



# IHS – L21

## Introduction to Psychology

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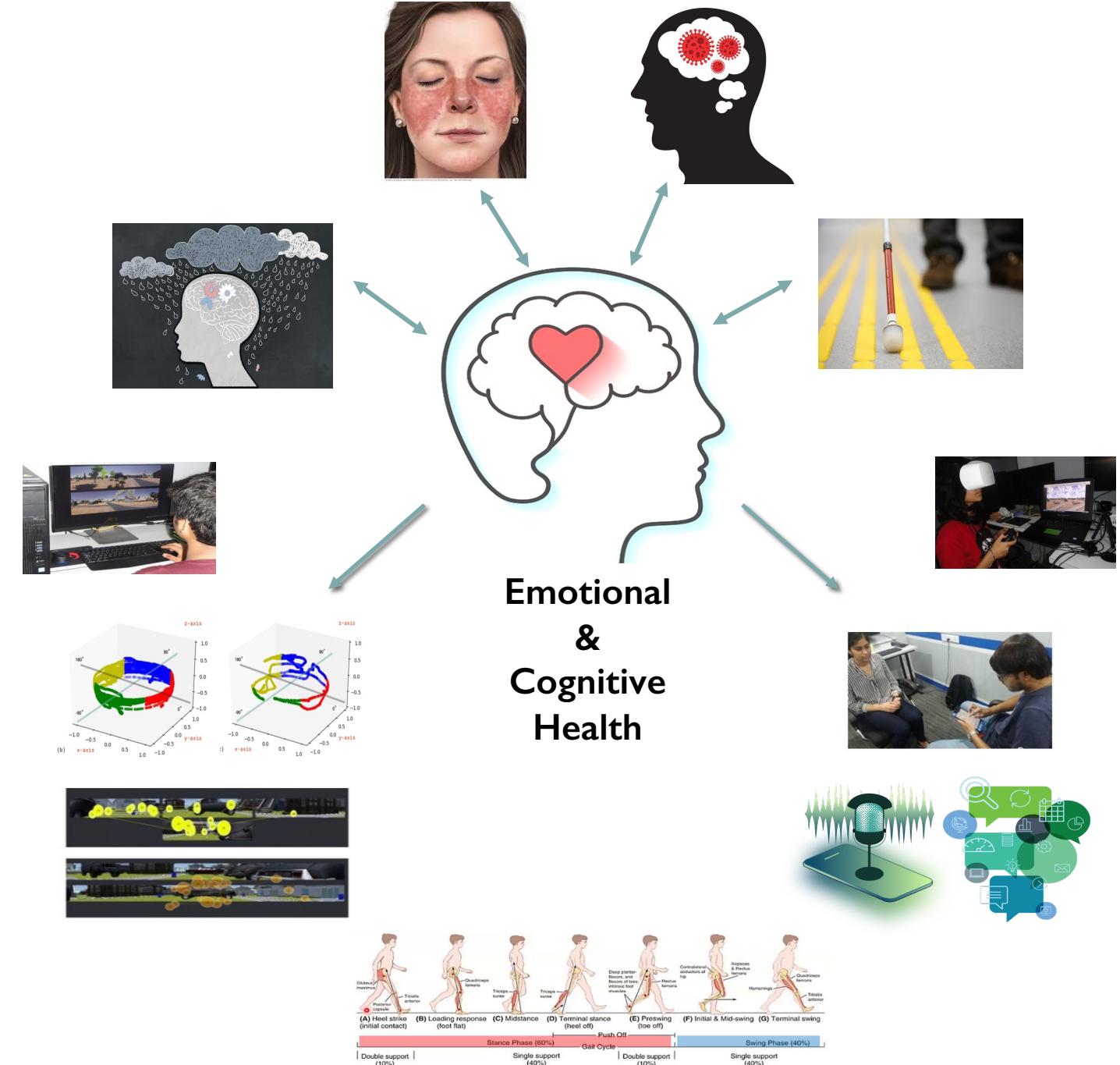
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# Perception and Cognition Lab (PAC) Cognitive Science Centre KCIS, IIITH

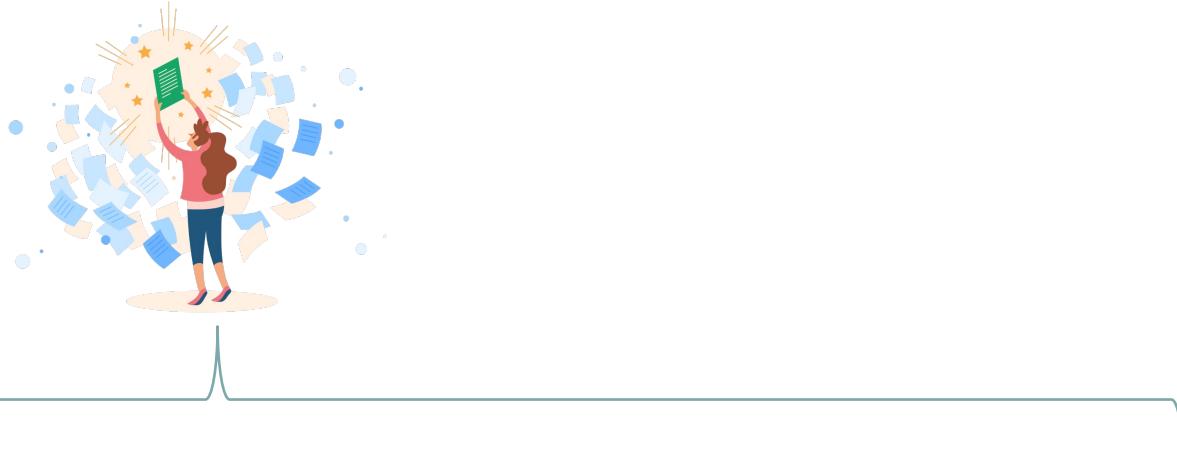
[priyanka.srivastava@iiit.ac.in](mailto:priyanka.srivastava@iiit.ac.in)



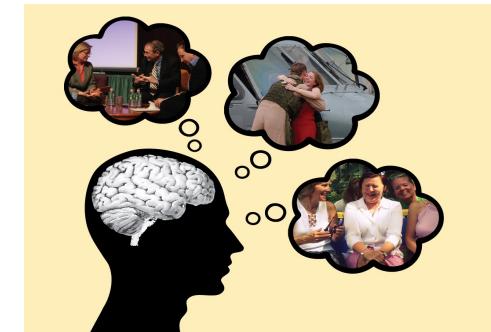
# Overview



What and Why of Psychology  
(roots of psychology, goals and levels of analysis, great debates, and how learning Psychology may impact our lives)



Individual Perspectives  
(Cognitive, Neuroscience, and Evolutionary perspectives in understanding individual behavior)



Social and Cultural Perspectives  
(What and how of social perspectives and will learn the power of situation than individual)

# What does Psychology means to Me?

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# What is Psychology?

# Scientific study of Mind, Brain and Behaviour



Internal & Abstract

Internal  
External

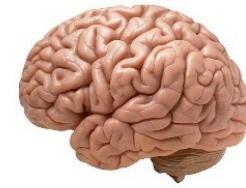
What enable us to think, feel, perceive, and act., include conscious and unconscious processes and activities



Only Measurable



Internal & Physiological



Observable & Measurable

Directly  
Observable  
Measurable

A lump of soft tissues called neuron, Carries only 2% of the body weight, 3 pounds approx., 25% of body's oxygen, 70% of glucose, Never rest, its metabolic rate in both day and night is more or less the same



External & Physiological

Scientific study

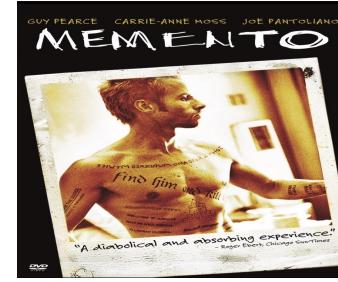
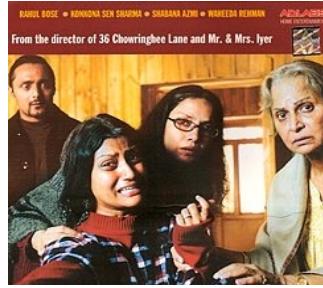
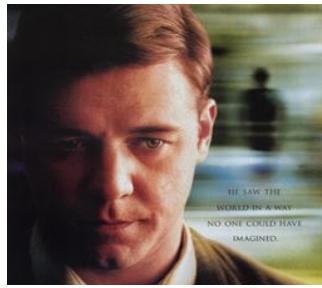


Observable & Measurable



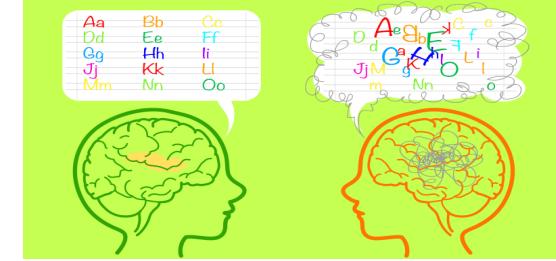
Action (movements or activities), mannerism

# Psychology – Disordered mind and behaviour (examples)



SCHIZOPHRENIA

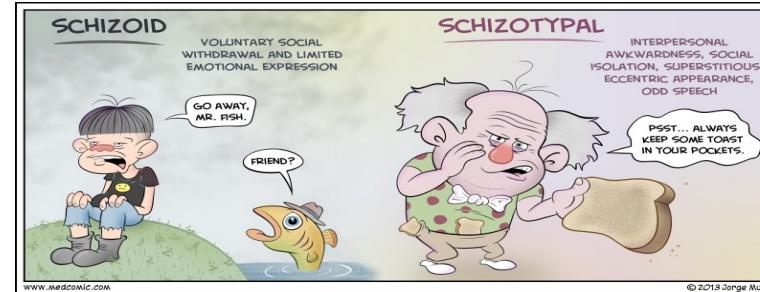
LOSS OF MEMORY



DYLEXIA



PTSD



PERSONALITY  
DISORDER



DEPRESSION



CATATONIA



ADHD

# Psychology – Ordered mind &behaviour (examples)

**Delusion** (abnormalities of thought, a fixed belief), **Illusion** (false perception of real external stimulus), **Hallucination** ( sensory experience occurs in absence of external stimuli, resembling a veridical perception) and **Reality** (What's that? )

Attention, Perception, perception of time, Memory

Intellectual capability than intellectual disabilities

Emotion regulation versus dysregulation

Social interaction ability versus problems with social skills

Motivation and concept of self

Language and communication

Learning

- **What are the bases of Psychology ?**
- **How does the mind usually allow us to function effectively in the world?**
- **Why does the mind occasionally function so ineffectively in the world?**

**WHY DO WE THINK THE WAY WE THINK ?  
WHAT MOTIVATE US TO THINK?**



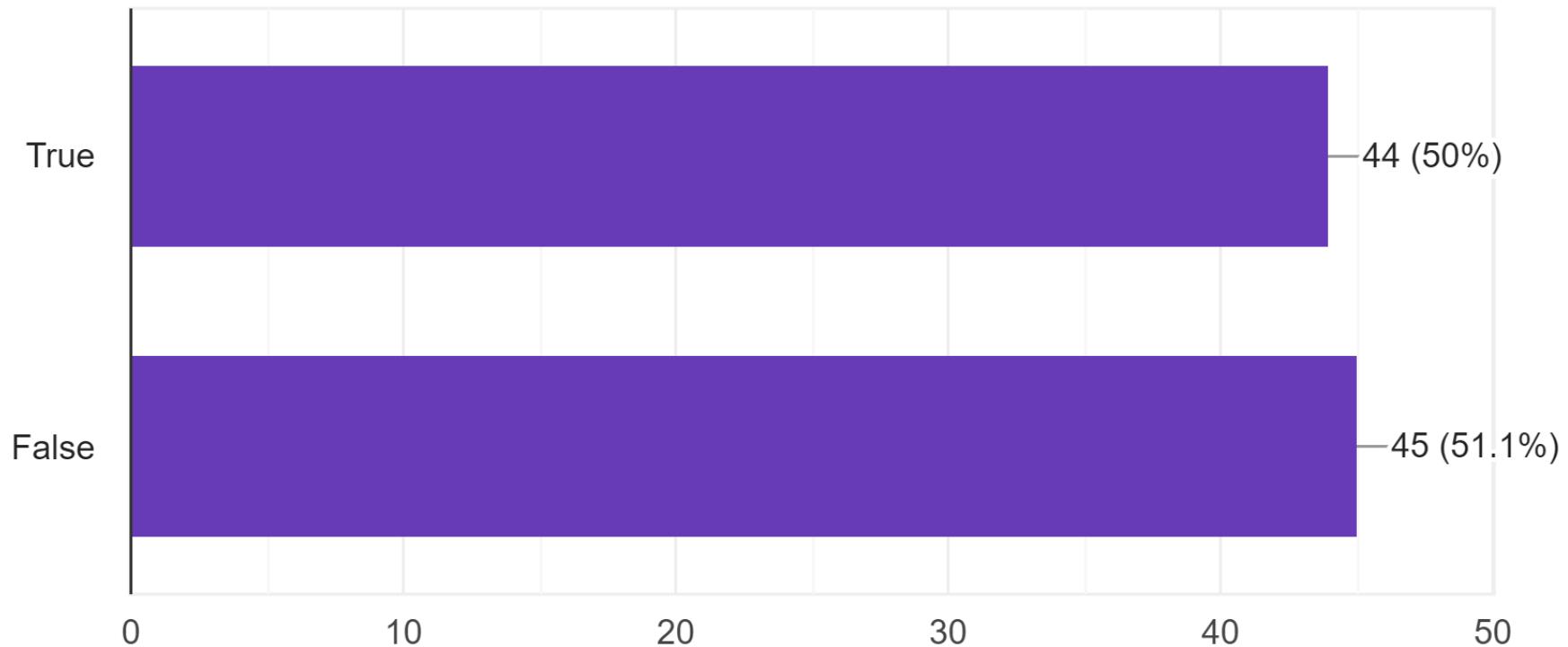
## Psychology – Activity I

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<https://forms.office.com/r/j3C7LJ3CHs>

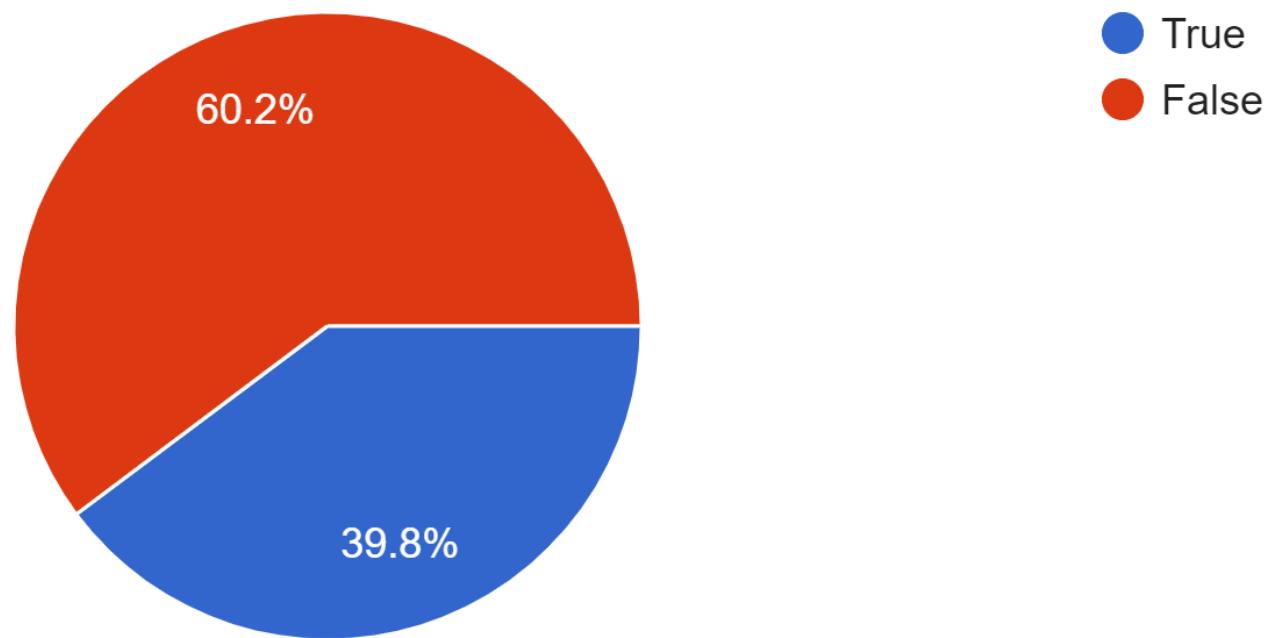
Most people use only about 10 percent of their brain capacity.

88 responses



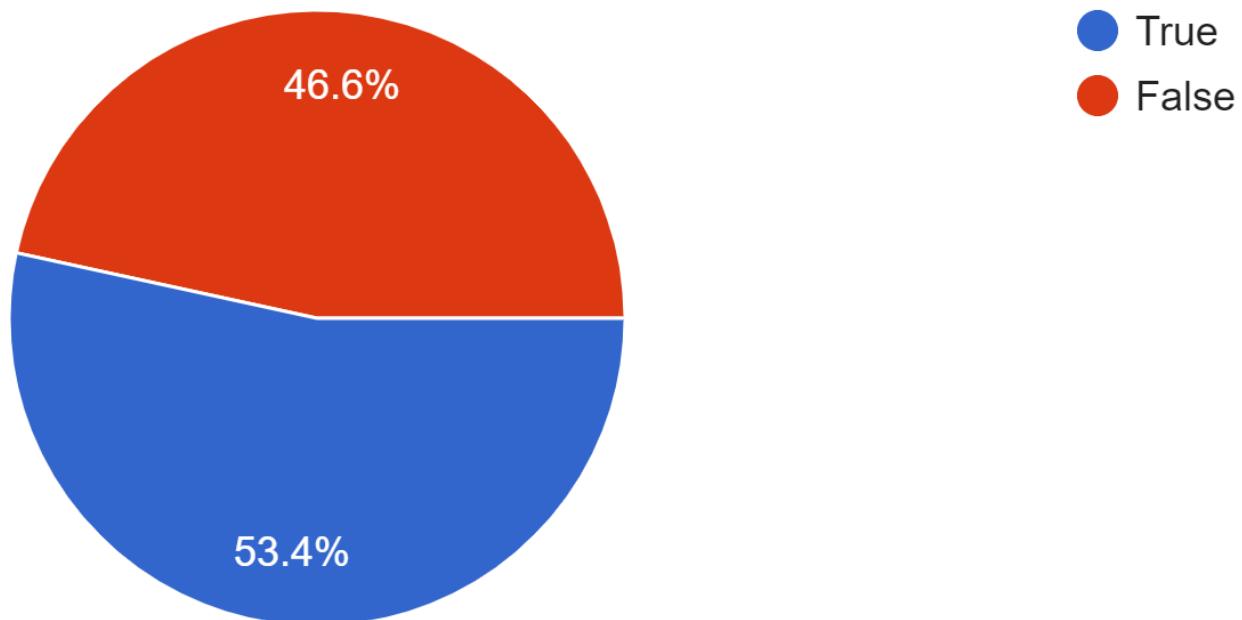
Newborn babies are virtually blind and deaf.

88 responses



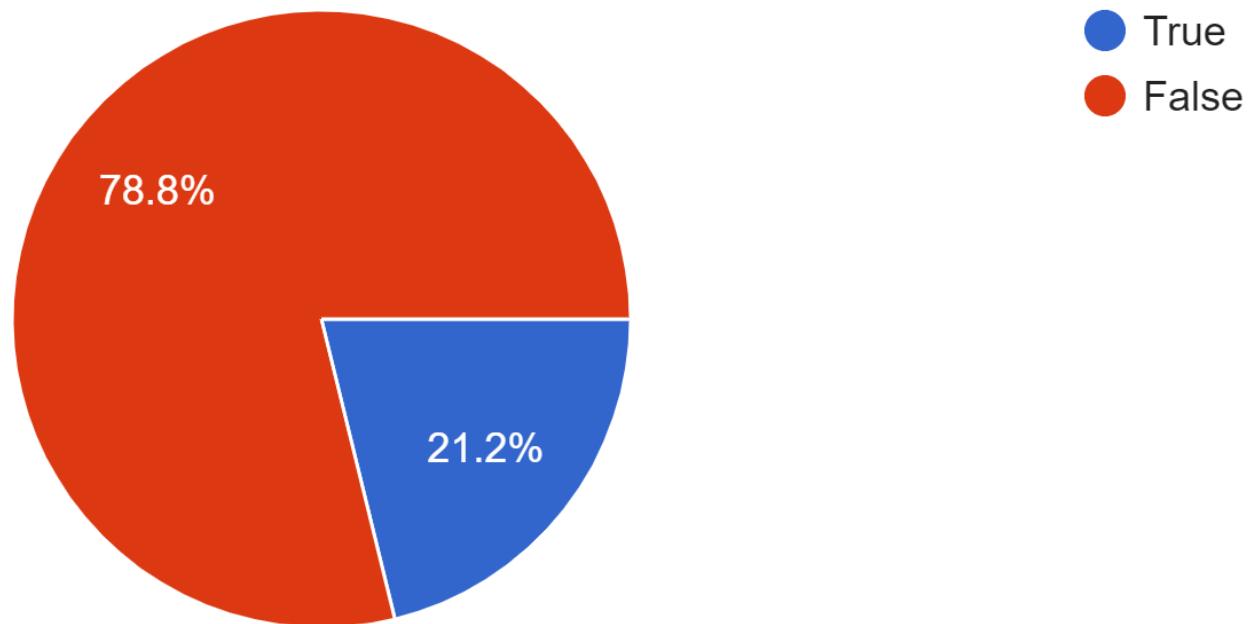
Hypnosis enhances the accuracy of our memories.

88 responses



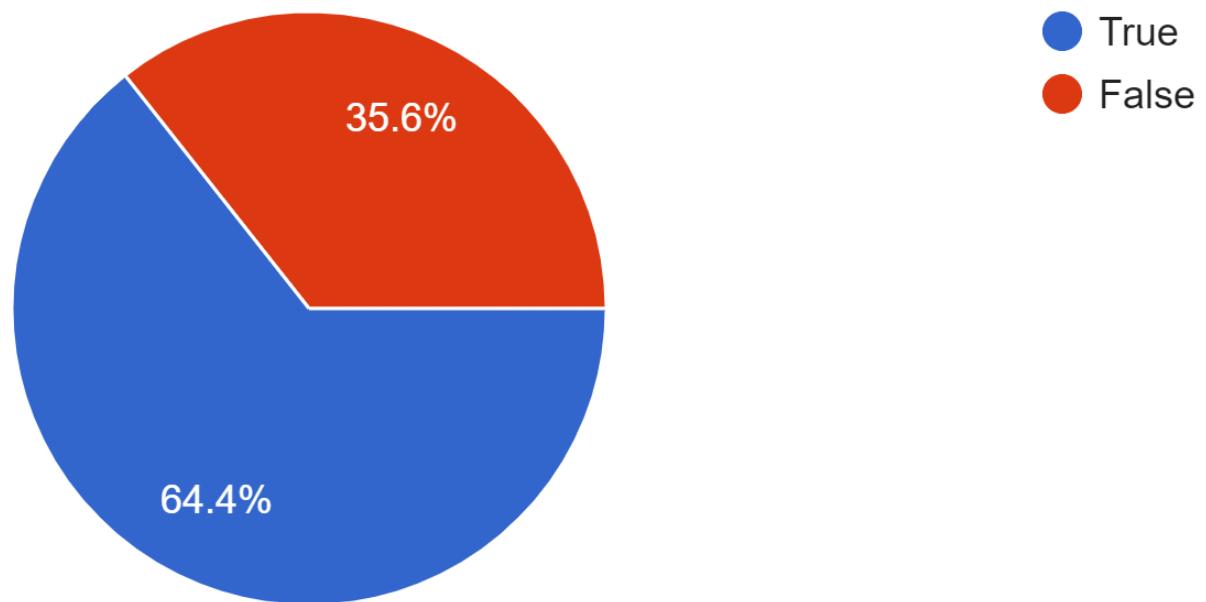
All people with dyslexia see words backward (tac instead of cat).

85 responses



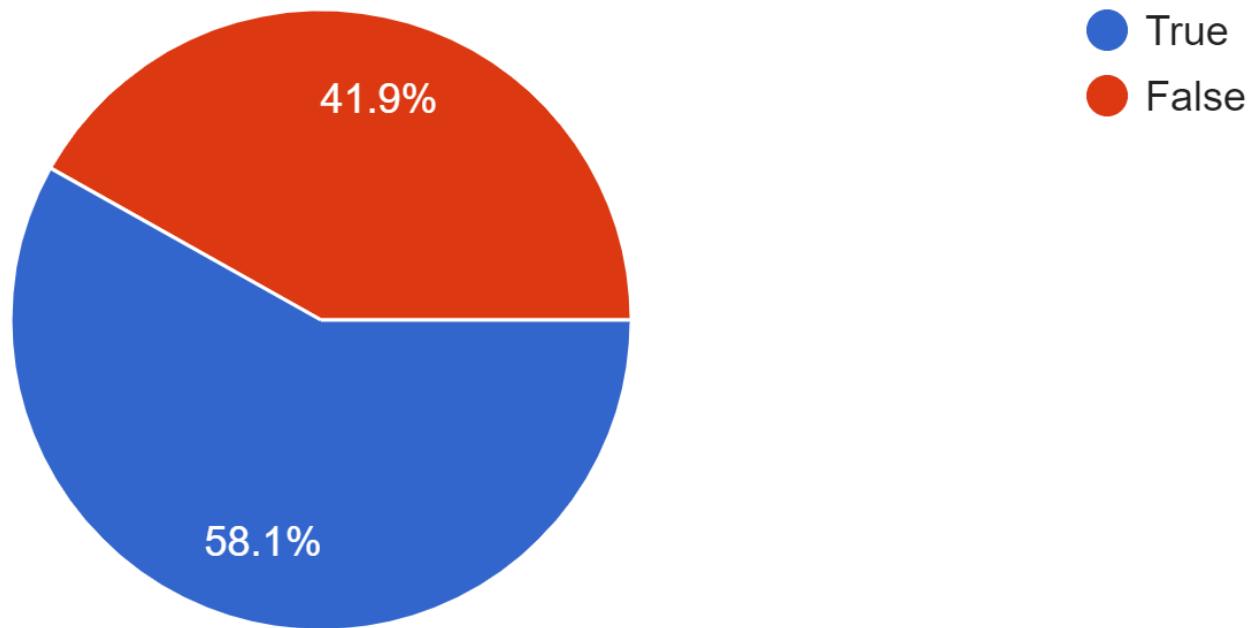
In general, it's better to express anger than to hold it in.

87 responses



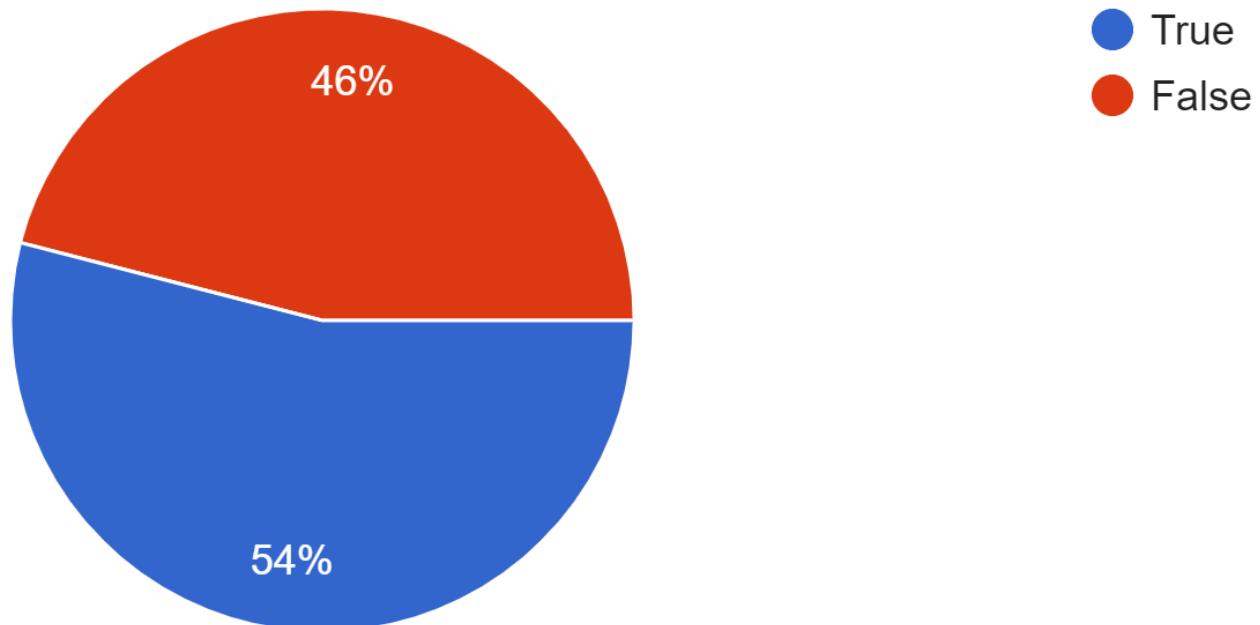
The lie-detector (polygraph) test is 90-95 % accurate at detecting falsehoods.

86 responses



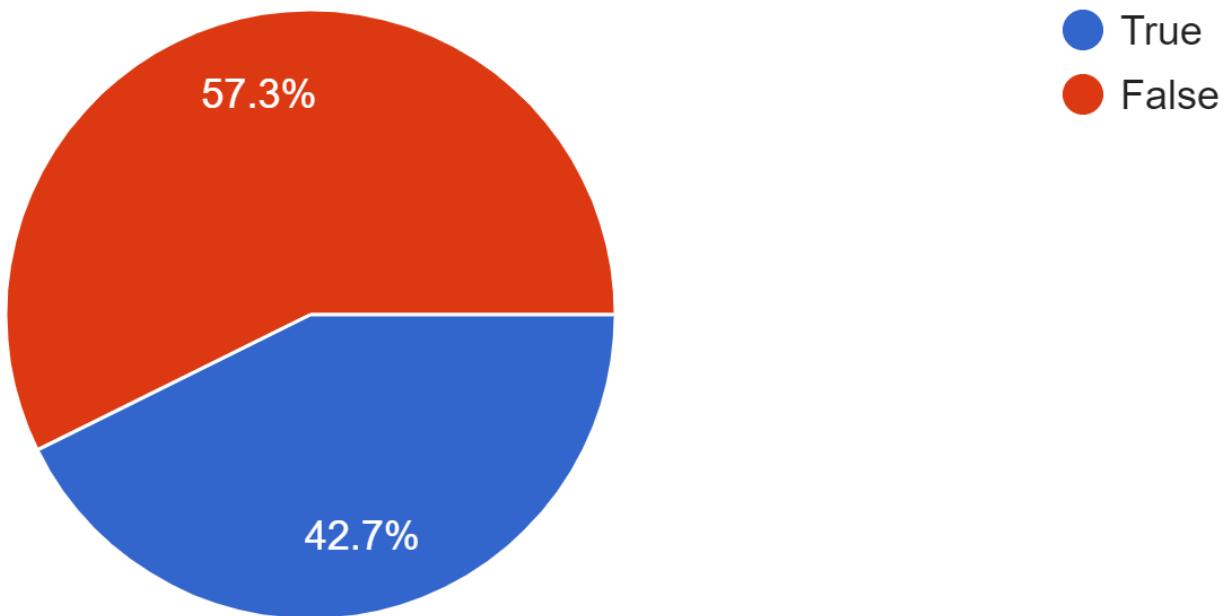
People tend to be romantically attracted to individuals who are opposite to them in personality and attitudes.

87 responses



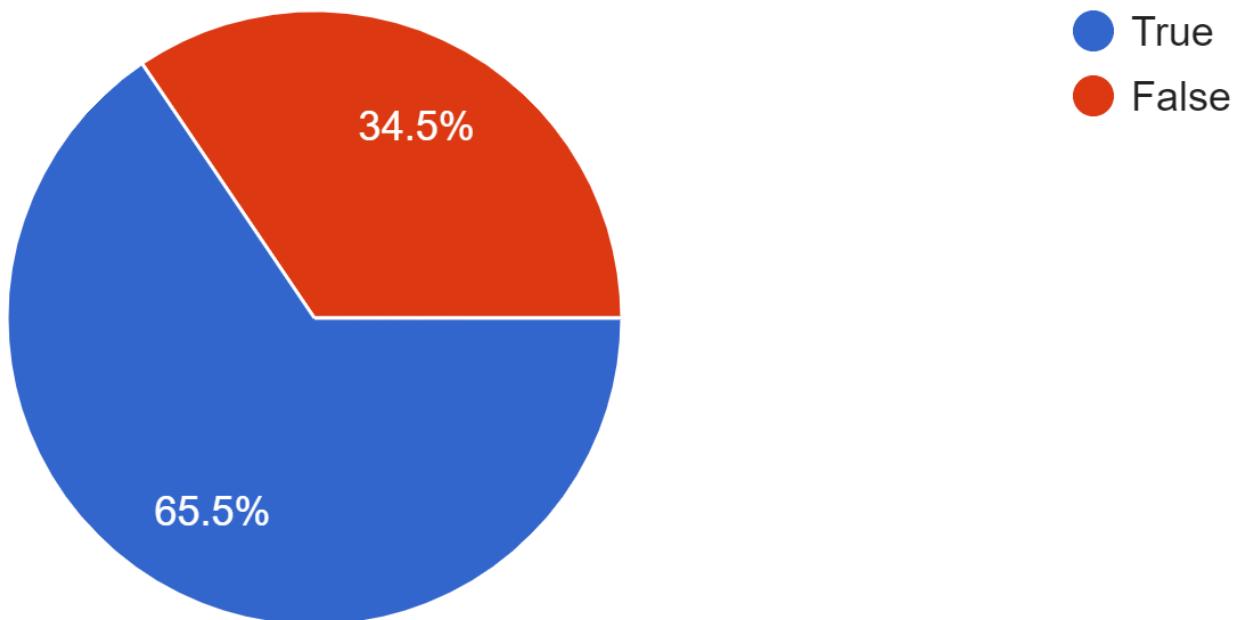
People with Schizophrenia have more than one personality.

82 responses



There is a safety in numbers. People are highly likely to offer help to a victim when other people are present.

87 responses



# What are the bases of Psychology? – electrical and chemical

## TAXI DRIVER'S BRAIN

Medial prefrontal cortex  
(tracking distance to destination)

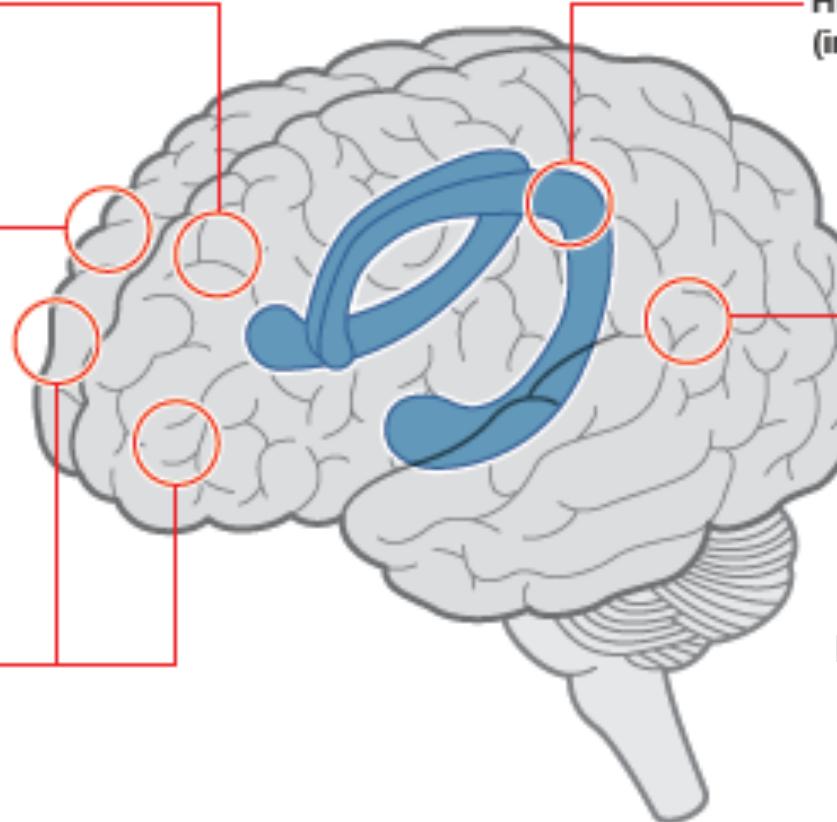
Right lateral prefrontal cortex  
(seeing unexpected features, eg blocked off road)

Anterior prefrontal cortex  
(spontaneous route planning - eg if need to make a diversion)

Hippocampus  
(initial route planning)

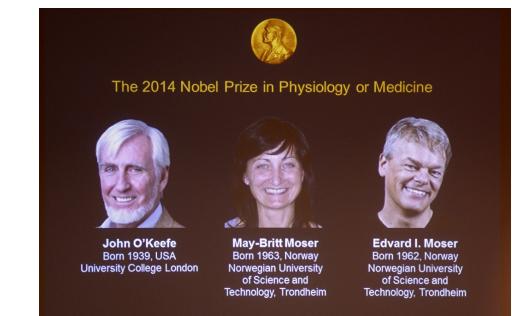
Retrosplenial cortex  
(seeing expected landmarks, streets and destinations)

SOURCE: UCL



<https://www.youtube.com/watch?v=wNIQSAPJjs>

<https://www.youtube.com/watch?v=6ZwWG1nK2fY>



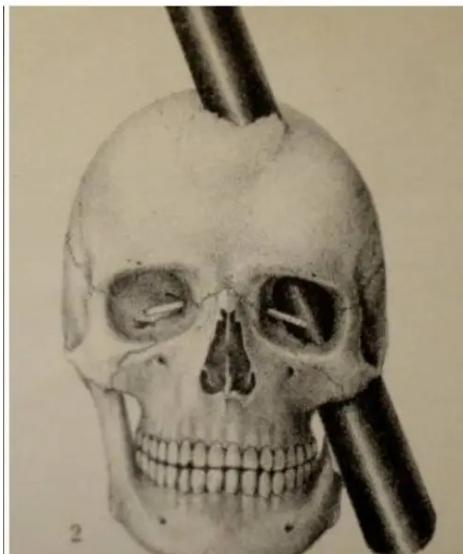
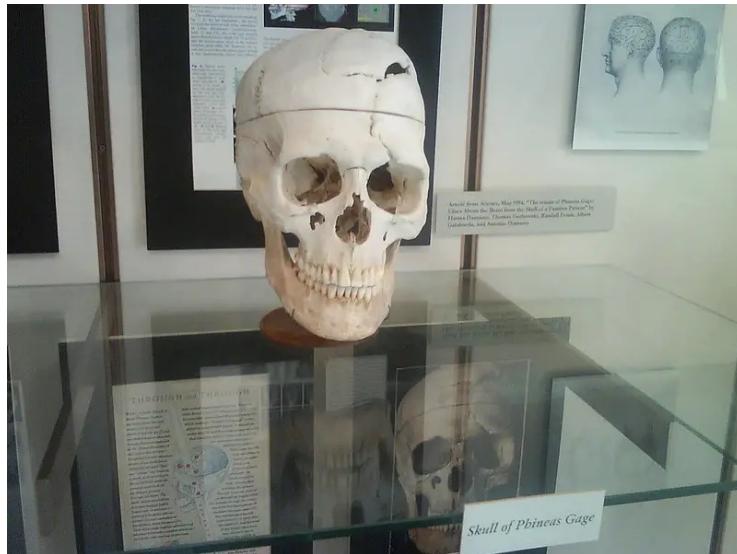
# How does the mind usually allow us to function effectively in the world?



ADAPTATION

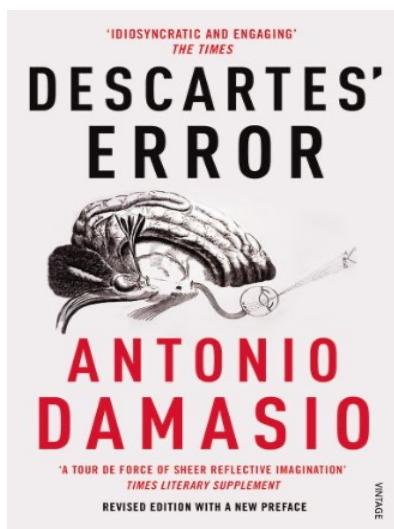


# How does the mind usually allow us to function effectively in the world?



Warren Anatomical Museum, Boston, Mass

Phineas Gage, a railroad construction worker. He was using an iron rod to pack explosive powder into a hole to clear the path for railroad track. Mistakenly, the explosion triggered in reverse direction and hit his head, through his cheek to bottom of his skull and came out of his front brain



Failure to adapt!

“Gage was Not Gage Anymore”

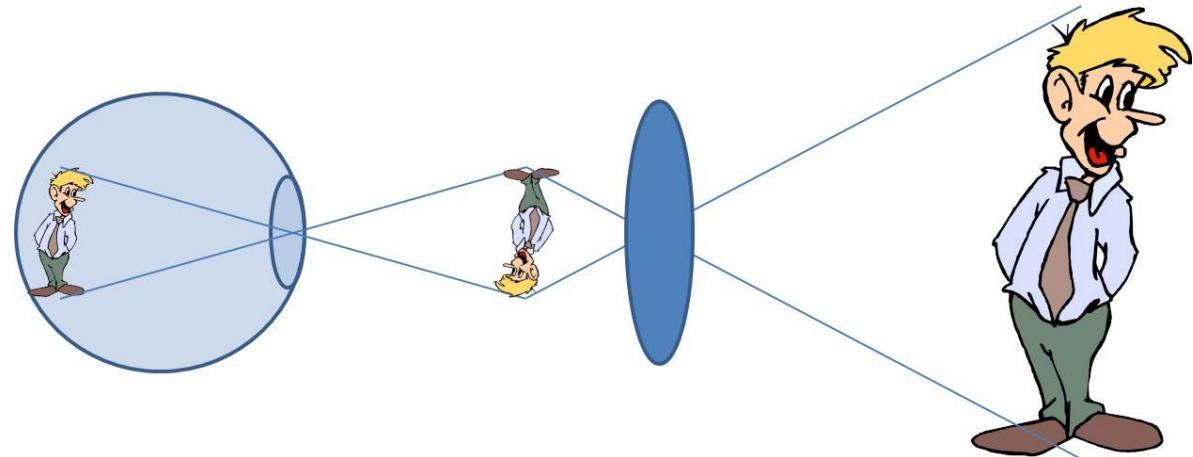
Though well-performed in intelligence test, he was different.

Started taking inappropriate decisions, using abusive language, disregarding advices, and behaving impulsive – failing to regard emotion, regret, anxiety about future etc.

# Why does the mind occasionally function so ineffectively in the world?



NORMAN'S DOOR



INVERTED IMAGE – STRATTON, 1897, US PSYCHOLOGIST



**Why does the mind occasionally function so ineffectively in the world?**

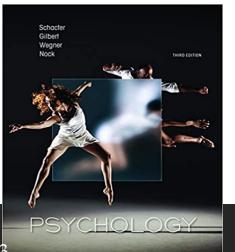


## **Perception: Inverted Vision**

## Why does the mind occasionally function so ineffectively in the world?

Autopilot to Controlled response and failure, e.g. haste decision making often leads to Err, trade off – accuracy for speed and versatilities.

- William James – “Mind’s mistakes are as instructive as they are intriguing”.
- “Things that are whole and unbroken hum along nicely and do their jobs while leaving no clue about how do they work.”
- Keep in mind – “Breakdowns and Errors are not just about destructions and failure, they are pathways to knowledge. Understanding lapses, errors, mistakes, and the occasionally puzzling nature of human behaviour provide a vantage operations of mental processes and behaviour.”



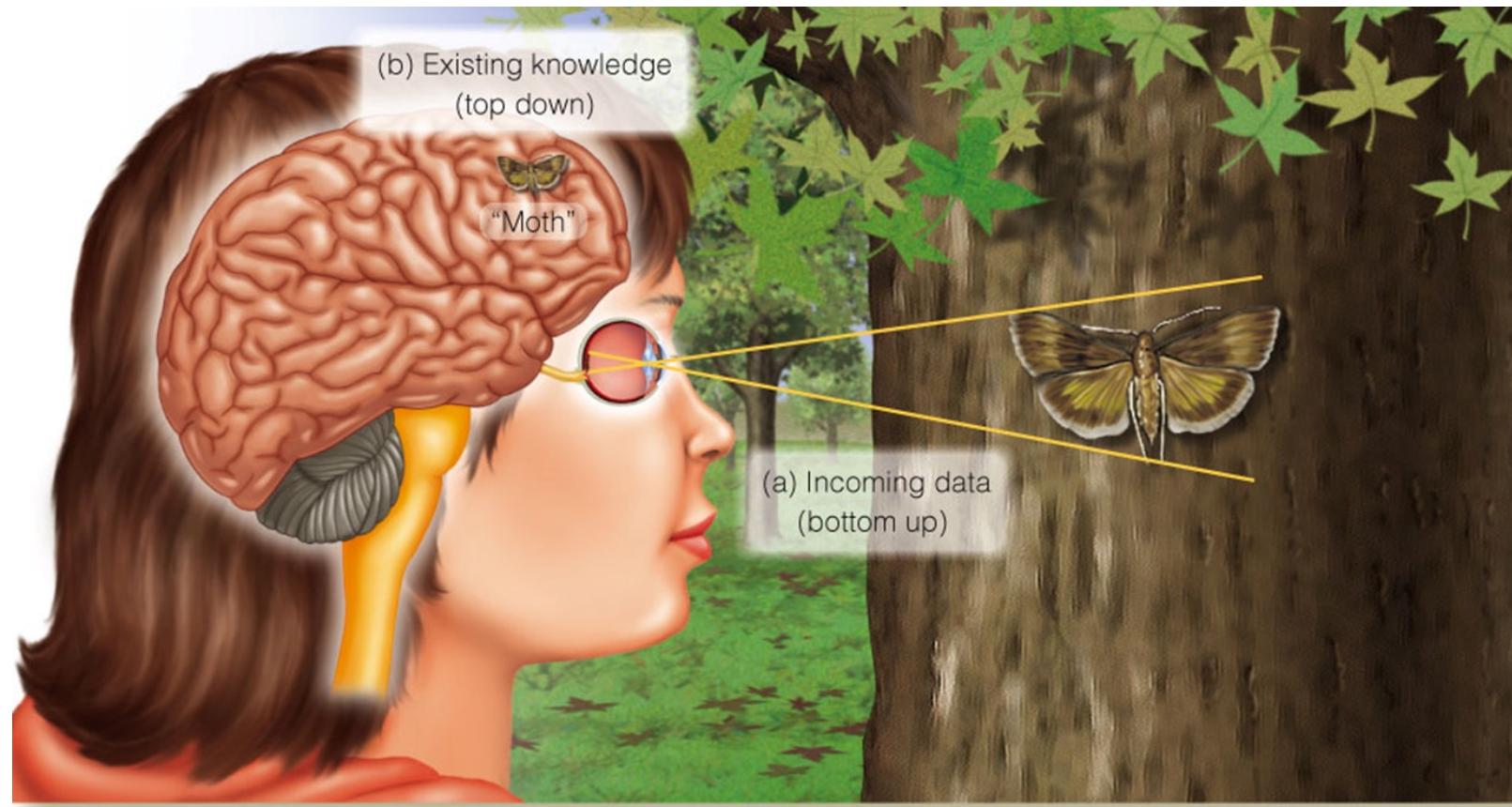
## **Activity II: Experience Alternative Modality**



**PRECAUTION: DO THIS ACTIVITY UNDER SUPERVISION – WITH THE HELP OF SOMEONE**

1. Close your eyes and try to pour liquid (normal temperature) in a cup of different size and material – observe the strategies you come up to achieve the perfection with which you perform these tasks otherwise
2. Close your eyes and try to walk around and see how you figure out the obstacles around, estimate direction and distance, and most importantly, the sense of balance.

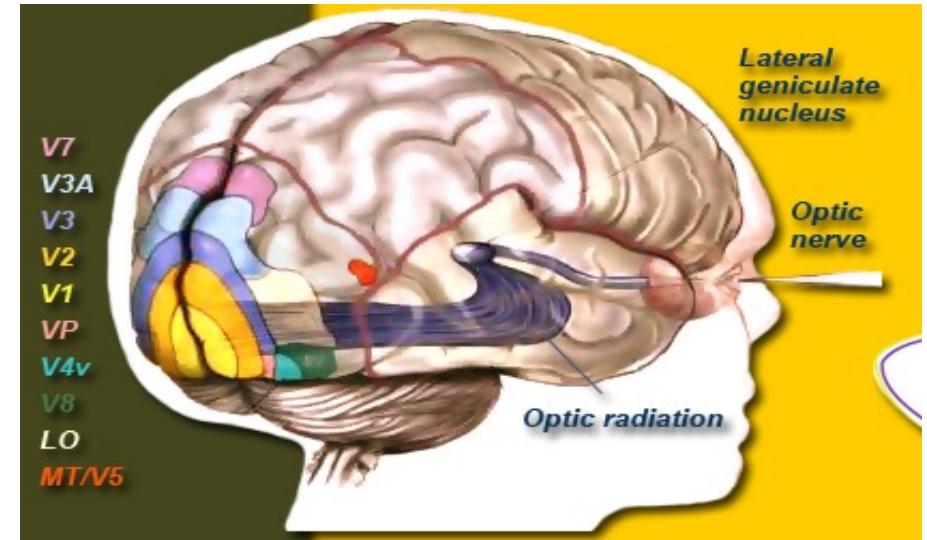
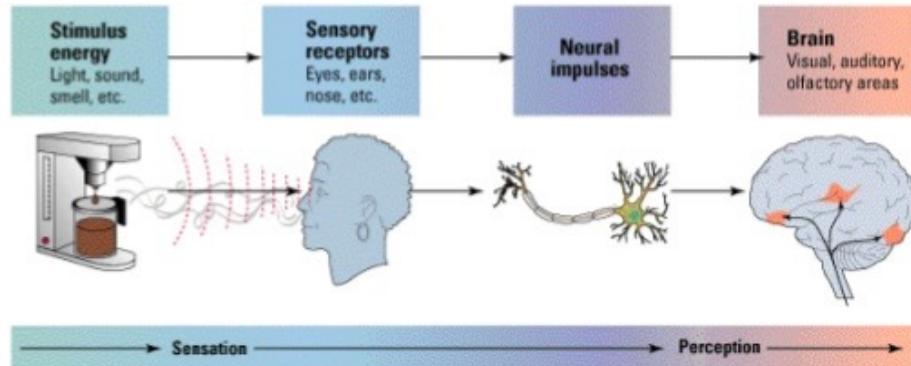
# How does the mind usually allow us to function effectively in the world?



Think- how do we do a simple task like detection, identification, or recognition, which we never paid attention to or felt like we are performing these tasks. Left: single modality but yet complex processing (below example) and interplay between the knowledge (top-down) and stimulus features evaluation (bottom-up), Right: multimodal integration – of visual, sound, and smell to interpret and decide that coffee is being made.

# How does the mind usually allow us to function effectively in the world?

## Sensation-to-Perception Process

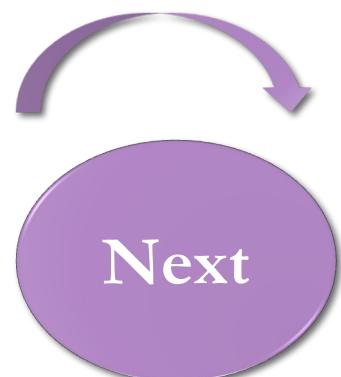


From retina to occipital lobe, and within occipital lobe – the different brain regions, e.g. V1 –catalogue and helps in sorting, V2- helps transmitting to corresponding areas and give feedback to V1, V4 –color, V5 motion detection, etc. These are still individual traits of the objects, but not the whole object. So, we should be asking this question that how do we come to make an object in an integrated manner as we do? Or identify an object as a object in whole?

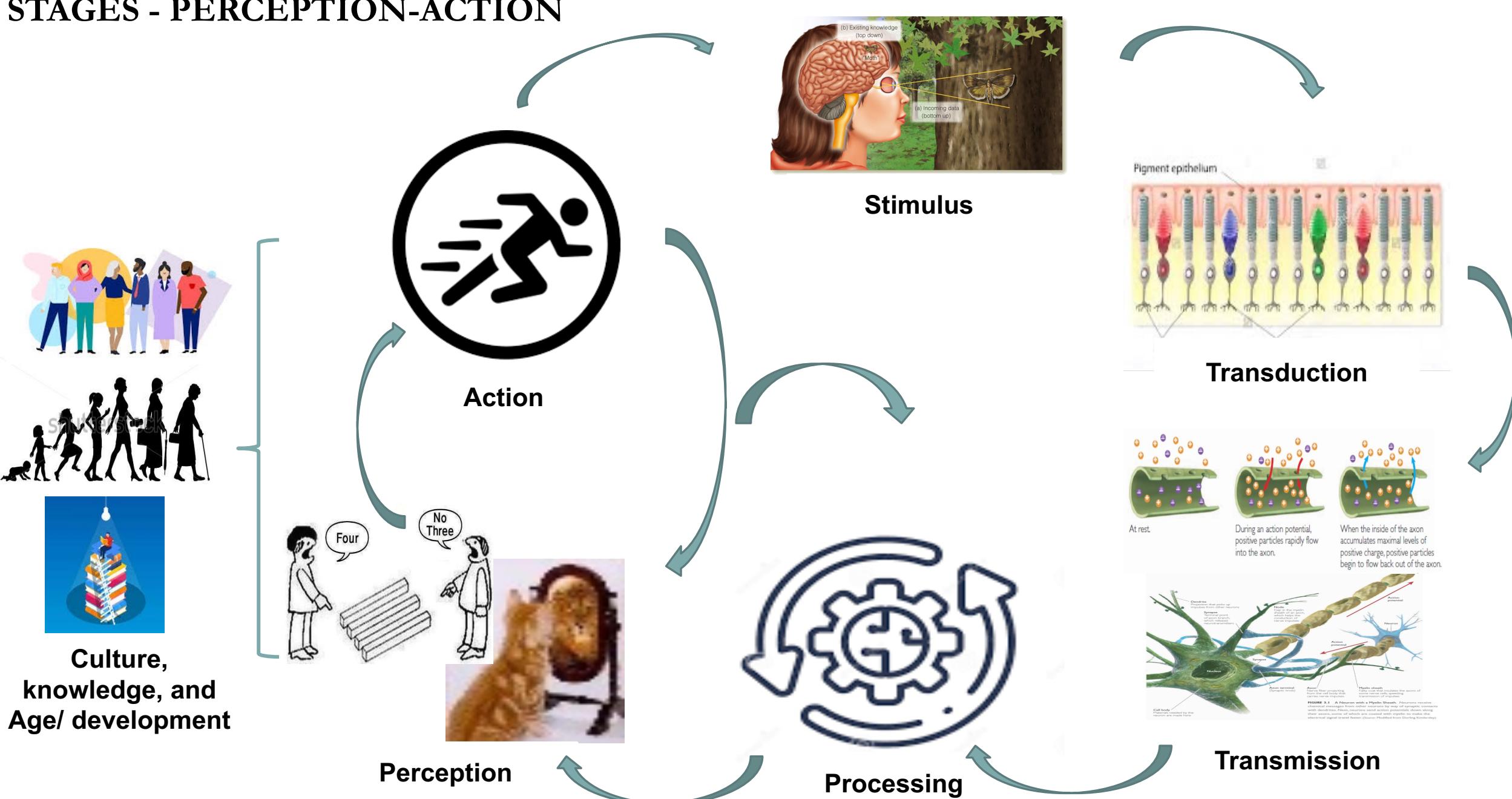
We will be discussing a part of this in perception class.

# How this Happens?

## STAGES OF PERCEPTION-ACTION



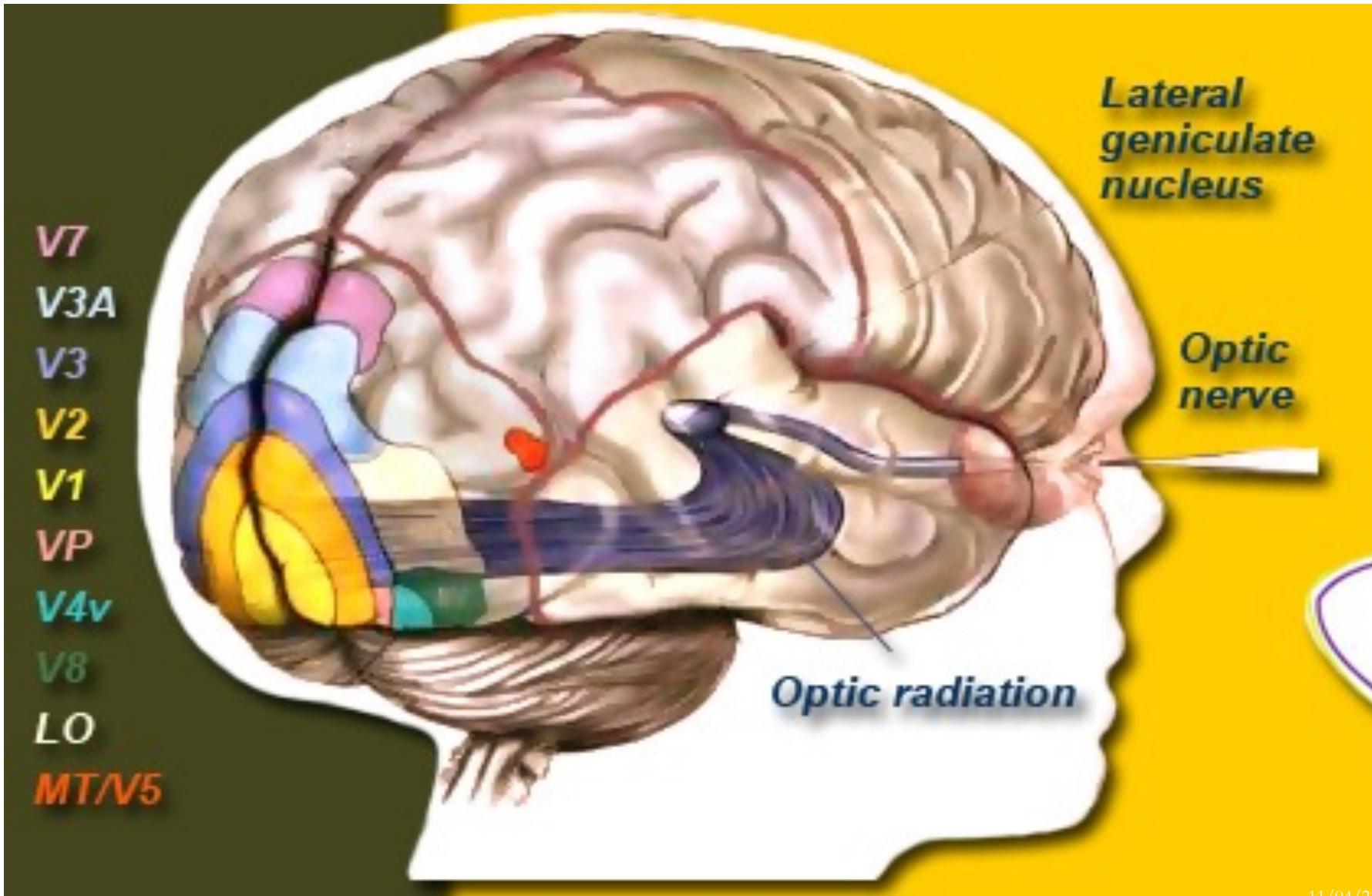
# STAGES - PERCEPTION-ACTION



# PROCESSING - HOW DO WE DO A SIMPLE DETECTION, IDENTIFICATION, & RECOGNITION TASK?



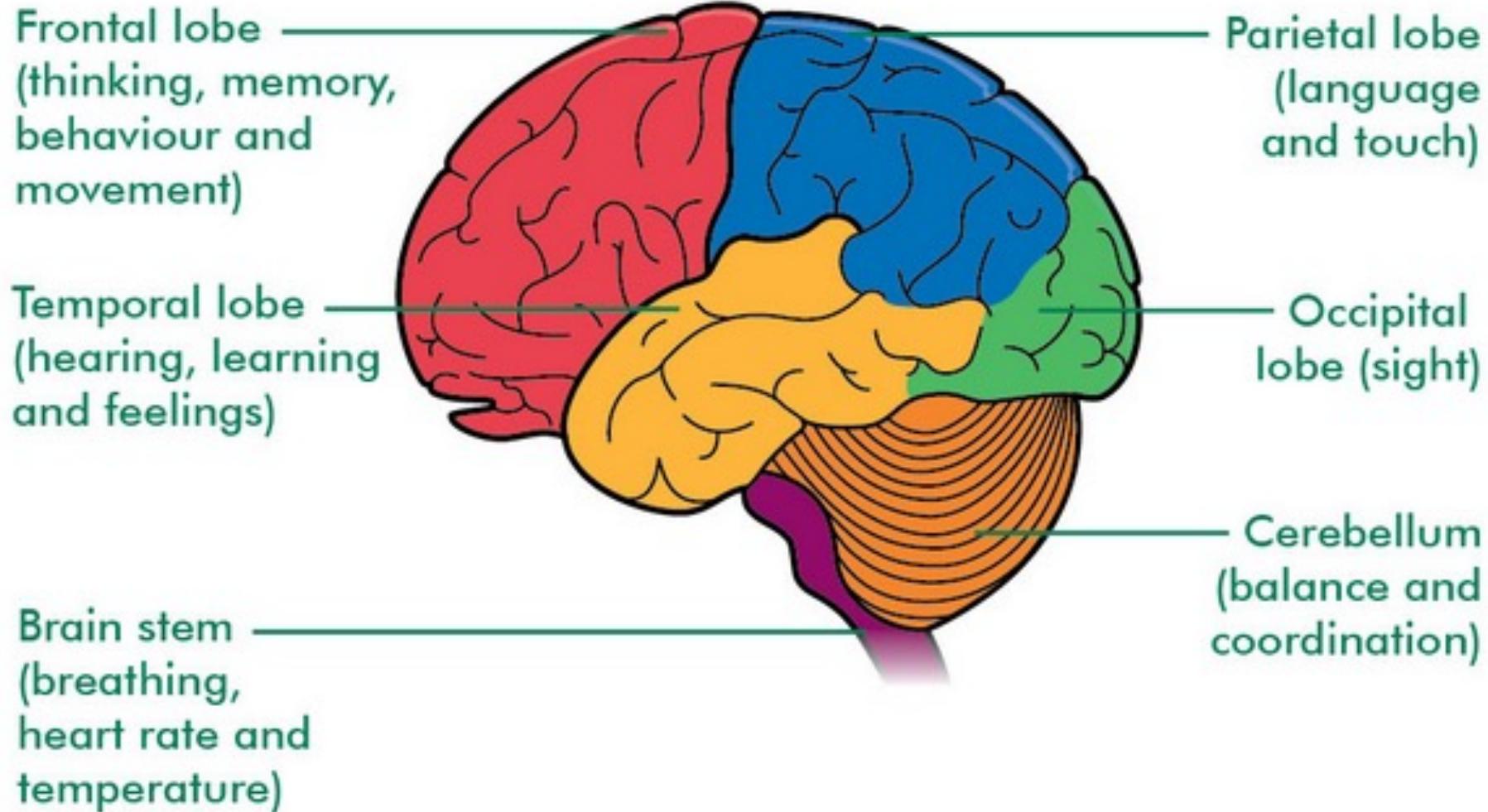
Processing



# PROCESSING - FOUR LOBES IN BRAIN – HARMONY IN AUTONOMY AND INTERGRATION



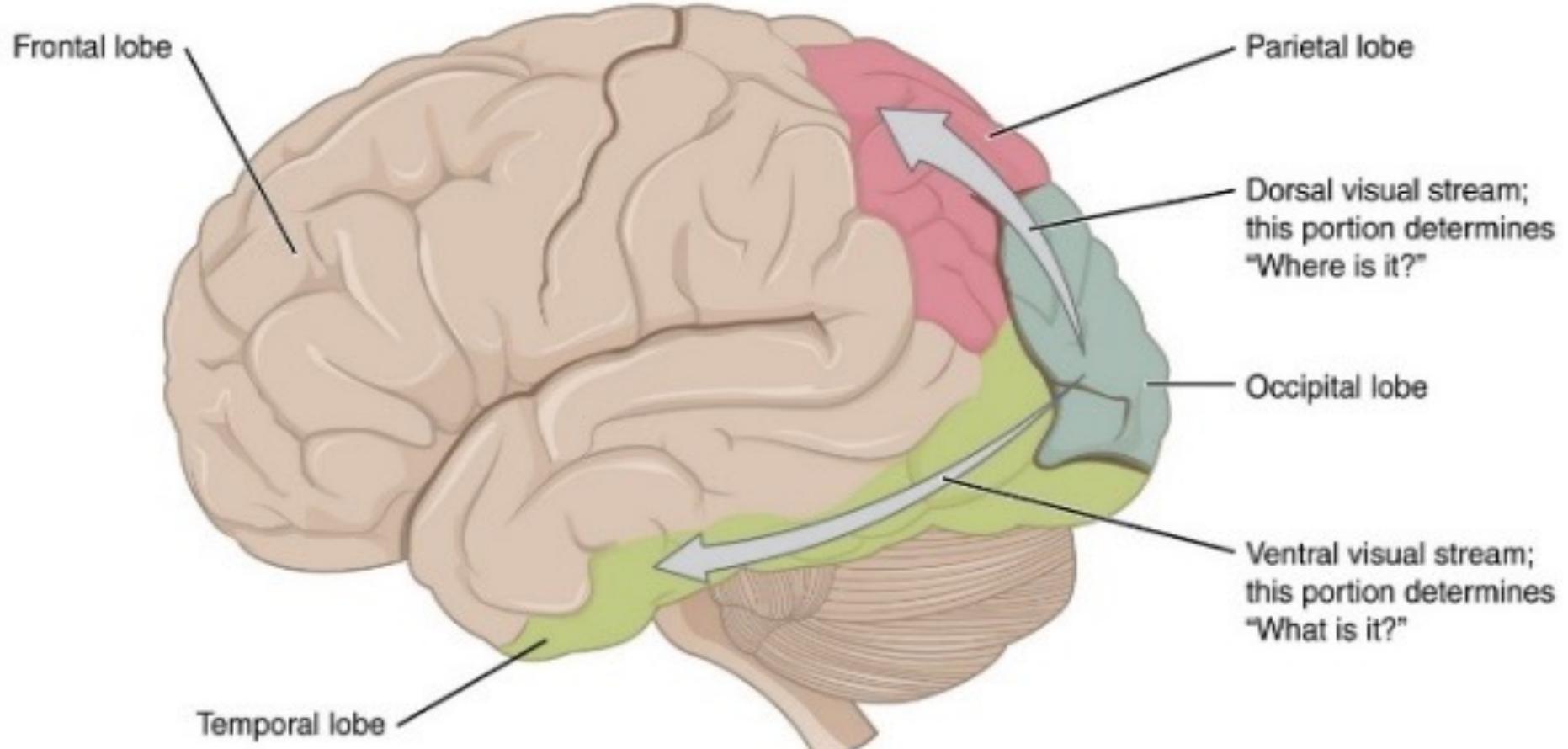
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# PROCESSING - FOUR LOBES IN BRAIN – HARMONY IN AUTONOMY AND INTERGRATION



Processing



# IPSILATERAL AND CONTRALATERAL

