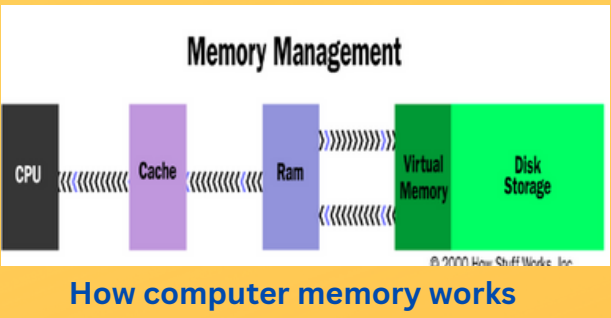
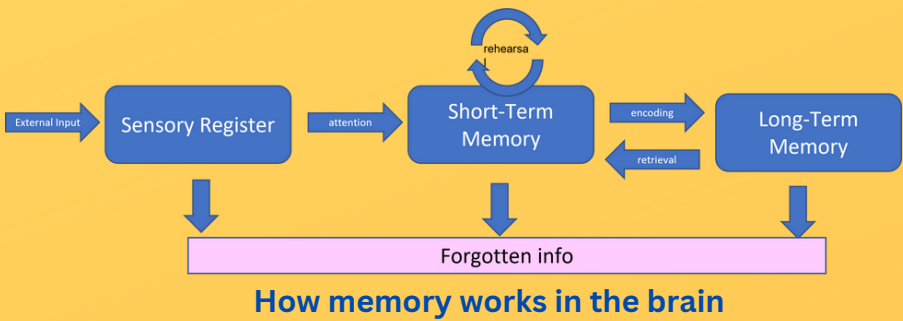


Cognitivism and Learning

Let's face it, we can't open up someone's skull and see physical storage of information in the brain. Not yet, anyway! So, although the brain stores information, we must infer a learner's knowledge, and subsequently learning, through indirect means. The premise that construction of knowledge takes place through unobserveable mental processes is known as *cognitivism*. The ways in which we observe that learning has taken place are still through behaviors...just not stimulus-response behaviors. Some cognitive processes, such as language learning, are unique to *Homo sapiens*.

Ways to Structure Information	Types of Knowledge	Types of Memory
Law of proximity —objects close to each other physically are treated as a unit for learning purposes	Declarative knowledge —facts that are ("The chemical symbol for lye is NaOH")	Sensory register —immediate, through five senses, evaporates almost immediately if deemed unimportant
Law of similarity —objects with similar attributes are treated as a unit	Procedural knowledge —knowing how to do things step by step ("I know how to make soap by adding NaOH dissolved in water to oil")	Short-term memory —can last a few seconds to a few minutes, evaporates if not reinforced
Law of closure —the mind tends to fill in missing pieces to create a whole	Conceptual knowledge —abstract reasoning on why things are the way they are ("I know why my soap solution didn't harden into soap")	Long-term memory —once info is in the brain, it's there for life (retrieving it on demand is another issue)

A Computer Made of Meat?



CPU, keyboard » sensory register
RAM » short-term memory
Disk storage » long-term memory

Cognitivism Hall of Fame



Edward Tolman—the "rat maze" guy, proposed the *cognitive map* and *purposive learning*



David Ausubel—gave us *meaningful learning* and *advance organizers*



Jean Piaget—pioneer in cognitivism and structuralism



Lev Vygotsky—first to suggest learning must be sociocultural



Robbie Case—early pioneer in neo-Piagetian theory (click his headshot to learn more about this new theory)



Fun Fact!

Babies, possessing *tabulae rasae* (clear empty minds) at birth, make great walking labs for learning (also first language acquisition). Piaget's first learning subject was his son, Laurent!






Cognitivism Terms You Need to Know!

Gestalt: The whole is greater than the sum of its parts.
Law of Pragnänz: a principle within Gestalt that says the mind tends to organize similar ideas as concisely and simply as possible.
Episodic Memory: one's own memory bank of personal life experiences.
Semantic Memory: one's general knowledge of the world, regardless of personal experiences.
Schema: a unit of knowledge and how it is arranged in the mind.
Elaboration: the process of adding one's own interpretation to new information as it is received.

Assimilation: when a learner interacts with an object or event in a similar way to how they interacted with another object or event.
Accommodation: adjusting knowledge to account for new info.
Scaffolding: the process of aiding a learner during a learning event, and by degrees omitting a bit of aid each time until the learner can perform without support.
Zone of Proximal Development: a set or range of tasks that a learner can perform with just a little bit of help.

Piaget's Stages of Cognitive Development

Sensorimotor stage Birth – 2: learning through five senses 	Preoperational stage: 2 – 6: strong sense of self, learning what's physically possible 
Concrete operational stage: 6 – 12: can apply concepts to concrete objects, don't grasp abstract or metaphorical concepts, ego becomes less prominent 	Formal operational stage: 12 – adulthood: thinks in abstract concepts, thinks in hypotheticals and theoreticals 