Memory Techniques
by Jules Dennett
We remember best by attending, organising and connecting ideas.

**FIGURE 8.1 Basic Memory Processes.** Human memory consists of three principal processes: encoding, which determines and controls how memories are initially acquired; storage, which determines how memories are represented and maintained over time; and retrieval, which controls how memories are recovered and translated into performance. In panel 1, how the subject thinks about the word *cat* will affect how that word is encoded into memory. Panel 2 shows how *cat* might be stored in long-term memory through the activation of existing knowledge structures. In panel 3, the subject uses the cue *animal* to help retrieve the memory of *cat*. 
Rehearsal – maintenance and elaborative.

Deep processing

Self-referencing

Cues – context and internal cues

Visualising

Acronyms

Chunking

Narrative Chains
We remember by structuring, and going over and over information. (Maintenance rehearsal)

Activity Slide 1
The more meaningful the memory the better it is remembered and recalled. (Elaborative rehearsal)
Personal/self referencing is a form of elaborative rehearsal that makes memory more meaningful......
Cues are triggers that retrieve memories.

The more we elaborately rehearse, the stronger the memories are at a biological and thinking level.
We recall memory better by creating **cues**. Visualise and self-reference these items.

Activity Slide 2
Acronyms cue memory
Great memories follow the L.A.C. principle of real estate: the acronym; location, access and capacity helps us understand memory.
The Location of Memory in the Brain

• Memories are stored all over the brain, but different types of memories are primarily located in specific parts of the brain.
• Explicit, factual memories form and are stored in the hippocampus.
• Implicit, emotional memories are most associated with the amygdala.
• Implicit, doing or procedural memories are often stored in the cerebellum.
**Amygdala:**
Storehouse for implicit memories—linked to emotions.

**Cerebellum:**
Highly practised, implicit skill memories.

**Hippocampus:**
Explicit, factual how to and events memories; new memories; role in short term becoming long term memories.

**Temporal lobe:**
Houses explicit word/sound/understanding memories and the hippocampus.

**Frontal lobe:**
Executive control. Controls attention, consciously triggers recall; makes explicit, meaningful connections between ideas.

**Amygdala:**
Storehouse for implicit memories—linked to emotions.
Ways to the best memory

ATTITUDE:

- Set the goal of understanding, not just the completion of a task in and outside of class.
- Accept learning is challenging.
- Know there is reward for effort.
- Value the prize of success
Study in practice

Habits

• Use the **study design or syllabus** to structure notes and memories. It tells you how you need to know the information.
• **Make meaningful connections** to things you know well.
• Use examples.
• Meaningfully organised LTMs allow students to **access** their learning because there are **more cues** and **more connections** making memories more accessible.
• Use **Mind Maps**. They are meaningfully organised connections between ideas, just as the connections between neurons map out the biology of memories in the brain.
• Study over time
- Studying over time influences test performance more than intelligence.
- Memory is reconstructive, not reproductive.
- Studying over time allows memories to consolidate and make new, meaningful connections.
Elaborative rehearsal is the best way to remember
Make a story – narrative chain
Activity Slide 3
Short Term Memory has a limited capacity and duration. We have to rehearse and chunk to remember in long term’s meaningful memory.
Memories that are attentively and meaningfully encoded more accessible for recall.
<table>
<thead>
<tr>
<th>Characteristics of STM</th>
<th>Memory strategies</th>
<th>Example</th>
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<tbody>
<tr>
<td>• Information not attended to is lost from STM after 30 seconds.</td>
<td>• 1) Practise selectively attending – daydream every 45 seconds on average.</td>
<td>The mental bat.</td>
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<td></td>
<td>• 2) Structure the memory with hooks – how many bits of information?</td>
<td>Remember the number of bits</td>
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<tr>
<td></td>
<td>• 2) Personal referencing,</td>
<td>Is that like? That happen to me.</td>
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<td></td>
<td>• 3) Use acronyms,</td>
<td>D.A.R.E</td>
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<td>• 4) Use narrative chains</td>
<td>Dr. IMPID is VP of Cyberspace.</td>
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<tr>
<td>• There are + 7 spots in STM at any one time.</td>
<td>1) Chunking</td>
<td>Telephone numbers</td>
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<td>• When these spots are full, information is lost if not encoded in LTM.</td>
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<td>We remember things at the beginning and end of a list, but lose the most in the middle</td>
<td>1) Make meaningful connection</td>
<td>BRW, STL. Memory is like my computer.</td>
</tr>
</tbody>
</table>
Forgetting
UNLESS YOU MAKE MEANINGFUL CONNECTIONS YOU LOSE MEMORIES FAST
Circuit pruning:

• Is the elimination of excess neurons that don’t fire when neighbouring neurons fire. These neurons are probably in the wrong physiological space in the brain (misplaced memories).
• They have not established a connection, so the brain culls these neurons and strengthens the connections between the ones that are firing together and are therefore used for recall.
• **Circuit pruning** happens during infancy, childhood and in **adolescence**.
• Biologically, when you think of an idea, neurons fire and trigger the firing of connected neurons.
• The more you have thought and related one idea with another, the more cues for memory and the stronger the connections.
• Recall or remembering is easier when one has well developed neural clusters or networks.

**USE IT OR LOSE IT**

= **CIRCUIT PRUNING**
• Learn well in the first instance = relearning takes less time.
• Allow for consolidation of memories = try not to multi-task while learning.
• Study soon after initially exposed to new information = strengthens neural connections.
• Plan to, and actually revisit material regularly.
• Make meaningful connections, use the study design or syllabus and mind map.
• Fact: study over time is more influential to test performance than is intellect.

MAKING MEMORIES FORGETTING RESISTANT
Name the items in the activity slide
Answer
What worked for you?