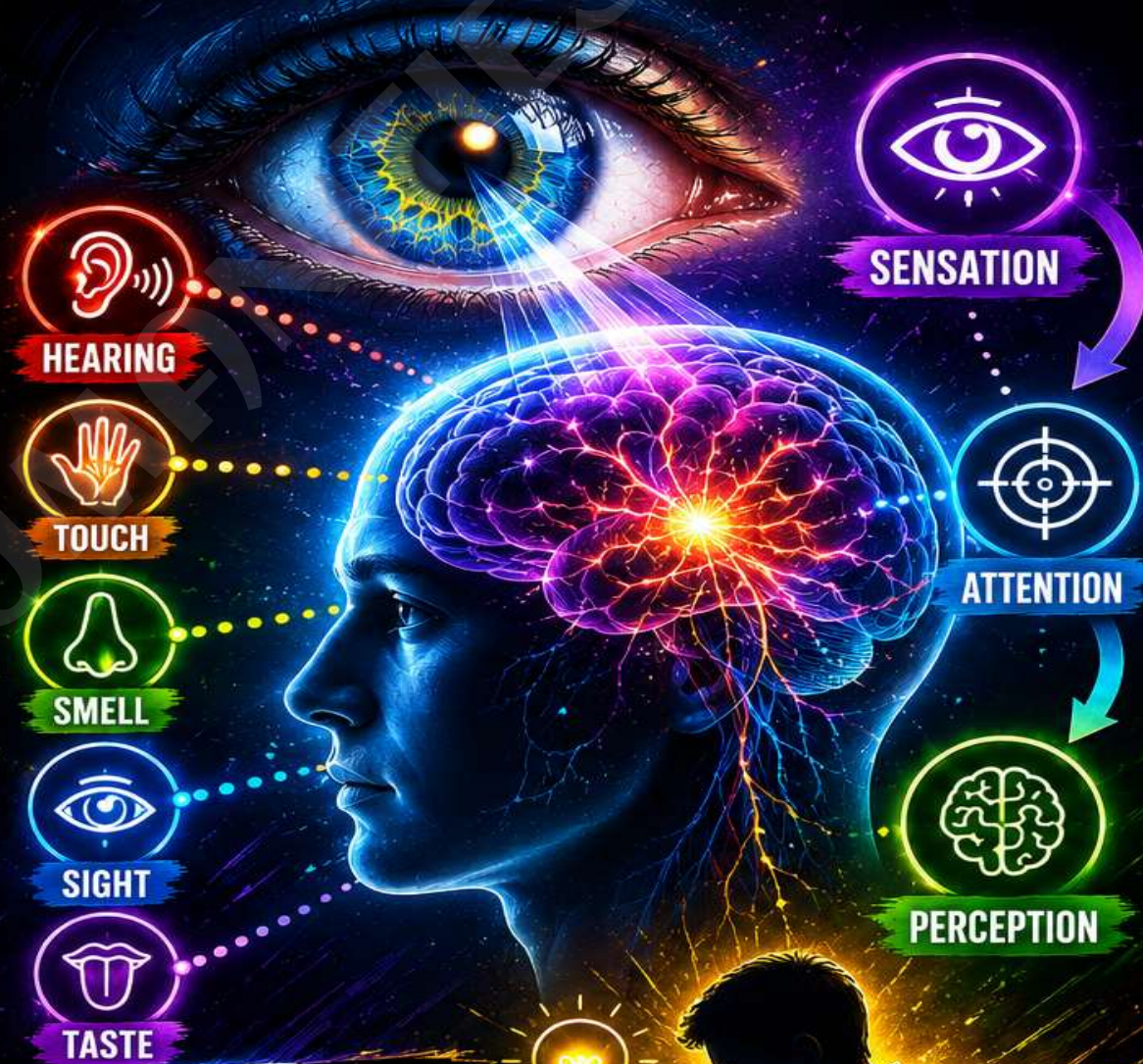


CLASS 11 PSYCHOLOGY

SENSORY, ATTENTIONAL & PERCEPTUAL PROCESSES

ONE SHOT!



 **SENSE IT.**

 **FOCUS IT.**

 **UNDERSTAND IT.**

 **EXCEL IN IT.**

Class 11 Psychology Chapter 4

Sensory, Attentional and Perceptual Processes

1. Knowing the World

Knowledge of the world depends on three closely related processes:

Sensation → Attention → Perception

Together they form **Cognition** (process of knowing).

2. Nature & Varieties of Stimulus

External Sense Organs (5)

- Eyes (Vision)
- Ears (Hearing)
- Nose (Smell)
- Tongue (Taste)
- Skin (Touch)

Internal Sense Organs

➤ Kinesthetic Sense

Provides information about the **position and movement of body parts**.

Example: Knowing your hand is raised even with your eyes closed.

➤ Vestibular Sense

Provides information about **body balance and posture**.

Example: Maintaining balance while riding a bicycle or standing on one foot.

3. Sensation (Sense Modality)

Meaning

The initial experience of a stimulus registered by a sense organ.

Examples

- Loud sound
- Bright light
- Sweet taste
- Cold water

Sense Modality

Each sense organ is specialised for a particular kind of information.



4. Functional Limitations of Sense Organs

Sense organs work within a limited range.

Examples

- Eyes cannot see extremely dim/bright light.
- Ears cannot hear very faint/very loud sounds.

5. Psychophysics

Meaning

Study of the relationship between physical stimuli and sensations.

6. Absolute Threshold (AL)

Meaning

Minimum intensity of a stimulus required to be detected.

Example

Sugar-water experiment:

A minimum number of sugar granules are needed before sweetness is noticed.

7. Difference Threshold (DL)

Meaning

Minimum difference between two stimuli required to notice a change.

Example

Adding extra sugar to already sweet water.

8. Attention

Meaning

Process of selecting certain stimuli from a group of stimuli.



Properties of Attention

(a) Alertness

State of readiness to respond.

Example: Runner waiting for whistle.

(c) Search

Looking for a particular object among many objects.

Example: Finding a friend in a crowd.

(b) Concentration

Focusing on one stimulus while excluding others.

Example: Listening to a lecture.

Focus and Fringe

Focus

Centre of attention.

Fringe

Stimuli present in awareness but away from the centre.

9. Types of Attention

A. Selective Attention

Selecting one stimulus from many stimuli.

Factors Affecting Selective Attention

External Factors

- Size
- Intensity
- Brightness
- Novelty
- Movement

Internal Factors

- **Motivational Factors**
- Needs and motives.

Cognitive Factors

- Interest
- Attitude
- Expectations
- Preparation Set

Theories of Selective Attention

1. Broadbent's Filter Theory

Main Idea

Only one stimulus is selected and processed at a time; others are blocked.

Example

At a crowded party, you focus only on your friend's voice while ignoring all other conversations.

2. Treisman's Attenuation Theory

Main Idea

Unattended information is not completely blocked; it is only weakened.

Example

While talking to a friend at a party, you suddenly hear your name from another conversation and immediately notice it.

3. Multimode Theory (Johnston & Heinz, 1978)

Main Idea:

Selection of information can occur at different stages (early, middle, or late) depending on the situation.

Example:

While studying, you may ignore background conversations, but if someone suddenly says your name or something important, your attention shifts to it.

1.Filter Theory — Broadbent

2.Filter-Attenuation Theory — Treisman

3.Multimode Theory — Johnston & Heinz

B. Divided Attention

Attending to more than one activity simultaneously.

Example

Driving while talking.

C. Sustained Attention

Maintaining attention for a long period.
Also called **Vigilance**.

Example

Air traffic controllers.

Factors Influencing Sustained Attention

- Sensory modality
- Clarity of stimuli
- Intensity
- Temporal uncertainty
- Spatial uncertainty

- **Modality** – The type of sensory channel through which a stimulus is received, such as visual, auditory, or tactile.
- **Clarity of Stimuli** – The degree to which a stimulus is clear and easy to detect or recognize.
- **Intensity** – The strength or magnitude of a stimulus; stronger stimuli attract attention more easily.
- **Temporal Uncertainty** – Uncertainty about **when** a stimulus will appear.
- **Spatial Uncertainty** – Uncertainty about **where** a stimulus will appear.

10. Span of Attention

Meaning

Number of items attended to at one glance.

Miller's Magic Number

7 ± 2

(Generally 5–9 items)

11. ADHD

(Attention Deficit Hyperactivity Disorder)

Characteristics

- Inattention
- Hyperactivity
- Impulsiveness
- Difficulty following instructions

Management

- Behaviour modification
- Positive reinforcement
- Medication (if required)

12. Perception

Meaning

Process of recognising, interpreting and giving meaning to sensory information.

Formula

Stimulus → Sensory Receptors → Attention → Brain → Perception

13. Processing Approaches

Bottom-Up Processing

Parts → Whole

Recognition begins with individual components.

Top-Down Processing

Whole → Parts

Recognition begins with the whole object.

Bottom-Up vs Top-Down Processing

Bottom-Up Processing	Top-Down Processing
Parts → Whole	Whole → Parts
Data-driven	Experience-driven
Starts from sensory information	Starts from prior knowledge

Bottom-Up Example

You identify a dog by first noticing its ears, tail, legs, and fur.

Top-Down Example

Seeing a blurry animal from far away and immediately recognising it as a dog based on previous experience.

14. The Perceiver

Perception depends upon:

Motivation

Hungry people perceive food-related stimuli more easily.

Expectations (Perceptual Set)

We often perceive what we expect.

Example: Expecting the milkman at 5:30 AM.

Cultural Background & Experiences

Culture influences perception.

15. Cognitive Styles

Field-Dependent

- Sees things as a whole.
- Holistic approach.

Field-Independent

- Breaks information into parts.
- Analytical approach.

16. Principles of Perceptual Organisation

(Gestalt Theory)

Gestalt Psychologists

- Max Wertheimer
- Kurt Koffka
- Wolfgang Köhler

Main Idea

"The whole is greater than the sum of its parts."

Principle of Good Figure (Pragnanz)

We perceive stimuli in the simplest and most organised form.

Figure-Ground Relationship

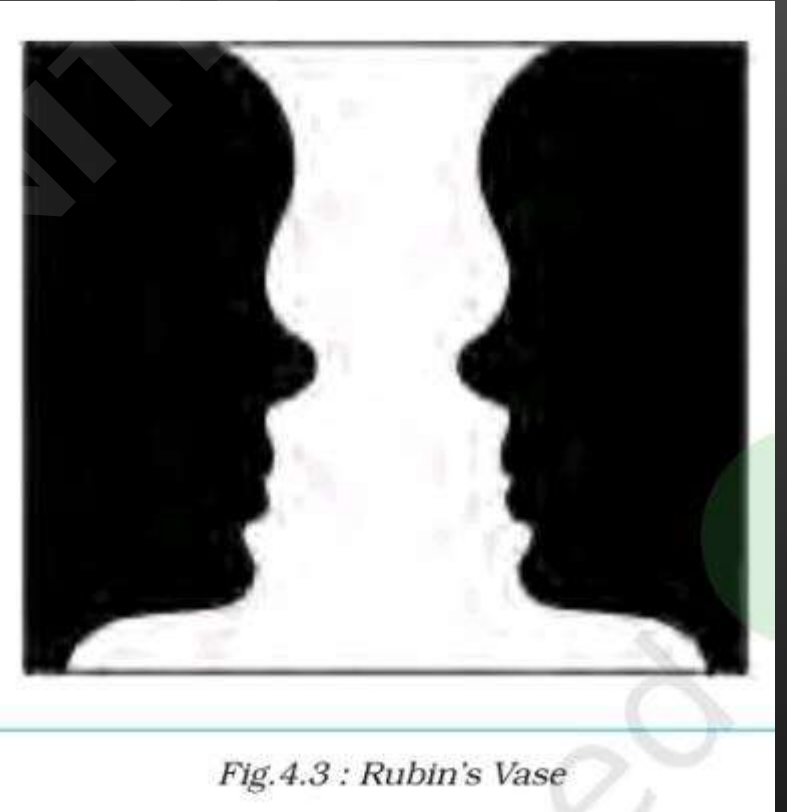
Figure

- Definite form
- Organised
- Clear outline
- Appears nearer

Ground

- Formless
- Less organised
- Unclear
- Appears farther

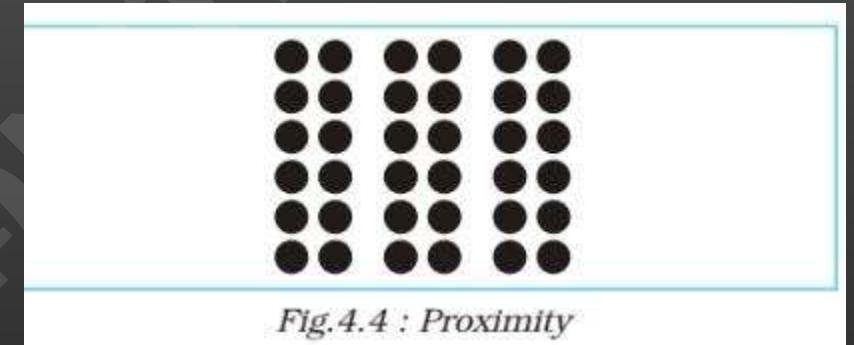
Example: Rubin's Vase



Gestalt Laws

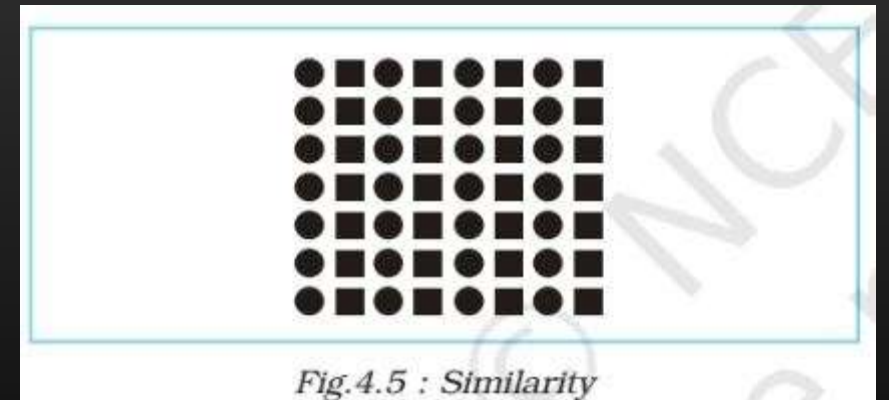
1. Proximity

Objects close together are perceived as a group.



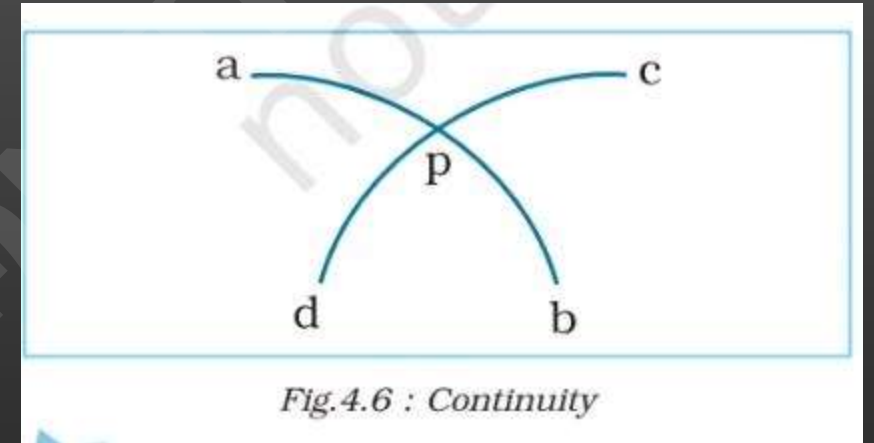
2. Similarity

Similar objects are grouped together.



3. Continuity

Objects forming a continuous pattern are grouped.



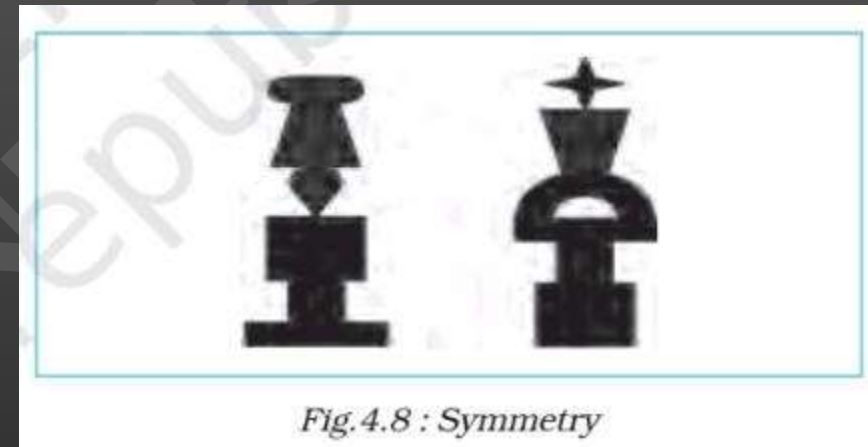
4. Smallness

Smaller areas are perceived as figures.



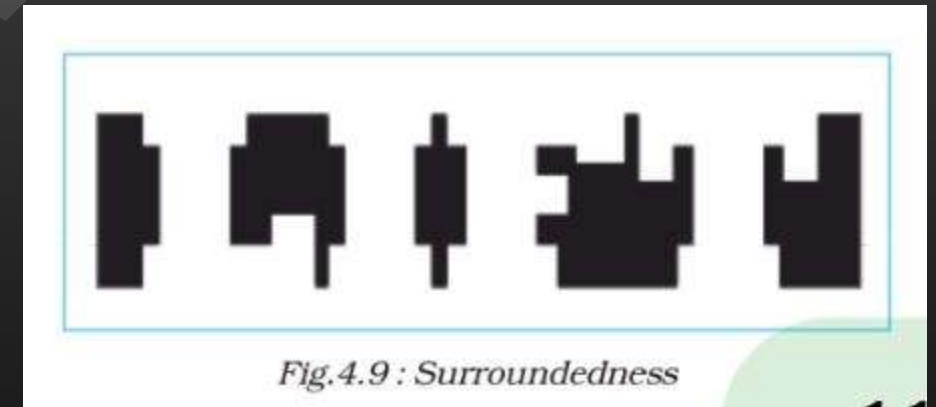
5. Symmetry

Symmetrical areas are perceived as figures.



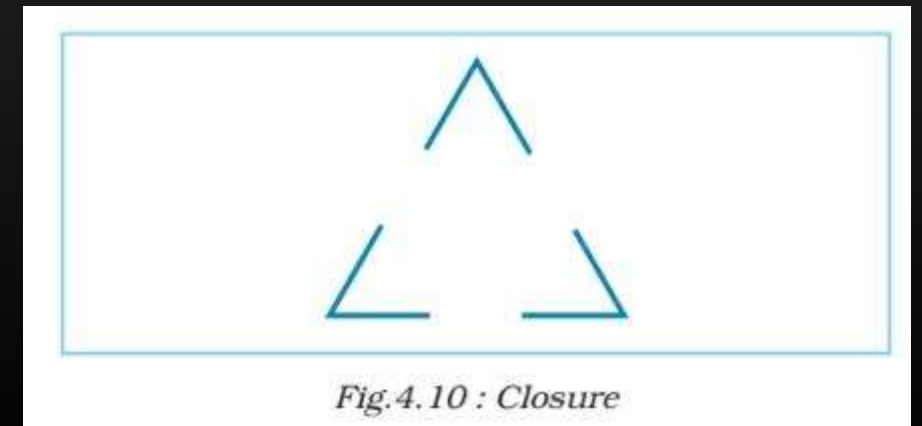
6. Surroundedness

Enclosed areas are seen as figures.



7. Closure

Mind fills gaps and perceives complete figures.



17. Perception of Space, Depth and Distance

Depth Perception

Ability to perceive the world in three dimensions.

Monocular Cues (One Eye)

- ❖ **Relative Size** – Smaller object looks farther away.
- ❖ **Interposition (Overlap)** – Covered object looks farther away.
- ❖ **Linear Perspective** – Parallel lines seem to meet at a distance.
- ❖ **Aerial Perspective** – Far objects look hazy.
- ❖ **Light & Shade** – Shadows help us see depth.
- ❖ **Relative Height** – Higher objects look farther away.
- ❖ **Texture Gradient** – Near objects look detailed; far objects look smooth.
- ❖ **Motion Parallax** – Near objects seem to move faster than far objects.

Easy Trick to Remember

RI LAL RTM

B. Binocular Cues

(Both Eyes)

Retinal Disparity

Difference in images formed on both retinas.

Convergence

Eyes turn inward when viewing nearby objects.

Accommodation

Change in lens shape for focusing.

Monocular Cues	Binocular Cues
Need only one eye	Need both eyes
Psychological cues	Physiological cues
Help judge depth and distance	Help judge depth and distance
Effective even when one eye is closed	Require both eyes to work together

Perceptual Constancies

1. Size Constancy

Meaning

Object appears to have the same size despite changes in distance.

Example

A friend walking away appears smaller on the retina, but we know their actual size has not changed.

2. Shape Constancy

Meaning

Object appears to retain the same shape despite changes in viewing angle.

Example

A circular dinner plate still appears circular even when viewed from the side.

3. Brightness Constancy

Meaning

Objects are perceived to have the same brightness despite changes in illumination.

Example

A white shirt appears white both in sunlight and in a dim room.

19. Illusions

Meaning

Misinterpretation of sensory information.

Types of Illusions

☐ Universal Illusions

Experienced by almost everyone.

☐ Personal Illusions

Differ from person to person.

Important Visual Illusions

1. Müller-Lyer Illusion

Equal lines appear unequal.

2. Vertical-Horizontal Illusion

Vertical line appears longer than horizontal line.

3. Apparent Movement (Phi Phenomenon)

Motion is perceived although nothing actually moves.

Example: Movies and television.

20. Socio-Cultural Influences on Perception

Perception is affected by:

- Culture
- Learning
- Experience
- Environment

People from different cultures may perceive the same stimulus differently.

Socio-Cultural Influences on Perception (Example)

Meaning

Culture, learning, and experiences influence how people perceive the world.

Example 1

People living in forests may perceive depth and distance differently from people living in cities.

Example 2

Someone who has never seen photographs may find it difficult to identify objects shown in pictures.

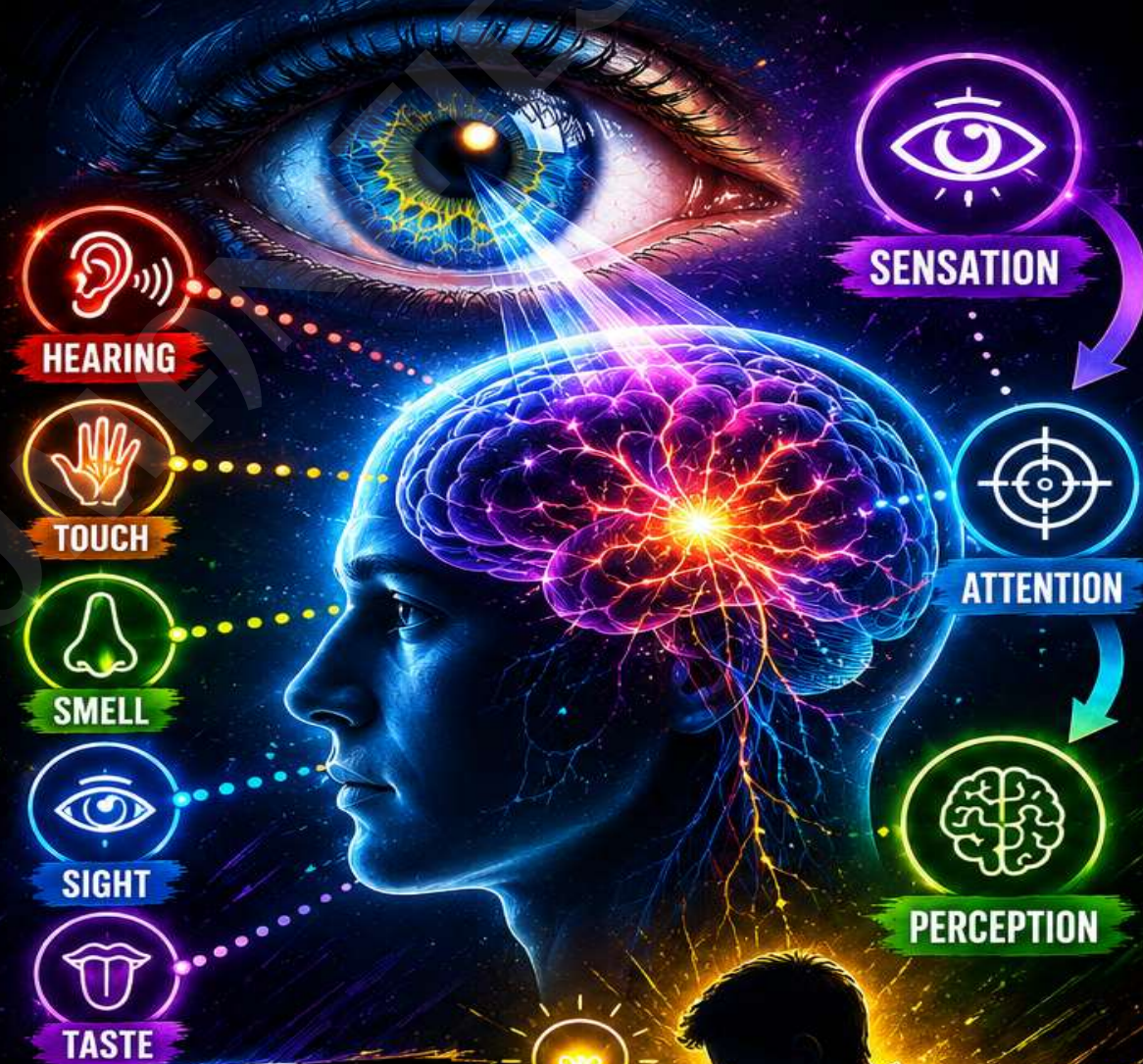
Example 3

Different cultures may experience visual illusions differently because of their environmental experiences.

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