Differences Among the Three Basic Structures of the Human Information Processing Model[1]

Feature	Sensory Registers	Working Memory	Long-Term Memory
Entry of information	Automatic Preattentive	Requires attention Influenced by perception	Rehearsal Encoding
Format of information	Literal copy Exactly as received	Typically auditory Sometimes visual	The "gist" or scheme Largely semantic Some auditory and visual (procedural & episodic)
Maintenance of information	Not possible	Continued attention Maintenance rehearsal	Repetition
Trace duration	Visual < 1" Auditory 2" to 4"	5 to 20 seconds	A long time
Information loss	Decay Possible Interference	Interference Possibly decay	Possibly no loss Loss of accessibility by interference
Capacity	unlimited	Small (a "bottleneck") 7 (+/- 2) bits of information Increased by organization (Chunking, Rhythm, Meaning)	No know limit
Retrieval	Exact readout of what was sensed (if still there)	Probably automatic Items in consciousness All information is scanned until information is found.	Retrieval cues Possibly search process

HIP Model: A Sequential Summary

1. An external stimuli is received by the senses. Sensory acuity is a prerequisite.
2. Sensed information is automatically placed in the sensory register (which has an unlimited capacity). Maintenance of information in the sensory register is not possible. If sensed information is not attended to it is quickly forgotten.
3. Initial processing occurs next an involves making sense of the stimuli. This processing requires the individual to pay attention to the stimuli and is also influenced by perceptual accuracy.
4. Information that is attended to is placed in the working memory (which has a limited capacity). Perceptual accuracy (background knowledge or long term memories) also affects what is placed in working memory. Because of its limited capacity this structure is often referred to as the bottleneck of human learning.
5. If the capacity of working memory is exceeded, and/or information is judged to be irrelevant/unimporant then it is forgotten. Presenting to much information and/or distractions will cause information loss.
6. Information may be maintained in working memory possible (maintenance rehearsal). This will facilitate the development of a long term memory.
7. Long term memories may be retrieved by the working memory to facilitate encoding.
8. With rehearsal and coding information may be placed in long term memory.

[1] Adapted from F. I. M. Craik and R. S. Lockhart, "Level of Processing," *Journal of Verbal Learning and Verbal behavior*, 1972, pp. 671-684.