



# Chapter 1

## Introduction to Perception

# Icebreaker: Interview Simulation

1. The class will be broken up into pairs of students.
2. Each pair of students will interview each other to discover interesting or unusual facts.
3. Then, each pair will introduce each other to the class.
4. Think about connecting a story from your personal experience to topics that are relevant to this course.

# Discussion Questions (2 of 2)

1. Why is it important to distinguish between physical and perceptual?
2. Describe a situation in which you initially thought you saw, heard, or felt something but then realized that your initial perception was in error. What do you think caused the error in perception?

# Chapter Objectives (1 of 2)

01.01 Explain the seven steps of the perceptual process.

01.02 Differentiate between “top-down” and “bottom-up” processing.

01.03 Describe how knowledge can influence perception.

01.04 Understand how perception can be studied by determining the relationships between stimulus and behavior, stimulus and physiology, and physiology and behavior.

# Chapter Objectives (2 of 2)

01.05 Explain “absolute threshold” and “difference threshold” and the various methods that can be used to measure them.

01.06 Describe how perception above threshold can be measured by considering five questions about the perceptual world.

01.07 Understand the importance of the distinction between physical stimuli and perceptual responses.

# Why Read This Book?

## 1. Future careers

- Graduate school work in perception

## 2. Medical applications

- Devices to assist people with vision and hearing loss

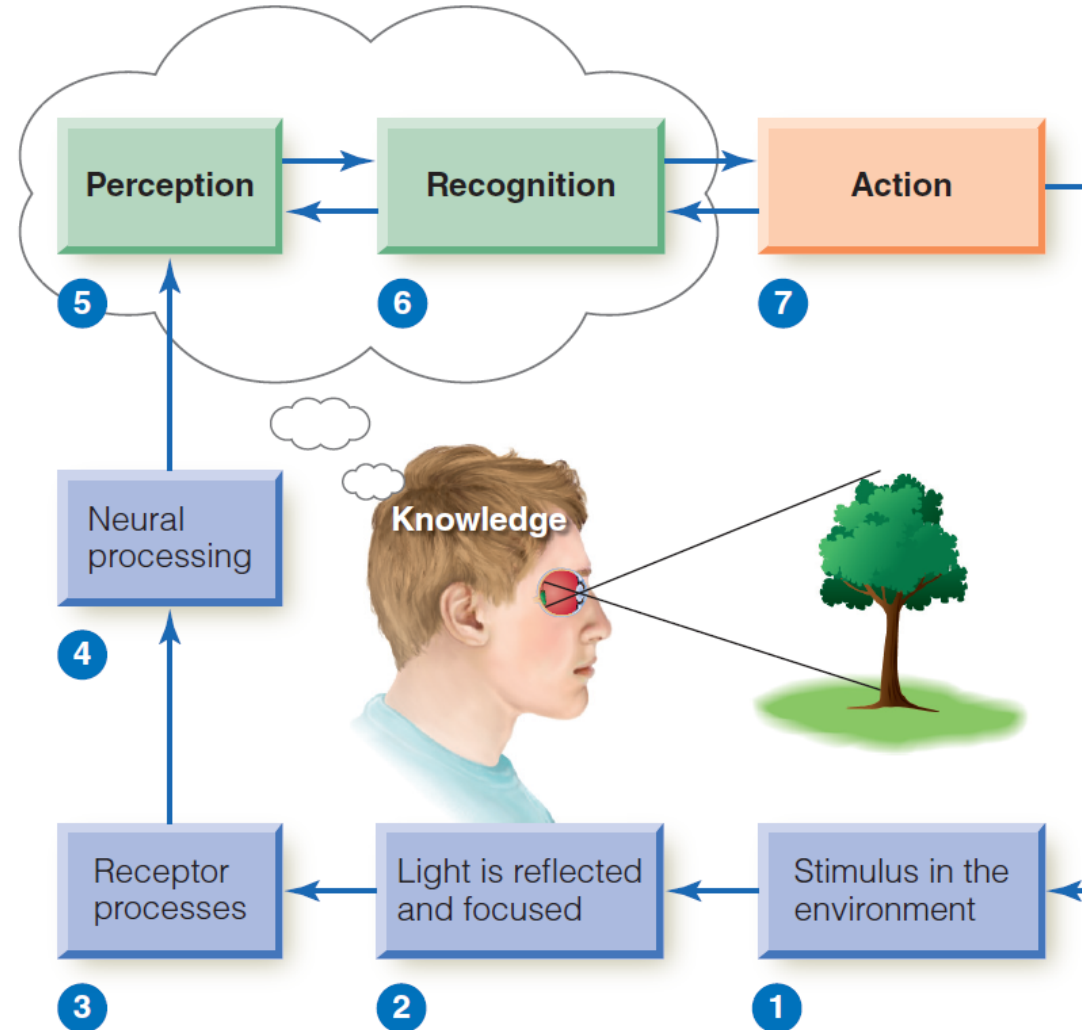
## 3. To understand how you perceive the world

- Language processing
- Color vision
- Depth perception

# The Perceptual Process (1 of 2)

1. Seven steps, plus “knowledge” inside the person’s brain, describe the process of perception
2. These steps occur between the time a person looks at the stimulus in the environment (e.g., a tree), perceives the stimulus, recognizes it, and takes action toward it.

# The Perceptual Process (2 of 2)



# Distal and Proximal Stimuli (Steps 1 and 2)

## Distal Stimulus

- Environmental stimuli are all objects in the environment are available to the observer.
- Observer selectively attends to objects.
- Stimulus impinges on receptors resulting in internal representation.

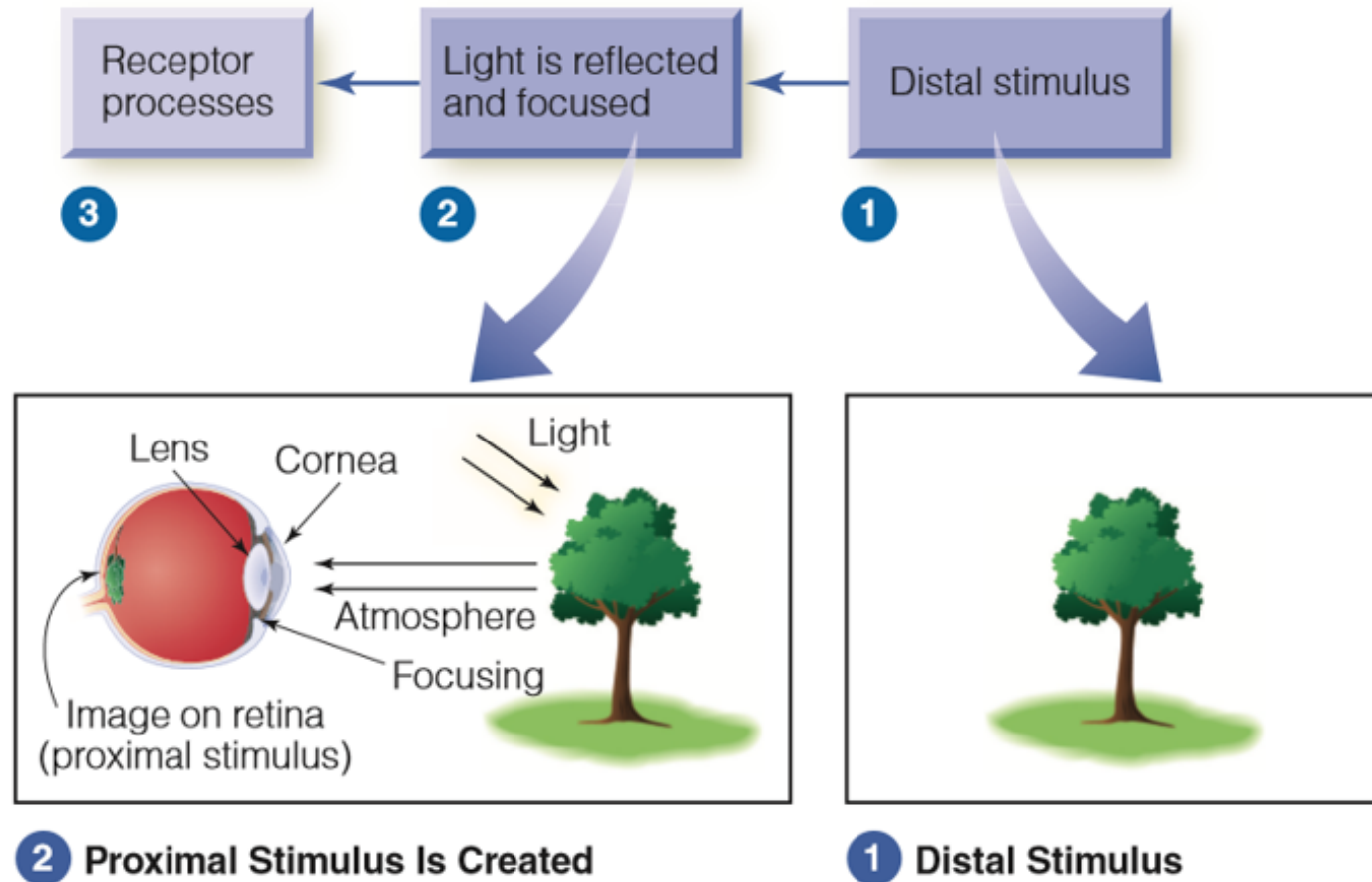
## Proximal Stimulus

- The representation of the distal stimulus on the receptors.
- Stimulus is “in proximity” to the receptors

# Steps 1 and 2 of the Perceptual Process (1 of 3)

- Step 1: Information about the tree (the distal stimulus) is carried by light.
- Step 2: The light is transformed when it is reflected from the tree, when it travels through the atmosphere, and when it is focused on by the eye's optical system. The result is the proximal stimulus, the image of the tree on the retina, which is a representation of the tree.

# Steps 1 and 2 of the Perceptual Process (2 of 3)



# Steps 1 and 2 of the Perceptual Process (3 of 3)

## Principle of transformation

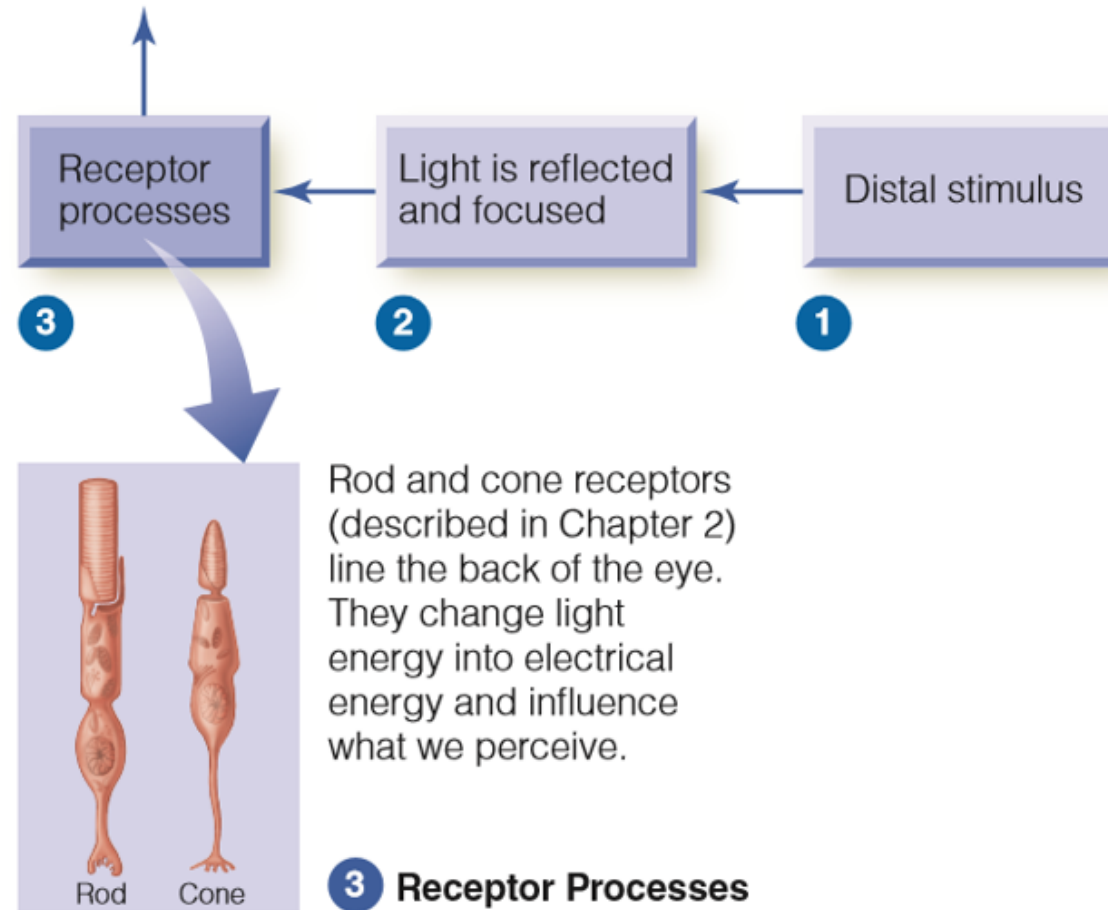
- When the stimuli and responses created by stimuli are transformed, or changed, between the environmental stimuli and perception.

# Receptor Processes (Step 3) (1 of 2)

The process:

- Sensory receptors are cells specialized to respond to environmental energy.
- Visual pigment is what reacts to light.
- Transduction occurs, which changes environmental energy to nerve impulses.
- The end result is an electrical representation of the tree.

# Receptor Processes (Step 3) (2 of 2)

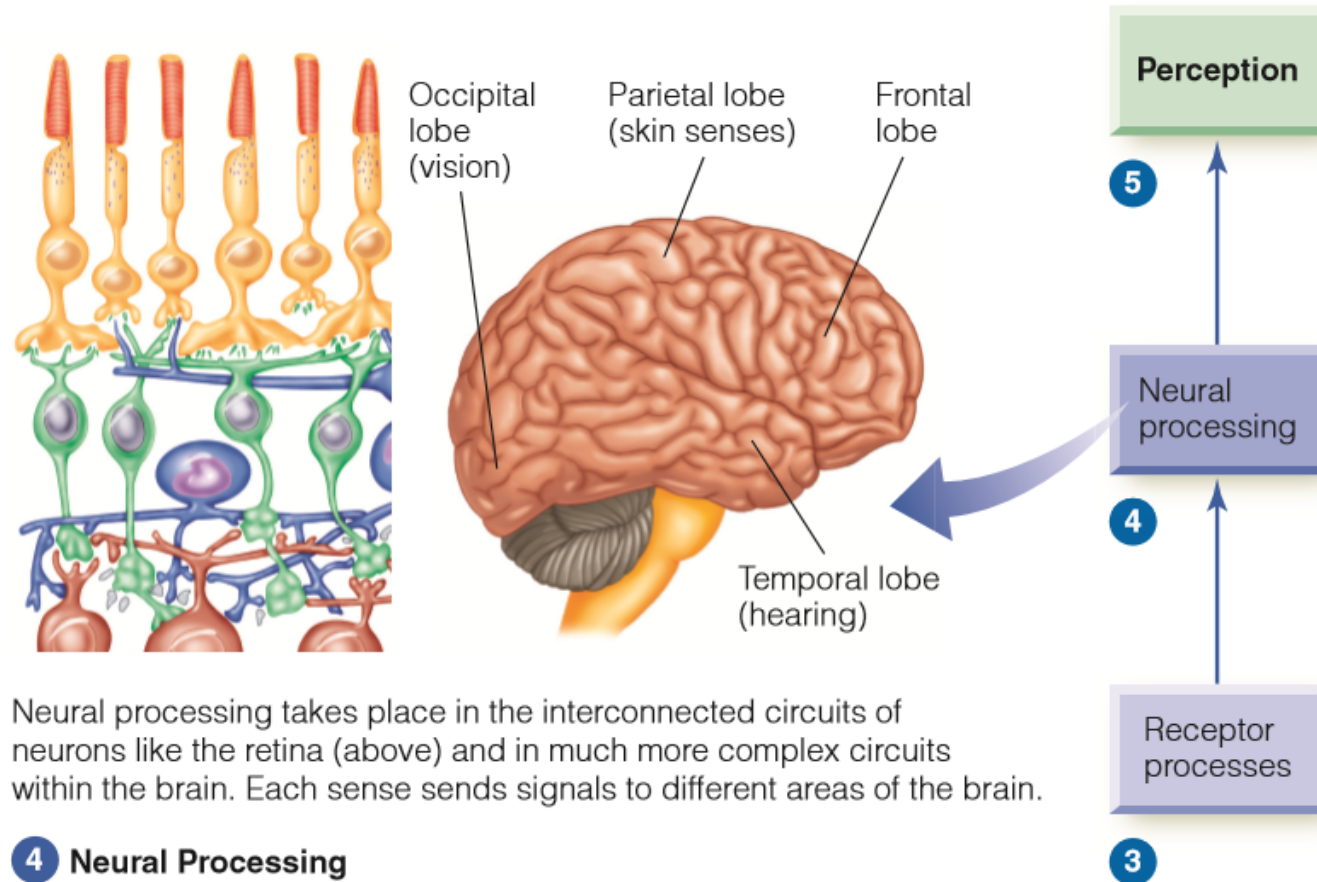


# Neural Processing (Step 4) (1 of 2)

The process:

- Neural processing - changes that occur as signals are transmitted through the maze of neurons
- Primary receiving area
  - Occipital lobe
  - Temporal lobe
  - Parietal lobe

# Neural Processing (Step 4) (2 of 2)

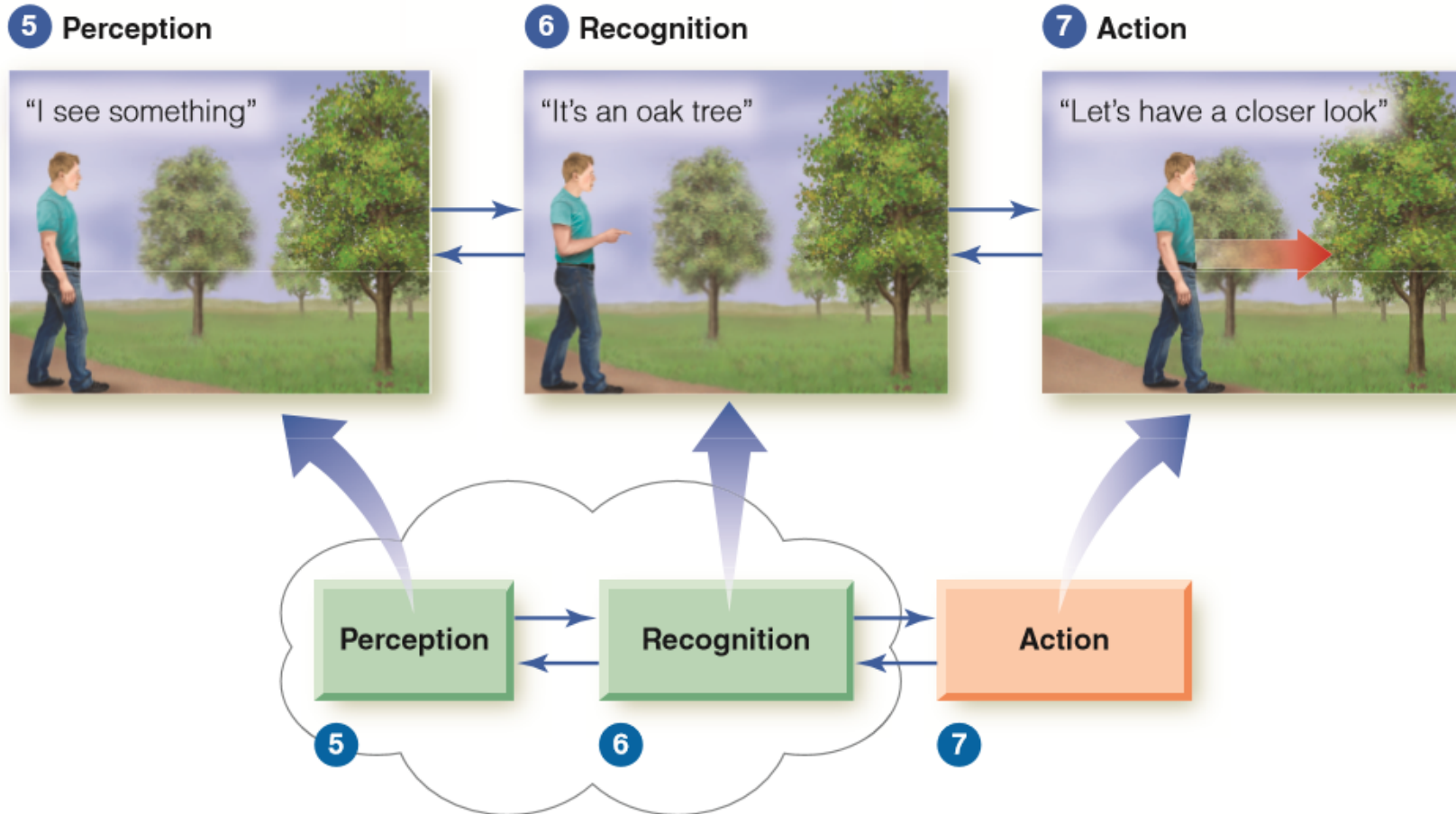


# Behavioral Responses (Steps 5-7) (1 of 2)

## Experience and Action:

- Electrical signals are transformed into conscious experience.
- Person perceives object (e.g., a tree).
- Person recognizes it as a tree (places object in category).

# Behavioral Responses (Steps 5-7) (2 of 2)



# Knowledge (1 of 3)

Knowledge is any information the perceiver brings to a situation.

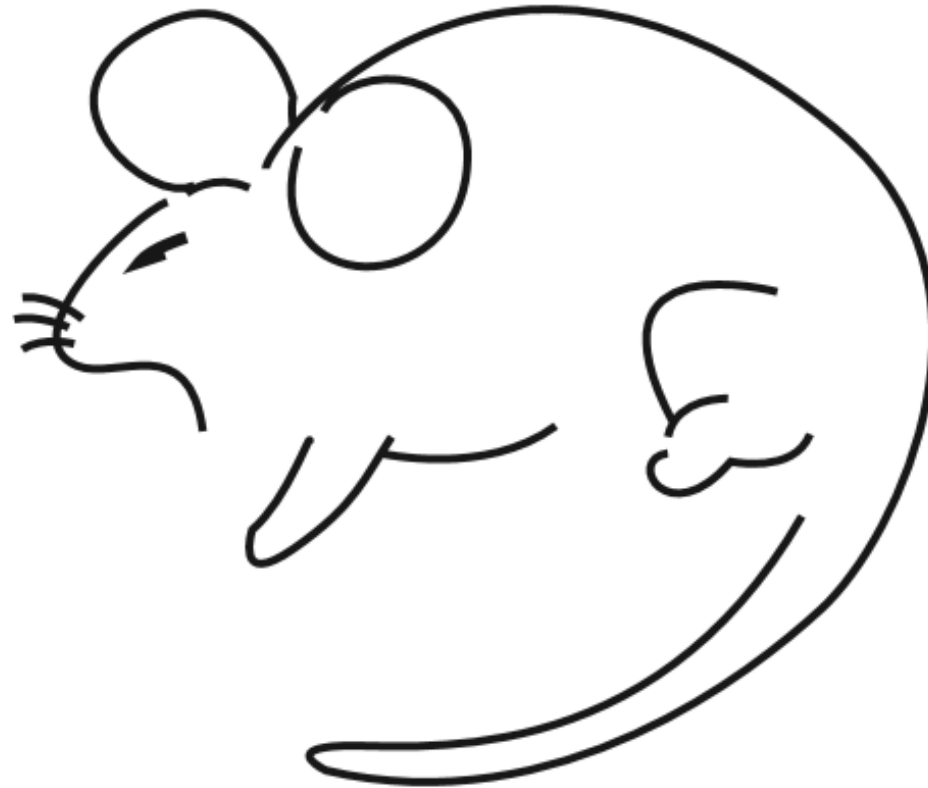
## Bottom-up processing

- Processing based on incoming stimuli from the environment
- Also called data-based processing

## Top-down processing

- Processing based on the perceiver's previous knowledge (cognitive factors)
- Also called knowledge-based processing

# Knowledge (2 of 3)



# Knowledge (3 of 3)

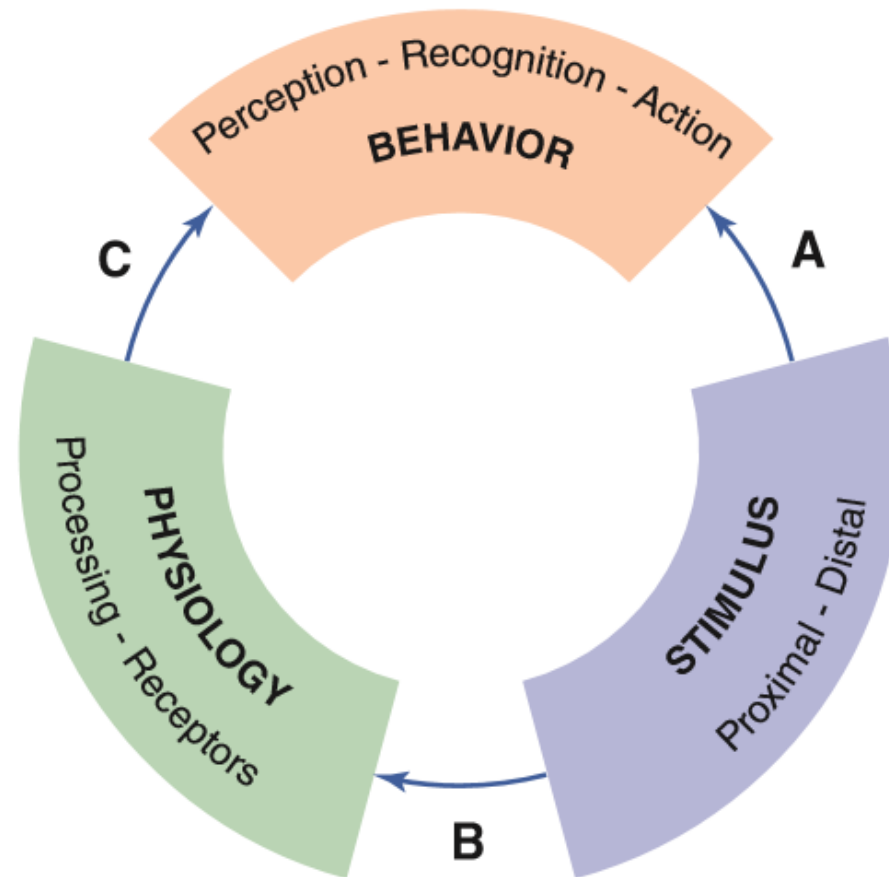


# Studying the Perceptual Process (1 of 2)

Observing perceptual processes at different stages in the system:

- Relationship A: the stimulus-perception relationship
- Relationship B: the stimulus-physiology relationship
- Relationship C: the physiology-perception relationship

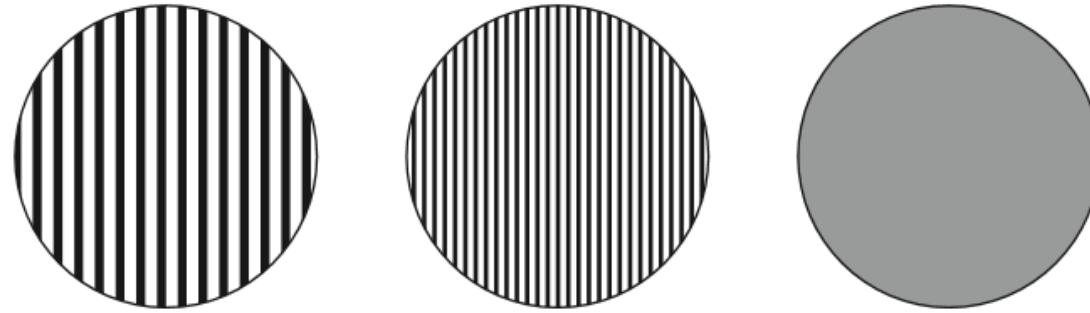
# Studying the Perceptual Process (2 of 2)



# Discussion Questions (1 of 2)

1. What are some reasons for studying perception?
2. What does it mean to say that perception can be studied by measuring three relationships? Give an example of how the oblique effect was studied by measuring each relationship.

# The Two “Stimulus” Relationships (A and B) (1 of 2)



# The Two “Stimulus” Relationships (A and B) (2 of 2)

(a) **Stimuli:** vertical, horizontal, slanted



(b) **Brain response:** Bigger to vertical and horizontal orientations



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# Measuring Perception

Absolute threshold = the smallest amount of energy needed to detect a stimulus

- Method of limits
  - Stimuli of different intensities presented in ascending and descending order.
  - Observer responds to whether she perceived the stimulus.
  - Cross-over point is the threshold.

# Discussion Questions (2 of 2)

1. Why is it important to distinguish between physical and perceptual?
2. Describe a situation in which you initially thought you saw, heard, or felt something but then realized that your initial perception was in error. What do you think caused the error in perception?

# Chapter Summary (1 of 2)

Now that the lesson has ended, you should have learned to:

- Explain the seven steps of the perceptual process.
- Differentiate between “top-down” and “bottom-up” processing.
- Describe how knowledge can influence perception.
- Understand how perception can be studied by determining the relationships between stimulus and behavior, stimulus and physiology, and physiology and behavior.

# Chapter Summary (2 of 2)

- Explain “absolute threshold” and “difference threshold” and the various methods that can be used to measure them.
- Describe how perception above threshold can be measured by considering five questions about the perceptual world.
- Understand the importance of the distinction between physical stimuli and perceptual responses.