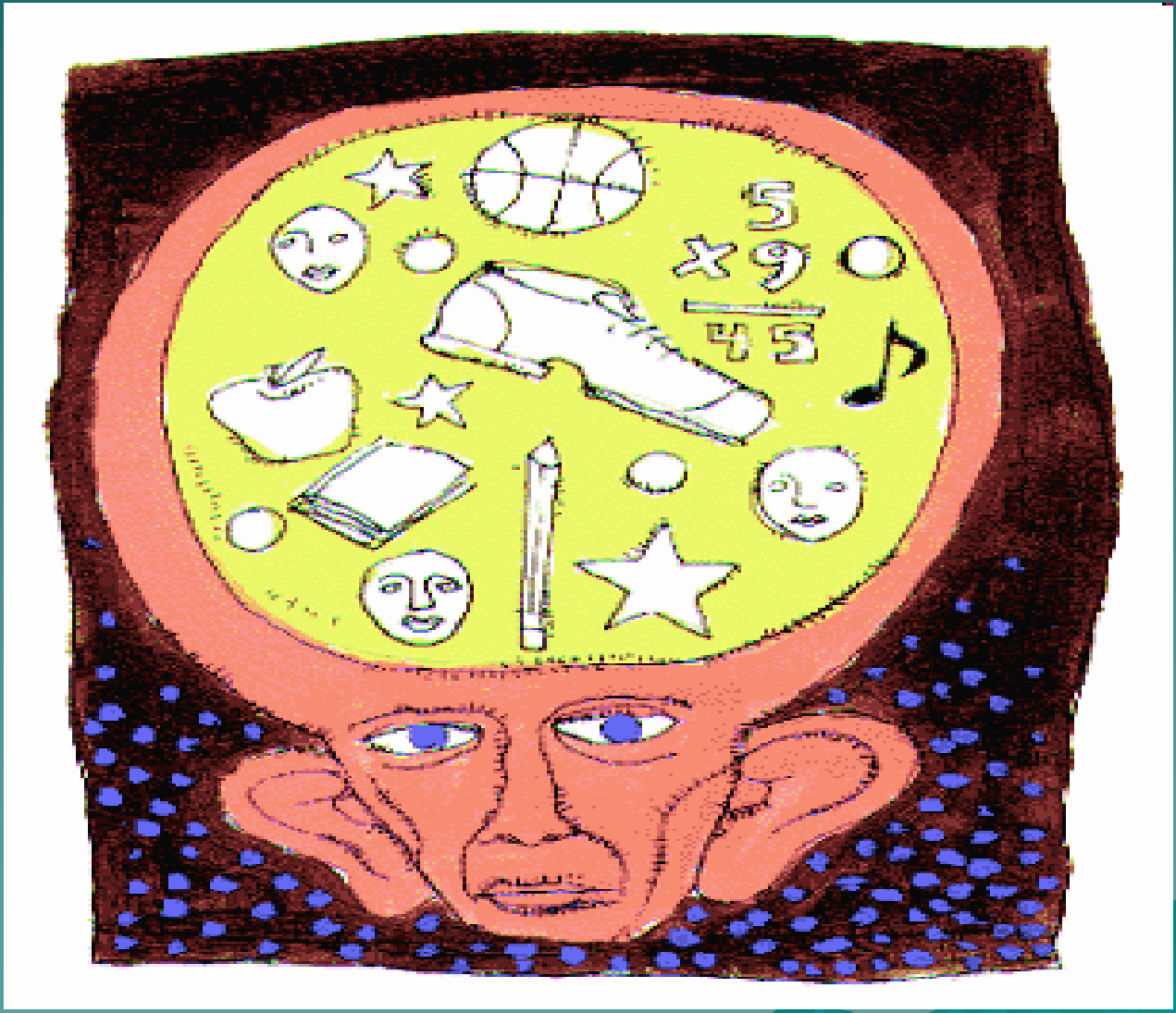
MEMORY AND FORGETTING

MEMORY



- In psychology, **memory** is an organism's mental ability to store, retain and recall information.

  (Wikipedia)

- Memory is the retention of, and ability to recall, information, personal experiences, and procedures (skills and habits).

  (Skeptic' Dictionary)

- 'Memory' is a label for a diverse set of cognitive capacities by which humans and perhaps other animals retain information and reconstruct past experiences, usually for present purposes.

  (Stanford Encyclopedia)

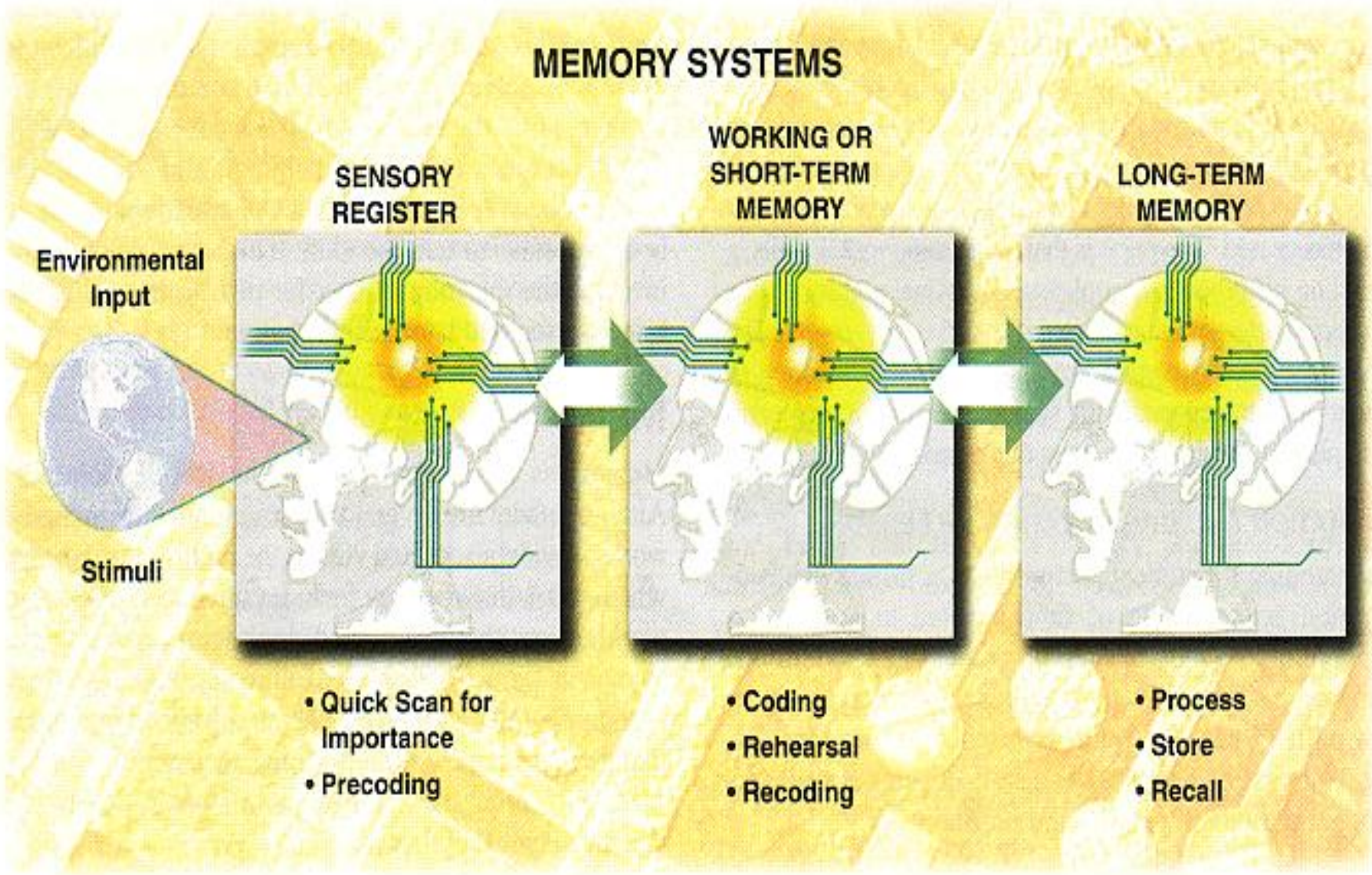


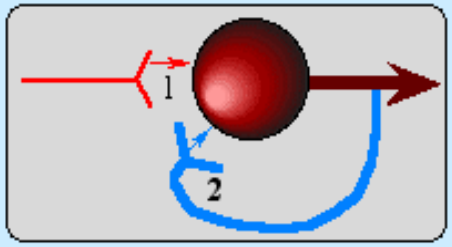
Figure 1-9. Information processing within the sensory register, working or short-term memory, and long-term memory includes complex coding, sorting, storing, and recall functions.

Brain Areas Included in Memory

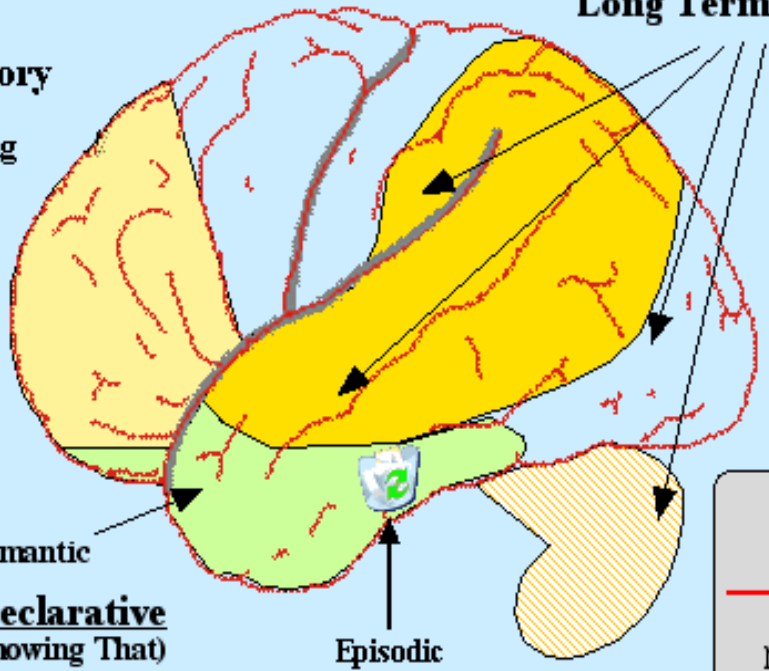
- The **hippocampus**, a primitive structure deep in the brain, plays the single largest role in processing information as memory.
- The **amygdala,** an almond-shaped area near the hippocampus, processes emotion and helps imprint memories that involve emotion.
- The **cerebral cortex**, the outer layer of the brain, stores most long-term memory in different zones, depending on what kind of processing the information involves: language, sensory input, problem-solving, and so forth. In addition, memory involves communication among the brain's network of **neurons**, millions of cells activated by **brain chemicals called neurotransmitters.**

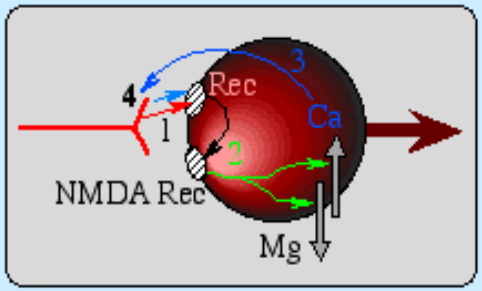
The Troll's brain and MEMORY

Short Term : Working Memory
- Stores the last post read
- allows irrelevant posts full quoting
- allows out of context sentence extraction(in relevant posts)



Long Term: Reflexive/Procedural
(Knowing How)
- Skills :
  . whining
  . moaning
  . quoting
  . crossposting
- Established by practice
- Not councious
- Not affected by amnesia
- Involves all CNS including cerebellum

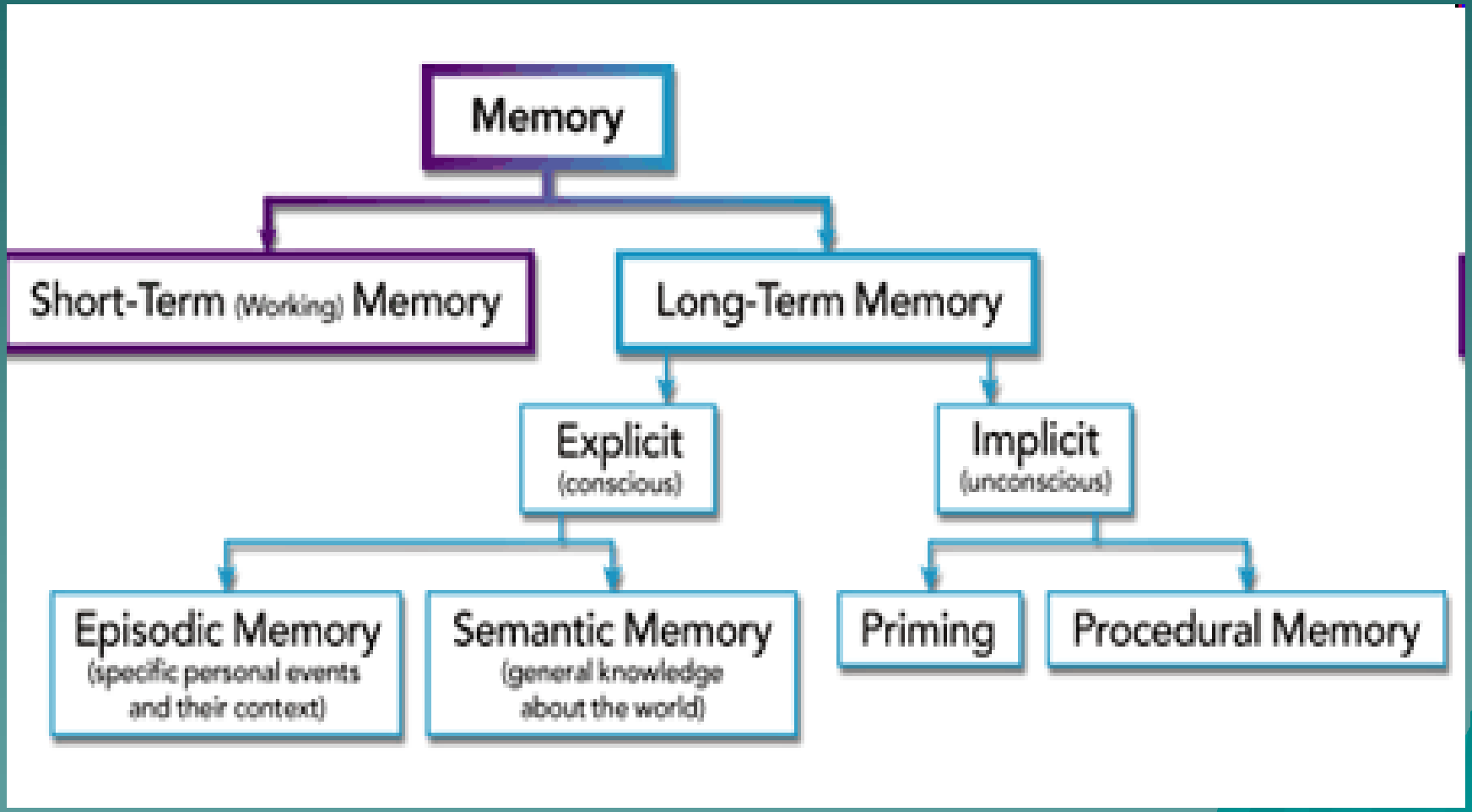




Long Term: Declarative
(Knowing That)
- contains myths, legends, rumours & unverified facts
- counscious
- affected by anteretrograd amnesia
- not affected by retrograd amnesia

High efficient memory :
Contains all facts, ideas & arguments that don't fit personal Troll's opinion

Types Of Memory



Short term Memory

Short-term memory—closely related to "working" memory—is the very short time that you keep something in mind before either dismissing it or transferring it to long-term memory. Short-term memory is shorter than you might think, lasting less than a minute. It's what allows you to remember the first half of a sentence you hear or read long enough to make sense of the end of the sentence. But in order to store that sentence (or thought, fact, idea, word, impression, sight, or whatever else) for longer than a minute or so, it has to be transferred to long-term memory.

Long term Memory

long-term memory is anything you remember that happened more than a few minutes ago. Long-term memories aren't all of equal strength. Stronger memories enable you to recall an event, procedure, or fact on demand—for example, that Paris is the capital of France. Weaker memories often come to mind only through prompting or reminding.

Sensory Memory

- **Sensory memory** is the ability to retain impressions of sensory information after the original stimulus has ceased. It refers to items detected by the sensory receptors which are retained temporarily in the sensory registers and which have a large capacity for unprocessed information but are only able to hold accurate images of sensory information momentarily. The two types of sensory memory that have been most explored are iconic memory and echoic memory.

Declarative Memory

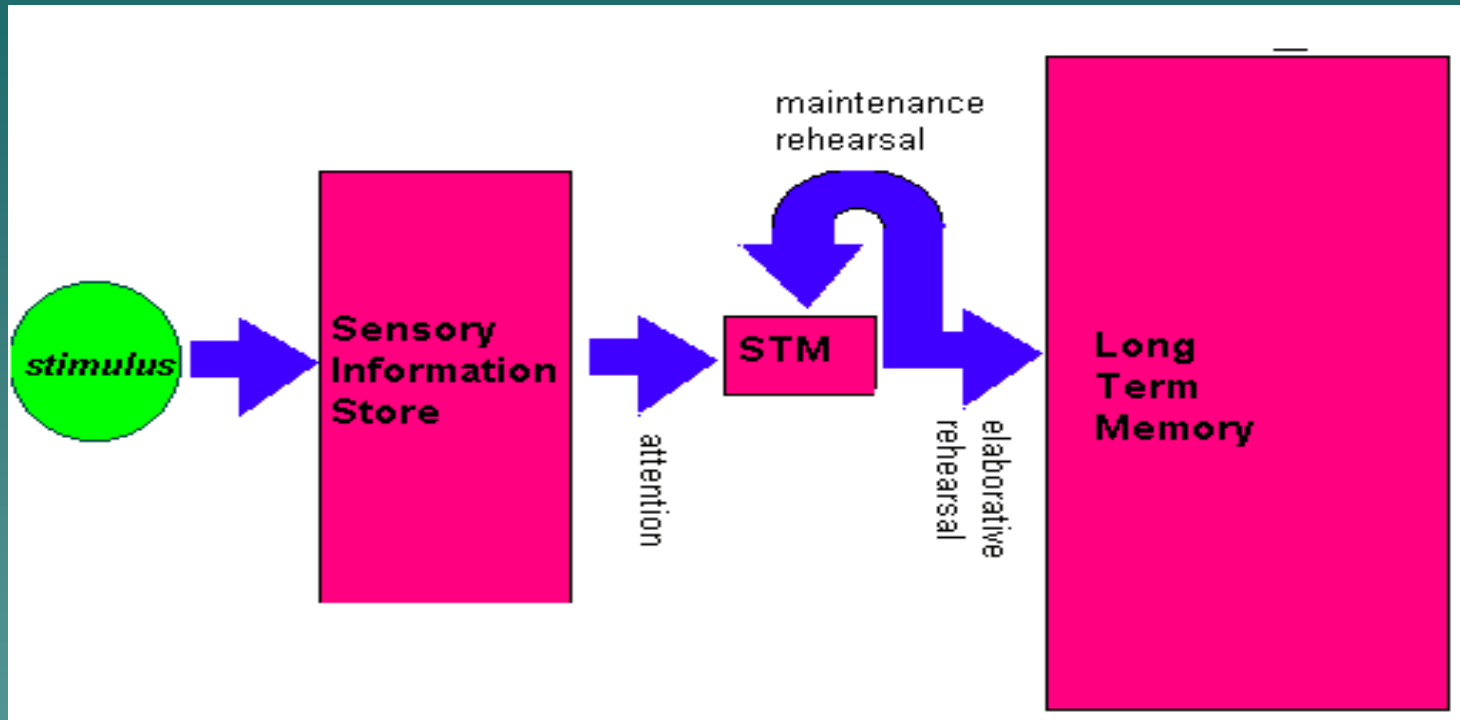
- **Declarative memory** is the aspect of human memory that stores facts. It is so called because it refers to memories that can be consciously discussed, or *declared.* It applies to standard textbook learning and knowledge, as well as memories that can be 'travelled back to' in one's 'mind's eye'.

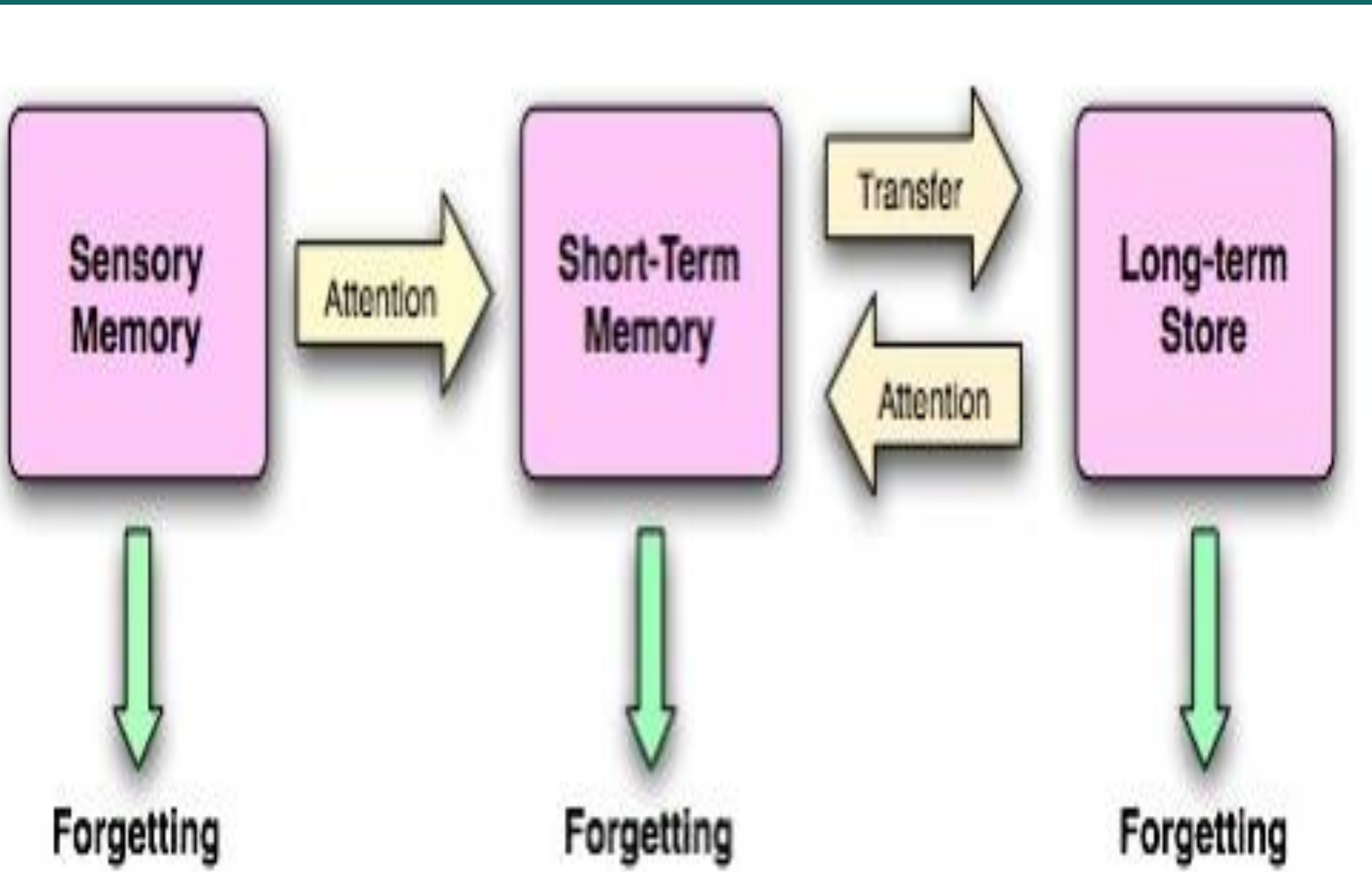
Procedural Memory

- **Procedural memory** is the long-term memory of skills and procedures, or "how to" knowledge (procedural knowledge).

  It is considered a form of implicit memory.

Models of Memory




Sensory Memory
Attention
Short-Term Memory
Transfer
Attention
Long-term Store
Forgetting
Forgetting
Forgetting

- The **Atkinson-Shiffrin model** (also known as the **Multi-store model**, **Multi-memory model** and the **Modal model**) is a psychological model proposed in 1968 by Richard Atkinson and Richard Shiffrin as a proposal for the structure of memory. It proposed that human memory involves a sequence of three stages:
- Sensory memory (SM)
- Short-term memory (STM)
- Long-term memory (LTM)

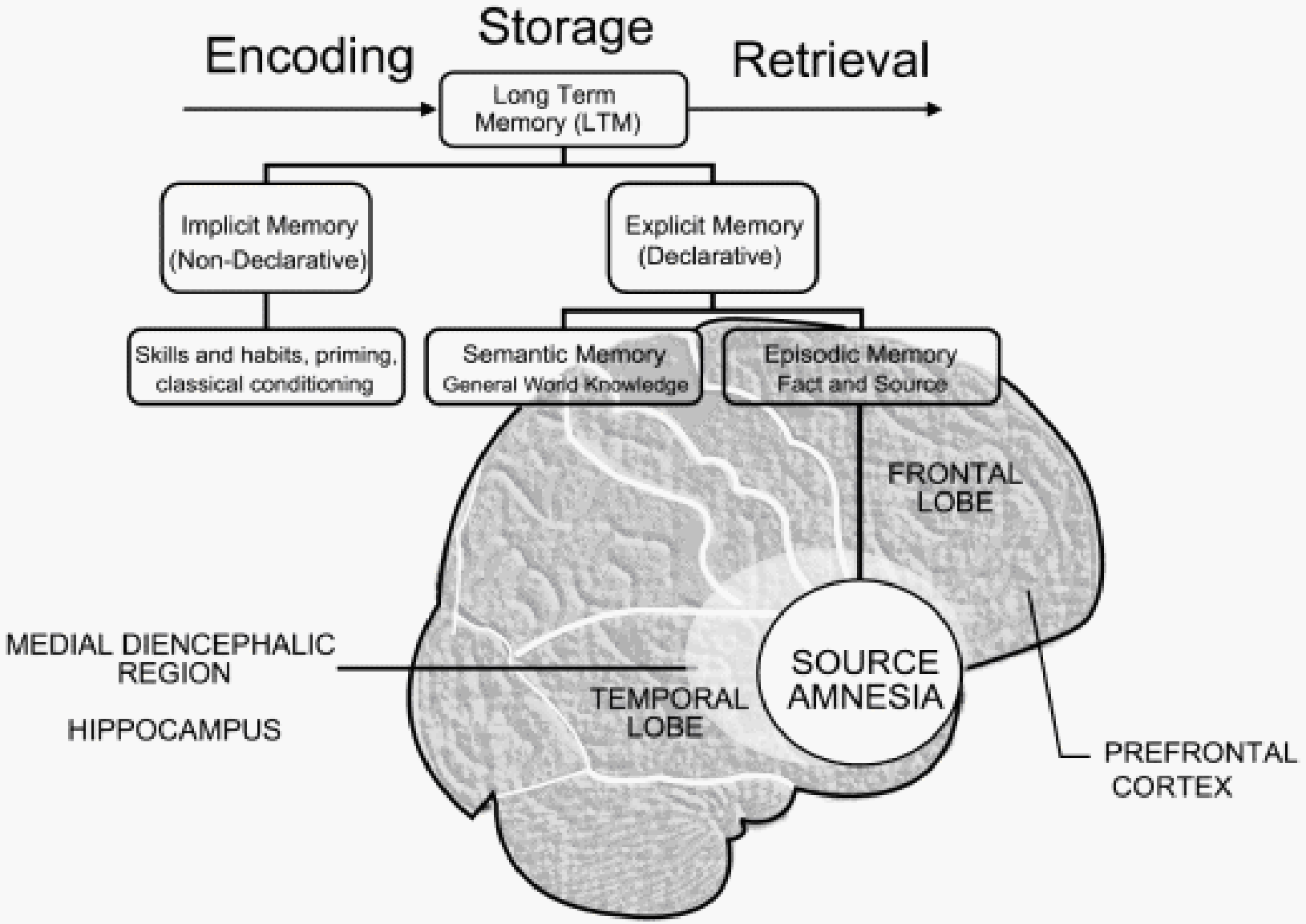
Memory Span

- **Memory span:** The number of items, usually words or numbers, that a person can retain and recall. Memory span is a test of working memory (short-term memory). In a typical test of memory span, an examiner reads a list of random numbers aloud at about the rate of one number per second. At the end of a sequence, the person being tested is asked to recall the items in order. The average span for normal adults is seven to nine.

Memory Process

- Human memory, like memory in a computer, allows us to store information for later use. In order to do this, however, both the computer and we need to master three processes involved in memory.

1. Encoding
2. Storage
3. Retrieval


Encoding
Storage
Retrieval
Long Term Memory (LTM)
Implicit Memory (Non-Declarative)
Explicit Memory (Declarative)
Skills and habits, priming, classical conditioning
Semantic Memory General World Knowledge
Episodic Memory Fact and Source
FRONTAL LOBE
MEDIAL DIENCEPHALIC REGION
HIPPOCAMPUS
TEMPORAL LOBE
SOURCE AMNESIA
PREFRONTAL CORTEX

- **Encoding:**

  The process we use to transform information so that it can be stores.

- **Storage:**

  It simply means holding onto the information.

- **Retrieval:**

  It is bringing the memory out of storage and reversing the process of encoding. In other words, return the information to a form similar to what we stored.

Methods of Improving Memory

- **RECALL:**

  This involves digging into the memory and bringing back information on a stimulus/response basis, e.g., "What is the capital of New Zealand?" Answer: "Wellington". Recall often needs prompting with cues to help us retrieve what we are looking for. It is not a reliable form of memory and many of us experience the feeling that we know the answer but simply can't dig the information out. This is the technique we use to remember people's names, hence we often forget them. There are three types of recall:

1. **Free recall: when no cues are given to assist retrieval**
2. **Serial recall: when items are recalled in a particular order**
3. **Cued recall: when some cues are given to assist retrieval**

- **Recognition (re+cognition)** is a process that occurs in thinking when some event, process, pattern, or object recurs. Coming from the base cognition; cognition has various uses in different fields of study and has generally accepted to be used for the process of awareness or thought.

- **RELEARNING:**

  Another means of remembering is through relearning. Relearned information may return quickly, even if it hasn't been used for many years.

Tips for memory improvements

- **Brain exercises**

  Memory, like muscular strength, is a "use it or lose it" proposition. The more you work out your brain, the better you'll be able to process and remember information.

- **Aerobics:**

  The best way to improve our memories seems to be to increase the supply of oxygen to the brain, which we can do by aerobic exercising. Walking for three hours each week suffices, as does swimming or bicycle riding.

General guidelines to improve memory

- **Pay attention:**

  You can't remember something if you never learned it, and you can't learn something — that is, encode it into your brain — if you don't pay enough attention to it.
- **Involve as many senses as possible.**
- **Relate information to what you already know.**
- **Organize information.**

- Understand and be able to interpret complex material.
- Rehearse information frequently and "over-learn".
- Be motivated and keep a positive attitude.

Healthy habits to improve memory

Regular exercise

1. Reduces the risk for disorders that lead to memory loss, such as diabetes and cardiovascular disease.
2. Increases oxygen to your brain.
3. May enhance the effects of helpful brain chemicals and protect brain cells.

Managing stress

1. Cortisol, the stress hormone, can damage the hippocampus if the stress is unrelieved.
2. Stress makes it difficult to concentrate.

Good sleep habits

1. Sleep is necessary for memory consolidation.
2. Sleep disorders like insomnia and sleep apnea leave you tired and unable to concentrate during the day.

Not smoking

1. Smoking heightens the risk of vascular disorders that can cause stroke and constrict arteries that deliver oxygen to the brain.

Memory and aging

Several factors cause aging brains to experience changes in the ability to retain and retrieve memories:

- **The hippocampus is especially vulnerable to age-related deterioration**, and that can affect how well you retain information.
- **There's a relative loss of neurons with age**, which can affect the activity of brain chemicals called neurotransmitters and their receptors.
- **An older person often experiences decreased blood flow to the brain** and processes nutrients that enhance brain activity less efficiently than a younger person.

FORGETTING

- **Forgetting** (retention loss) refers to apparent loss of information already encoded and stored in an individual's long term memory. It is a spontaneous or gradual process in which old memories are unable to be recalled from memory storage.