Unit 3: Sensation and Perception

Content Area: **Social Studies**
Course(s): **AP Psychology**
Time Period: **October**
Length: **10 blocks**
Status: **Published**

Sensation and Perception

Students will examine how humans perceive and process the world around them via their senses and convert those observations into perceptions that influence how we think and behave.

Enduring Understandings

- Sensation is the process by which stimuli are detected and identified, while perception is the interpretation of the information received.
- Perception brings meaning to sensation, so perception produces and interpretation of the external world, not a perfect representation of it.
- The “basic five” descriptions of human sensory processes include vision, audition, smell, taste, and touch which receive external stimuli while equilibrium and kinesthesis sense internal states.

Essential Questions

1. What is the relationship between the real world and our perception of it?
2. How does stimulation become sensation?
3. How are the senses alike? How are they different?
4. How do culture, experience, and learning influence perception?

Content

Topics will include:

- Thresholds
- Sensory mechanisms
- Sensory adaptation
- Attention
- Perceptual processes

Vocabulary

Sensation, perception, top-down processing, bottom-up processing, psychophysics, eye, ear, absolute threshold, difference threshold (JND), sensory adaptation, wavelength, hue, intensity, wavelength, intensity, accomodation, rods, cones, opponent-processing theory, trichromatic theory of color, frequency, pitch, amplitude, frequency theory, place theory, conduction hearing loss, sensorineural hearing loss, kinesthetic sense, vestibular sense, sensory interaction, feature detectors, parallel processing, gate control theory of pain, color blindness, selective attention, visual capture, Gestalt, depth perception, grouping, visual cliff, binocular cues, monocular cues, retinal disparity, convergence, perceptual constancy, perceptual adaptation, figure-ground, Phi phenomenon

Important People

Thomas Young, Hermann Ludwig Ferdinand von Helmholtz, Ronald Malzach, Patrick Wall Ernst Weber, Eleanor Gibson

Student Expectations

I. Sensation and Perception

AP students in psychology will be able to :

- Discuss basic principles of sensory transduction, including absolute threshold, difference threshold, signal detection, and sensory adaptation.
- Describe sensory processes (e.g., hearing, vision, touch, taste, smell, vestibular, kinesthesis, pain), including the specific nature of energy transduction, relevant anatomical structures, and specialized pathways in the brain for each of the senses.
- Explain common sensory disorders (e.g., visual and hearing impairments).
- Describe general principles of organizing and integrating sensation to promote stable awareness of the external world (e.g., Gestalt principles, depth perception).
- Discuss how experience and culture can influence perceptual processes (e.g., perceptual set, context effects).
- Explain the role of top-down processing in producing vulnerability to illusion.
- Discuss the role of attention in behavior.
- Identify the major historical figures in sensation and perception (e.g., Gustav Fechner, Ernst Weber).

Standards

LA.RI.9-10.2	Determine a central idea of a text and analyze how it is developed and refined by specific details; provide an objective summary of the text.
LA.RI.9-10.8	Describe and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and reasoning.
LA.W.9-10.9	Draw evidence from literary or nonfiction informational texts to support analysis, reflection, and research.
LA.W.9-10.9.B	Apply grades 9–10 Reading standards to nonfiction informational (e.g., “Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning”).
SCI.9-12.B.2	Sensation and Perception
SCI.9-12.B.2.1	The processes of sensation and perception
SCI.9-12.B.2.1.1	Discuss processes of sensation and perception and how they interact
SCI.9-12.B.2.1.2	Explain the concepts of threshold and adaptation
SCI.9-12.B.2.2	The capabilities and limitations of sensory processes
SCI.9-12.B.2.2.1	List forms of physical energy for which humans and non-human animals do and do not have sensory receptors
SCI.9-12.B.2.2.2	Describe the visual sensory system
SCI.9-12.B.2.2.3	Describe the auditory sensory system
SCI.9-12.B.2.2.4	Describe other sensory systems, such as olfaction, gustation, and somesthesis (e.g., skin senses, kinesthesis, and vestibular sense)
SCI.9-12.B.2.3	Interaction of the person and the environment in determining perception
SCI.9-12.B.2.3.1	Explain Gestalt principles of perception
SCI.9-12.B.2.3.2	Describe binocular and monocular depth cues
SCI.9-12.B.2.3.3	Describe the importance of perceptual constancies
SCI.9-12.B.2.3.4	Describe perceptual illusions
SCI.9-12.B.2.3.5	Describe the nature of attention
SCI.9-12.B.2.3.6	Explain how experiences and expectations influence perception