

## Chapter 3

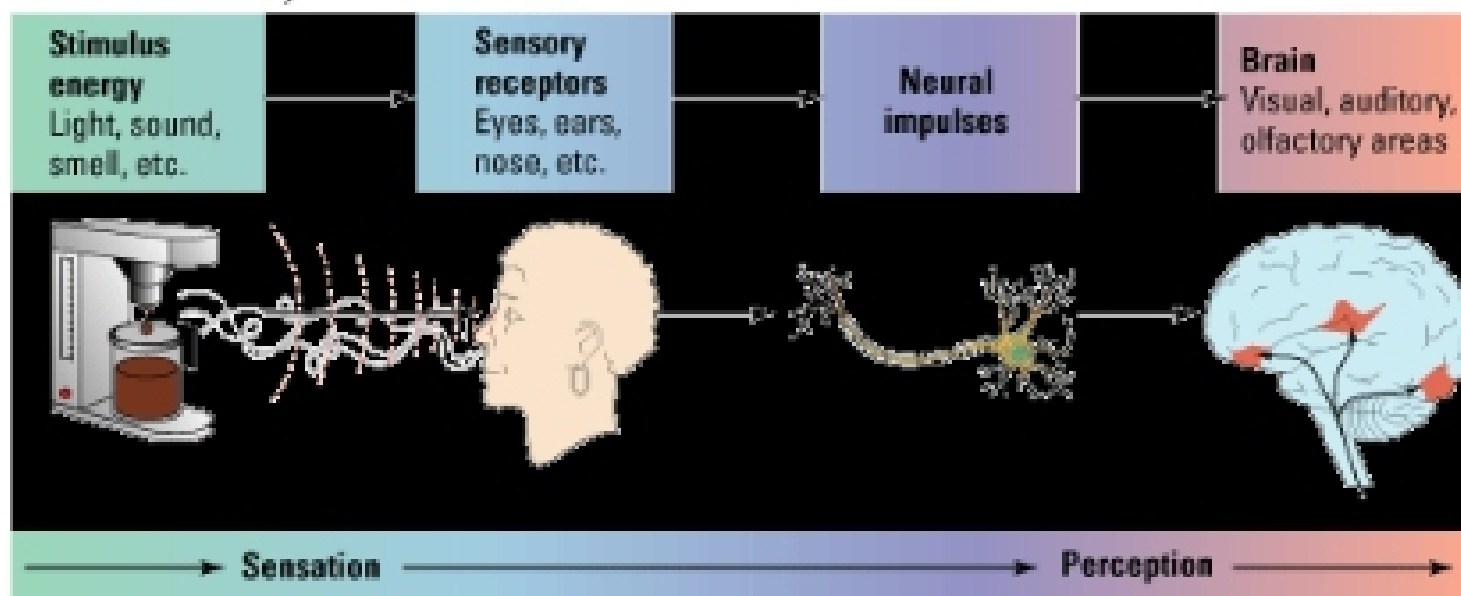
### Sensation and Perception

**2/17/2010**

#### I. Sensation

**A. Sensation** – the activation of receptors in the various sense organs.

1. **Sensory receptors** – specialized forms of neurons within the sense organs.
2. **Sense organs**
  - a) *eyes*
  - b) *ears*
  - c) *nose*
  - d) *skin*
  - e) *taste buds*



Everything up to the neural impulses is sensory information. Once it reaches the brain it becomes perception.

**B. Sensory Thresholds** – when we notice something happened.

1. **Just noticeable difference (JND)** – or the difference threshold – the smallest difference between two stimuli that is detectable 50 percent of the time.

- a) **Weber's Law** – *JND is a constant proportion of the original stimulus intensity. (One of very few actual laws in psychology)*
- i. Taste difference is 20%; weight difference is 0.2%; loudness difference is 10%

2. **Absolute threshold** – the smallest amount of energy needed for a person to consciously detect a stimulus 50 percent of the time it is present.
- i. How bright of a light; how loud of a sound; how intense a flavor before you notice?

#### EXAMPLES OF ABSOLUTE THRESHOLDS

Sight	A candle flame at 30 miles on a clear, dark night.
Hearing	The tick of a watch 20 feet away in a quiet room.
Smell	One drop of perfume diffused throughout a three-room apartment.
Taste	One teaspoon of sugar in two gallons of water.
Touch	A bee's wing falling on the cheek from 1 centimeter above.

### 3. Subliminal sensation

- a) **Subliminal stimuli** – *stimuli that are below the level of conscious awareness. (below absolute threshold)*
- i. Just strong enough to activate the sensory receptors but not strong enough for people to be consciously aware of them.
  - ii. Sub – “below”
  - iii. Limen – “threshold”
- b) **Subliminal perception** – *process by which stimuli below the threshold of awareness act upon the unconscious mind, influencing motivation and attitude (but not behavior)*

## C. Habituation and Sensory Adaptation

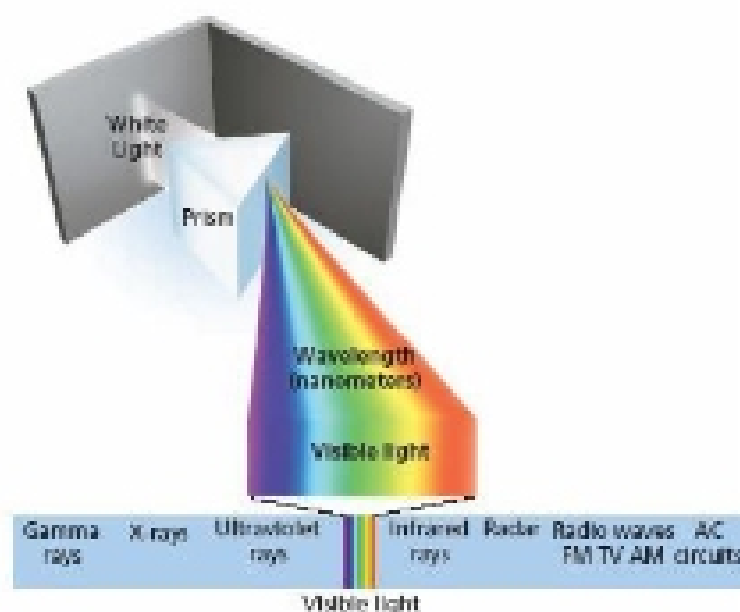
1. **Habituation** (bored) – tendency of the brain to stop attending to constant, unchanging information.
- a. Daydreaming in class is an example.
  - b. This is the reason babies tend to pay more attention to new things than things they have seen many times.
2. **Sensory adaptation** – tendency of sensory receptor cells to become less responsive to a stimulus that is unchanging.
- a. The sense of smell adapts the quickest.

3. **Microsaccades** – constant movement of the eyes, tiny little vibrations that people do not notice consciously; prevents sensory adaptation to visual stimuli.

## II. The Science of Seeing

### A. The Electromagnetic Spectrum

1. **The Visible Spectrum** – The wavelengths can see are only a small part of the electromagnetic spectrum.
  - a. Long waves (700 nanometers) seen as red
  - b. Short waves (400 nanometers) seen as violet
  - c. Longer waves are considered hot colors because they are closer to the waves that can burn (Infrared etc.)



### B. Psychological Aspects of Light –can quantify (measure) the psychological aspects of light

1. **Brightness** – determined by the amplitude of the wave-how big is the wave. The bigger the wave, the brighter it will appear.
2. **Color** – or hue, is determined by the length of the wave.
  - a. Long wavelengths are found at the red end of the visible spectrum, whereas shorter wavelengths are found at the blue end.
3. **Saturation** – refers to the purity of the color people see; mixing in black or gray would also lessen the saturation.