Summary:

How do we memorize things? How can we try to memorize things faster or for longer? We'll try to answer these questions in just under one hour with some funny examples.

General theme:

* Talk about how I still remember the eight species of bears by heart (origin? 9th grade, probably) vs. the top ten largest cities of South Dakota (I tried to memorize last year, probably remember 5-8)
  + Q: Why do you think I remembered the bears more than the cities?
* Why? What information is stored, how can we try to store it better, why is it important (is this what underlies all learning?)
* Three-stage model of memory, also known as the Atkinson-Shriffin model: Attention (need to consciously perceive information) 🡪 Encoding (encode into short-term or working memory, which requires active effort) 🡪 Storage (move from short-term memory to long-term memory via techniques) 🡪 Retrieval (retrieving information from long-term memory)
* Sperling test: whole report vs partial report.
  + Q: What do you think this means in terms of our three-stage model?
* Memory span game: get a volunteer, tell them most people fail around 7 numbers
  + Q: What does this tell us about short-term memory?
  + 7±2 experiment: George Miller at Harvard
  + Memory span is limited by chunks but not bits of information
  + If you don’t know a language, your chunks are sounds rather than whole words
  + Of course, this breaks down at a point (magic spell for memory, phonological loop)
* Chess board:
  + Q: What do these results mean?
  + Background knowledge plays a huge role in memory
  + But seeing your brain may automatically correct perceived inaccuracies, so it’s bad on random
* Primacy / recency effects:
  + Q: What do these results mean?
  + First words are committed to long-term memory fast, but we don’t have a large capacity for it
  + The most recent words are maybe stored in short-term memory if we ask for the words fast enough, but not for much longer
* Ebbinghaus forgetting curve:
  + Q: What do these results mean?
  + Testing ourselves on content “solidifies” memory
  + We will forget things over time, but we can forget slower
* Encoding game
  + Q: Who memorized better, and why?
  + Deep encoding commits things to memory better
* Gooden and Baddeley 1975
  + Q: What does this mean?
  + Studying within the same context for an exam (or for more leisurely things, if you plan to use the information in daily life) is important
* Retroactive memory, Jenkins and Dallenbach 1924:
  + Q: Proactive or retroactive? What does it mean?
  + Retroactive interference
  + Sleep also helps fix memories (good sleep is required for this) since brain is quiet
* Proactive memory, DD Wickens 1976:
  + Q: Proactive or retroactive? What does it mean?
  + Interference is erased upon context-switch
* False memory
  + Lure/trick word that is a result of false memories
  + Rate of false memories increase with age unfortunately
  + This is largely based on an undergraduate lecture – the ages between 18 and 25 are the best for rote memory – so maybe look forward to it, or not?
* The Mind of a Mnemonist
  + Complex mathematical formulas, huge matrices, poems in foreign languages he didn’t know
  + Strong synesthesia: Take the number 1. This is a proud, well-built man; 2 is a high-spirited woman; 3 a gloomy person; 6 a man with a swollen foot; 7 a man with a moustache; 8 a very stout woman—a sack within a sack. As for the number 87, what I see is a fat woman and a man twirling his moustache.
  + Also could control his body temperature and pulse by “seeing himself” in cold/hot or stressful/unstressful situations
  + Difficulties in sensory overload: conversations with people were weird (distractions) and he tried to forget things by burning papers with those memories
  + Was not aware that there were other people who did not have perfect memory
  + Memory sport: Moonwalking with Einstein, Yanjaa Wintersoul
  + Too many generals, too many particulars
* Flashbulb memories
  + Q: Do people have stories about this? After learning about this, I felt wary about some of the memories I made during these times.
* Eyewitness
  + 80,000 trials/year rely on eyewitness testimony, estimated around 1000 wrong convictions
* Facts to mention:
  + 2.5 PB of memory (125 trillion synapses)
  + Baddeley’s model: central executive
  + Atkinson-Shiffrin model: sensory, short term, long term
  + Subitizing: we can easily count small numbers
  + Chunking: group individual elements of a set of information for easier memory
  + Solomon Shereshevsky: S, Alexander Luria’s *The Mind of a Mnemonist*
  + Spacing effect: better than cramming, probably because of semantic priming
  + Examples from around the world: people train to become a hafiz (memorizing the Quran); traditional Chinese poets (and many common people) today memorize hundreds of Chinese poems; Vedic chants
  + Techniques to talk about: rote learning through repetition, spaced repetition and the Ebbinghaus forgetting curve, active recall, mnemonic/mnemonic link, major system (phonemes from numbers), method of loci (common among the World Memory Champions), peg system,
  + Von Restorff (isolation) effect: unique thing in a list is memorized more easily
  + Desirable difficulty (Sans forgetica, but it failed)
  + Sleep aids memory
  + Memory sport: Moonwalking with Einstein, Yanjaa Wintersoul