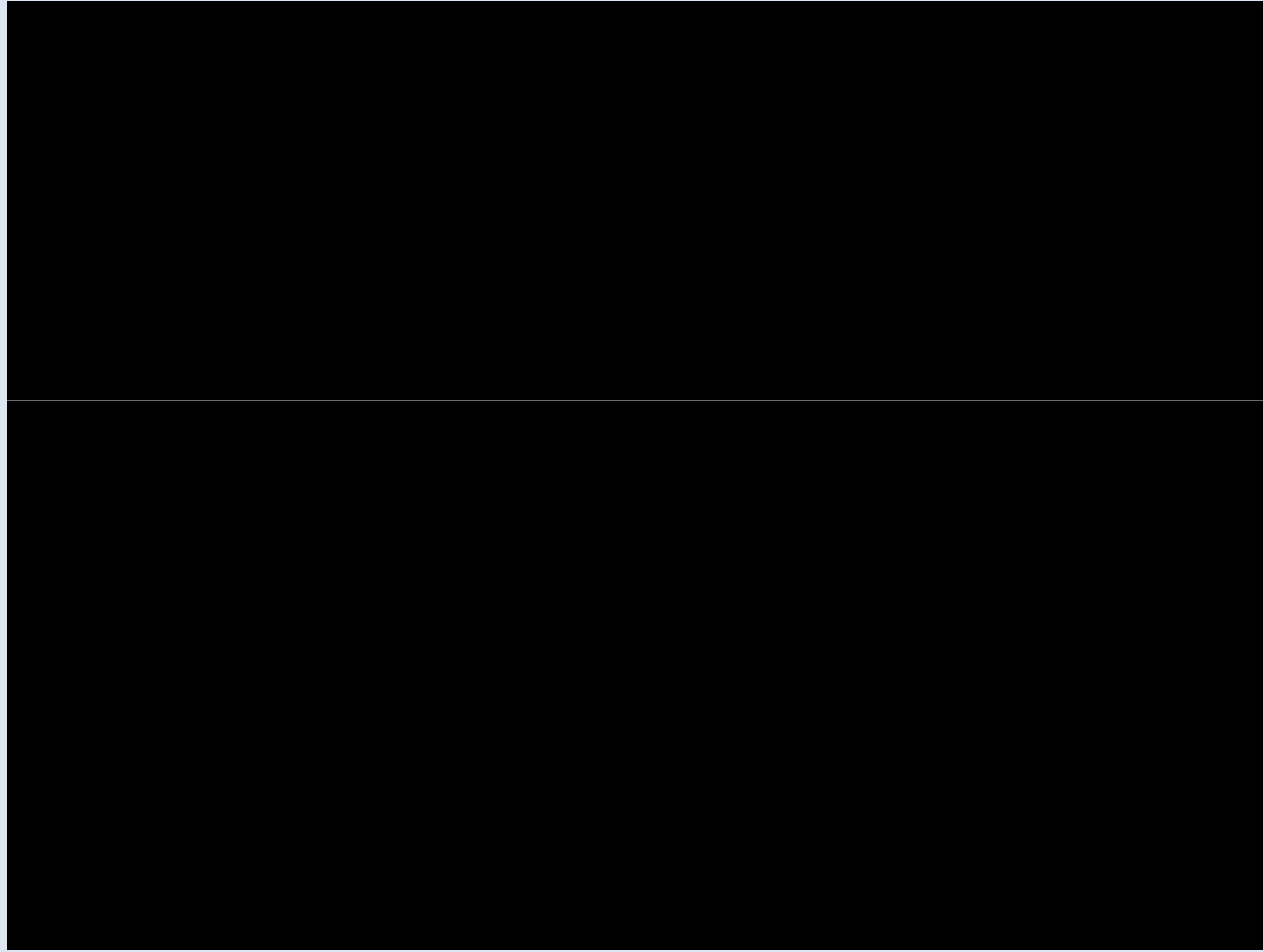




MEMORABLE,
NOT MEMORIZED LEARNING:
storing fundamental concepts and
techniques in long term memory

MARTEDI 10 APRILE 2018 ORE 15.00
ISTITUTO PASOLI,
VIA DALLA CORTE, 15, 37131 VERONA.

Fiona Clancey



- **How the memory works**

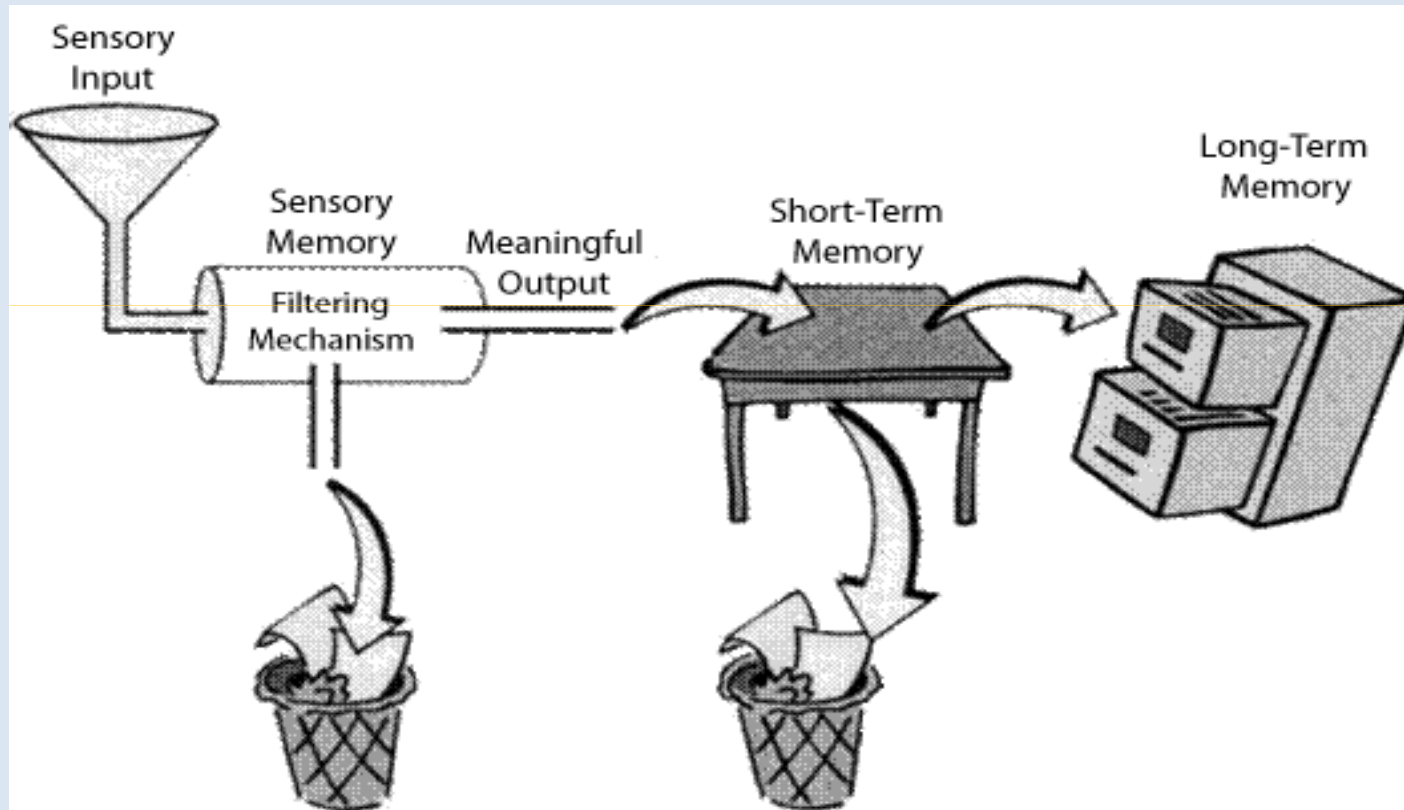
- **How the memory works**
- **Understanding memory can help students with memory retention**

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- **Elaboration – commit new learning to memory Interval learning**
- **Retrieval Practice**

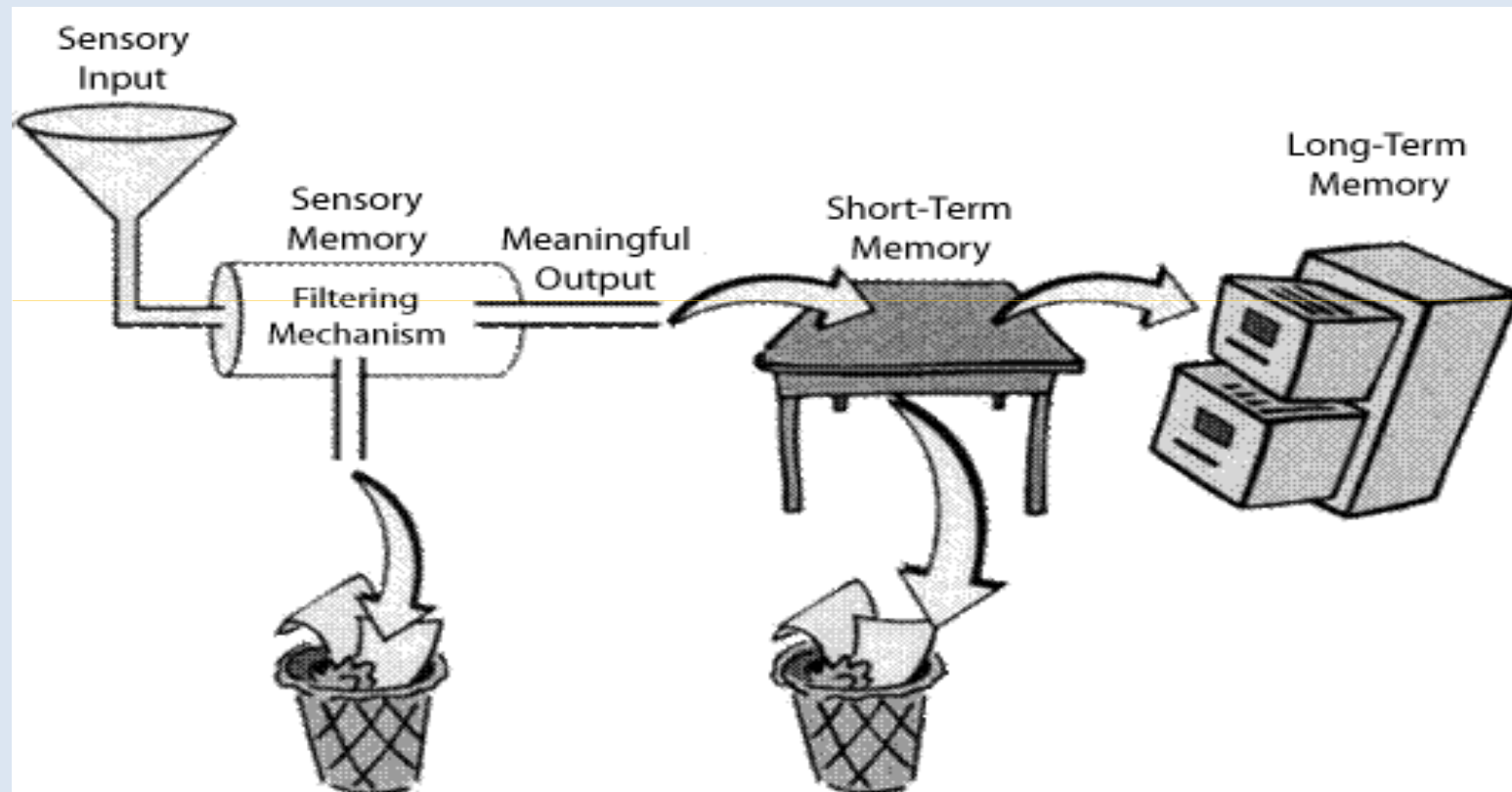
- **How the memory works**
- **Understanding memory can help students with memory retention**
- **Elaboration – commit new learning to memory** **Interval learning**
- **Retrieval Practice**
- **Emotions, sleep and memory**
- **Engaging students**

How the memory works

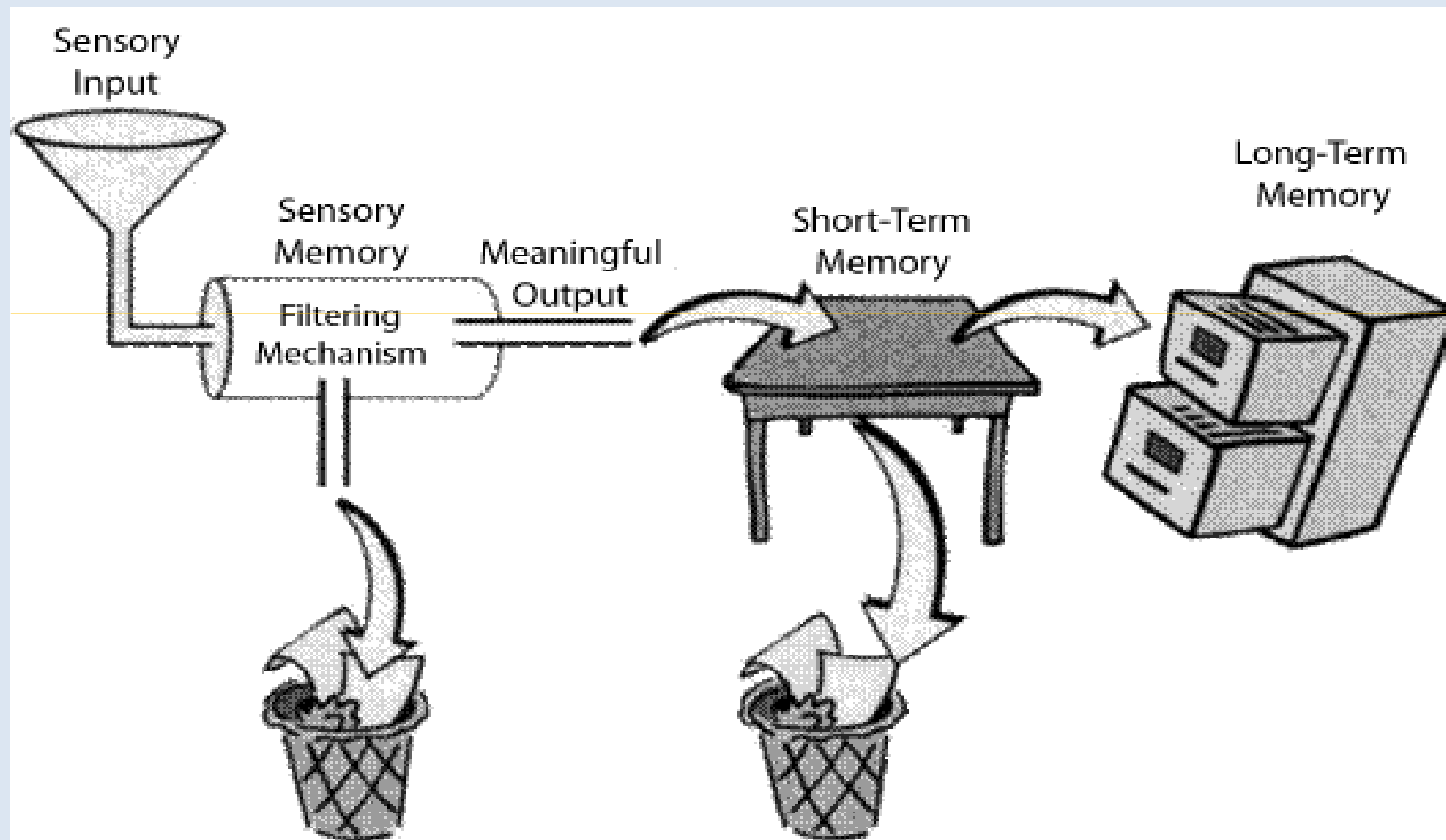


(Richards Regina G, 2003)

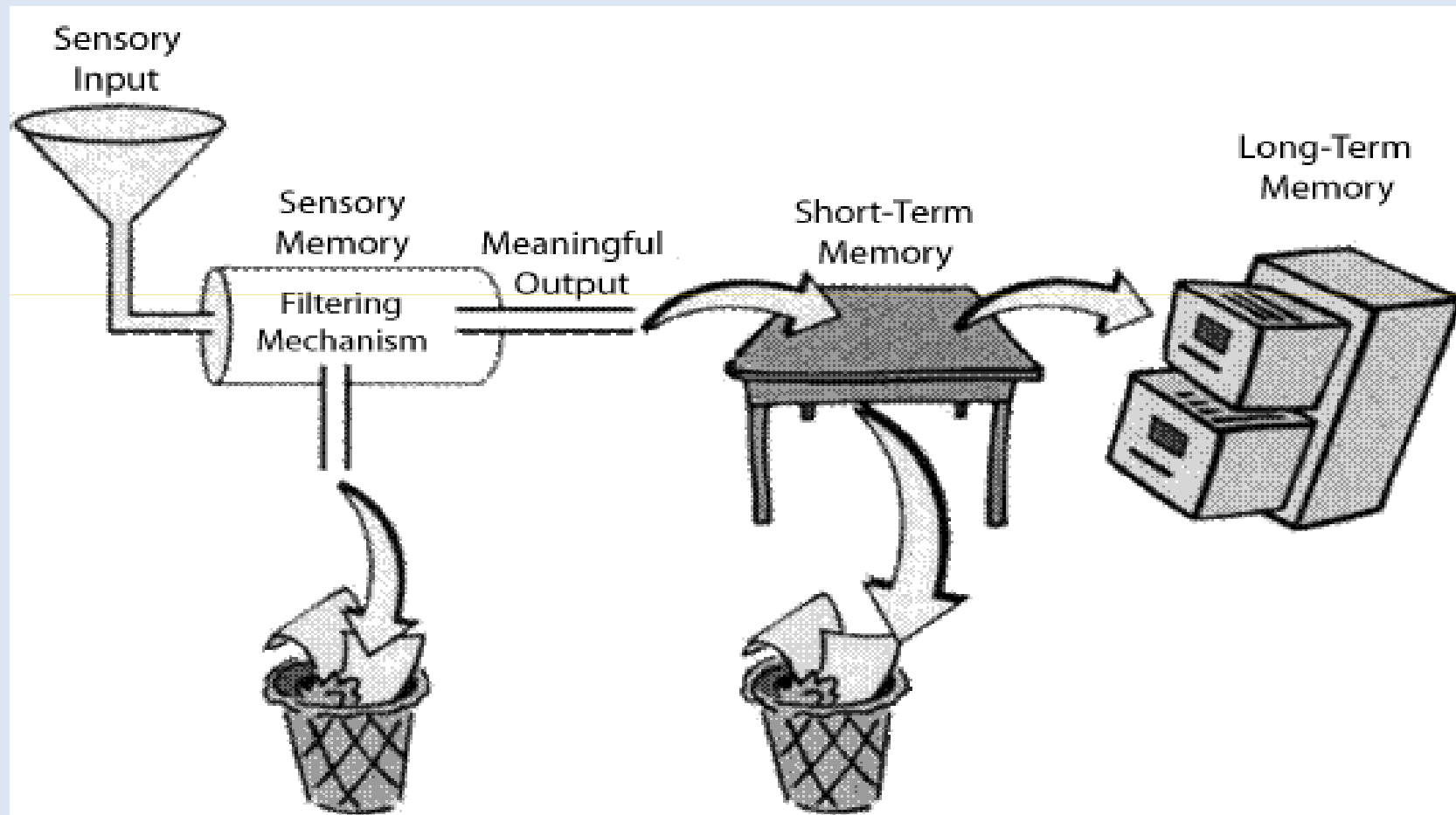
Sensory memory – impressions last less than a second

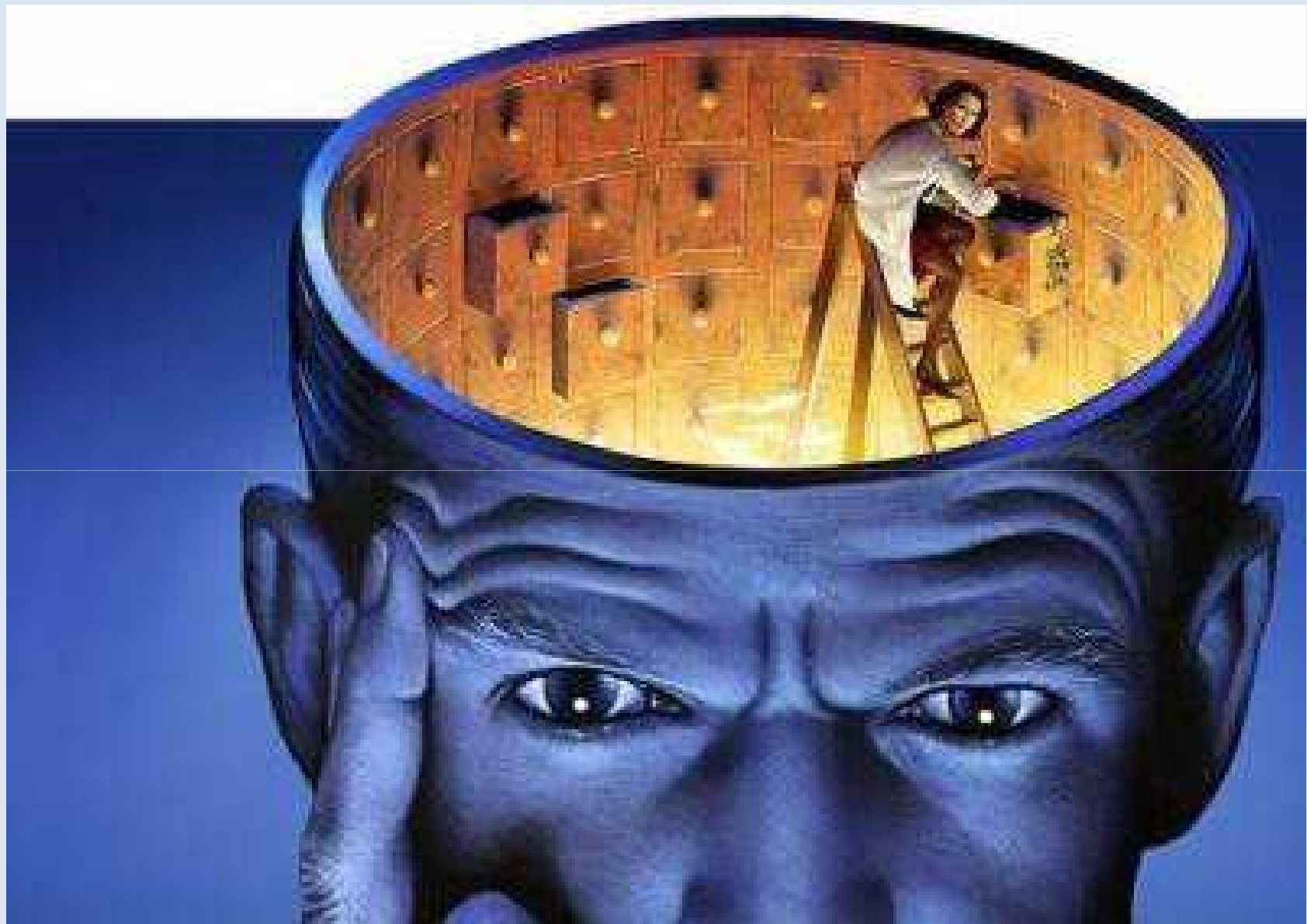


Working memory – manipulation and encoding

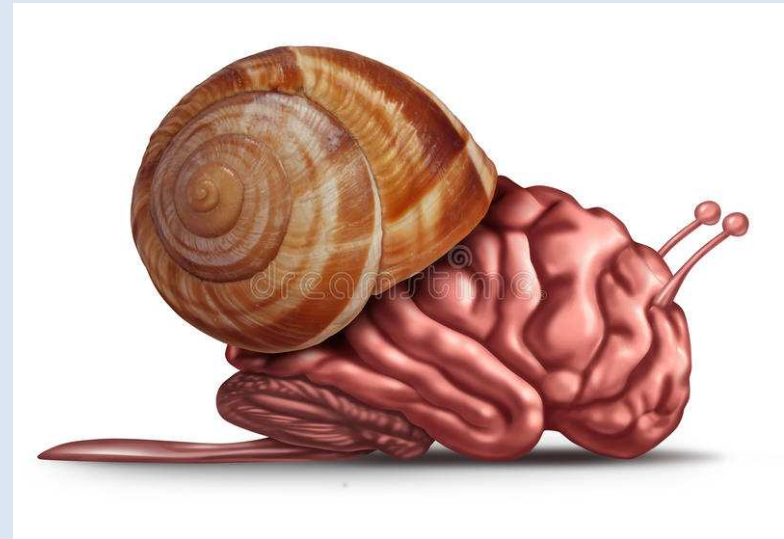


Long term memory – informative knowledge held indefinitely





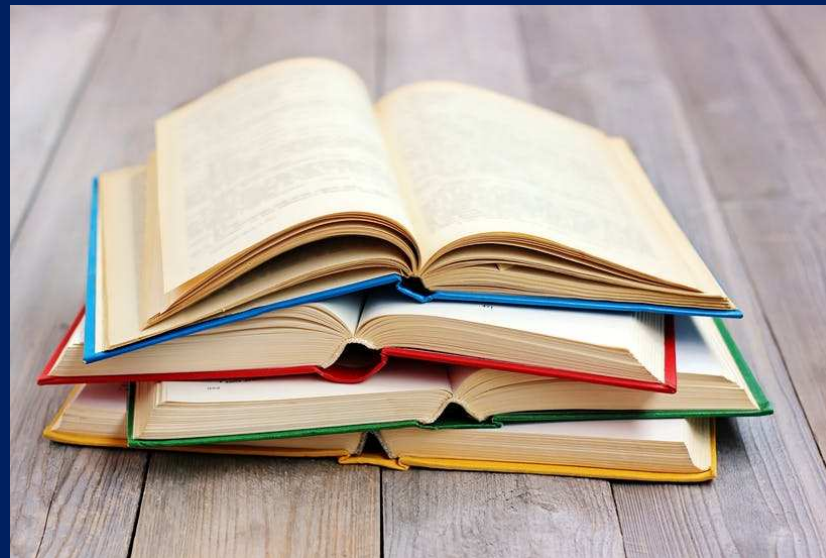
SLOW
THINKING



- **Make sure students understand instructions**
- **Ask students to repeat instructions**
- **Put instructions on the board**

Controlled processing - Block out other distractions focus on task.

Re-reading is not enough to move information from working memory to long-term memory.....permanently.



We forget almost **50%** of information within **one day**, and up to **80%** of the information within **2 weeks**.

(Spitzer 1939)



The curve of forgetting

Forgetting occurs just hours after exposure to new material.

(Ebbinghaus H)

Ebbinghaus Forgetting Curve



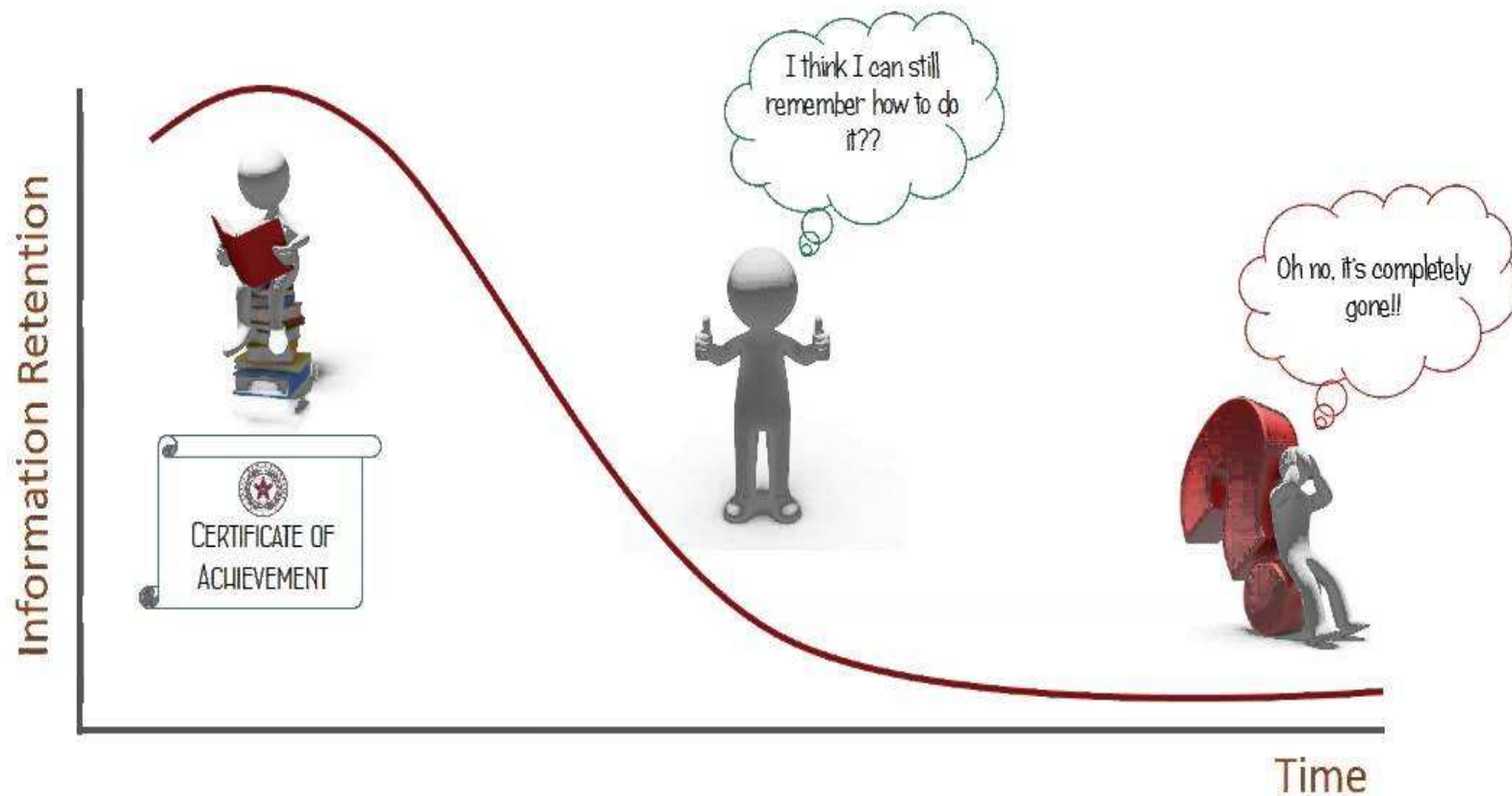
Quick Learning

- Intensive practice, repetition and rehearsal
- Produces quick results
- Students gain confidence
- Good results if tested immediately

(Sarah Lynn)

.....**But**.....

Quick learning = Quick forgetting



If students are tested on that same material just a day later, their scores drop precipitously.

(Sarah Lynn)

Interval learning leads to long-term learning

CRAMMED — VS — SPACED

— Which is Better for Your Learners? —



Space your learning over intervals

Between each interval, students begin forgetting the information.

Spaced Repetition

Typical Forgetting Curve for Newly Learned Information



The struggle to remember, strengthens the memory



START	Wake up late this morning	(cut) myself shaving	(not have) time for breakfast	(have) a flat tyre on way to work	(arrive) late at work
		Past	Simple		Boss (not be) happy
She (throw) shoe at me	(take) taxi to cinema	Tickets (be) sold out	(take) a walk In the park	(use) Public toilet	(do) Some work morning
she (start) screaming	It (be) bad dream	FINISH		It (start) raining	There (be) black out
(eat) hotdog instead	(wake up) In my own bed	Terrible	Day	A dog (jump) On me and (bite) me	I (lose) all my work
unfortunately (be) closed	(not take) me to hospital	my girlfriend (call) an ambulance	I (fall) in a manhole	I (run) away (slip) over (twist) ankle	(not have) lunch until 1.15
(go) To nice restauraunt	Girlfriend (be) angry	(be) Late for date	(have) Date at 7.30	(get stuck) In traffic	(go) home at 7.00

**Students need to be working at their level of
competency**

Benefits of using dialogues

- **Students need controlled speaking practice.**

Benefits of using dialogues

- Our students need controlled speaking practice.
- **Dialogues build confidence in speaking.**

Benefits of using dialogues

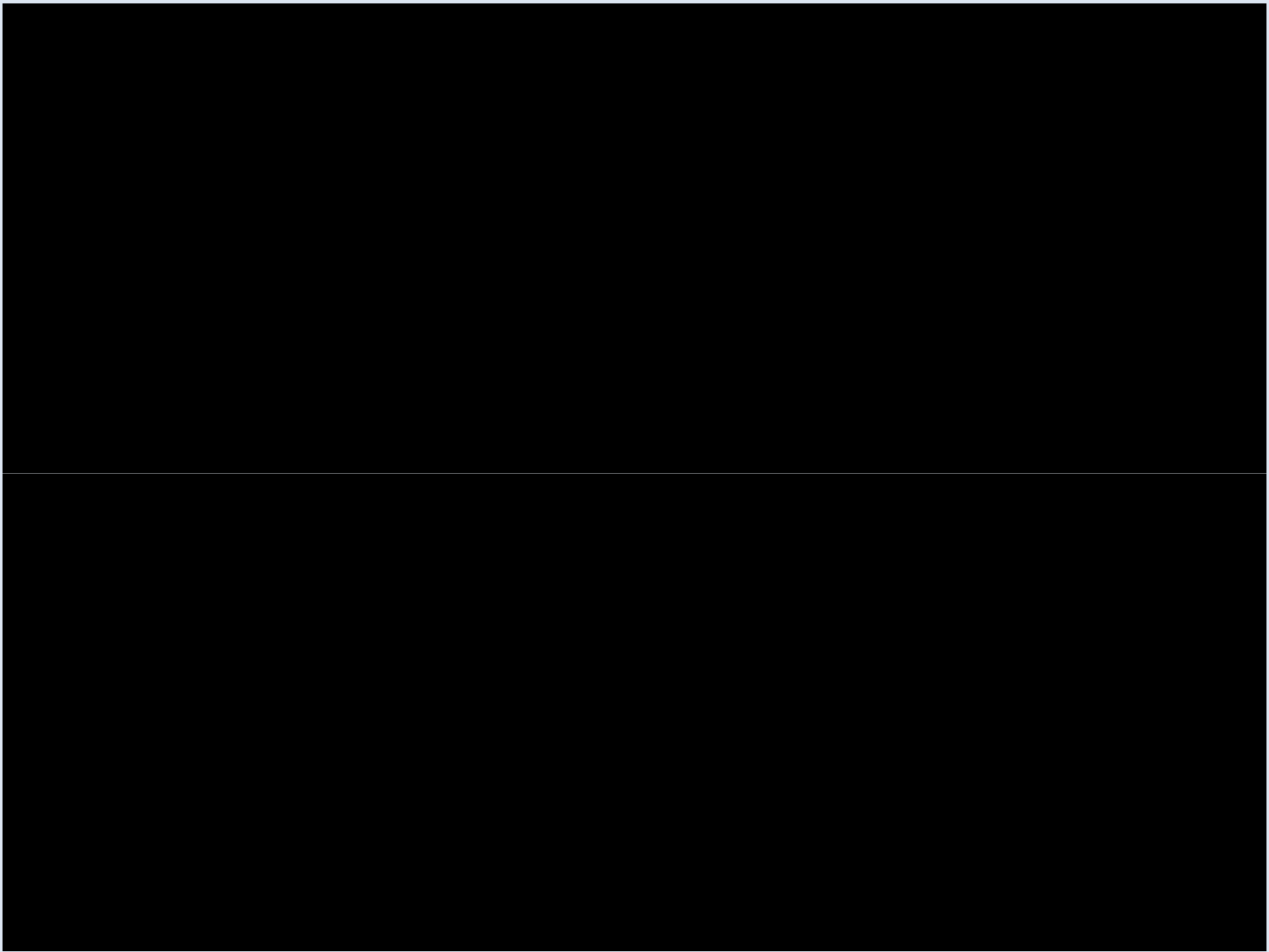
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- **Dialogues can provide models for students to base their own conversation**

Benefits of using dialogues

- Our students need controlled speaking practice.
- Dialogues build confidence in speaking
- Students can play with familiar language while introducing new language
- Dialogues can provide models for students to base their own language on.
- **Dialogues can give a context and meaning**



Exploiting dialogues

- **Mix the dialogue up**
- **Put the dialogue on the board and gradually erase words and chunks**
- **Dictate**
- **Dialogue building**
- **Students create their own dialogues**

Elaboration

**“ If you’re just engaging in mechanical repetition,
it’s true, you quickly hit the limit of what you
can retain.**

**However, if you practice elaboration,
there’s no known limit to how much you can
learn.”**

~ Brown, Roediger, McDaniel (2014)

**Elaboration is essential to commit
new learning to memory.**

Elaboration strategies connect
information to be learned with
information that students already
know

(Beattie J, Jordan L, Algozzine, B)

Elaboration

- Elaboration explaining new information in your own words.
- thinking strategies of paraphrasing and summarizing
- creating analogies
- answering questions,
- describing connections

1. New Information

- The Spanish word *sobremesa* has no equivalent in English.
- *Sobremesa* literally translated means *on the table*.
- **Definition of *sobremesa*:** the time spent after a meal when people linger at the table to talk. In Spain the *sobremesa* phase of a holiday meal can last for hours.
- **Example sentence:** The most important part of the day for my family is the *sobremesa* because we just slow down for a bit and talk about what is going on in our lives.

(Sarah Lynn)

2. Elaboration

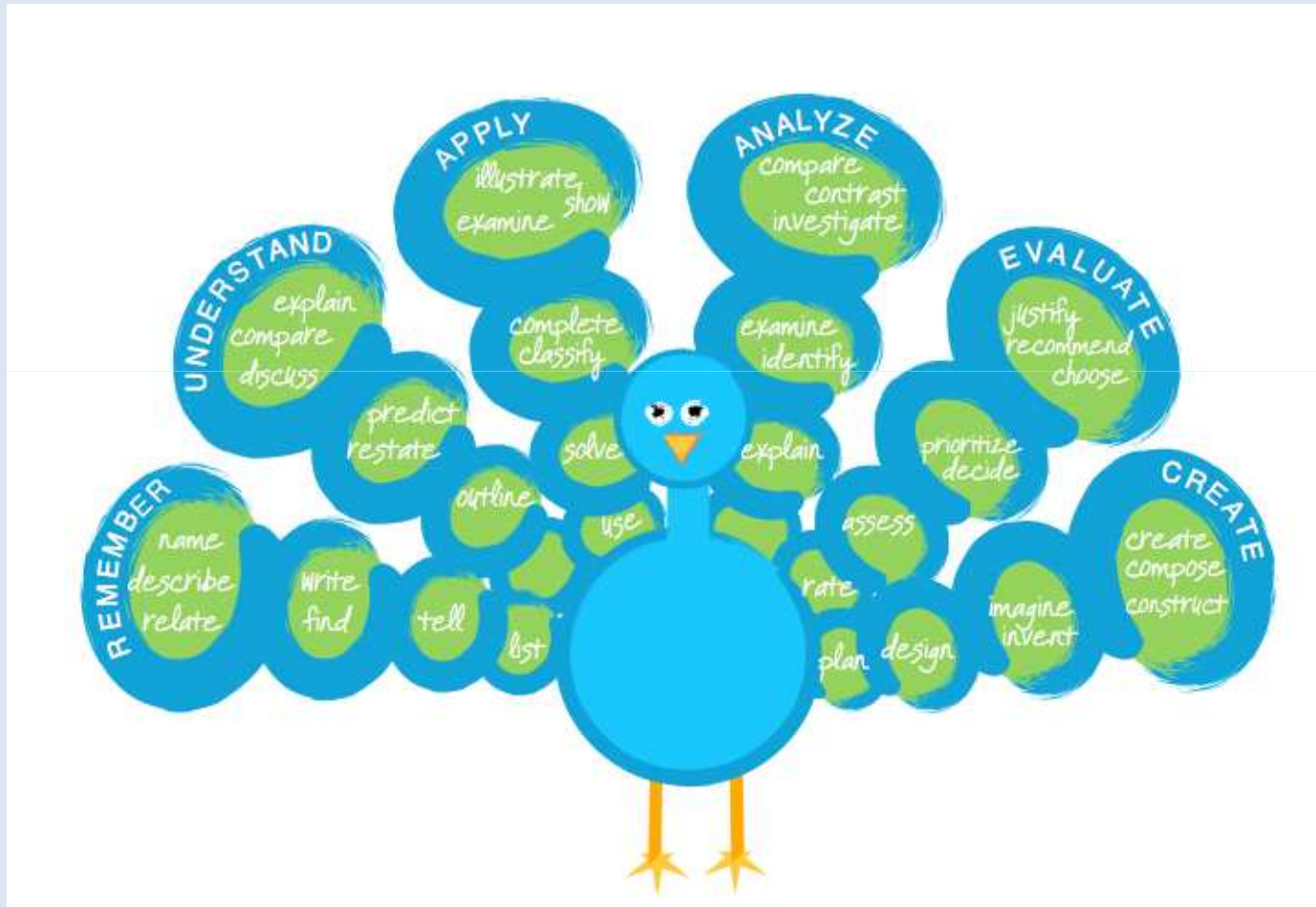
- **Retell:** In your own words what does *sobremesa* mean? Where and when does *sobremesa* happen?
- **Connect to your life:** Do you have a *sobremesa* after meals in your home? If so, how long does the *sobremesa* last? If not, do you think you would like the tradition of the *sobremesa* in your home? Why? Why not?
- **Connect to other knowledge:** Why do you think *sobremesa* is a Spanish word and not an English word? What does it tell you about Spanish culture?

(Sarah Lynn)

- Peer teaching - explaining material to a recently absent classmate;
- relating new material to situations in one's own life;
- writing an outline or summary of the new learning;
- organizing the new learning in a graphic organizer;
- applying the material to a new context in a role play or dialogue.

student centred

Cognitive Depth



Personal Organising

- Subjects silently rehearsed new words
- Subjects read a sentence aloud containing new words
- Subjects made up their own sentences containing the words and read them aloud

Images

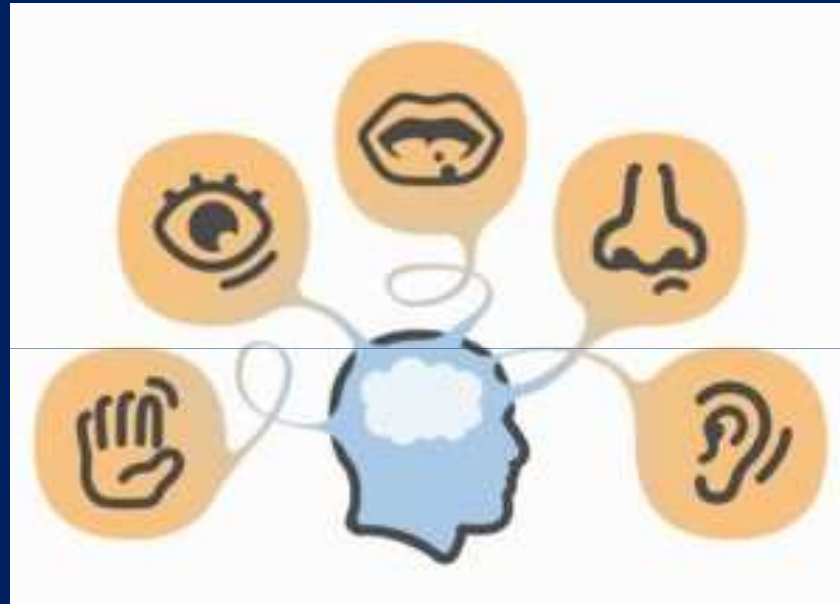
Visualising a picture to go with the words



Recycle, Retell, Reconstruct

- Re-use old lessons. Eg. Change the grammar but reuse the vocabulary.
- Students work in pairs and reconstruct and retell readings or listening activities
- Have students rewrite what they have heard or listened to

Engage the senses



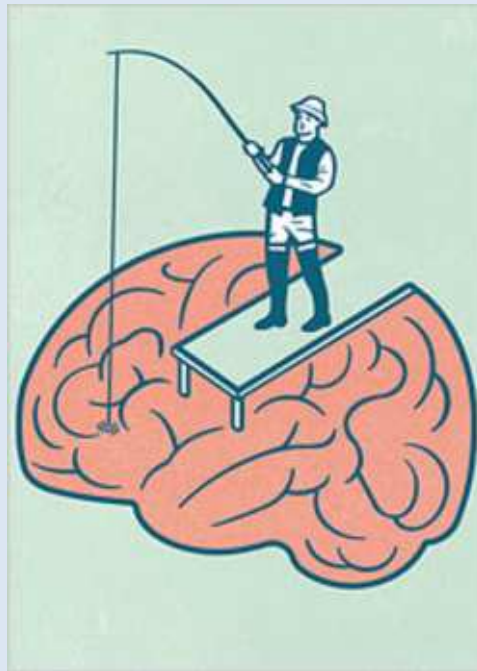
The more ways a concept is introduced to the brain, the more memory links there will be.

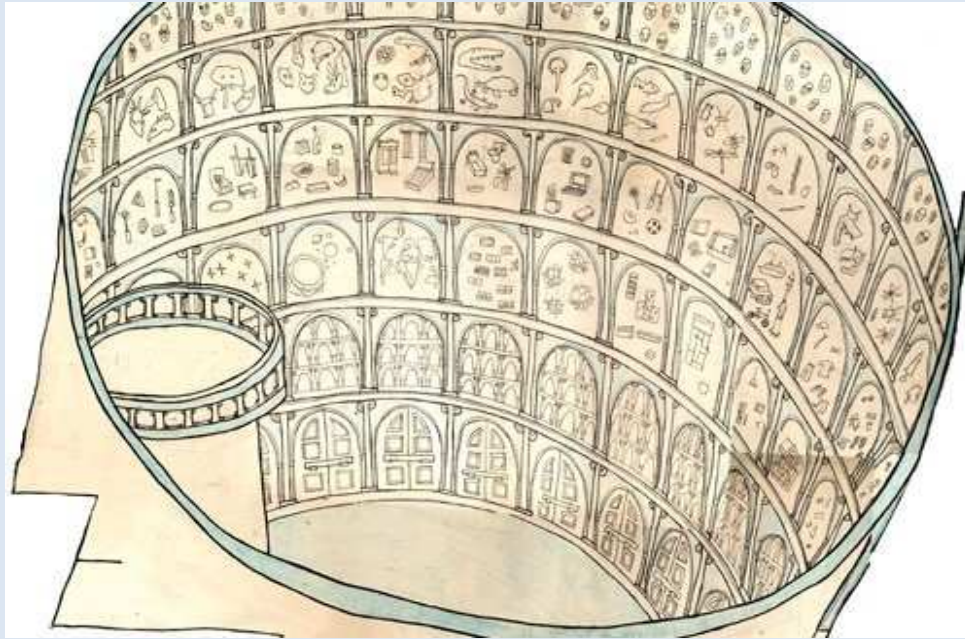
RETRIEVAL



Retrieval

The act of remembering something that was previously learned.





Cognitive scientists say that retrieval is the most powerful and effective strategy for improving learning and remembering.

“Whatever you think about, that’s
what you remember. Memory is
the residue of thought.”

-Cognitive Psychologist Daniel
Willingham

RETRIEVAL

Pre-Test



Testing is a powerful means of improving learning, not just assessing it.

(Roediger HL Karpicke JD)

WAYS TO USE RETRIEVAL PRACTICE IN THE CLASSROOM

- **Think-Pair-Share**

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- **Think-Pair-Share**
- **Brain Dumps**

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- **Multiple choice quizzes**

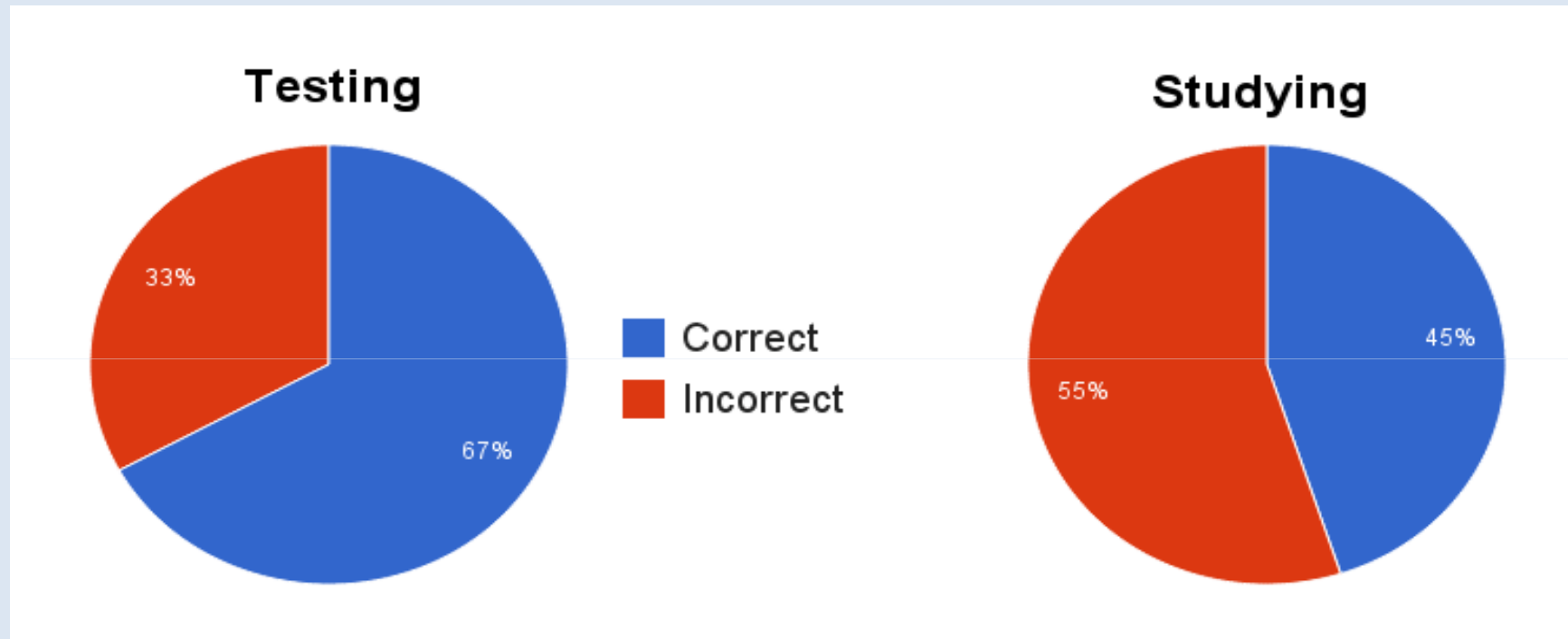
WAYS TO USE RETRIEVAL PRACTICE IN THE CLASSROOM

- **Think-Pair-Share**
- **Brain Dumps**
- **Flashcards**
- **Concept Maps**
- **Multiple choice quizzes**
- **Class quizzes**

High stress tests should be used for assessment and evaluation.

Low Stakes retrieval activities like quizzes etc can be used to improve learning.

Low Stakes Testing V Studying



As Roediger and Karpicke wrote in their 2006 research article in *Psychological Science*, "Testing has a powerful effect on long-term retention."

Transfer of information into long-term memory occurs during the REM stage of sleep

(Sousa 2001)

What Happens During Sleep

- **Your memories and the things you have learned during the day will be strengthened.**
- **your brain will replay what you've learned, pull it apart and help to make sense of it for you.**

(Karen Young The Adolescent Brain – What All Teens Need to Know)

Intellectually and emotionally, revision has to be the most demanding of all desk jobs.

Without down time, people also underperform because, mysteriously, learning is consolidated through breaks and sleep.

(Eileen Tracy Study skills counsellor)

Engagement in Learning



Webster defines “engage” as: To hold the attention of

***Merriam-Webster: greatly interested,
Involved in activity***

***Oxford: occupy or attract someone’s interest or
attention***

Involve someone in a conversation or discussion

**Memory works best when 'all of us' not
just the intellect is fully engaged.**

(Andrew Weiler)

Engagement is planned and consistent interactions with your students on your terms, in your timing, and for specific learning purposes that you have planned for.

(Ken. W. Brown)

Students interaction

Having students pair up and work together



Having them form groups of 3-5 students to discuss a question you have asked.



Individual or group presentations that demonstrate something they have learned



Peer teaching (students teaching students)



**Students don't need to be entertained. They
need to be engaged.**

Memorable, not memorized learning

10 April 2018

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Memorable, not memorized learning

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