

# Memory

- Memory
  - persistence of learning over time via the storage and retrieval of information
- Flashbulb Memory
  - a clear memory of an emotionally significant moment or event

# Memory

- Memory as Information Processing
  - similar to a computer
    - write to file
    - save to disk
    - read from disk
- Encoding
  - the processing of information into the memory system

# Memory

- Storage
  - the retention of encoded information over time
- Retrieval
  - process of getting information out of memory

# Memory

- Sensory Memory
  - the immediate, initial recording of sensory information in the memory system
- Working Memory
  - focuses more on the processing of briefly stored information

# Encoding

- Automatic Processing
  - unconscious encoding of incidental information
    - space
    - time
    - frequency
  - well-learned information
    - word meanings

# Encoding

- Effortful Processing
  - requires attention and conscious effort
- Rehearsal
  - conscious repetition of information
    - to maintain it in consciousness
    - to encode it for storage

# Encoding

- **Ebbinghaus** used nonsense syllables
  - TUV ZOF GEK WAV
  - the more times practiced on Day 1, the fewer repetitions to relearn on Day 2
- **Spacing Effect**
  - distributed practice yields better long term retention than massed practice

# What Do We Encode?

- Semantic Encoding
  - encoding of meaning
  - including meaning of words
- Acoustic Encoding
  - encoding of sound
  - especially sound of words
- Visual Encoding
  - encoding of picture images



# Encoding

- Imagery
  - mental pictures
  - a powerful aid to effortful processing, especially when combined with semantic encoding
- Mnemonics
  - memory aids
  - especially those techniques that use vivid imagery and organizational devices

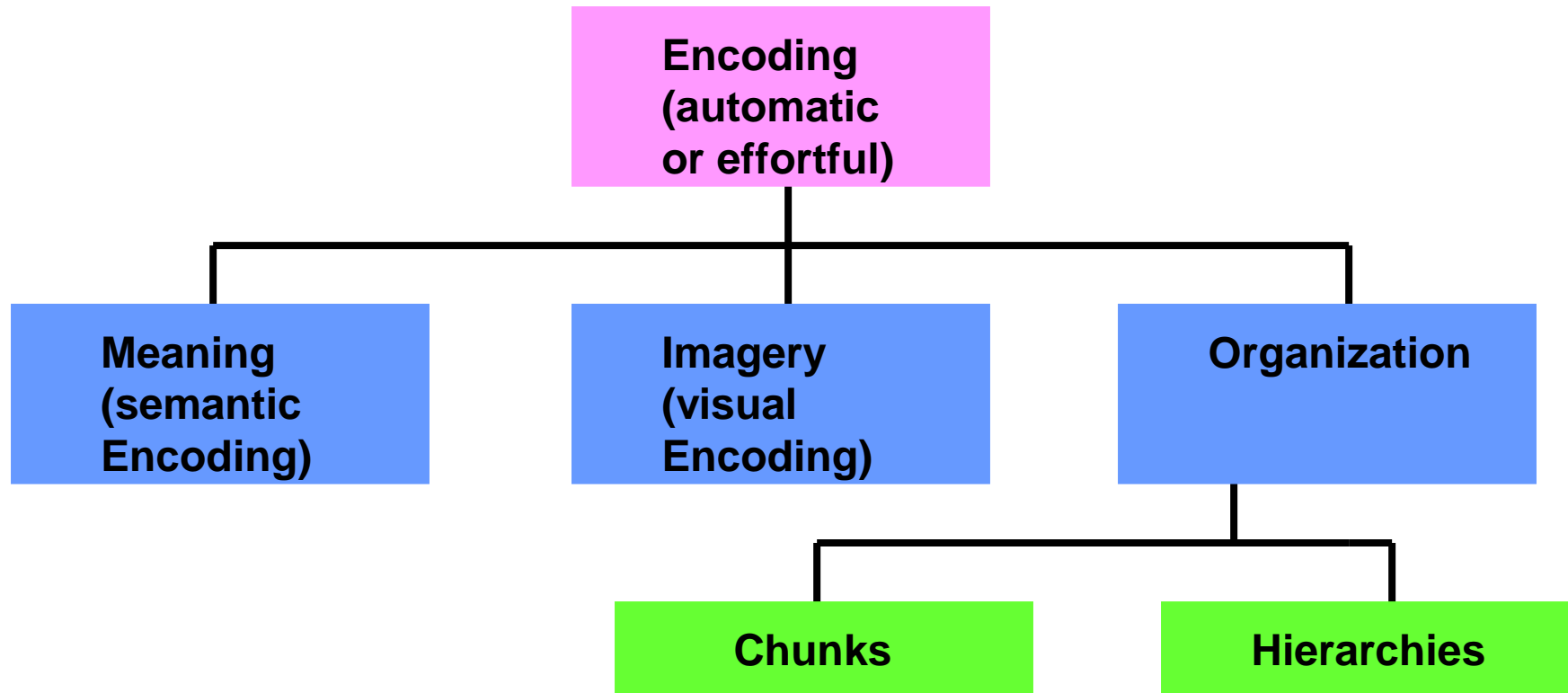
# Encoding

- Chunking

- organizing items into familiar, manageable units
  - like horizontal organization- 1776149218121941
- often occurs automatically
- use of acronyms
  - HOMES- H Huron, O Ontario, M Michigan, E Erie, S Superior

# Encoding

- Hierarchies
  - complex information broken down into broad concepts and further subdivided into categories and subcategories



# Storage- Retaining Information

- **Sensory Memory**
  - the immediate, initial recording of sensory information in the memory system
- **Iconic Memory**
  - a momentary sensory memory of visual stimuli
  - a photographic or picture image memory lasting no more than a few tenths of a second
  - Registration of exact representation of a scene
- **Echoic Memory**
  - momentary sensory memory of auditory stimuli

# Storage- Short Term Memory

- Short Term Memory
  - limited in duration and capacity
  - “magical” number  $7 \pm 2$



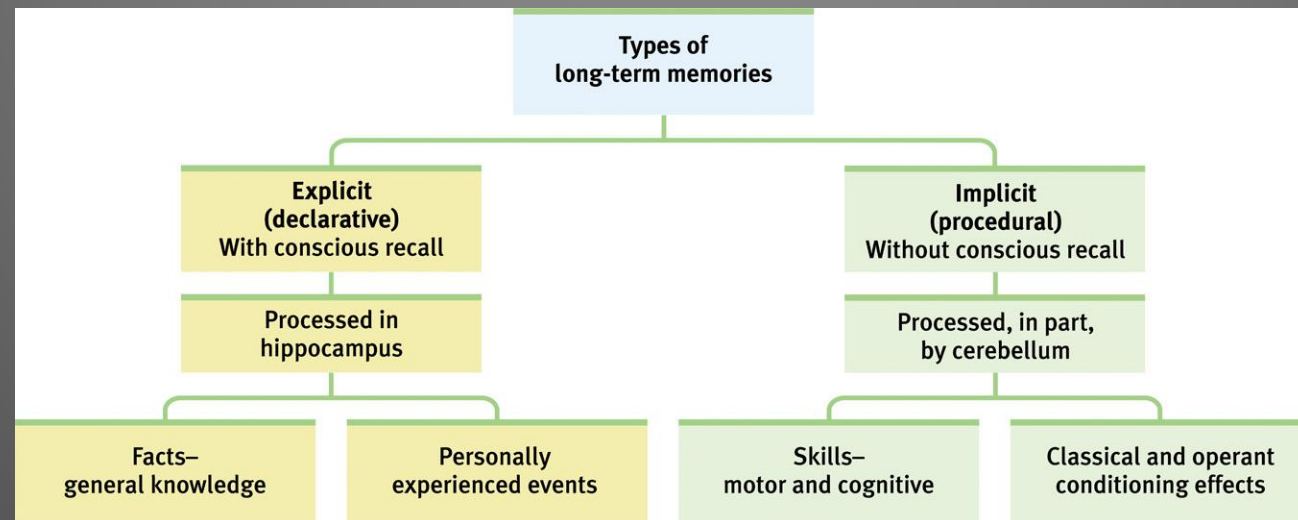
# MEMORY STORES

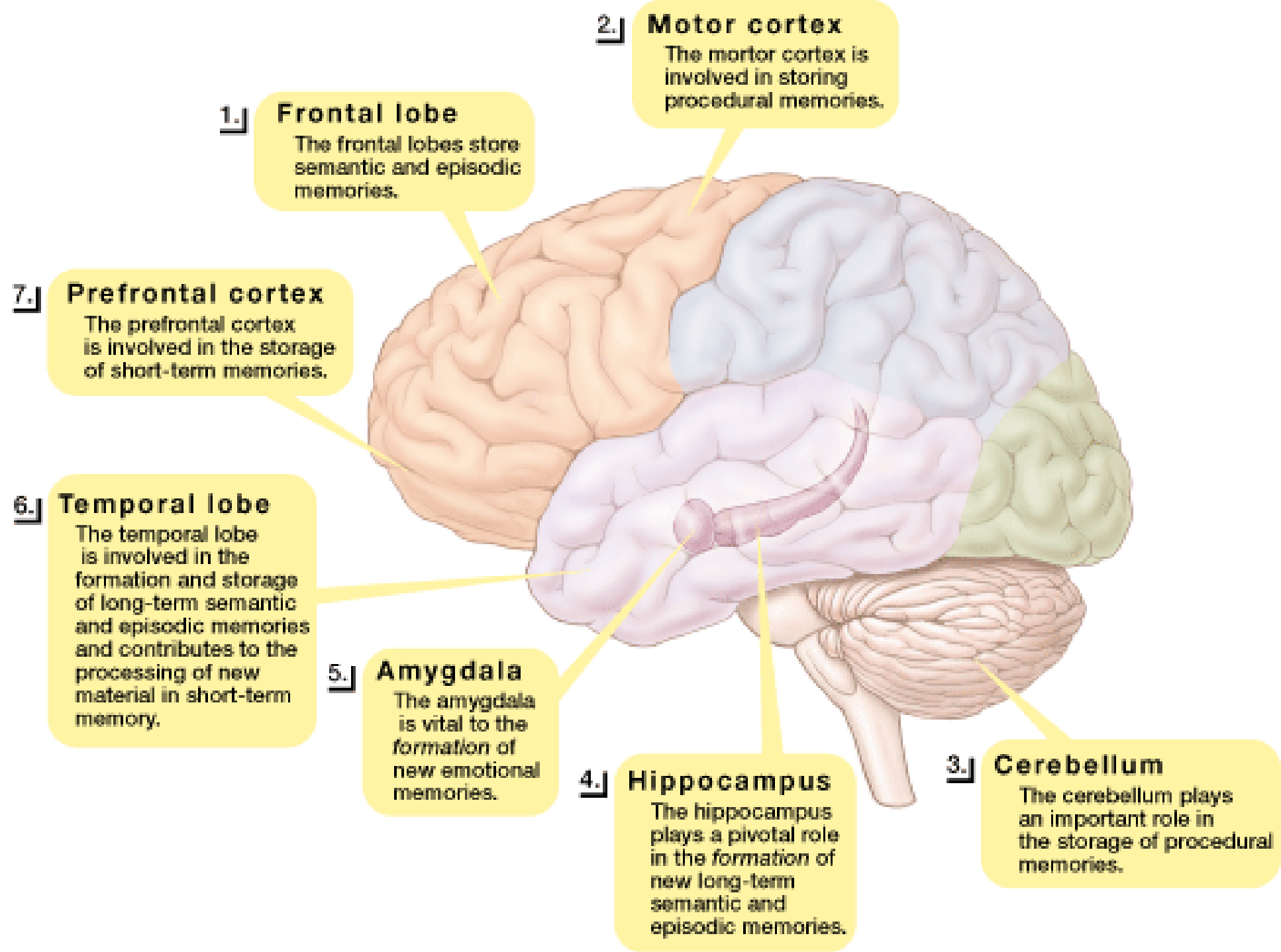
Feature	Sensory Memory	STM/Working Memory	LTM
Capacity	Unlimited	7±2 Chunks	Very Large/Unlimited
Duration	0.5-4 seconds	20 sec.	Years/Lifetime

# STORING IMPLICIT & EXPLICIT MEMORIES

Explicit Memory refers to facts and experiences that one can consciously know and declare. Ex: The capital of IL is Springfield;  $2 + 2 = 4$ .

Implicit memory involves learning an action while the individual does not know or declare what she knows (i.e. unconsciously). Ex: brushing your teeth; riding a bike







# Storage- Long Term Memory Subsystems

