Any act of remembering requires acquisition, storage, and retrieval

Acquisition – Must put some information into your memory via learning

Storage – An experience must leave some record in the nervous system (memory trace)

Retrieval – Process through which we draw information from storage and use it

Recall – Process in which you retrieve information from memory in response to some cue or question

Recognition – A type of retrieval that requires you to judge whether you have encountered a stimulus previously

Intentional Learning – Placing new information into memory in anticipation of being tested on it later

Incidental Learning – Learning without trying to learn, and often without awareness that learning is occurring

Stage Theory of Memory – Memory acquisition could be understood as dependent on three types of memory
  - Sensory memory – Briefly stored memory when information first arrives which is held as an input in raw sensory form (iconic memory for visual inputs and echoic memory for auditory inputs)
  - Short-Term Memory – Place you hold information while you’re working on it
  - Long-Term Memory – Larger and more permanent storage place

Working Memory – A term describing the status of thoughts in memory that are currently activated
  - Function of the memory (used sometimes instead of short-term memory)

Long-Term Memory – Vast memory depository containing all of an individual’s knowledge and beliefs – including all those not in use at any given time

Free recall – Recalling material in any order (not necessarily as heard)
  - Words presented at the beginning of a list and end are likely to be recalled
    - Primacy effect – tendency to recall the first items on the list more readily than those in the middle
    - Recency effect – tendency to recall items at the end of a list more readily than those in the middle

There’s a limit to how many things someone can think about at once, so working memory has a limit
  - Capacity of working memory is 7 ± 1 or 2
  - New words bump out words before them (which is why words in the end last)
  - Beginning words were put into long-term memory
    - Words in the beginning get the most attention
      - Recency effect is eliminated if there is a delay and a task inbetween the list and the recall since it’s no longer in working memory
      - Primacy effect is diminished if the time to devote to each word is increased

Working memory capacity is measured in chunks
  - Chunking – Process of reorganizing or recoding materials in working memory by combining a number of items into a single, larger unit
    - Working memory can hold seven or so chunks

Getting information into working memory just requires attention; getting information into long term memory requires practice with time and effort

Memory doesn’t require attention but requires mental engagement with a target and not mere exposure (eg: the direction Lincoln is faced on a penny is not known by most)

Maintenance Rehearsal – Mechanical repetition of material without thinking about its meaning or patterns
  - Doesn’t bring information to long term memory

Shallow Processing – An approach to memorization that involves focusing on the superficial characteristics of the stimulus, such as the sound of a word or the typeface in which it’s printed

Deep Processing – An approach to memorization that involves focusing on the meaning of the stimulus

Memory is promoted by finding the meaning to a word – gaining an understanding of the material

Mnemonics – Deliberate techniques people use to memorize new materials

Method of Loci – Requires the learner to visualize each of the items she wants to remember in a different spatial location (locus)

Linking the words to one another in a picture is most efficient
Varieties of Memory

- DRM Paradigm – A common procedure for studying memory, in which participants read and then immediately recall a list of related words, but the word providing the theme for the list is not included
  - Example of false memory: If all the terms to memorize have to do with sleep but don’t include the word sleep, the person will likely recall that he heard the word sleep even though he didn’t
- Familiarity – A general sense that a certain stimulus has been encountered before
- Recollection – Recall of the context in which a certain stimulus was encountered
- Explicit Memory – Conscious memories that can be described at will and can be triggered by a direct question
- Implicit Memory – Memories that we may not recall consciously, but that are still demonstrable through an indirect test
- Episodic Memory – Memory for specific events and experiences [explicit]
- Semantic Memory – Memory for facts (memories aren’t tied to specific time or place) [explicit]
- Flashbulb Memory – Vivid, detailed memories said to be produced by unexpected and emotionally important events
  - Most commonly negative events
  - Rehearsal of the specific extreme event with others is likely to make it so powerful in memory
- People might protect themselves from the painful recollection of horrific events
  - Remembering the event extremely vividly could lead to PTSD
  - Others don’t remember much of the events at all
    - Not having sleep, having head injuries, etc. that result from a horrific event can prevent establishing memory in the first place, especially the biological process of protein synthesis needed for memories
- Some believe that very painful memories will be repressed; others believe they will be dissociated (creation of psychological distance)
- Painful memories can be pushed out of memory but later recovered
  - Could possibly be due to long-lasting retrieval failure that was eventually reversed with a right memory cue
  - Some of the recovered memories may be false
- Anterograde Amnesia – A memory deficit suffered after some kinds of brain damage, in which the patient seems unable to form new explicit memories; however, memories acquired before the injury are spared
  - Damage in the hippocampus and nearby subcortical regions
    - Can be caused by illness (especially if it causes encephalitis, which is an inflammation of the brain tissue) or stroke or physical trauma
    - Amnesia is a central symptom of Korsakoff’s Syndrome
  - Can form some new memories through testing (eg: constantly learn of way through maze. They don’t remember the maze but get faster at solving it) (eg: Patient is given two tunes with some similar sequences of notes. They didn’t know which sections had the similar tunes because they couldn’t remember the other, but they preferred the familiar ones)
  - Have some implicit memory but no new explicit memory
- Memory disruption is known as amnesia
- Loss of memories for events in the past is retrograde amnesia
- Procedural Knowledge – Knowledge of how to do something expressed in behaviors rather than in words (implicit)
- Declarative Knowledge – Knowledge of information that can be expressed in words
- People with normal brains can even have implicit memory without explicit memory (eg: Mechanically doing better because of a pattern but not realizing the pattern)
- Repetition priming – Words that had been on the original list were identified more readily than words that had not in an experiment where a list of words was shown to subjects and then quick flashes of words were shown on the screen
- Fragment-Completion Tasks – Participants are shown partial words and fill them in to form actual words
  - More successful if target word was encountered recently
  - Priming (implicit) can last a long time
    - Eg: Subjects were told to read two phrases that were upside down, and then a year later they came back and didn’t know which they had read but read the one they saw the first time faster
- Sentences heard prior are more likely to be accepted as true even if they are not (even if a warning to be cautious)
- Perceptual Learning – Learning that you need to do whenever you recalibrate your perceptual systems (eg: new glasses) [implicit]
- Classical conditioning is another form of implicit memory