Draw a penny in the top right of your paper.

- Do you think you will be able to remember this set of numbers by the end of this class?
- 7 4 8 2 9 9 6 3 1 5

WHICH PENNY DOES YOURS LOOK LIKE?

It was A

Taken from all different places on the internet and mashed up together.

Cognition

- **We are now hitting the cognition section of the book to include: memory, thinking and language.**

- **Cognition:** all the mental activities associated with thinking, knowing, and remembering information.

CH. 10

MEMORY: IS YOUR CAPACITY TO REGISTER, STORE, AND RECOVER INFORMATION OVER TIME, OR MORE SIMPLY, THE PERSISTENCE OF LEARNING OVER TIME.

How does memory work

- **We use different "models" to explain memory.**

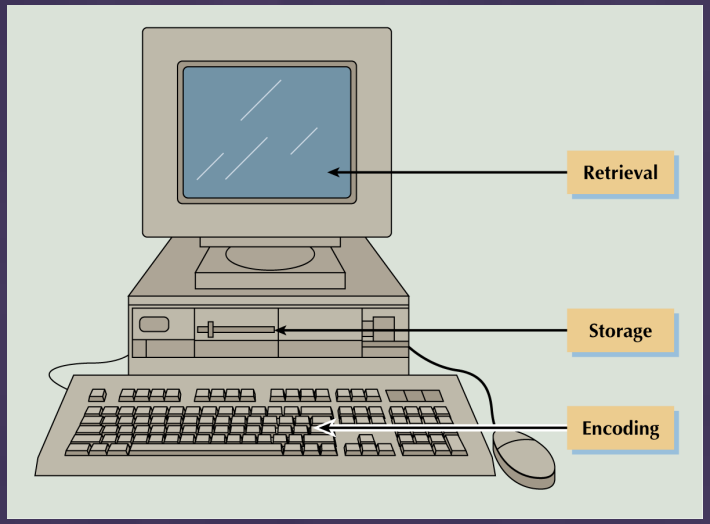
Information Processing Model:

Three Stage Model

INFORMATION PROCESSING MODEL:

COMPARES OUR MEMORY TO A COMPUTER

3 STEP PROCESS IN HOW MEMORY WORKS



Three step process….

1. **Encoding:** *The processing of information into the memory system.*

2. **Storage:** *The retention of encoded material over time.*

3. **Retrieval:** *The process of getting the information out of memory storage.*

ENCODING

SPACING EFFECT

http://www.psychbytes.com/Flash/Encoding/Encoding.htm

- *We encode better when we study or practice over time.*
- *DO NOT CRAM!!!!!*

- **The ways we encode:**
- **Visual Encoding:** *the encoding of picture images.*
- **Acoustic Encoding:** *the encoding of sound, especially the sounds of words.*
- **Semantic Encoding:** *the encoding of meaning.*

ENCODING

- The processing of information into the memory system. *(what you do to learn something)*

Typing info into a computer

Getting a girls name at a party

STORAGE

- The retention of encoded material over time.

Pressing Ctrl S and saving the info.

Trying to remember her name when you leave the party.

RETRIEVAL

- *The process of getting the information out of memory storage.*

Finding your document and opening it up.

Seeing her the next day and calling her the wrong name (retrieval failure).

Three Stage Model

Three Stages of Memory

Atikinson-Shiffrin three-stage model of memory, describes 3 different memory systems characterized by time frames:

- **Stage 1 - Sensory Memory** *is a brief representation of a stimulus while being processed in the sensory system*
- **Stage 2 - Short-Term Memory** *(STM) is working memory*
  - *Limited capacity (7 items)*
  - *Duration is about 30 seconds*
- Stage 3 - Long-Term Memory *(LTM) is large capacity and long duration*

Three Stage Model

Sensory Memory

Iconic Memory

momentary sensory memory of visual stimuli, a photograph like quality lasting only about a second.

Echoic Memory

- We also have an echoic memory for auditory stimuli. If you are not paying attention to someone, you can still recall the last few words said in the past three or four seconds.

http://www.garyfisk.com/anim/iconic.swf

Three Stage Model

Short Term Memory

- http://www.garyfisk.com/anim/lecture_stm.swf

- The stuff we encode from the sensory goes to STM.
- **Holds about 7 (plus or minus 2) items for about 20 seconds.**
- **We recall digits better than letters.**

Short Term Memory Activity

Three Stage Model
Short Term Memory

- **Chunking:**
- *Organizing items into familiar, manageable units.*

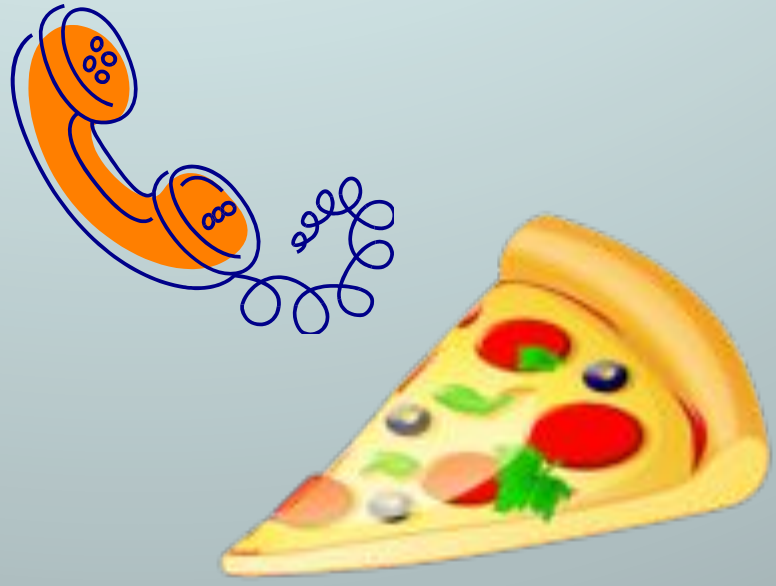
- **For Example:**
- **DVD, ESPN,**
- **867-5309**
- **Social Security Numbers,**
- **CNN**

Short Term Memory Activity

Three Stage Model
Short Term Memory

- **Maintance Rehearsal:**
- Repeating the information

- I need a volunteer…



Short Term Memory Activity

Three Stage Model
Long Term Memory

- Unlimited storehouse of information.
- **Explicit (or declarative)** memories: our LTM of facts and experiences we consciously know and can verbalize. EG. Sematic (facts and general knowledge)and episodic (birthdays)
- **Implicit (or non-declarative) memories:** our long term memory for skills and procedures to do things by previous experience without that experience being consciously recalled. (Eg. Swimming.)

Short Term Memory Activity

Organization of memories

- **How information in long-term memory organized?**
- 1. **Hierarchies-**systems in which concepts are arranged from more general to more specific.
- 2. **Semantic Networks**-more irregular and distorted systems with multiple links from one concept to another. EG. Bird linked to flying..feathers..wings
- 3. **Schemas**- are preexisting mental frameworks
- 4. **Connectionist networks-** memory is stored throughout the brain through neurons.

Biology of Long Term Memory

Flashbulb Memory

- A clear moment of an emotionally significant moment or event.

Where were you when?

1. You heard about 9/11

2. You heard about the death of a family member

3. During the OJ chase

Retrieving Memories

- **Retrieval** is the process of getting information out of memory storage.

Recall Versus Recognition

Recall

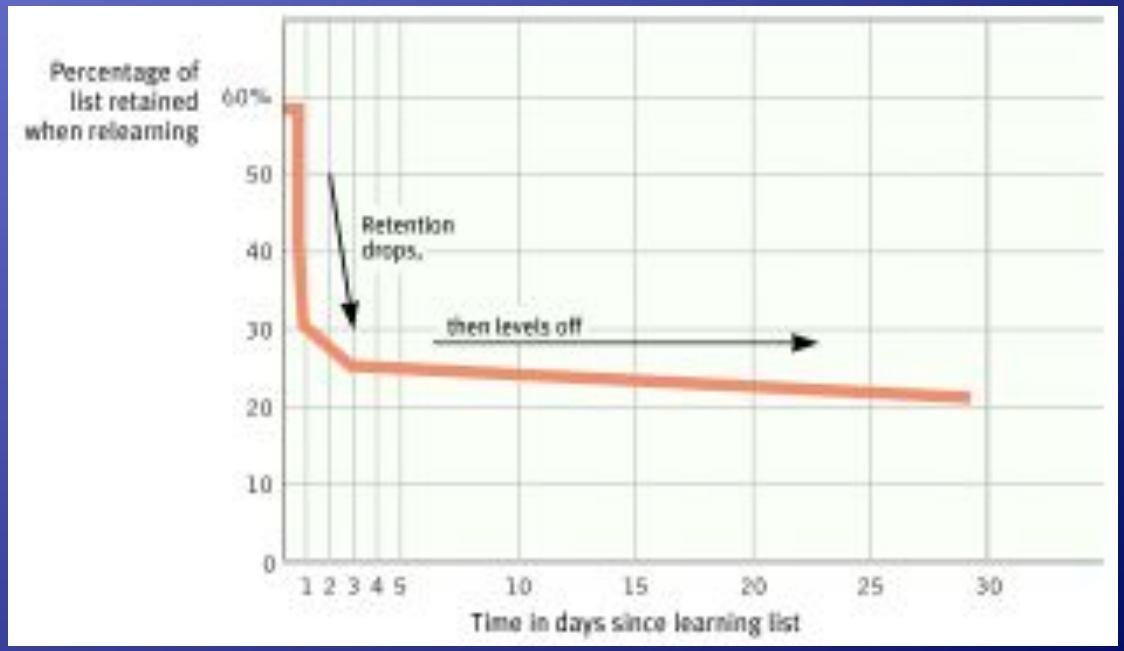
- you must retrieve the information from your memory
- fill-in-the blank or essay tests

Recognition

- you must identify the target from possible targets
- multiple-choice tests

Spacing Effect

- DO NOT CRAM!!!!!!!!!!!!!
- **Ebbinghaus's Forgetting Curve**



Clive Wearing the Man with no short term memory.

Serial Position Effect

get out a sheet of paper…

Name all of the presidents

Primacy effect – remembering stuff at beginning of list better than middle

Recency Effect – remembering stuff at the end of list better than middle

PRIMING EFFECT (don't need)

- Priming effect occurs when people respond faster or better to an item if a similar item preceded it.

•For the most part, the priming effect is considered involuntary and is most likely an unconscious phenomenon. The priming effect basically consists of **repetition priming and semantic priming.**

Semantic Priming (don't need)

2. **Semantic priming** refers to the fact that it is easier (quicker) to recognize someone or word if you have just seen someone or a word closely associated.

- Memory Test
- http://www.exploratorium.edu/memory/dont_forget/index.html
- Try at home

Mnemonics

A trigger to aid memory, involving prompts such as visual imagery or sounds.

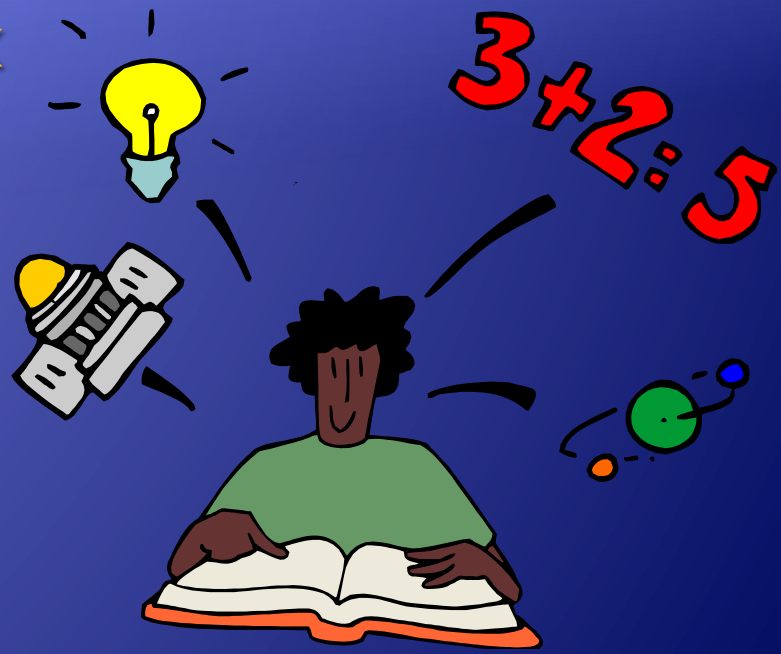
Since imagery is at the heart of memory. Mnemonic techniques use vivid imagery in aiding memory.

1. Method of Loci
2. Link Method
3. Context Effects

Method of Loci Get out paper

Context Effects

- **It helps to put yourself back in the same context you experienced** (encoded) **something.**
- If you study on your favorite chair at home, you will probably score higher if you also took the test on the chair.



If you have a strong emotional reaction to a remembered event, does that mean your memory is accurate?

Mood-Congruent Memory

- The tendency to recall experiences that are consistent with one's current good or bad mood.
- If you are depressed, you will more likely recall sad memories from you past.
- Moods also effect that way you interpret other peoples behavior

My boyfriend just broke up with me and my mother told Me I couldn't go to the party, she always tells me no.

Take out a piece of paper…..

- Name the seven dwarves…..

Now name them…..

Was it easy or hard?

- It depends on several things….
- If you like Disney movies?
- When was the last time you have seen the movie?
- Are people around you being loud pain in the butts so you cannot concentrate?

Turn your paper over.

Now pick pick out the seven dwarves.

Grouchy Gabby Fearful Sleepy
Smiley Jumpy Hopeful Shy
Droopy Dopey Sniffy Wishful
Puffy Dumpy Sneezy Pop
Grumpy Bashful Cheerful Teach
Snorty Nifty Happy Doc Wheezy
Stubby Poopy

Seven Dwarves

Sleepy, Dopey, Grumpy, Sneezy, Happy, Doc and Bashful

False Memories

- **Exclusive: The Bunny Effect**

http://www.youtube.com/watch?v=eZlPzSeUDDw&feature=relmfu

FORGETTING

Theories of Forgetting

- **Proactive interference:** old information interferes with recall of new information
- **Retroactive interference:** new information interferes with recall of old information
- **Decay theory:** memory trace fades with time
- **Motivated forgetting:** involves the loss of painful memories (protective memory loss)
- **Retrieval failure:** the information is still within LTM, but cannot be recalled because the retrieval cue is absent

Forgetting

- **Retroactive Interference**: new information blocks out old information.
- **Proactive Interference**: old information blocks out new information.

Getting a new bus number and forgetting old bus number.

Calling your new girlfriend by old girlfriends name.

Storage Decay

- Even if we encode something well, we can forget it.
- Without rehearsal, we forget thing over time.
- Ebbinghaus's forgetting curve.

- Do you remember the 10 numbers? Write them down then scroll back up to check if you were right. If you were correct then congratulations!

Motivated Forgetting

- We sometimes revise our own histories.

Honey, I did stick to my diet today!!!!!!

Motivated Forgetting

Why does is exist?

One explanation is **REPRESSION**:

- in psychoanalytic theory, the basic defense mechanism that banishes anxiety-arousing thoughts, feelings and memories from consciousness.

My Trip To Cheesecake Factory

You go to the Cheesecake Factory for dinner. You are seated at a table with a white tablecloth. You study the menu. You tell the female server you want Avocado Egg Rolls, extra sauce, Roadslide Sliders, Thai Lettuce Wraps, and Chino-Latino Steak (medium). You also order a Cherry Coke from the beverage list. A few minutes later the server returns with your Avocado Egg Rolls. Later the rest of the meal arrives. You enjoy it all, except the Chino-Latino Steak is a bit overdone.

Cheesecake factory

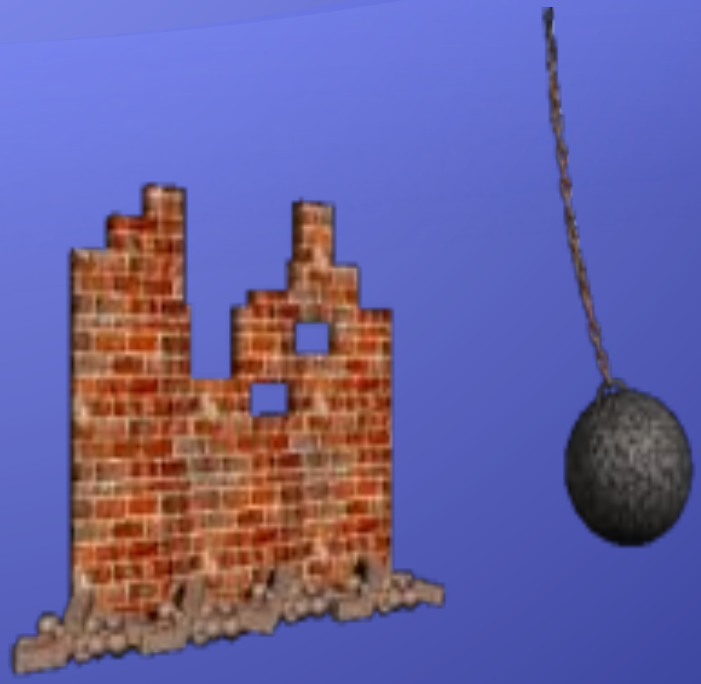
How did you order the steak?

Was the red tablecloth checkered?

What did you order to drink?

Did a male server give you a menu?

Memory Construction



- We sometimes alter our memories as we encode or retrieve them.
- Your expectations, schemas, environment may alter your memories.

False Memories

Misinformation Effect

Depiction of Accident

Misinformation Effect

Leading Question: About how fats were the cars going when they *smashed* into each other?

Source Amnesia (Source Attribution)

- Attributing to the wrong source an event we have experienced, heard about, read about or imagined.

Special Topics in Memory

- Autobiographical memory
  - Recollection of events in our life
  - More recent events are easier to recall
- Childhood Amnesia (Infantile Amnesia)
  - Generally poor memory for events prior to age 2-3
  - May occur because brain is not fully developed at birth
    - Hippocampus not fully formed until age 2
  - May be due to a lack of a clear sense-of-self in young children
  - May be the absence of language

Special Topics in Memory

- Extraordinary memory
  - Includes eidetic imagery (photographic memory)
  - Usually due to well developed memory techniques
- Flashbulb memories
  - Vivid memories of dramatic event
  - May occur because of strong emotional content

Eidetic Memory

- The Woman Who Could Not Forget
- http://www.youtube.com/watch?v=SoxsMMV538U&feature=related

- **Endless Memory, Part 1**
- http://www.youtube.com/watch?v=0HeEQ85m79I&feature=relmfu

- Endless Memories pt. 2
- http://www.youtube.com/watch?v=1th1fVIc8Vo&feature=related

Flashbulb Memory

Vivid memories of dramatic event

May occur because of strong emotional content

Eidetic Memory: *photographic memory*

Special Topics in Memory

- Eyewitness testimony
  - Shown to be unreliable
  - People's recall for events may be influenced by what they heard or constructed after the incident
  - Memory is reconstructed
  - Memories are not stored like snapshots, but are instead like sketches that are altered and added to every time they are called up

Special Topics in Memory

- Eyewitness testimony cont'd
  - Elizabeth Loftus has shown subjects who are given false information about an event or scene tend to incorporate it into their memories, and "recall" the false information as a part of their original memory even two weeks later.
  - Loftus gives the example of the sniper attacks in the fall of 2002. "Everybody was looking for a white van even though the bad guys ended up having a dark Chevy Caprice." That's because some people reported seeing a white van at the scene of the crime. "Witnesses overhear each other," says Loftus, and police may also unintentionally influence people's memories when they talk about a crime.
  - http://cnettv.cnet.com/manufacturing-memories/9742-1_53-50069462.html