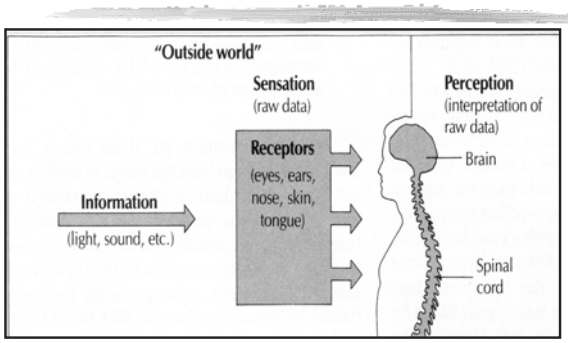
Sensation
&
Perception

Experience of the World



I. Sensation

is the process that detects stimuli from our own body or surrounding environment

I. Sensation

1. Reduction **:** filter information

2. Transduction **:** physical stimuli converted into neural impulse

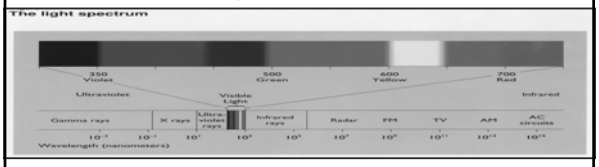
3. Coding **:** impulses travel by different routs to different parts of the brain

II. Perception

Process by which brain organizes and interprets the input form our senses into meaningful patterns

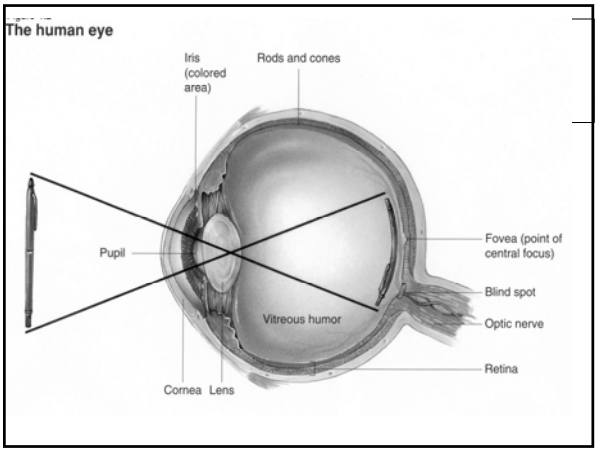
Vision

Light Waves

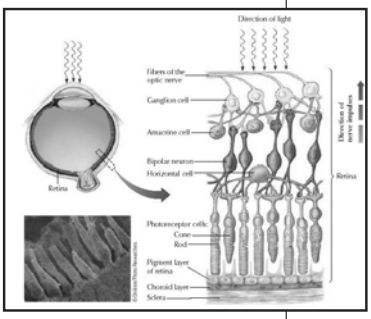


⌘Electromagnetic energy

⌘ 3 wave lengths
- short
- middle
- long

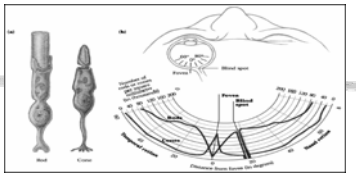


Retina:



Photoreceptors: extremely sensitive to light

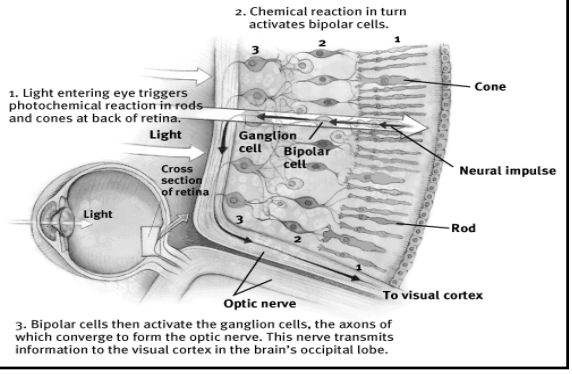
Retina



⌘Cones (~5ml)
- ⍓near center of retina (fovea)
- ⍓fine detail and color vision
- ⍓daylight or well-lit conditions

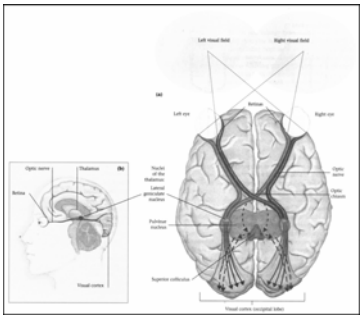
⌘Rods (~120ml)
- ⍓peripheral retina
- ⍓detect black, white and gray
- ⍓twilight or low light

Transduction

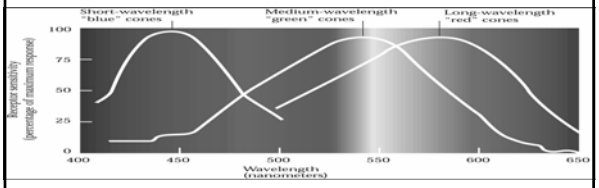


Visual Pathway

- Light
- Eye
- Retina
- Optic nerve
- Blind spot
- Optic chiasm
- Thalamus
- Visual cortex
- Association area

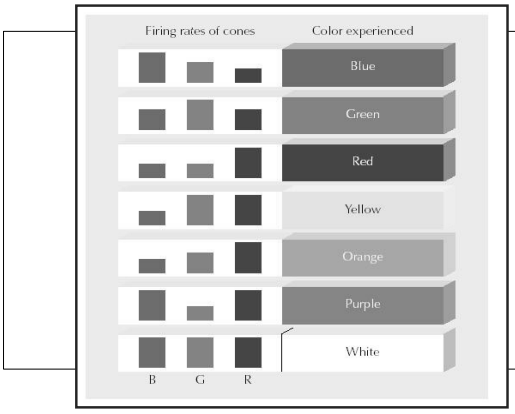


Color Vision: Trichromatic Theory

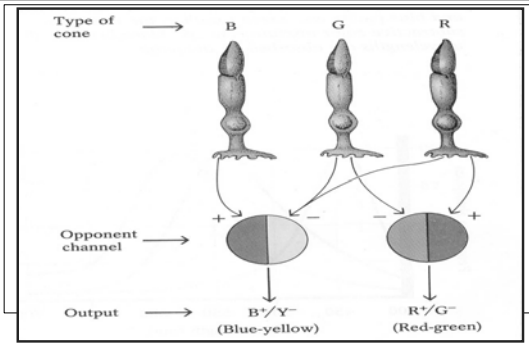


3 types of cones that are sensitive to a particular range of light wave-length:

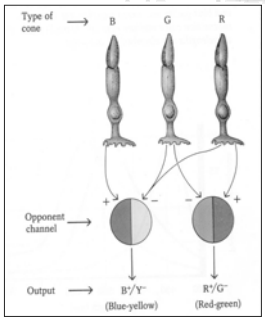
- Short: Blue
- Medium: Green
- Long: Red



Color Vision: The Opponent-Process Theory



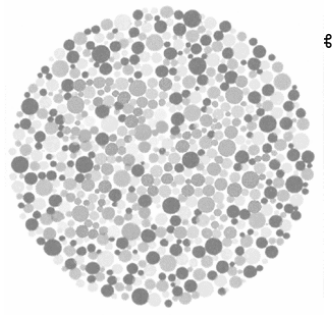
2. The Opponent-Process Theory



We code color by using 2 complimentary pairs of cones that work in pairs:

- Red/Green
- Blue/Green+Red

Color-Deficient Vision



- People who suffer red-green blindness have trouble perceiving the number within the design

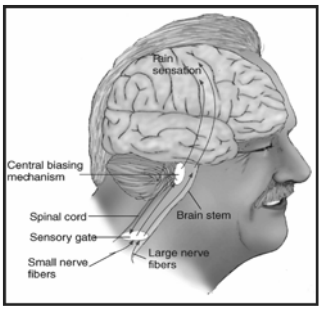
Sense of Touch: Pain

Experience of pain = Sensation + Emotion

Placebo effect

Nocebo effect

Gate-Control Theory



(Melzack & Wall):

impulses compete for entrance into the brain

Mechanism of Decreasing Pain

Neurotransmitters:

1. Substance P : "read" the pain

2. Endorphins : inhibit the release of substance P