

LEARNING OBJECTIVES

Chapter 3

When your students finish studying this chapter, they should be able to:

Introduction: What Are Sensation and Perception?

1. Distinguish between sensation and perception, giving examples of each.
2. Explain the process of transduction.
3. Discuss the idea of sensory thresholds, defining absolute and difference thresholds and explaining the significance of Weber's law.
4. (Science Versus Pseudoscience) Define subliminal perception and the mere exposure effect, and discuss research on the effects of subliminal presentations on perception.
5. Explain the process of sensory adaptation.

Vision: From Light to Sight

6. Explain the electromagnetic spectrum and its relationship to human vision.
7. Describe the visual process, identifying each key structure of the eye and its function, and contrast the functions of rods and cones.
8. Explain how visual information is transmitted to and processed in the brain, including the role of the blind spot, optic nerve, optic chiasm, ganglion and bipolar cells, feature detectors, and visual pathways.
9. (Focus on Neuroscience) Describe Mike's surgery, identify what he is now capable of seeing and what visual problems he experiences, what fMRI scans of his brain revealed, and what conclusions can be drawn.
10. Compare the trichromatic and opponent-process theories of color vision, and discuss how each theory explains different aspects of color vision.

Hearing: From Vibration to Sound

11. Describe the nature of sound, and list the physical properties of sound waves.
12. Explain the process of hearing, noting the role played by different parts of the ear, and describe how auditory sensations are transmitted from the inner ear structures to the brain.
13. Distinguish between place and frequency theory and describe how each theory explains the sensation of pitch.

The Chemical and Body Senses: Smell, Taste, Touch, and Position

14. Describe the process of olfaction, including the transmission of olfactory information to the brain.
15. (In Focus) Define pheromones, and discuss the research evidence for the existence of human chemosignals or pheromones.
16. Explain how taste sensations are produced and identify the basic taste categories.

17. Discuss the role played by the skin in the sensation of touch, including the types and distribution of sensory receptors in the skin.
18. Define pain and identify the sensory receptors, neurotransmitters, and nerve pathways that are involved in the sensation of pain, distinguishing between the fast and slow pain systems.
19. Explain the gate-control theory of pain, listing factors that influence pain “gates,” and describe the effects of pain sensitization and its relationship to phantom limb pain.
20. Discuss the role of the kinesthetic and vestibular senses in body position, balance, and equilibrium.

Perception

21. Distinguish between bottom-up and top-down processing, and the role each plays in perception.
22. (Critical Thinking) Define *ESP* and *parapsychology*, identify different forms of ESP, and summarize what research has shown about ESP claims.
23. (Culture and Human Behavior) Describe the research on culture and perception and explain how people from individualistic and collectivistic cultures perceive the world.
24. Describe the school of Gestalt psychology, figure–ground relationships, and the Gestalt principles of organization.
25. List and describe the monocular and binocular cues used in depth perception, and give examples of each.
26. Identify the sources of information that influence motion perception, and describe induced and stroboscopic motion.
27. List and describe two forms of perceptual constancy.

Perceptual Illusions

28. Discuss perceptual illusions, and explain the Müller-Lyer illusion and the moon illusion.

The Effects of Experience on Perceptual Interpretations

29. (Culture and Human Behavior) Discuss cross-cultural research on the Müller-Lyer illusion and describe the evidence supporting the carpentered-world hypothesis.
30. Define *perceptual set*, and discuss how experience can influence perceptual interpretations.

Psych for Your Life: Strategies to Control Pain

31. Identify and describe several strategies to help control pain, discuss the role of complementary and alternative medicines, and discuss the use of magnets, biofeedback, and acupuncture in pain relief.