PERCEPTION

Our Brain’s Interpretation of Sensory Inputs
Perception Definition

- The method by which the sensations experienced at any given moment are interpreted and organized in some meaningful fashion.
How does our brain organize what we’ve just sensed?

• We rely on…
  1. sensory information
  2. What just happened before we sensed (context)
  3. What we remember in our past

…to help us make sense of our surroundings
Perceptual Constancy

- Perceiving stimuli consistently across varied conditions
  - Our brain can correct minor changes in a scene to let us know it’s still the same object/scene
  - Prevents daily confusion

- Shape Constancy:
Perceptual Constancy

- **Size Constancy**
  - Ability to perceive objects as same size no matter how far away
Perceptual Constancy

- **Color (or Brightness) Constancy:**
  - Ability to perceive color consistently across different levels of lighting
Turnbull Study Summary
Review/Discussion

• (not Turnbull →)
Types of Processing

- **Bottom-up:**
  - the analysis of the smaller features to build up to a complete perception
    - **Making a whole of parts**
  - Grounded in what we sense…we see the parts of something then figure out what it is

- **Top-down:**
  - the use of preexisting knowledge/expectations to organize individual features into a unified whole
    - what usually causes us to get “confused” with illusions (what we expect and what our senses perceive are different)
Types of Processing Demo

Describe how to draw: APPLE

- this is top-down processing
- you are using the whole meaning of the word to describe...your previous experiences with the apple

Describe how to draw: 苹果

- this is bottom-up
- you describe each line of the character to tell me how to draw it...construct the pieces until it makes the whole...uses sensory info...not the meaning.
Backmasking link

• Hearing it backwards... Using **bottom up** to try and figure out what they are saying...

• **When you know the lyrics....it becomes top-down** because you already have expectations of what to hear.
Perceptual Sets

- Our brains working efficiently to rely on limited sensory information to make an educated guess about what is in front of us
- Has to do with top-down processing

**Perceptual Set** = our expectations influencing our perception (because of context or priming)

- Examples:
ARE THE SPOTS BLACK OR WHITE?
Are the circles moving in the following image?

Answer: Look closely, they aren’t moving.
Ames Room
Rubber Hand Illusion
Magic Tricks
Illusions Reading/Activity

• See website for details.

• **You MUST read pages 132-137 before choosing your optical illusions to describe**
Perception and Gestalt

- **Gestalt psychology** – seeing the whole instead of the parts
  - We tend to perceive images in groups...not isolated parts

- **Figure-Ground Relationships** – we tend to try and pick out what parts of an image are in the background, which are in the foreground...
  - images like this demonstrates how our mind separates the two because we tend to see background/foreground separately, then switch...hard to see both equally at the same time
Perception Review and Gestalt
Gestalt Rules

- Proximity
- Similarity
- Closure
- Continuity

**ASSIGNMENT:** Read pgs 127-128

- In your notebook, use a blank page to make a quadrant. In each box, use markers or colored pencils to demonstrate the above 4 rules in each rule’s title.
- THEN....write one sentence describing the rule underneath

- **Ex:** Write the word CLOSURE in a way where something about the letters of the word remind you what the closure rule is...then explain the rule in a sentence below it.
Student Example

Proximity is when you tend to perceive objects that are close to one another as a part of the same grouping.

Similarity is when you tend to perceive things that look similar and part of the same group.

Closure is when you complete an incomplete figure in your head.

Continuity is when you tend to perceive things as simply as possible with a continuous pattern.
Depth Perception

- Visual Cliff Study Overview
  - We have the ability to perceive depth early on
Binocular Cues

• **Retinal Disparity**
  - Your two eyes see slightly different images
    - the further an object is away from you, the less disparity
  - **Ex:** looking at thumb out in front of you with one eye then other (notice the shift of the background).....then hold it closer to face and try
  - **Ex:** finger sausage ➔

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**Retinal Disparity – floating finger sausage**

Because our eyes receive different information about an object, their retinal disparity provides a binocular cue of an objects relative distance.

- Hold your index fingers about 5 inches in front of your eyes, with their tips a half-inch apart. Now look beyond them and note the weird result. Move your fingers out farther and the retinal disparity- and the finger sausage- will shrink.
Binocular Cues

- **Retinal Convergence**
  - Our eye muscles move our eyes inward to focus
  - Closer the object = larger the angle
Binocular and Monocular Depth Cues

- Video, Review pages 130-132, then photo scavenger hunt
Monocular Cues (pictorial depth cues)

Monocular cues are cues about depth that can be seen with one eye

1. Linear Perspective

2. Relative size
Monocular Cues (pictorial depth cues)

3. Interposition/Overlap

4. Aerial (atmospheric) Perspective

5. Texture Gradient
Perception and Attention/Motivation

• **Selective Attention** – remember from Cognition?

• **Signal Detection Theory**
  - Investigates the effects of the distractions and interference we experience while perceiving the world.
  - Takes motivation to perceive something and our expectations into effect (response criteria)
  - Your ability or likelihood to detect some stimulus is affected by the intensity of the stimulus (e.g., how loud a noise is) and your physical and psychological state (e.g., how alert you are).
  - Ex:
    • ***We are more likely to smell fresh baked apple pie if we are hungry and like apples***

***I may sleep through the sound of a train, but wake up at the slightest whimper of my baby.***
Perception and Culture

- Online article read and summary paragraph... In partners