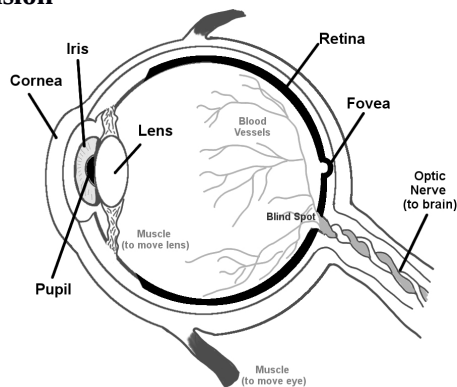


Sensation & Perception

Psychophysics

Sensation vs. Perception	Stimulation / Interpretation
Transduction	Physical → neural signal
Absolute threshold	Minimum stimulation detected 50% of the time
Difference Threshold / Just-Noticeable Difference	Minimum change in stimulation detected
Weber's Law	JND= proportion of change
Signal Detection Theory	Uncertainty: Errors; Type I (<i>false alarm</i>), Type II (<i>miss</i>)

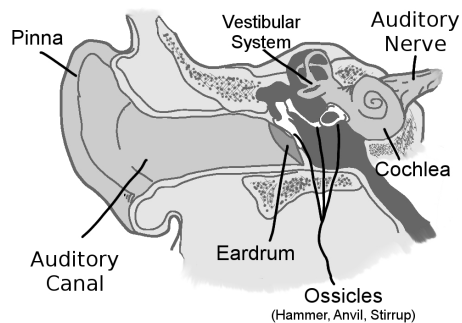
Vision



Retina	Contains <i>photoreceptors</i> ; <i>fovea</i> (all cones), <i>blindspot</i>
Rods	Light/dark; low light
Cones	Color & detail; daylight
Accommodation	Lens adjusts to focus light
Lateral Inhibition	Photoreceptors grouped into <i>receptive fields</i> for patterns not individual stimulation
Young-Helmholtz Trichromatic Theory	Cone types respond to diff. wavelengths: long (red) medium (green) short (blue)

Opponent Process Theory	Opposing pairs: Light/Dark, R/G, B/Y; explains <i>color afterimages</i>
Feature Detectors	Respond to specific features
Parallel processing	Many features processed & integrated simultaneously

Hearing



Cochlea (Latin: "snail")	<i>Stereocilia</i> in <i>basilar membrane</i> move → firing
Pitch perception	<i>Stereocilia</i> location (<i>place code</i>) & firing rate (<i>temporal code</i>)

Touch, Pain, Vestibular Sense & Kinesthesia

Thermoreceptors	Sense cold / warmth
Nociceptors	Respond to harmful stimuli
A-delta fibers C fibers	Sharp pain (myelinated) Aching pain (unmyelinated)
Gate-Control Theory	Stimulation can close "gate" for pain message
Vestibular Sense	Head position & balance
Kinesthesia	Body position / movements

Chemical Senses – Olfaction & Gustation

Olfactory Receptor Neurons (ORN)	<i>Odorant molecules</i> trigger → <i>olfactory bulb</i> → temporal lobes; no thalamus
Gustatory cells	Respond to <i>tastant molecules</i> in food: Salty, sweet, sour, bitter, umami
Taste buds	Groups of gustatory cells on <i>papillae</i> (bumps on tongue)

Perception

Sensory interaction	Senses influence each other (e.g. <i>McGurk Effect</i>)
Synesthesia	Involuntary sensory mixing
Gestalt Laws (German: "whole, form")	Closure, Proximity, Similarity, Continuity, Simplicity, Common Fate
Perceptual Set	Assumptions & expectations influence perception (e.g. <i>carpentered-world</i>)
Top-Down Processing	Context → discern details
Bottom-Up Processing	Details → discern whole
Perceptual Constancy	Size, brightness, color, shape, distance, location
Depth Cues	Monocular: linear perspective, texture gradient, interposition, shading, relative size Binocular: disparity (2 diff. views), convergence (angle of eyes) Motion: Motion parallax, optic flow
Embodied cognition	Bodily sensations influence thought & decision-making
Sensory adaptation	Constant stimulation reduces sensitivity / firing