

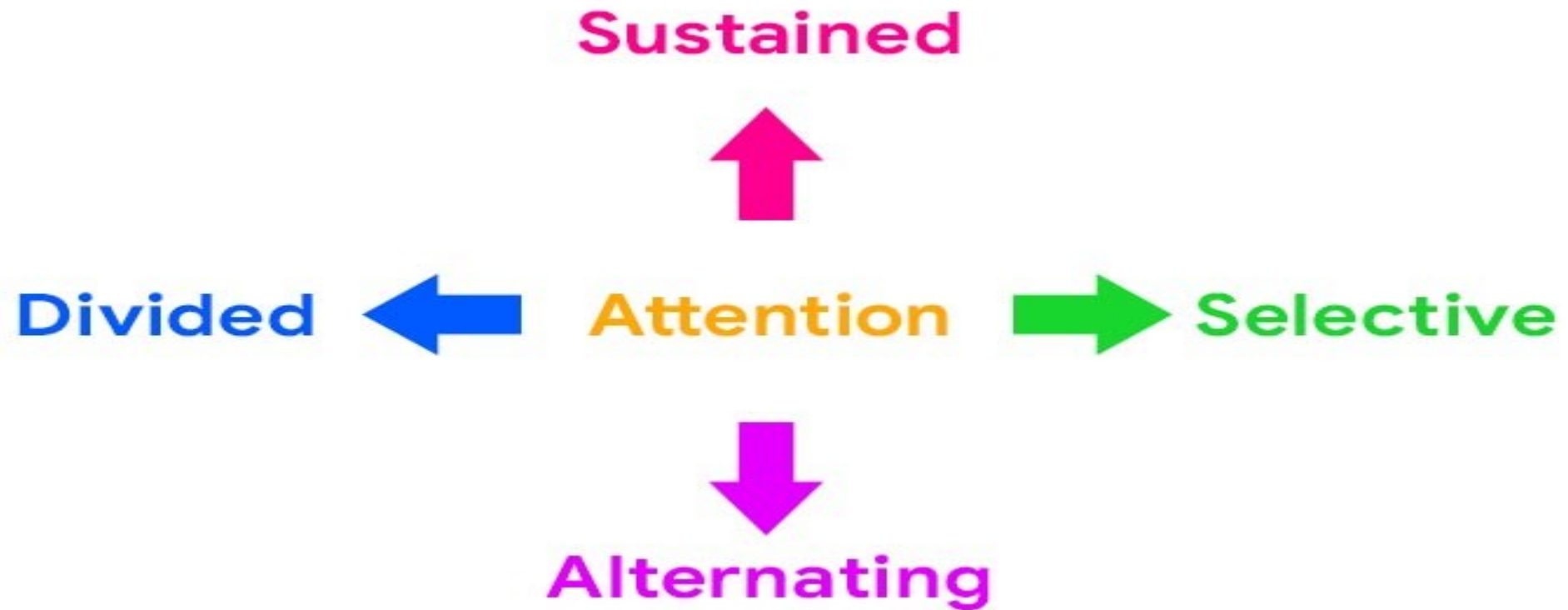
Attention & Perception

UNIT-3

Attention

- Attention is a state of consciousness in which a person can respond to a stimulus or stimuli.
- In psychology, a stimulus can be a required task, an object, or an event that requires a response.
- Attention is a combination of how long a person can focus and how many things they can focus on.

Types of Attention



Four different types of attention

- There are four different types of attention that we'll define: sustained, divided, selective and executive.

Sustained Attention

- Sustained attention means focusing on a person, task or activity for a certain time or until the relevant conversation, task or activity is complete. Another example is when we learn through studying and writing tests and exams.
- Another related type is known as focused attention, which involves being able to rapidly respond to external stimuli, such as loud noises.

SUSTAINED ATTENTION

Staying focused on a task for an extended period of time

Sustaining attention during lectures or reading assignments.

Following through on instructions or completing multi-step tasks.

Staying engaged in conversations without interrupting

Completing routine tasks, organizing their belongings or keeping track of deadlines.



Divided Attention

- This involves trying to focus on many different conversations, tasks and activities at the same time, also known as multitasking.
- Although a common practice, it's rarely effective, as we only have so much energy to devote to each task.
- Related to this is alternating attention.
- It is similar to multitasking, but involves seamlessly moving from one task to another, instead of dividing your focus.

DIVIDED ATTENTION

Remembering all the steps required to complete an assignment while paying attention to other classroom activities.

Listening to and processing other students' ideas while also expressing their own thoughts and opinions in group discussions.

Note taking during a lecture

Driving and listening to the radio or talking



Selective Attention

- Selective attention involves being able to focus on a specific task while simultaneously being able to block out any background noise or stimuli. This can be a difficult skill to master, depending on your level of sensitivity, but is a valuable tool in being able to function in a noisy world!
- One example includes being able to read a book while there is loud background noise around you. However, it can also refer to not engaging with inner stimuli such as thoughts.

Types of attention



Selective attention



Divided attention

Executive Attention

- Executive attention is similar to selective attention, as it involves being able to block out distractions and focus on a specific task. However, the difference is that this way of focusing also involves ruthless prioritization and only focusing on activities that will help to achieve a certain goal.
- For example, the managing director of a company can't attend to everything that is going on, but they can block out all the hundreds of emails they receive and devote themselves to completing the critical tasks of the day.

Factors Influencing Attention:

- **Salience:** How noticeable or relevant a stimulus is in the context (e.g., bright colors, loud noises).
- **Interest:** Personal relevance and emotional connection can enhance attention.
- **Cognitive Load:** The amount of mental effort required can affect how well we can focus.

Factors affecting attention

- There are several factors that can affect attention.
- Each of these factors can increase or decrease a person's attention to a certain object, person or concept.
- These could be classified under two broad categories namely external factors and internal factors

External factors

- Factors which are present outside the stimuli or situation refer to external factors. These can also be called as **objective factors**.



- **Motion:** Adults and children are more likely to pay attention to an object when there is motion involved
- **Size:** Size has an effect on attention. Objects or text that is larger gain more attention than normal or small objects. At the same time very small objects too draws our attention when compared to normal size.
- **Intensity:** Intense objects attract our attention. Loud sound, bright objects and strong smell draws our attention easily.
- **Contrast:** Anything that is different from its surroundings is contrast. A black dust in white sugar draws more attention
- **Novelty:** New things attract people more

- **Emotion:** Words with strong emotional connections seem to gain more attention than others.
- **Personal Significance:** A person is more likely to pay attention to a person or concept that has a personal significance to them. Example: If a person suffers from a disease, they are more likely to pay attention to a lecture about that disease, because they know how it could affect their lives.
- **Social cues:** People are more likely to pay attention to things they see others looking at or reacting to

External



Intensity

Size

Color

Movement

Interest

Mood

Motives

Emotions

Internal

Internal factors

Internal factors are concerned with the individual.

Hence it is also called as **subjective factors**.

The factors are:

- **Interest:** People always give more attention to stimuli or situation in which they are interested. Interesting things draws our attention immediately
- The interest of a person plays a key role in determining one's attention. Each of our interests may be regarded as a powerful stimulus to draw our attention to a particular thing, person or an activity

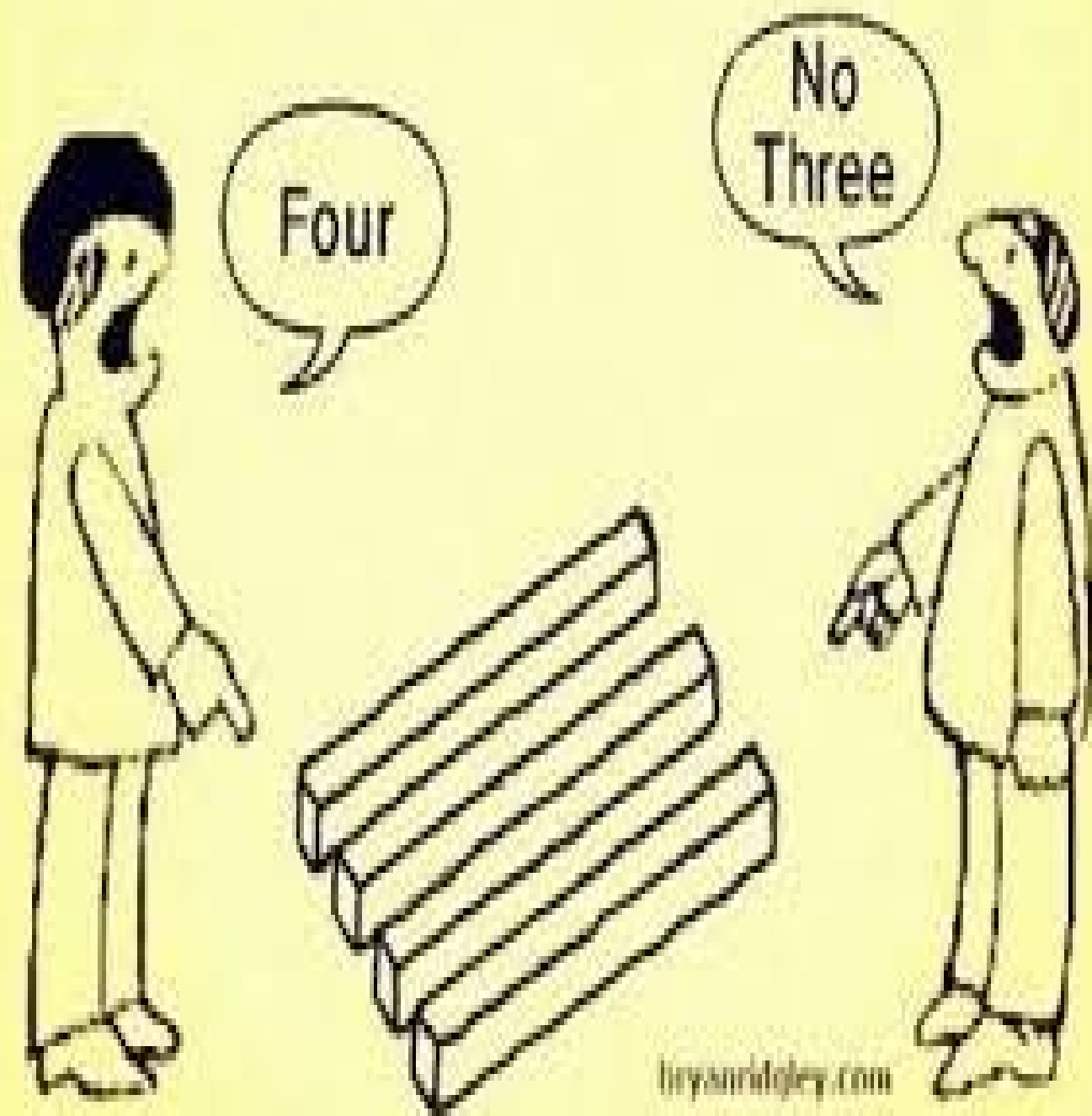
Desire: People pay attention to things which they desire for.

- When we go to a shop we give more attention to materials that we desire to buy than to other materials.

Motives: Basic motives are so powerful and are important in drawing attention. A person who is hungry will pay more attention to places where food is available.

Goal: People will be paying attention to activities which will help them to achieve their goal. Students pay more attention to studies before examination as their goal is to pass/ excel in the examination

Past experience: It is also a factor that influences attention. For example, the past experiences with certain persons make us think that they are sincere and we may give attention to their communication than to people who were not sincere to us.



Perception

- **Definition:** Perception is the process of interpreting and organizing sensory information to understand the environment.
- It involves not just the raw data received through our senses, but also the cognitive processes that give meaning to that data.

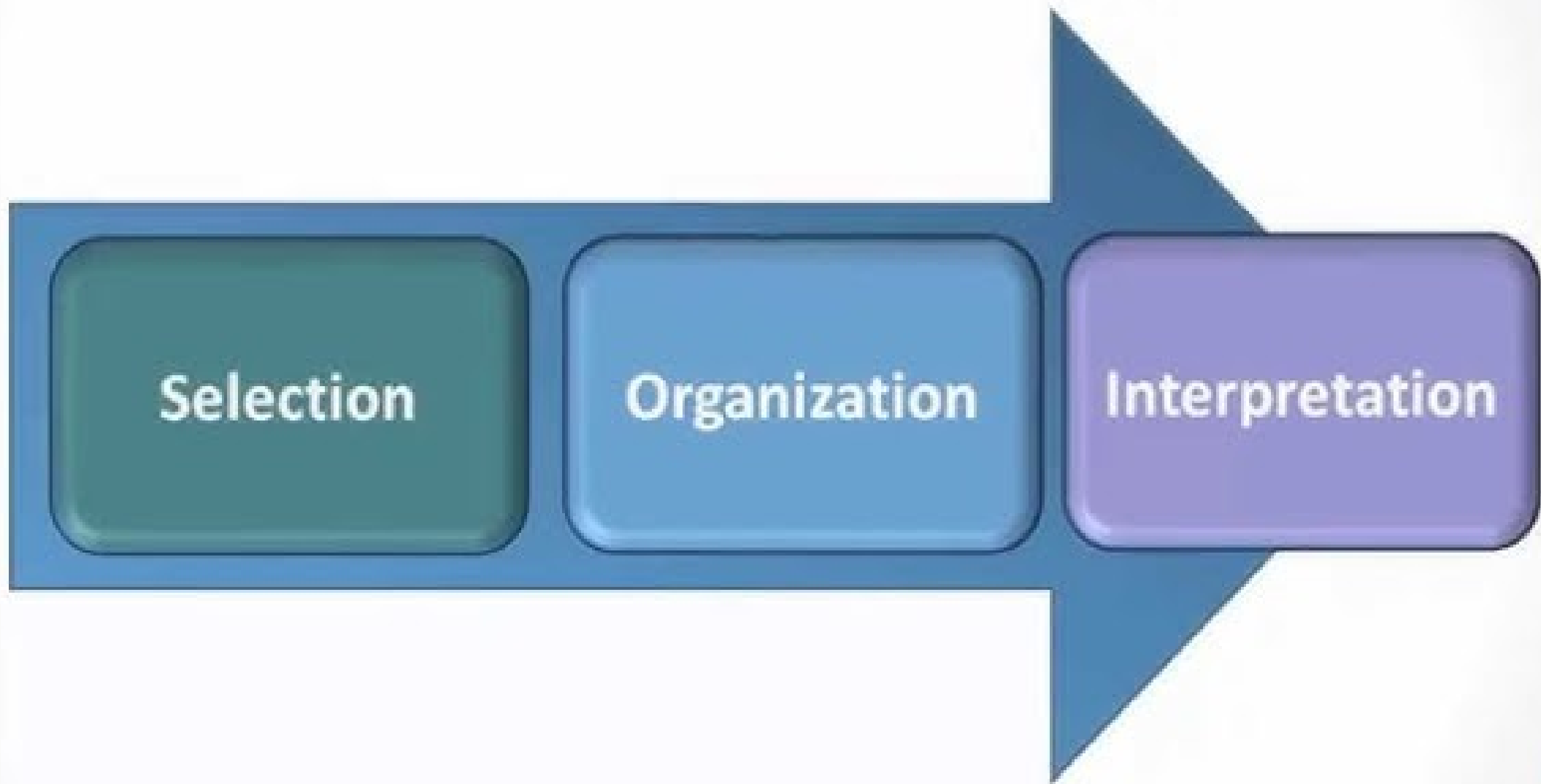
Stages of Perception:

Sensation: The initial detection of stimuli through sensory organs (e.g., seeing light, hearing sound).

Attention: Selecting which sensations to focus on.

Interpretation: Making sense of the sensory information, influenced by past experiences, expectations, and context.

Three basic stages



The perceptual process

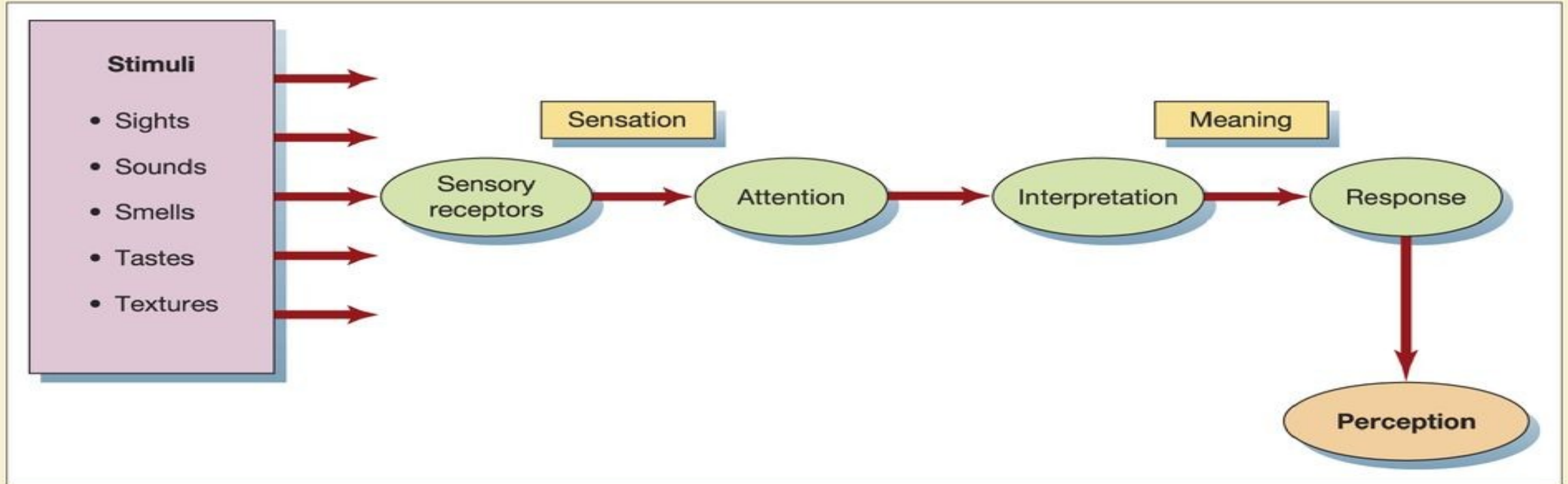
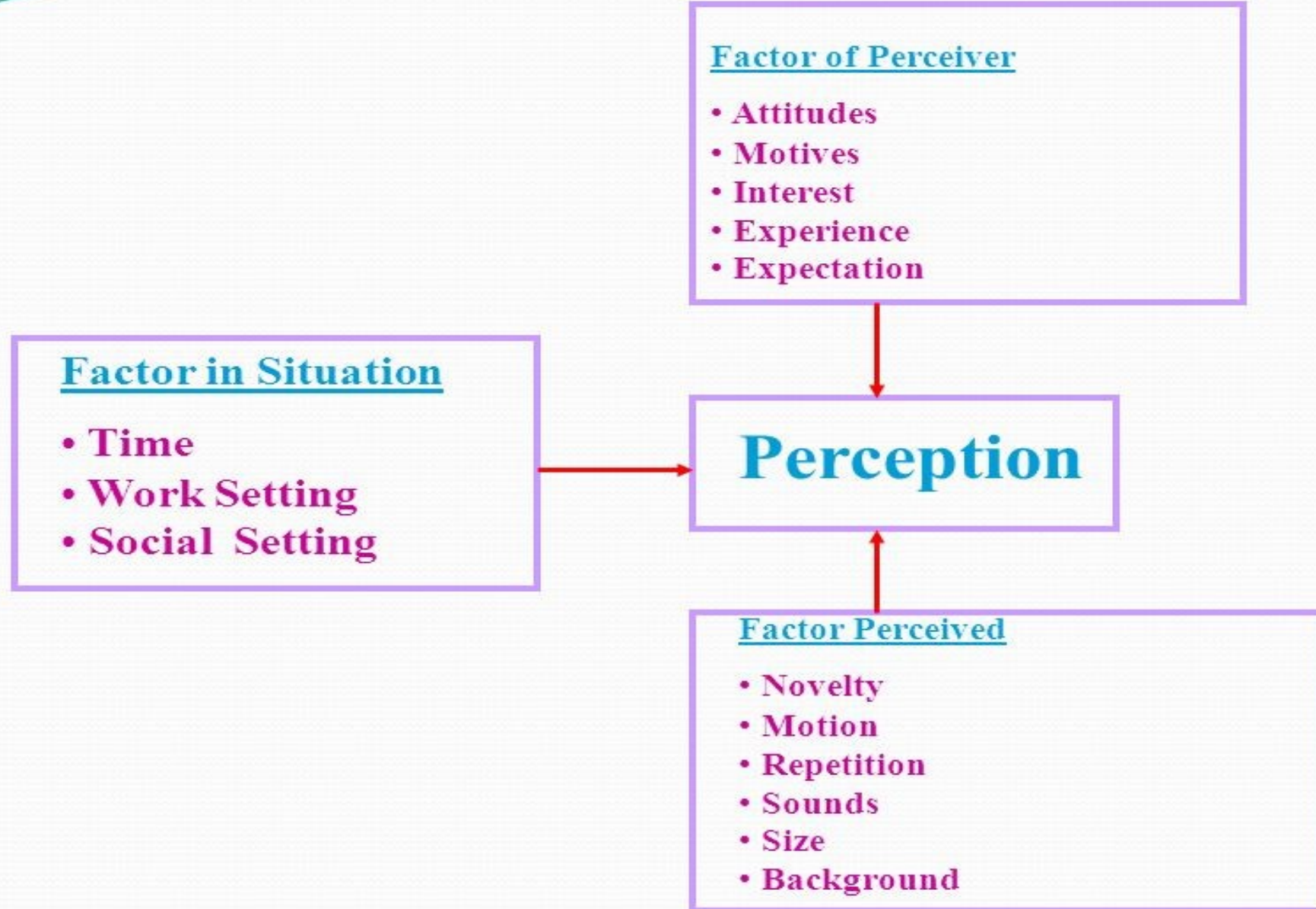


Figure 4.1 An overview of the perceptual process

Factors Influencing Perception:

- **Context:** The environment and surrounding stimuli can alter how we perceive a particular stimulus (e.g., the same color may look different under different lighting).
- **Expectations:** Preconceived notions can affect perception (e.g., expecting a certain outcome may influence how we interpret ambiguous information).
- **Cultural Background:** Cultural differences can shape how we interpret and respond to various stimuli.

Factor Influence Perception



- i) Factors in the perceiver (perceiver variables)
- ii) Factors in the target (subject characteristics)
- iii) Factors in the situation (situational variables).

Factors in the perceiver include following issues:

- Self-concept of the perceiver;
- Attitudes of the perceiver;
- Motives of the perceiver;
- Interests of the perceiver;
- Experience of the perceiver;
- Expectations of the perceiver.

Factors in the target include following issues:

- Physical appearance
- Verbal and Nonverbal Communication
- Status
- Occupations
- Personal characteristics
- Novelty of the target
- Motion of the target
- Sounds of the target
- Size of the target
- Background of the target
- Proximity of the target

Factors in the situation include following issues:

- Social context
- Organizational role
- Work setting
- Location of event
- Time

Perception can be categorized in various ways, reflecting how we interpret and understand sensory information. Here are some key types of perception:

Visual Perception

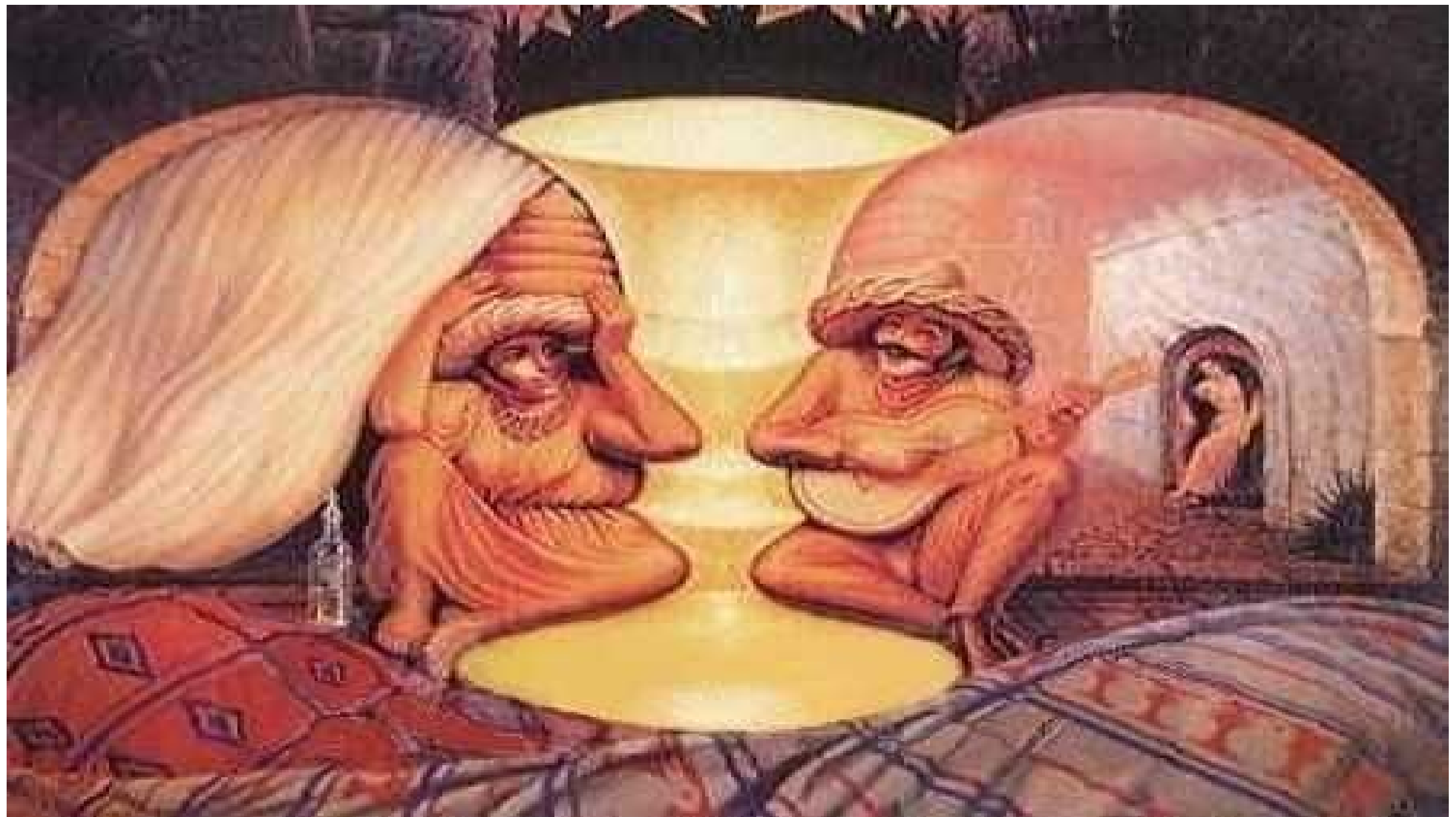
- **Description:** The ability to interpret and make sense of visual stimuli, including shapes, colors, depth, and motion.
- **Examples:** Recognizing faces, reading text, and interpreting visual art.

Auditory Perception

- **Description:** The process of interpreting sounds, including pitch, volume, and timbre.
- **Examples:** Understanding spoken language, identifying music notes, and distinguishing different sounds in an environment.

Tactile Perception

- **Description:** The ability to perceive touch sensations through skin receptors.
- **Examples:** Feeling texture, temperature, pressure, and pain.



Olfactory Perception

- **Description:** The sense of smell and the ability to identify and differentiate odors.
- **Examples:** Recognizing the smell of food, perfumes, or natural scents.

Gustatory Perception

- **Description:** The sense of taste and how we interpret flavors through taste buds.
- **Examples:** Distinguishing between sweet, sour, salty, bitter flavors.

Kinesthetic Perception

- **Description:** The awareness of body position and movement, often referred to as proprioception.
- **Examples:** Knowing where your limbs are without looking, coordinating movements in sports.

Social Perception

- **Description:** The process of interpreting and understanding social cues and behaviors.
- **Examples:** Reading body language, understanding emotions in others, and interpreting social dynamics.

Environmental Perception

- **Description:** How we perceive and interpret our surroundings, including spatial awareness and navigation.
- **Examples:** Understanding geographical layouts, recognizing landmarks, and sensing distances.

Temporal Perception

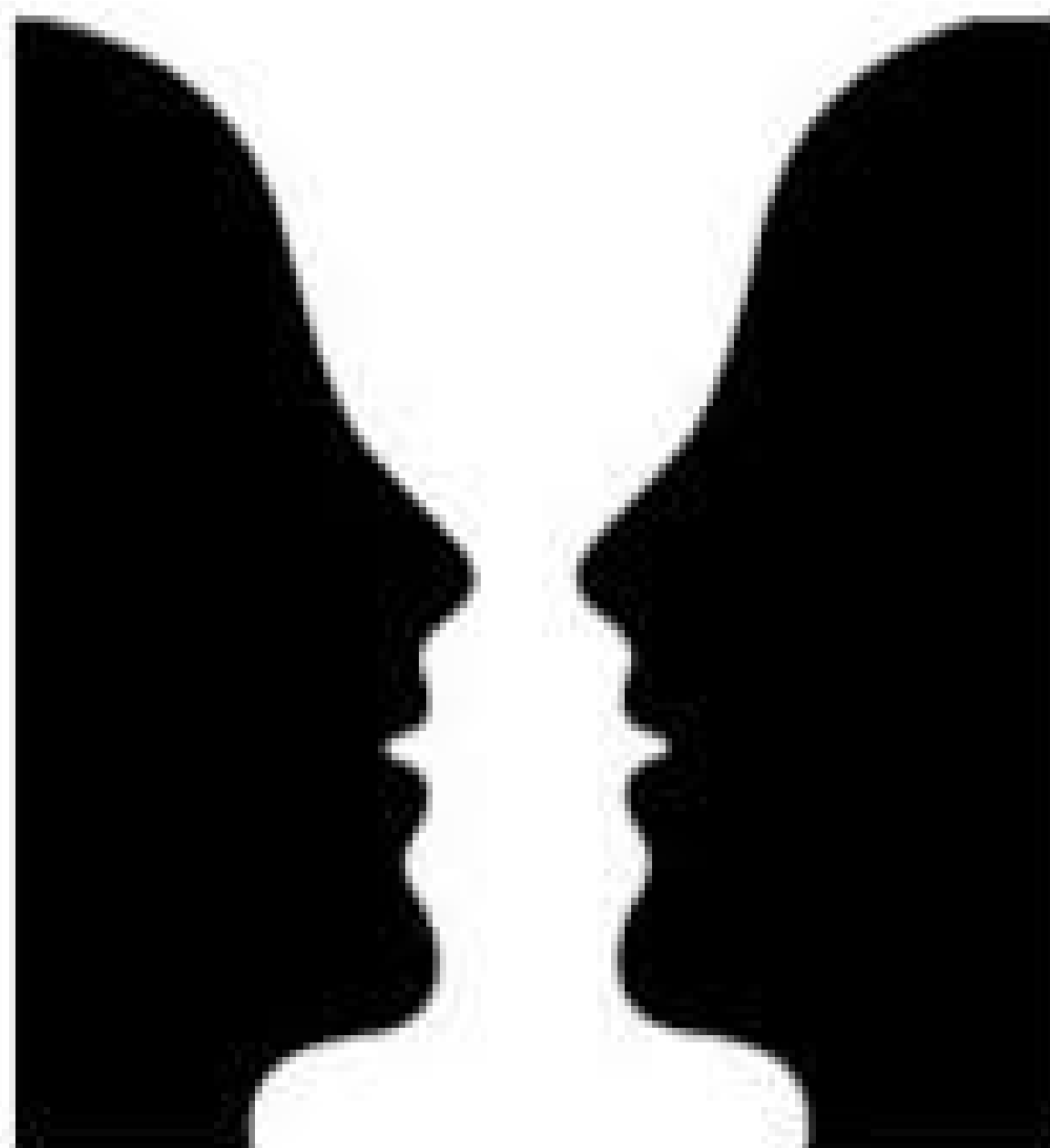
- **Description:** The perception of time and how we experience its passage.
- **Examples:** Noticing the duration of events, the speed of moving objects, and the timing of rhythms in music.

The principles of perception

- The principles of perception describe how we organize and interpret sensory information. Here are some key principles that guide our perceptual processes:

Figure-Ground Relationship

- **Description:** This principle involves distinguishing an object (the figure) from its background (the ground). Our brain tends to separate elements to focus on the most relevant part of a scene.
- **Example:** In a picture with a face against a complex background, we perceive the face as the figure and the background as the ground



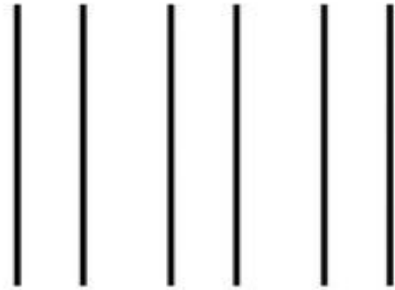


Grouping

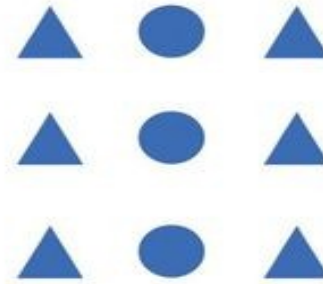
- **Description:** Our minds tend to organize stimuli into groups based on certain characteristics. This can include proximity, similarity, continuity, closure, and connectedness.
 - **Proximity:** Objects close together are perceived as a group.
 - **Similarity:** Similar objects are grouped together.
 - **Continuity:** Lines are perceived as following the smoothest path.
 - **Closure:** Incomplete shapes are perceived as complete.
 - **Connectedness:** Elements that are linked are seen as a single unit.

Grouping

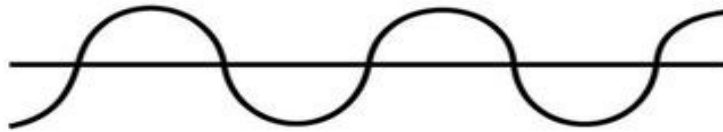
After distinguishing the figure from the ground, our perception needs to organize the figure into a meaningful form using grouping rules.



Proximity



Similarity



Continuity

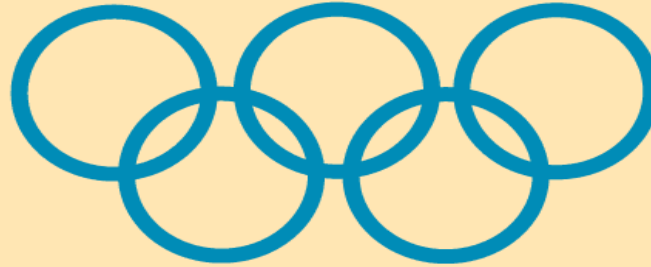


Connectedness

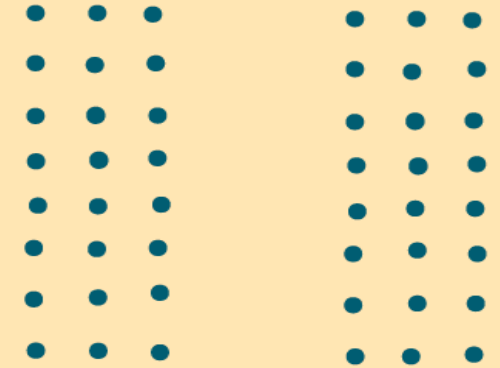
Examples of the Gestalt Laws



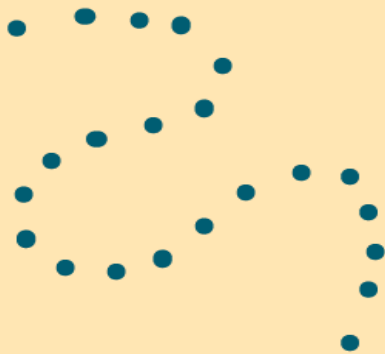
Law of Similarity



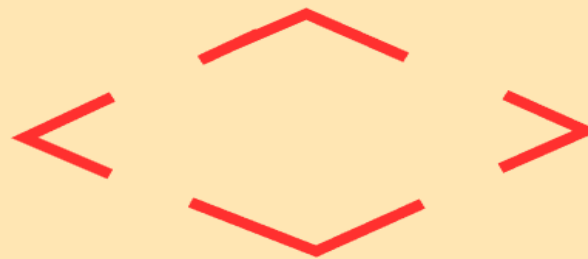
Law of Pragnanz or the
Law of Good Figure



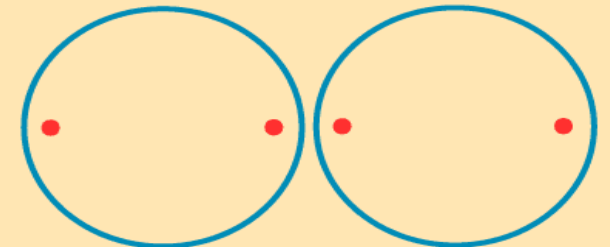
Law of Proximity



Law of Continuity



Law of Closure



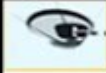
The Law of Common Region

Depth Perception

- **Description:** This principle allows us to perceive the world in three dimensions and judge distances. Depth cues can be binocular (using both eyes) or monocular (using one eye).
- **Example:** Binocular cues include retinal disparity (the difference between images from each eye), while monocular cues include size, overlap, and perspective.

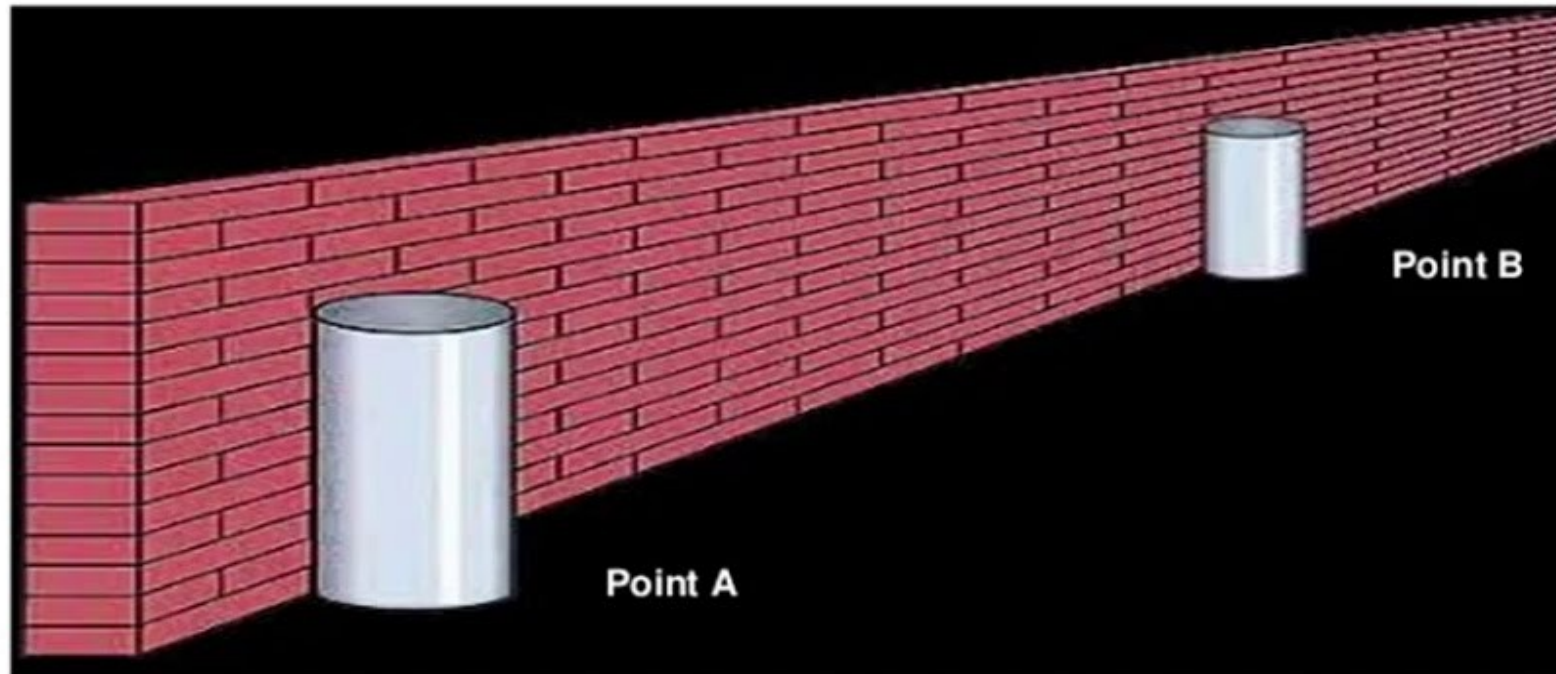
Constancy

- **Description:** Perceptual constancy refers to our ability to perceive objects as stable and unchanging despite variations in sensory input. This includes:
 - **Size Constancy:** Objects are perceived as the same size despite changes in distance.
 - **Shape Constancy:** Objects are perceived as having the same shape, even when viewed from different angles.
 - **Color Constancy:** The perceived color of an object remains the same under varying lighting conditions.



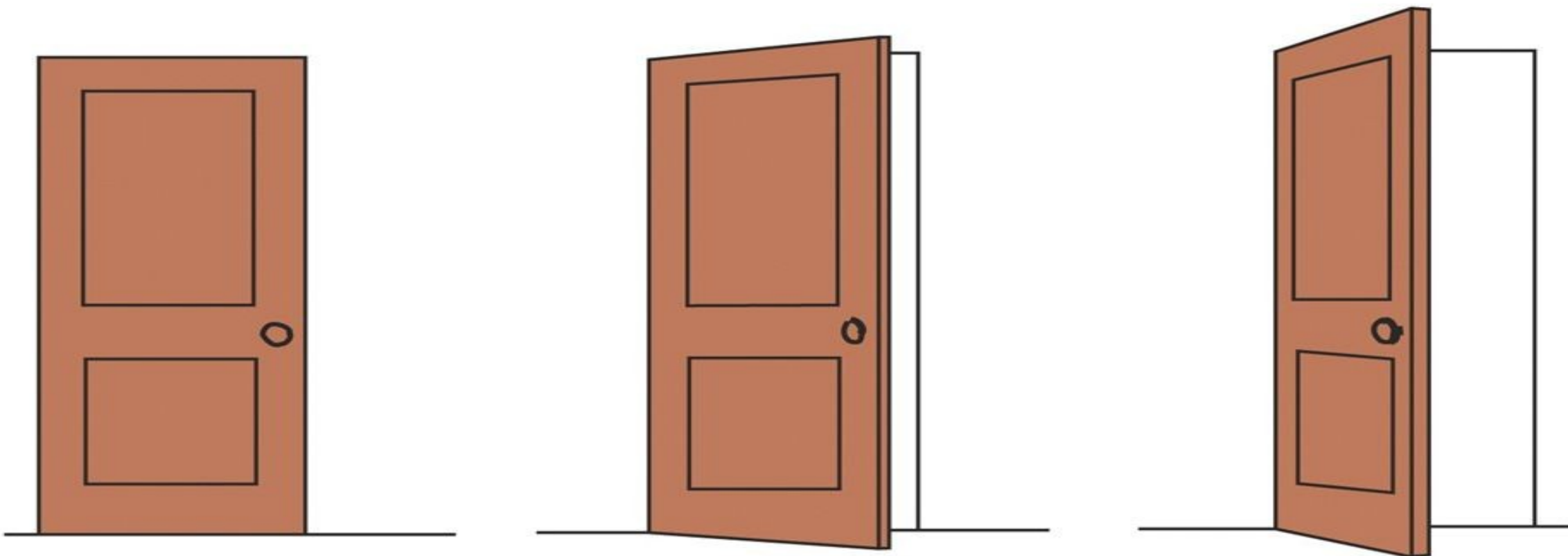
Perceptual Constancy

- Size Constancy
 - Objects are perceived to have the same size no matter how far it is from us.



Shape Constancy

- The understanding that an object's shape remains the same even though the *angle* of view makes the shape appear changed



Colour constancy



Perceptual Set

- **Description:** This principle refers to a predisposition to perceive things in a certain way based on expectations, experiences, and context.
- **Example:** If someone is told to look for a specific shape, they are more likely to notice that shape even in a complex image.

Top-Down Processing

- **Description:** This principle emphasizes the role of prior knowledge, experience, and expectations in shaping our perception. Our brain uses context to interpret sensory information.
- **Example:** Reading a sentence with missing letters can still be understood because our brain fills in the gaps based on context.

Bottom-Up Processing

- **Description:** This approach focuses on the sensory input itself and how it is processed to form a perception. It starts with the details and builds up to a complete perception.
- **Example:** Recognizing a familiar object by identifying its individual features (like color, shape, and texture).

Top-Down Processing

Interpretation based on
prior knowledge,
expectations, and
experiences



Example: When listening to a song you know well, you anticipate the next lyrics based on what you've heard before. Your familiarity with the song's melody and lyrics guides your prediction, even if you haven't consciously thought about it.

Example: When you start reading a new book, you figure out what the words and sentences mean as you go. You understand the story by looking at the details in the text and building up your understanding from scratch.



Building perception from
individual sensory inputs

Bottom-Up Processing

Factors influencing perception

Sensory Input

- **Intensity:** More intense stimuli (e.g., bright lights, loud sounds) are more likely to be noticed and attended to.
- **Contrast:** Differences in stimuli (e.g., contrasting colors or sounds) can enhance perception.

Attention

- **Focused Attention:** What we choose to focus on can significantly alter our perception. Selective attention filters out distractions and highlights specific details.
- **Divided Attention:** Attempting to process multiple stimuli can lead to misinterpretations or missed information.

Past Experiences

- **Learning and Memory:** Previous experiences shape how we perceive new stimuli. Familiarity can lead to quicker recognition and interpretation.
- **Cognitive Schemas:** Mental frameworks built from past experiences influence how we interpret new information.

Expectations and Context

- **Expectations:** What we expect to see or experience can shape our perceptions. Our brains use prior knowledge to interpret ambiguous stimuli.
- **Context:** The surrounding environment and situational factors can affect how we perceive specific stimuli (e.g., a color may look different depending on its background).

Cultural Background

- **Cultural Influences:** Different cultures can shape perceptions, including interpretations of emotions, social cues, and visual stimuli.
- **Social Norms:** Cultural norms influence how we interpret behaviors and interactions, affecting our perceptions of social situations.

Motivation and Emotion

- **Motivation:** Personal goals and desires can influence perception. We are more likely to notice stimuli that align with our interests or needs.
- **Emotional State:** Current emotions can alter perceptions. For example, feeling happy may lead to a more positive interpretation of ambiguous situations.

Social Influences

- **Social Interactions:** Feedback and reactions from others can shape our perceptions of situations and ourselves.
- **Group Dynamics:** Being part of a group can influence how we perceive others and situations, often leading to conformity or groupthink.

Physiological Factors

- **Biological Differences:** Individual differences in sensory systems (e.g., vision, hearing) can affect how we perceive the world.
- **Health Conditions:** Certain medical conditions can impact perception, such as color blindness or hearing impairments.

Errors in Perception

- Perceptual errors, also known as optical **illusions**, are systematic errors in the way we perceive figures or scenes. They occur when the perceptual processes that help us perceive the world around us are fooled by a situation. For example, we might see something that doesn't exist or is incorrect.

Examples of perceptual errors:

- **Haze**

Haze, which can be caused by atmospheric dust particles, fog, or water vapors, can make it seem like objects are closer or farther away than they actually are.

- **Visual masking**

A second brief stimulus, called the "mask", can reduce or eliminate the visibility of a first brief stimulus, called the "target"

- **Binocular rivalry**

This occurs when different images are presented to each eye, causing an unintentional alternation between them

Spatial disorientation

- This occurs when a person's perception of position and motion doesn't match reality

Hallucinations

- Perceptions that are not based on sensory input, and involve experiencing something that doesn't exist.
- For example, hearing voices or seeing imaginary objects. Hallucinations are typically experienced by an individual and are mostly subjective experiences.