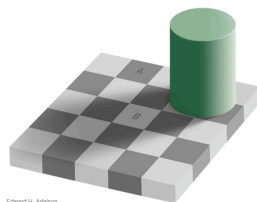
Upside-down T illusion

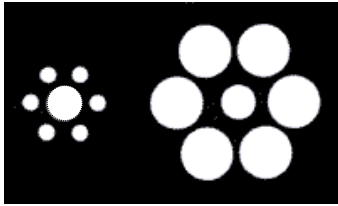


Tabletops Illusion



Contrast Effects





Depth Perception

- Monocular cues
- Binocular cues



M. C. Escher





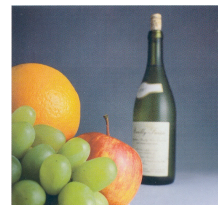
Linear Perspective



Texture Gradient



Interposition



Relative Size



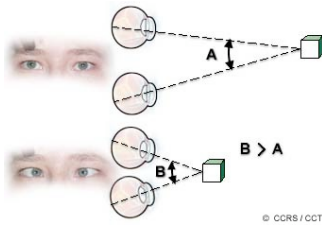
Height in plane



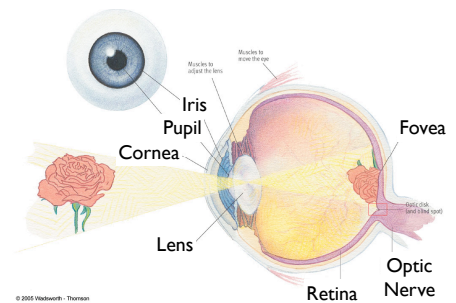
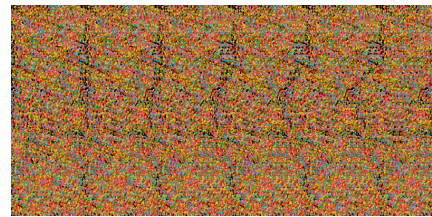
Light and Shadow

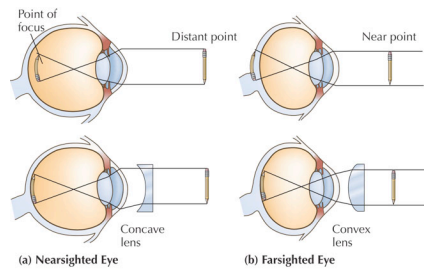


Binocular Cues

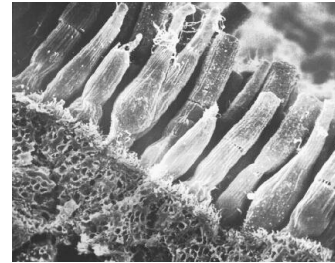


Retinal Disparity





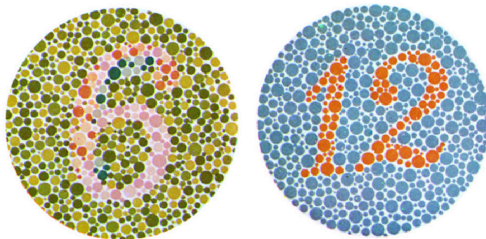
Rods and Cones



Testing indicates that a cat's vision is superior at night in comparison to humans, and inferior in daylight. Cats, like dogs and many other animals, have a tapetum lucidum that reflects extra light to the retina. While this enhances the ability to see in low light, it appears to reduce net visual acuity, thus detracting when light is abundant. In very bright light, the slit-like iris closes very narrowly over the eye, reducing the amount of light on the sensitive retina, and improving depth of field. The tapetum and other mechanisms give the cat a minimum light detection threshold up to seven times lower than that of humans. Variation in color of cats' eyes in flash photographs is largely due to the interaction of the flash with the tapetum.

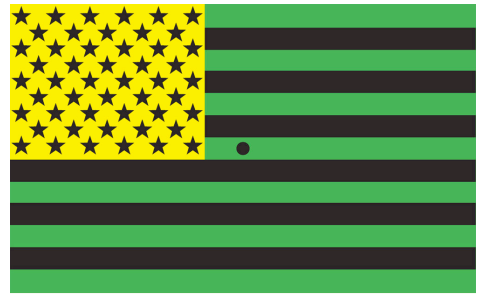
Color Vision

- Trichromatic theory
- Opponent Process theory

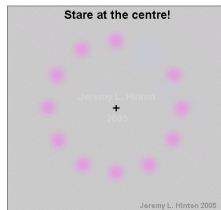


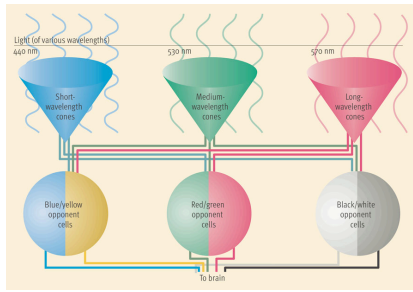
© 2005 Wadsworth - Thomson



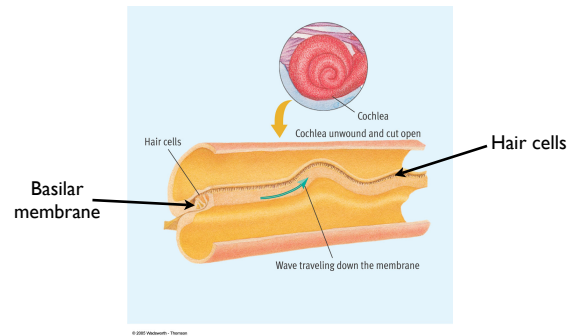
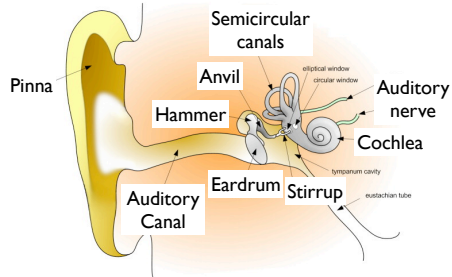
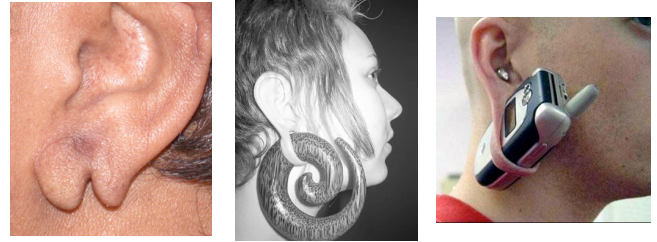


“Lilac Chaser”





Hearing



Pitch Perception

- Place theory
- Frequency theory

