The Perceptual Experience

Question: Why do psychologists study sensation and perception? (144)

Sensation and Perception: Definitions

Complete the following:

Sensation is the process in which the sense organs' receptor cells are …

Perception is the process by which an organism …

Question: What is bottom-up analysis?

Question: What is top-down analysis?
**Sensation and Perception: Definitions**

(Continued)

**Question:** What's the meaning of the following statement?

"Today, perceptual psychologists generally think in terms of perceptual systems … "

**Psychophysics**

**Question:** What is psychophysics?

**Question:** What is a threshold?

**Question:** What is the absolute threshold?

**Question:** What's the meaning of the following statement?

" … a true absolute threshold is impossible to determine … "
Psychophysics (Continued)

Question: What is subliminal perception?

Question: What is the method of limits?

Example: Method of limits.

Question: What is the method of constant stimuli?

Question: What's the meaning of the following statement?

"Both the method of limits and the method of constant stimuli have methodological weaknesses … "
Psychophysics
(Continued)

Question: What is signal detection theory?

Example] Signal detection theory.

Question: What's the meaning of the following statement?

"… your perception … depends … on the noise in the environment …"

Example] Perception depends on noise.
Selective Attention

Question: What is selective attention?

[Examples] Selective attention.

Question: What is filter theory?

Question: What is attenuation theory?

Question: What's the meaning of the following statement?

"Focusing on one stimulus or activity while trying to ignore other stimuli can be hard, but it is not impossible."
Restricted Environmental Stimulation

Question: What is restricted environmental stimulation?

[Illustrations] Restricted environmental stimulation.

Inattentional Blindness

Question: What is inattentional blindness?

[Illustrations] Inattentional blindness.
Question: What's the meaning of the following statements

"… the appropriate stimulus for vision is electromagnetic radiation …"

"… light that is visible to the human eye is a very small portion of the electromagnetic spectrum."

"… the visual system is interpretive …"

The Structure of the Eye

Note the following:

• Cornea

• Pupil

• Iris
The Structure of the Eye
(Continued)

Note the following:

- **Lens**

- **Retina**

**Question:** What is *myopic* vision?

**Question:** What is *hyperopic* vision?

**Question:** What are *photoreceptors*?

Note the following:

- **Rods**

- **Cones**
The Structure of the Eye
(Continued)

Note the following:

• Photopigments

• Transduction

• Bipolar cells

RODS AND CONES

Note the following:

• Convergence

• Ganglion cell layer

• Optic nerve

• Visual cortex, or striate cortex.
The Structure of the Eye
(Continued)

- Lateral geniculate nucleus

Question: What is the duplicity theory of vision (duplexity theory)?

Note the following:

- Fovea

- Visual acuity test

Question: What is dark adaptation?

[Example] Dark adaptation.
Question: What is the optic chiasm? (153)

The Electrochemical Basis of Perception

"... vision and all other perceptual processes are electrochemical in nature."

RECEPTIVE FIELDS.

"Scientist in a wide range of related fields have carried out research on the organization of vision and electrical coding for a long time."

[Examples] Research on the organization of vision. (154)

Question: What are receptive fields?
WHAT AND WHERE.

"… the task of perception is difficult."

Question: What's the meaning of the following statement?

"… the visual system processes an objects form and color (what it is) separately from its spatial location (where it is)."
The Electrochemical Basis of Perception
(Continued)

Question: What is parallel processing of information?

[Page]

GENDER DIFFERENCES—AN EVOLUTIONARY PERSPECTIVE.

Question: What has been the contribution of evolutionary theory to the study of perception?

Eye Movements

"Research on eye movements reveals what people are looking at, how long they look at it, and perhaps where they will look next."

Eye Movements
(Continued)

Question: What is saccades eye movement?

"Eye movements have been used to determine … perceptual span … "

[Examples] Perceptual span.

Color Vision

Question: What is color hue?

Question: What's the meaning of the following statement?

" … objects themselves do not possess color."
Color Vision
(Continued)

Question: What is color brightness? (158)

Question: What is color saturation? (158-159)

THEORIES OF COLOR VISION.

"How does the brain code and process color."

Question: What is the trichromatic theory of color perception? (159)

Question: What is color blindness?
THEORIES OF COLOR VISION.

(Continued)

Question: What is the opponent-process theory of color perception? (159)

"Both the trichromatic theory and the opponent-process theory have received support from research."

[Examples] Color vision research. (159-160)

COLOR BLINDNESS.

Question: Who are trichromats? (160)

Question: Who are monochromants?
COLOR BLINDNESS.

Question: Who are dichromats?

Visual Perception

"Many perceptual experiences depend on past events as well as current stimulation."

"Integrating previous experiences with new events makes perceptual encounters more meaningful."

Perceptual experiences.

Perception of Form: Constancy

SIZE CONSTANCY.

Question: What is size constancy?
SIZE CONSTANCY.
(Continued)

[Examples] Size constancy.

SHAPE CONSTANCY.

Question: What is shape constancy?

[Examples] Shape constancy.

Depth Perception

Complete the following:

"Depth perception allows you to estimate your distance from an object and the distance between …

Question: What's the meaning of the following statement?

"Both monocular cues and binocular cues are used in depth perception."
MONOCULAR DEPTH CUES.

Question: What are monocular depth cues?

Question: What is cue of motion parallax?

Question: What is cue of kinetic depth effect?

Question: What is the cue of linear perspective?

Question: What is the cue of interposition?

Question: What are highlighting and shadowing cues?
MONOCULAR DEPTH CUES.
(Continued)

Question: What is the cue of atmospheric perspective? (163)

Question: What is the cue of accommodation? (164)

BINOCULAR DEPTH CUES.

"Most people, even infants, also use binocular depth cues … "

Question: What is the cue of retinal disparity?

Question: What is the cue of convergence?
Illusions
(Continued)

Question: What is an illusion?

Examples: Well-known illusions.
CROSS–CULTURAL RESEARCH ON ILLUSIONS.

"Each person brings a lifetime of experiences to his or her perceptions."

Prosopagnosia: The Inability to Recognize Faces

"Research on brain structure shows that there is something about face perception that distinguishes it from other kinds of perception."

Question: What is agnosia? (167-168)

Question: Does the brain include a "face detector"? (168-169)
Gestalt Laws of Organization

"Gestalt psychologists suggest that conscious experience is more than the sum of its parts."

"The early Gestaltists focused their perceptual studies on how people experience form and organization."

**Question:** What is the **law of Prägnanz**? (169)

**Examples** Gestalt laws of organization. (169-170)
Hearing

"... we rely enormously on our sense of hearing for many perceptual experiences, even more than sight."

Sound

Complete the following:

"**Sound** is the psychological experience that occurs when changes in air pressure affect the receptive organ for hearing; the resulting tones, or sounds, vary in ..." (171)

**Question:** What is the **frequency** of sound?

**Question:** What is the **amplitude** of sound?

**Question:** What are decibels?

**Question:** What's the meaning of the following statement?

"Amplitude and frequency are not correlated."
**Sound**

(Continued)

**Question:** What is *timbre*?

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**The Structure of the Ear**

"The receptive organ for *audition*, or hearing, is the ear: it translates physical stimuli (sound waves) into electrical impulses that the brain can interpret."

Note the following:

- *Tympanic membrane*

- *Hammer, anvil, and stirrup*

- *Basilar membrane*

- *Cochlea*

"Neural impulses make their way through the brain's auditory system in much the same way as visual information proceeds through the visual system."

"Studies of single cells in the auditory areas of the brain show that some cells are more responsive to certain frequencies than to others."
Theories of Hearing

"Most theories of hearing fall into two major classes … "

Question:  What are place theories of hearing?

Question:  What are frequency theories of hearing?

Question:  What's the meaning of the following statement?

" … both place theories and frequency theories present theoretical problems."

Sound Localization

" … human beings have amazingly efficient sound-localization (direction-determining) abilities."

Evidence  Sound localization.
**Hearing Impairments**

"The numerous causes of hearing impairments include both environmental and genetic factors … "

**Question:** What is **conduction deafness**?

**Question:** What is **sensorineural deafness**?

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**Taste and Smell**

"Smell is the sense that people appreciate the least and yet has an enormous impact on behavior."

"There are many ways to view the sensory world we live in, but few offer such subtle discriminations and delights as smell and its close associate, taste."

[Examples] Taste, smell, and feelings.
Taste

"Taste is so complex that it is usually studied from the bottom up."

[Examples] Taste as a chemical sense. (175)

"… most (psychologists) agree that there are four basic (tastes) … "

[Examples] Basic tastes. (175-176)

"(taste) sensitivity seems to be genetically determined."

[Examples] Taste sensitivity. (176)
**Smell**

"Smell is such an important sense that those who lose it permanently feel disabled."

**Question:** What is olfaction?

"For human beings to perceive smell, information must be sent to the brain."

**Evidence** The sensitivity of human smell.

"Theories of smell involve both the stimulus for smell and the structure of the olfactory system."

**Evidence** Biopsychology of smell.
**SMELL AND COMMUNICATION.**

**Question:** What are pheromones?

**Question:** What is the current thinking about the role of pheromones in human life?

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**The Skin Senses**

"Your skin (is) an organ of your body."

"… skin senses —pain, touch, and temperature—(convert stimuli) into neural energy, and then the brain interprets that energy as a psychological experience."

**Touch**

**Question:** What's the meaning of the following statement?

"The skin is more than just a binding that holds your body to together."
**Touch**

"The skin sense receptors appear to interact with one another; sometimes one sensation seems to combine with or change to another."

[Evidence] Interaction of skin sense receptors. (178-179)

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**BEING TICKLED.**

"… tickling (is) in part physical but in larger part psychological."

[Evidence] Adaptive value of tickling. (179)
Pain

"Pain is a perceptual experience ..."

[Evidence] Physical and psychological aspects of pain. (180)

■ NEUROMATRIX THEORY.

Question: What is the *neuromatrix theory* of pain? (180-181)
**ENDORPHINS.**

*Question:* What are endorphins?  

"Endorphins … can produce euphoria and a sense of well-being … "

[Evidence] Physical and psychological aspects of endorphins.  

**ACUPUNCTURE.**

*Question:* What is acupuncture?  

(181-182)
"New technologies emerge every few years to help people manage pain."

Kinesthesia and the Vestibular Sense

**Question:** What is kinesthesia? (183)

**Question:** What is the vestibular sense? (183-184)
"Some people … claim there are other perceptual experiences that not all human beings recognize as normal."

**Question:** What is *extrasensory perception* (ESP)?

**Question:** What is the experimental support for the existence of ESP?