Perception

- **selective attention** – the focusing of conscious awareness on a particular stimulus, as in the *cocktail party effect*
  - our senses take in 11,000,000 bits of information per second, of which we consciously process about 40.

- **perceptual illusions** – often reflect vision's preeminence among our senses
  - **visual capture** – the tendency of vision to dominate the other senses (speakers in a movie theater)

I. Perceptual Organization
- humans organize sensations into a **gestalt** – an organized whole; our tendency to integrate pieces of information into meaningful wholes

A. Form Perception

1. **Figure-ground** – the organization of the visual field into objects (*figures*) that stand out from their surroundings (*ground*); this is done first

2. **Grouping** – the perceptual tendency to organize stimuli into coherent groups (color, movement)

a. **proximity** – grouping nearby figures together

b. **similarity** – figures similar to each other are grouped together

c. **continuity** – we perceive smooth, continuous patterns rather than discontinuous ones

d. **connectedness** – when uniform and linked, we perceive spots, lines, or areas as single units

e. **closure** – we fill in gaps to create a complete, whole object

B. **Depth Perception** – the ability to see objects in 3-D although the images that strike the retina are 2-D; allows us to judge distance

- **visual cliff** – a device for testing depth perception in infants and young animals
  - biological maturation predisposes our wariness of heights; experience amplifies it

1. **Binocular cues** – *depth cues* that depend on the use of two eyes (two pen example)

a. **retinal disparity** – by comparing images from both eyes, the brain computes distance; the greater the disparity (difference) between two images, the closer the object.
   - retinas receive slightly different images of world b/c our eyes are 2.5 inches apart
   - the floating-finger-sausage example

b. **convergence** – the extent to which the eyes look inward when looking at an object
   - the more the inward strain, the closer the object

2. **Monocular cues** – *distance cues* available to either eye alone

a. **interposition** – if one object partially blocks our view of another, we perceive it as closer

b. **relative clarity** – we perceive hazy objects as farther away than sharp, clear objects

c. **relative height** – objects higher in our field of vision are perceived as farther away

d. **relative motion** – as we move, objects that are actually stable may appear to move

e. **linear perspective** – parallel lines appear to converge with distance

C. **Motion Perception**

- the brain computes motion based partly on its assumption that shrinking objects are retreating (not getting smaller) and enlarging objects are approaching

- the brain interprets a rapid series of slightly varying images as continuous movement – called *stroboscopic movement*

- **phi phenomenon** – an illusion of movement created when two or more adjacent lights blink on and off in rapid succession

D. **Perceptual Constancy** – perceiving objects as *unchanging* (having consistent lightness, color, shape, and size) even as illumination and retinal images change

1. Shape and Size Constancies
   - example: a door

2. Lightness Constancy – we perceive an object as having a constant lightness even while its illumination varies

II. Perceptual Interpretation

A. Sensory Deprivation and Restored Vision

- formerly blind patients often cannot recognize by sight objects that are familiar by touch

- there is a *critical period* for normal sensory and perceptual development; experience guides and sustains the brain's neural organization
  - kittens raised in darkness experiment (horizontal vs. vertical environments)

B. **Perceptual Adaptation** - in vision, the ability to adjust to an artificially displaced or even inverted visual field
- ex: getting new prescription glasses; experiments in which subjects are given radical glasses
  - humans are able to adapt to such perceptual shifts

C. **Perceptual Set** - a mental predisposition to perceive one thing and not another
- based on our experiences, assumptions, learning, and expectations

- we see the world based on what is important to us
  - ex: children's drawings of people

- in sum: our river of perception is fed by two streams, sensation and cognition