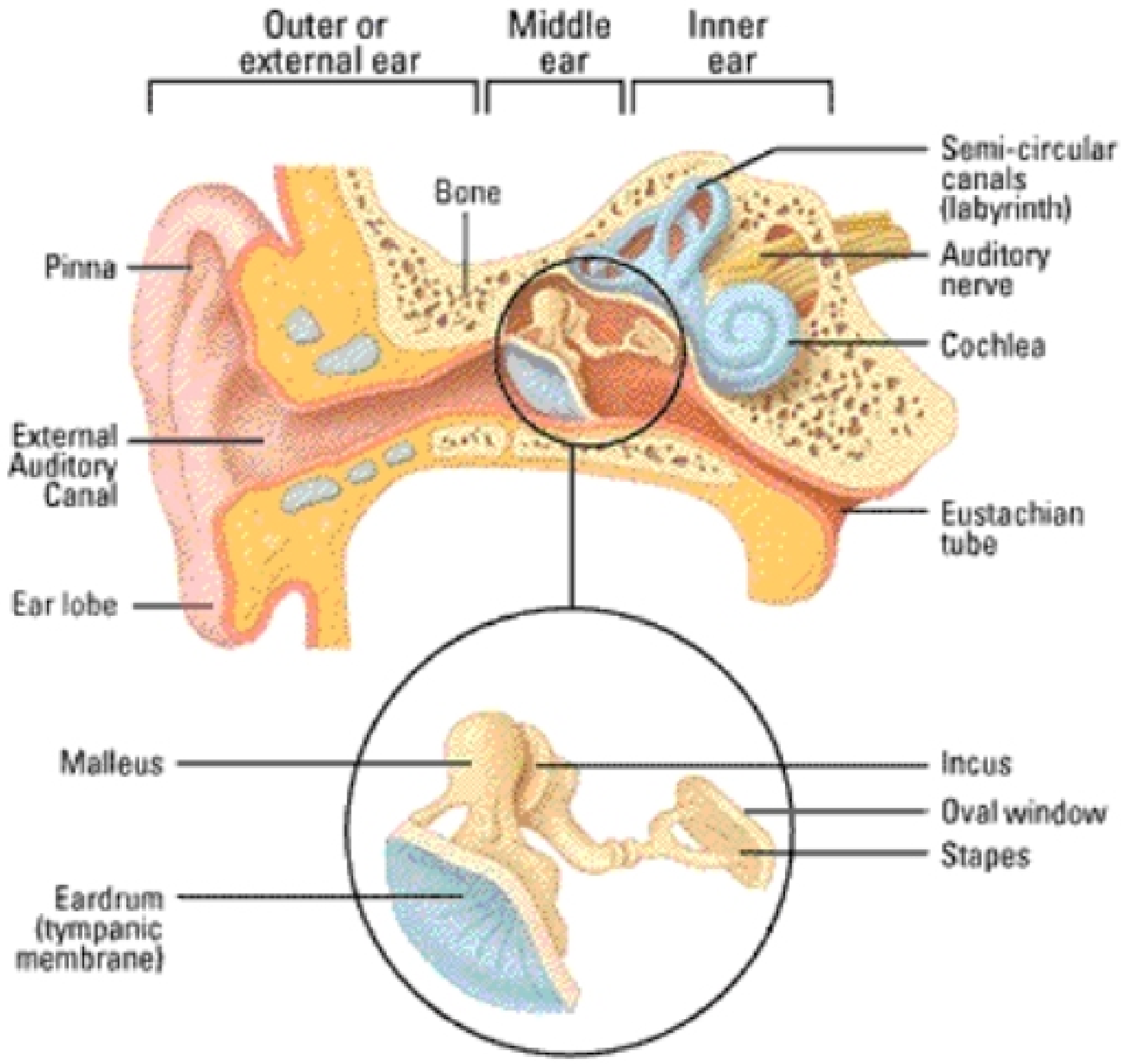
Color Vision and Color Blindness

- Person with normal color vision is able to distinguish no less than 7mil. different colors
- Approx. 50 in 5000 and 1 in 5000 women are color blind
- **Color Blindness** -
    - Red-Green
    - Yellow-Blue
    - No Color
- **Trichromatic theory of color vision:** Three kinds of cones exist in the retina (one most responsive to blue-violet, one to green, and one to yellow-red)
- Afterimage - Occurs because activity in the retina continues even when you are no longer staring at the original picture
    - Demonstrates the Trichromatic Theory does not explain color vision completely
- **Opponent-Process theory of color vision**: Receptor cells are linked in pairs (blue-yellow, red-green, and black-white), working in opposition to each other

Reflect: I feel like I've seen this video before. It is interesting to hear from someone who can make some sense of the differences of color in between humans, their perspective of color.

The Ear

- Outer ear
    - Auditory canal
    - Eardrum
- Middle Ear
    - Malleus (hammer)
    - Incus (anvil)
    - Stapes (stirrup)
    - Oval window
- Inner ear
    - Cochlea
    - Semicircular canals



Sensing Sound

- **Vestibular Senses** - The Sensations of body rotation and of gravitation and movement arise in the inner ear; the sense organs are the **cilia** (hair cells) that send out signals over the auditory nerve.
- **Semicircular canals**: Movement of fluid here affects our sense of balance

Smell (Olfaction)

- Molecules enter the nasal passages and pass over *olfactory cells*; responses are sent to brain, where they are combined into recognition of particular smell

Taste (Gustation)

- Taste buds respond to four basic stimulus qualities:
  - Sweet, sour, salty, and bitter (possible 5th - Umami)
- Taste buds wear out and are replaced about every 10 days; constantly reproducing

Touch

- The skin is the main organ of the sense of touch and the largest organ in your body weighing 6-10 lbs.
- Detects pressure, temperature, and pain
    - Pressure of an object allows identification when the object can't be seen
    - Temperature and pain play critical roles in survival, making us aware of potential danger to our bodies
    - Sensitivity to pain may be inherited as certain genes were found to be linked to the experience of pain

Pain

- **Pain** is a perceptual response that depends heavily on emotions and thoughts
    - Plays a critical role in survival, making us aware of potential danger to our bodies
    - Skin senses are identified as touch, pressure, temperature, and pain
    - Sensitivity to pain may be inherited as certain genes were found to be linked to the experience of pain

The skin senses

- **The Gate Control Theory of Pain**
    - The theory that particular nerve receptors lead to specific areas of the brain related to pain
    - Masking the pain

Perceptual Organization

- Learning outcomes
    - Explain the gestalt laws of organization
    - Identify top-down and bottom-up processing
    - Define perceptual constancy
    - Explain depth perception
    - Relate motion perception to daily life
    - Determine the importance of perceptual illusions
- **Figure-Ground organization**: We usually perceive objects as a figure standing out against a background

The Gestalt Laws of Organization

- Principles that describe how e organize pieces of information into meaningful wholes (Gestalts = Patterns)
    - Closure
    - Proximity
    - Similarity
    - Simplicity