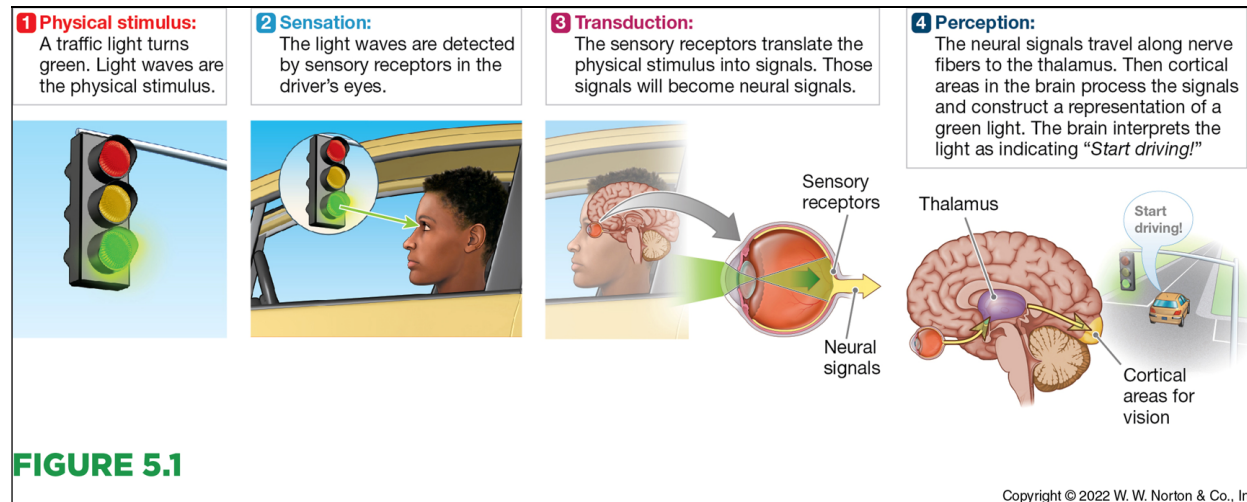


## From Sensation to Perception



### Sensation

The process of detecting a stimulus, such as

- light waves (vision),
- sound waves (hearing),
- chemical molecules (smell and taste),
- heat or pressure (touch).



### Perception

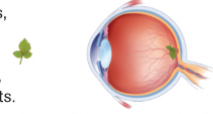

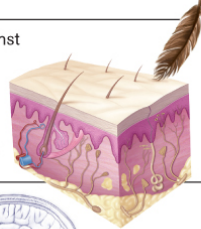
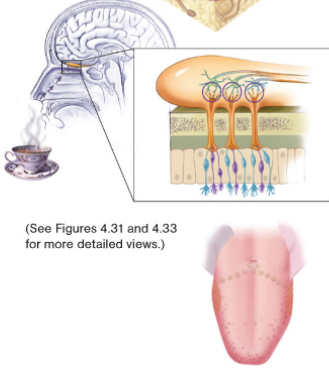
The process of integrating, organizing and interpreting sensations.



This chapter is about detection what is in our environment (sensation) and determining what it is (perception). Part of determining what it is, is determining if what we perceive is a threat to survival to avoid, or something that is helpful for survival and approach.

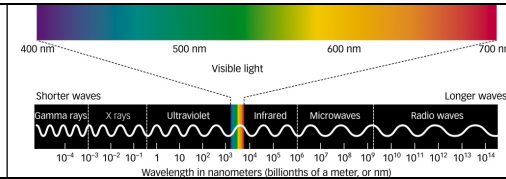
## The Basic Senses and What They Detect

TABLE 4.1

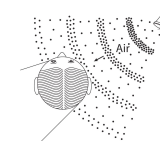
| Transduction   |   |  |
|--|---|--|
| The five senses convert physical energy from the world into neural energy, which is sent to the brain. |   |  |
| Sense  | Sensory Input   | Conversion into Neural Energy                        |
| Vision   | Light reflected from surfaces, for example from a leaf, provides the eyes with information about the shape, color, and positions of objects.<br> | (See Figure 4.4 for a more detailed view.)           |
| Audition (hearing)   | Vibrations (from a guitar string, perhaps) cause changes in air pressure that move through space to the listener's ears.<br>                     | (See Figure 4.27 for a more detailed view.)          |
| Touch  | Pressure of a surface against the skin signals its shape, texture, and temperature.<br>  | (See Figure 4.30 for a more detailed view.)          |
| Taste and Smell  | Molecules dispersed in the air or dissolved in saliva reveal the identity of substances that we may or may not want to eat.<br>                 | (See Figures 4.31 and 4.33 for more detailed views.) |

### What do we detect?

#### Light waves



#### pressure waves



## Wave properties and their relation to perception

TABLE 4.3

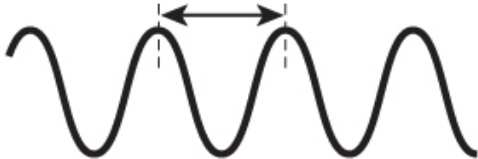


| Properties of Light Waves  |                                  |
|--|----------------------------------|
| Physical Dimension   | Psychological Dimension          |
| Length<br>    | Hue or what we perceive as color |
| Amplitude<br> | Brightness                       |
| Purity<br>  | Saturation or richness of color  |

Image source: Psychology (2011), Schacter et al.

**TABLE 4.4**

**Properties of Sound Waves**







|  |   |  |
|--|---|--|
| <b>Frequency</b><br>Corresponds to our perception of pitch.    |  <p>Low frequency<br/>(low-pitched sound)</p> |  <p>High frequency<br/>(high-pitched sound)</p> |
| <b>Amplitude</b><br>Corresponds to our perception of loudness. |  <p>High amplitude<br/>(loud sound)</p>       |  <p>Low amplitude<br/>(soft sound)</p>          |
| <b>Complexity</b><br>Corresponds to our perception of timbre.  |  <p>Simple<br/>(pure tone)</p>               |  <p>Complex<br/>(mix of frequencies)</p>       |

Image source: Psychology (2011), Schacter et al.

## Sensory Processes

There are some basic concepts that psychologists use when talking about the sensitivity of the senses ([pages 182-84](#))

- Sensory adaptation: A decrease in sensitivity to a constant level of stimulation of sensory receptors ([page 184](#)). The definition I generally use is the decline in sensitivity to a constant stimulus. Therefore, a stronger stimulus is required to activate the senses.

| Smell  | Touch  | Hearing   | Taste  | Vision   |
|--|--|---|--|--|
|  |  |  |  |  |

## **Sensory Adaptation**

How does sensory adaptation help us understand the world around us?

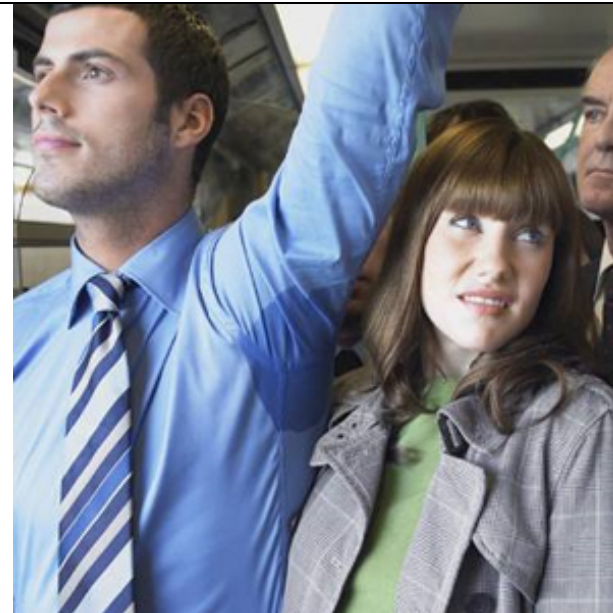


Image source: unknown



## Sensory Adaptation

How does sensory adaptation help us understand the world around us?



Image source: unknown