Revision through Memory

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Memory Strategies

"Learning happens when people have to think hard"

Robert Coe

"Memory is the residue of thought."

Daniel Willingham

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Learning Objectives

- To **understand** how your memory works
- To introduce you to **proven** study skills and tools, telling you **what** works (*and* **why!**)
- To **teach** the practical skills to maximise the impact of your revision time
- To build your confidence in revising –so you know it makes a difference and helps you!

What is effective revision?

Type your answers in Mentimeter.

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True or False?

1. Revision only happens in Year 11/13
2. Listening to music whilst revising can help some people concentrate
3. Revision is not something you plan - it just happens
4. One technique for revision is highlighting

Which do you think were found to have higher – moderate – lower effectiveness?

1. Distributed practice
2. Elaborative interrogation
3. Self – explanation
4. Regular practice testing
5. Interleaved practice
6. Summarising
7. Highlighting
8. Mnemonics
9. Regular practice testing
10. Imagery to represent text
11. Re-reading

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Dunlowsky et al (2013) studied 10 strategies used by students to revise and prepare for examinations.

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Effective revision strategies - what the research says

Technique	Description	Utility
Practice testing	Self-testing or taking practice tests revision material	1 - High
Long term Revising (Distributed practice)	Implementing a schedule of practice that spreads out study activities over time	1 - High
Asking 'why?' (Elaboration)	Generating an explanation for why a fact or concept is true	2 - Moderate
Self-explanation	Explaining how new information is related to known information, or explaining steps taken during problem solving	2 - Moderate
Varying study topics (Interleaved Practice)	Mixing different kinds of problems, or different kinds of material, within a single study session	2 - Moderate
Summarization	Writing summaries (of various lengths) of revision texts	3 - Low
Mental Images	Attempting to form mental images of revision materials while reading or listening	3 - Low
The keyword mnemonic	Using keywords and mental imagery to associate key words and concepts	3 - Low
Rereading	Restudying text material again after an initial reading	4- Ineffective
Highlighting/underlining	Marking potentially important portions of revision materials while reading	4 - Ineffective

There is a strong scientific consensus that regular and distributed practice have the greatest impact and should be part of any revision strategy.

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The only problem is
I can't remember what I've forgotten

Remember this!

4871947503858604

Remember this!

Remember this!

4871947503858604

the cat is on the mat

Remember this!

Now Remember this...

FJK BLW UQS CKJ MRY

Now Remember this...

Now Remember this...

BBC FBI ATM TLC CIA

Now Remember this...

Now Remember this...

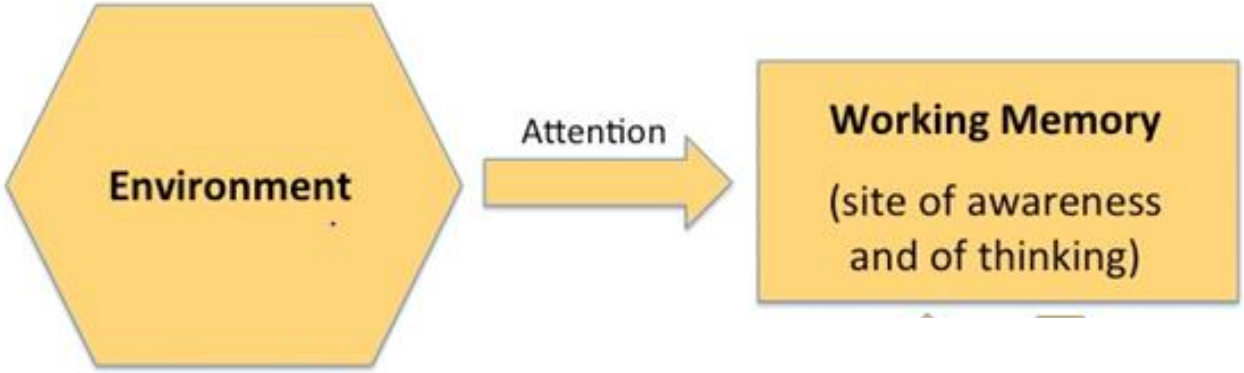
FJK BLW UQS CKJ MRY

BBC FBI ATM TLC CIA

1. Based on these examples think about what you experienced in trying to remember this information?
2. What links can we make to our everyday revision practice?

What do we know about memory?

What do we know about memory?



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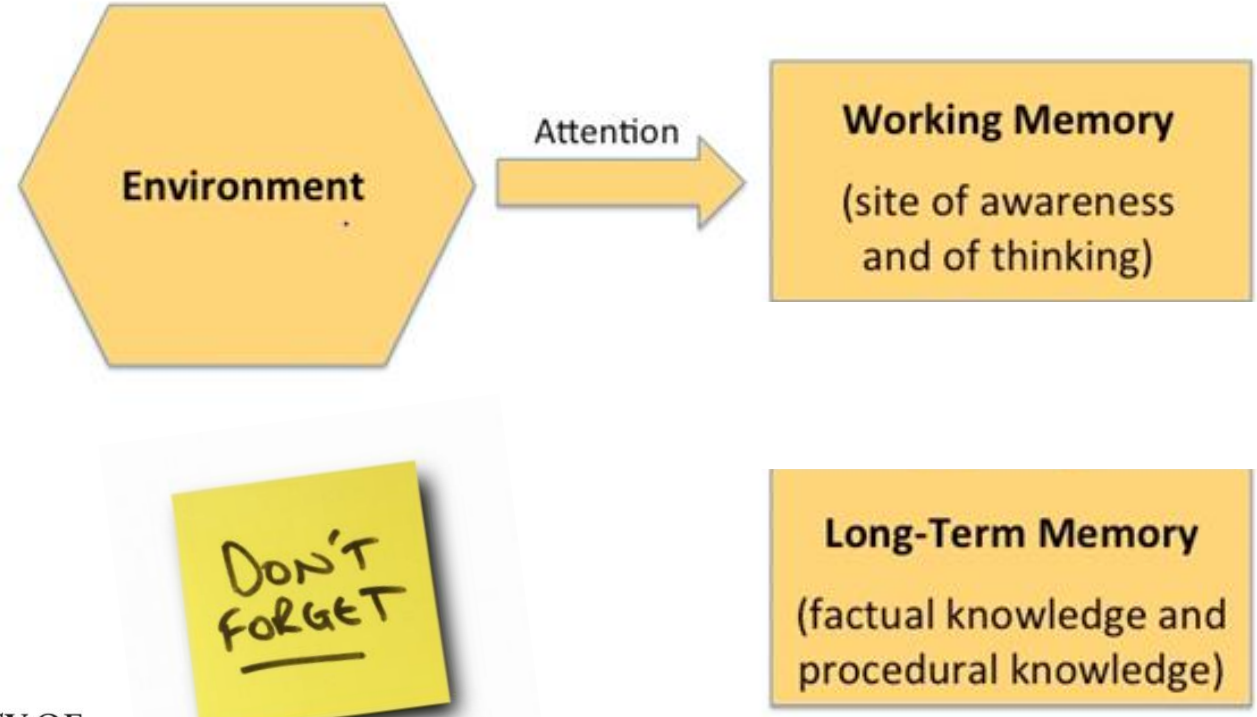

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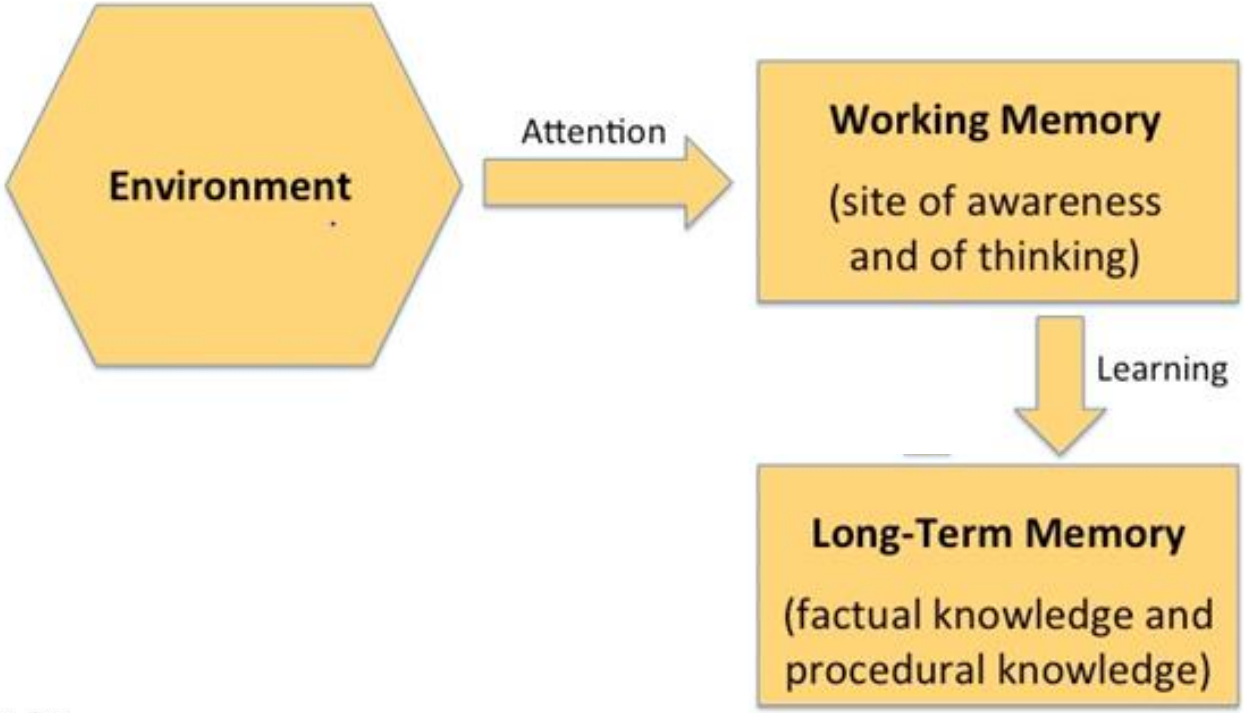

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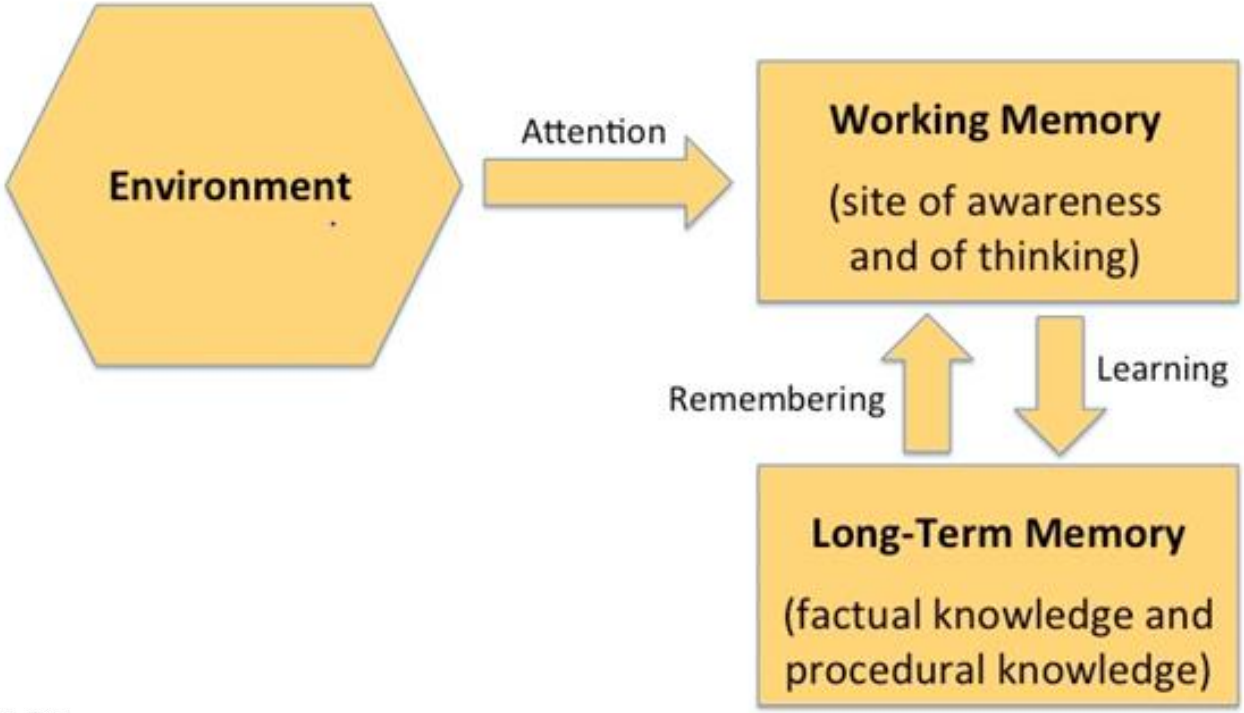

The Magical Number Seven, Plus or Minus Two

7 ± 2

George A. Miller

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Long term memory
Organised and with lots of links
Therefore, quicker recall to aid working memory

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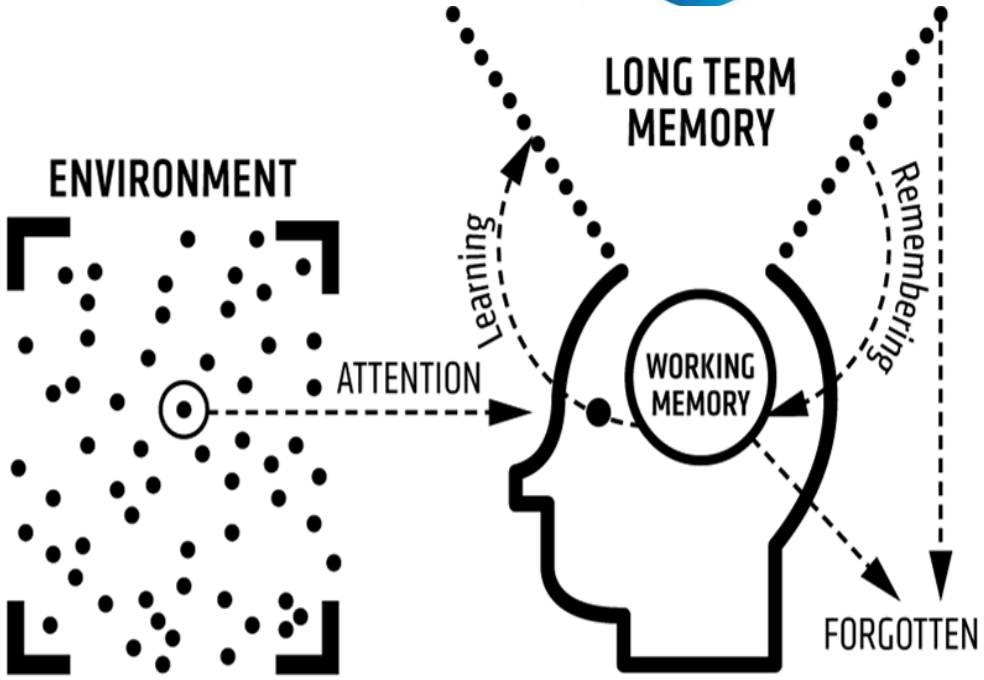
Cognitive Load Theory- Sweller



Small amounts of short term information are processed in the working memory

The average person can only hold about four 'chunks' of information in their working memory at once.

Large amounts of information are stored semi-permanently in the long-term memory

Information is stored in 'schemas' which provide a system for organising and storing knowledge.

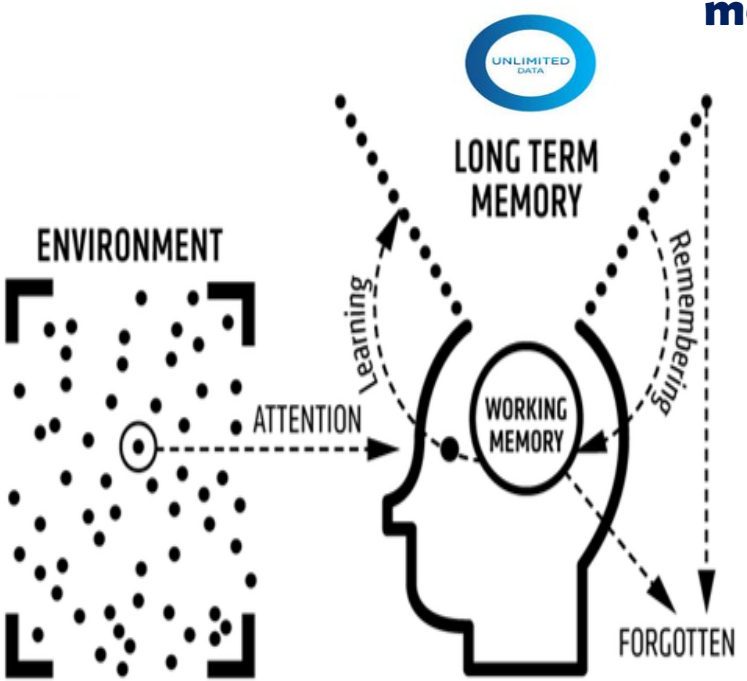
Working memory can become overloaded

If a student's working memory is overloaded, they may not understand the content being taught.

Memory overload can be prevented

With practice, and strategies to minimise cognitive load, information can be automatically recalled from long-term memory, freeing up the working memory to learn new information.

Cognitive Load Theory - Sweller



How can knowing this help you remember more when revising?

1.Practice and repetition

2. Chunking. Organisation of information

3. Look at worked examples e.g model exam responses/completed formulas before completing the task

4. Too much visual (see) and auditory (hear) stimulus can overload. Less is more when making mind maps/ flashcards etc...

5. Practice over time. Cramming is NOT effective

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How does this look when revising?

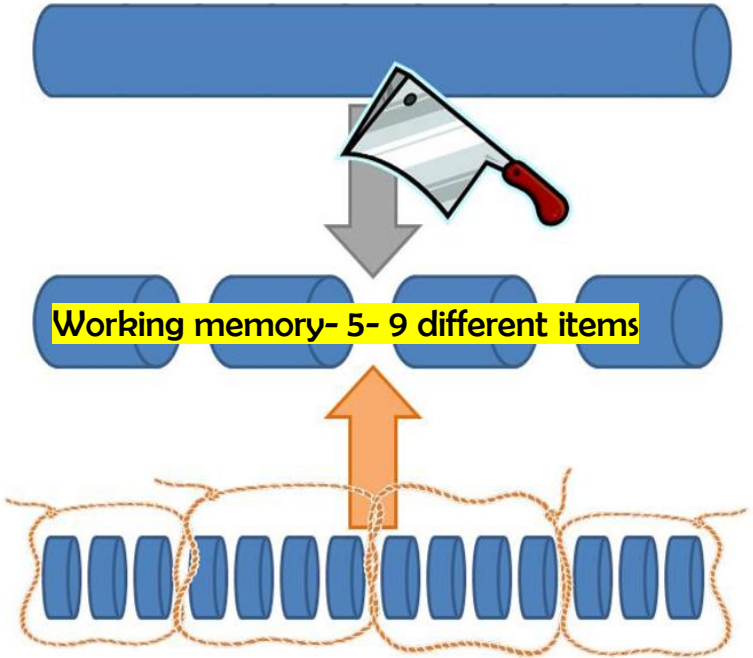
- Use your class notes & textbooks to make a list of the important information & content that you need to know across different subjects.

- Then close your books & test yourself. You can create quizzes, use flashcards or complete past exam papers. **Make sure you don't use your notes!**

- Retrieve as much information as you can then check your answers. It's important to know what you know and what you don't know … yet!

- Use your answers to inform the next stage of your revision, focus on the areas that you struggled to recall from memory.

Memory strategy 1: Chunking



PRACTICE - RECALL

ASSOCIATIONS- IMAGES/SYMBOLS

ACRONYMS - PETAL

SEPARATE REVISION - LINKS

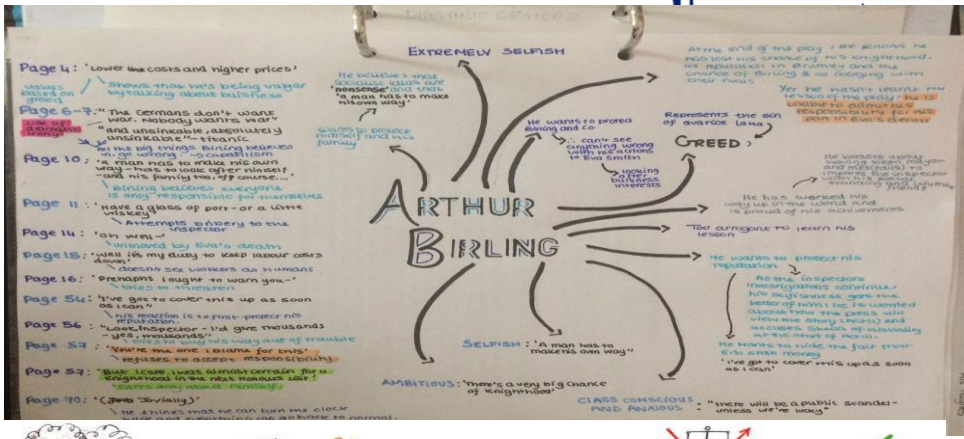
Memory Strategy 2: Organisation

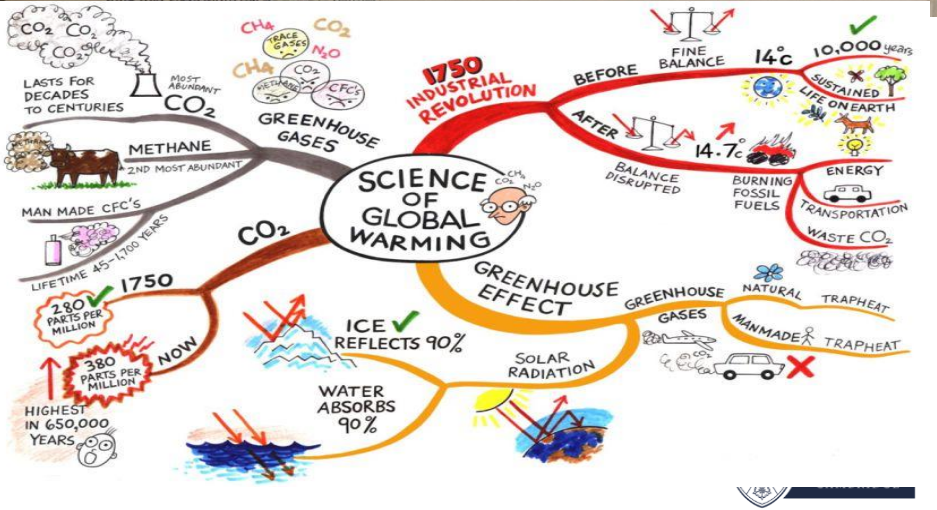
TOPIC- AN INSPECTOR CALLS

THEME and WRITER'S MESSAGE

CHARACTERS- SYMBOLIC OF

KEY EVIDENCE- EXAMPLES AND QUOTATIONS





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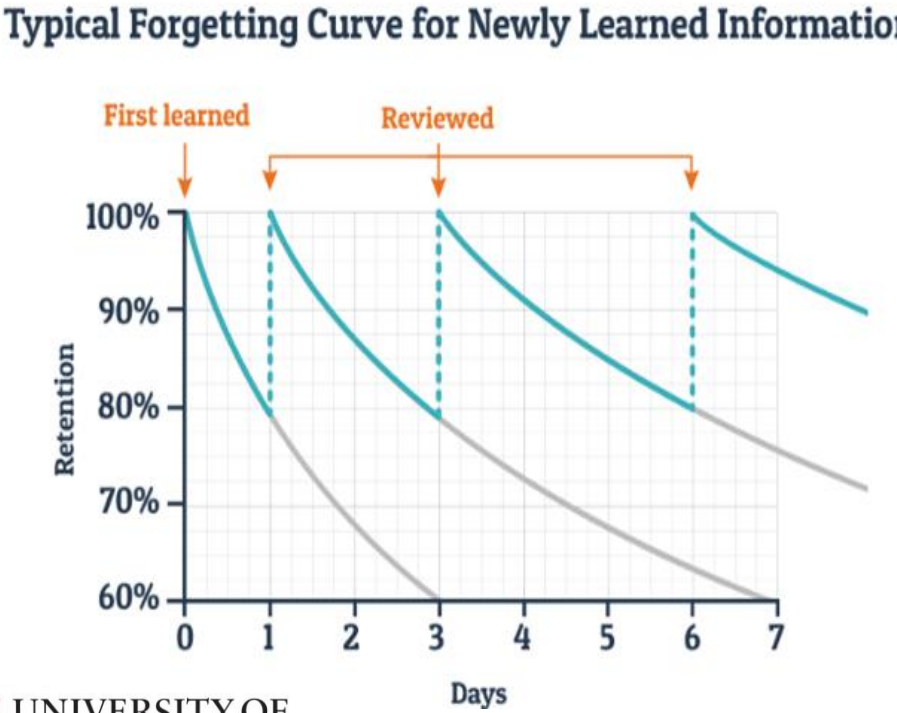
The forgetting curve

How do we interrupt this forgetting curve?



"If we want to learn something well enough so that it is easily accessible to us in the future (rather than quickly forgotten or hidden away in an impossible- to-reach location) then we need to learn it in greater depth, we need to "over-learn" it."

Matt Bromley, 2017

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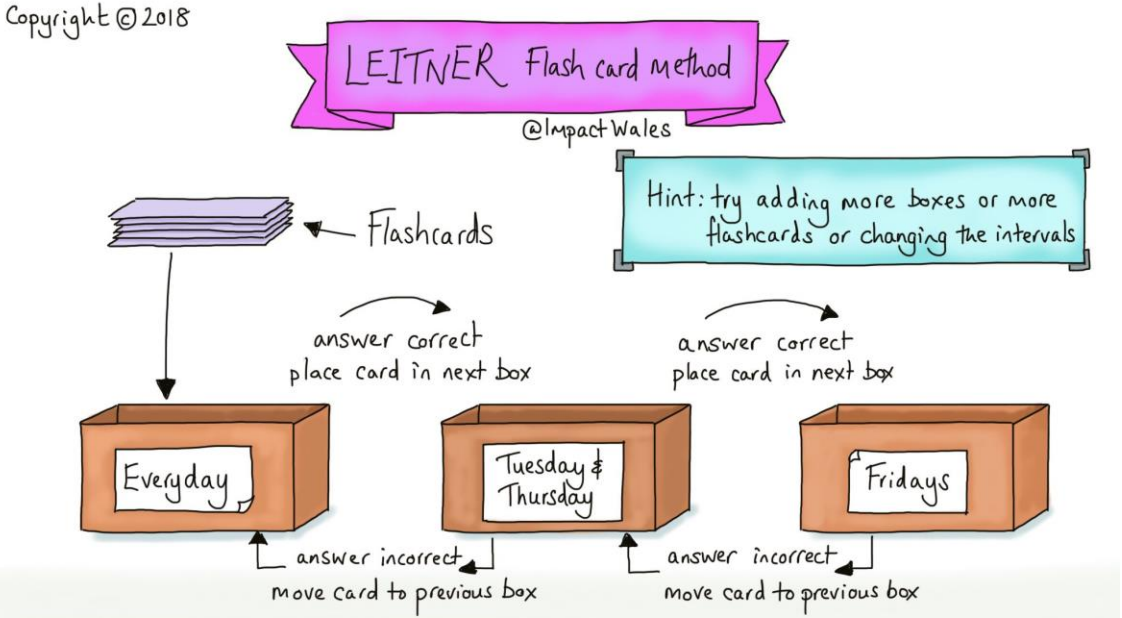
Memory strategy 3: Leitner Flashcard System

https://youtu.be/d9u3KxGCio8



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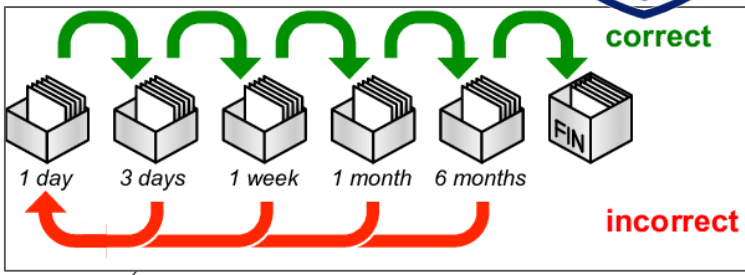
Memory strategy 3: Leitner Flashcard System

Keep information short and succinct

Ensure you have the key knowledge on your cards

Side 1: Question/ trigger
Side 2: what you're trying to remember.

Spaced repetition- review your cards at specific, increasing intervals



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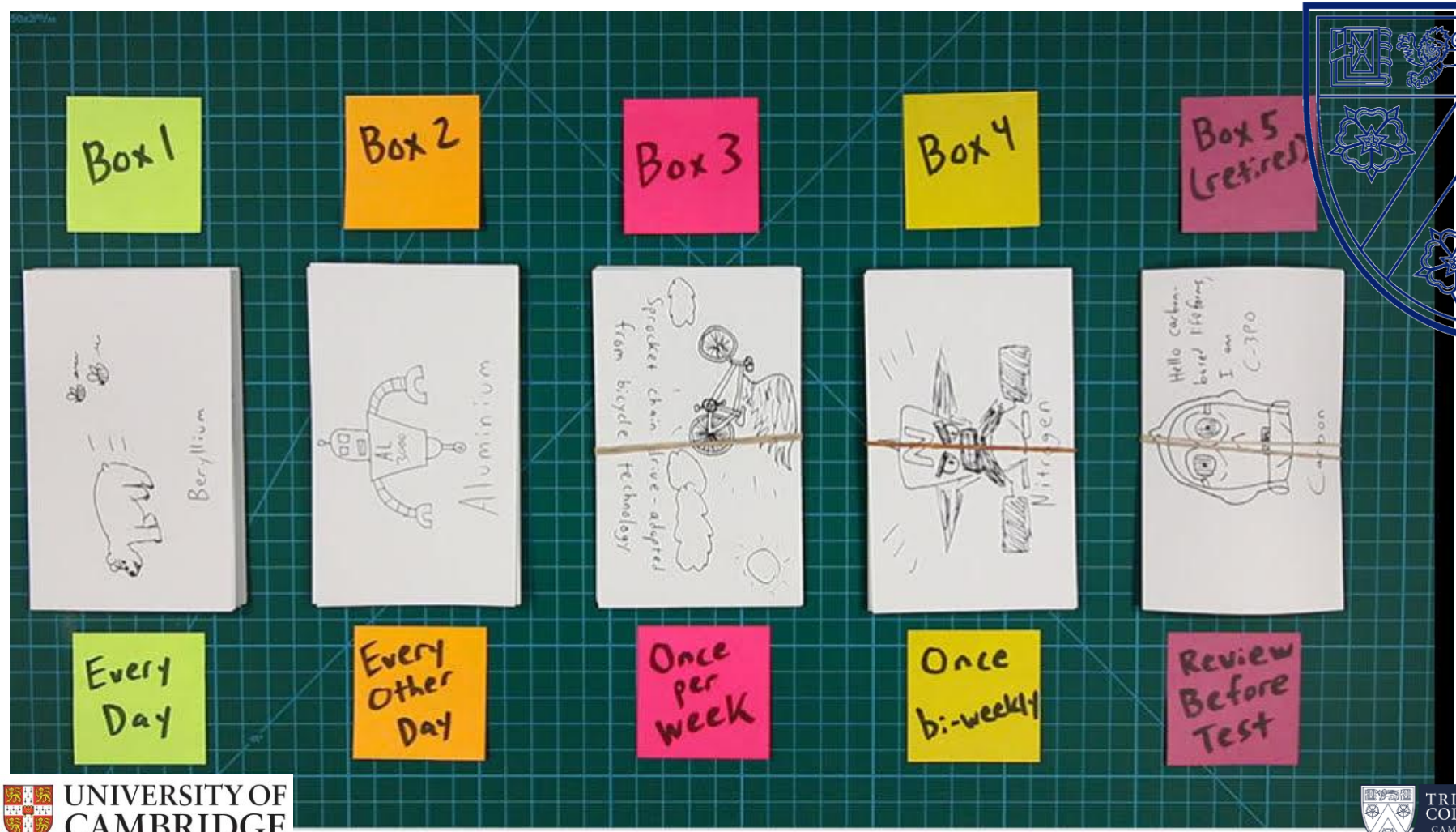


Example

Using some blank flashcards, make a list of Macbeth quotations from the whole of the play. Make some flashcards for the following themes:

- Macbeth and Lady Macbeth's changing relationship
- Ambition

Write the theme on the front to prompt yourself to recall what's on the back

Look through the list of quotes and write the relevant ones on the back (might have to write the words quite small!). Make sure you know who said the quote to whom.

Ambition

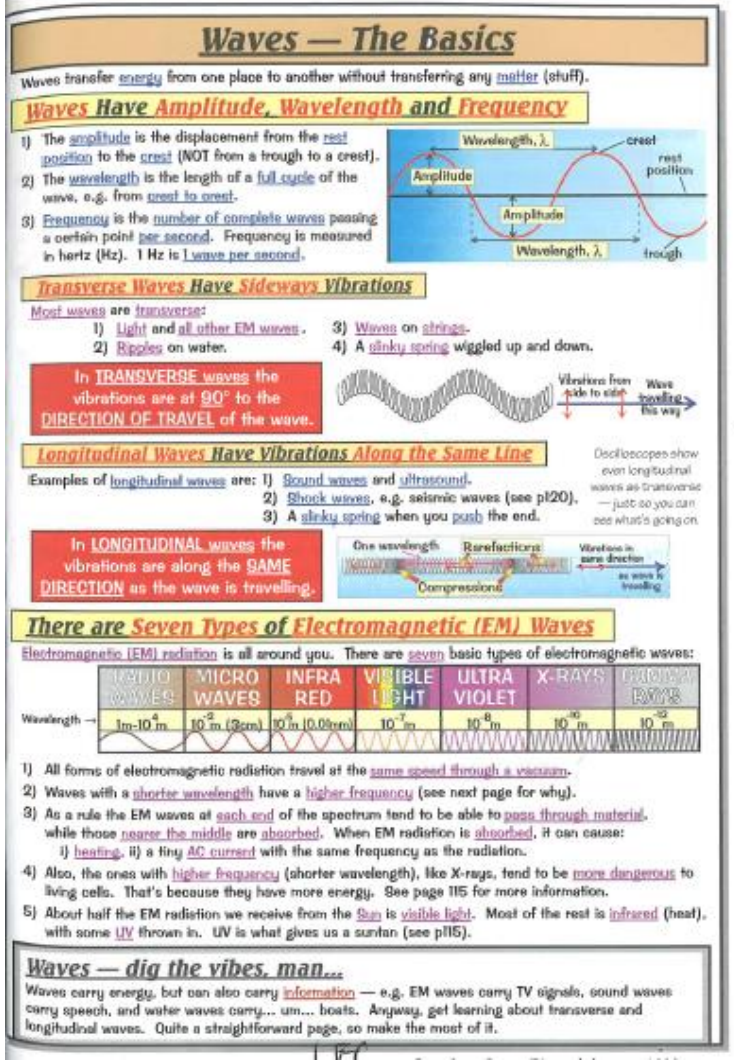
'Without the illness that attends it' Lady M to herself

'Vaulting ambition' M to himself

Practice

Task: Use one of the memory techniques/revision strategies to learn this piece of Physics revision or select revision for another subject.

If you can't read the writing, try using the information here: https://www.bbc.co.uk/bitesize/guides/zgf97p3/revision/1



Waves — The Basics

Waves transfer energy from one place to another without transferring any matter (stuff).

Waves Have Amplitude, Wavelength and Frequency

1) The amplitude is the displacement from the rest position to the crest (NOT from a trough to a crest).
2) The wavelength is the length of a full cycle of the wave, e.g. from crest to crest.
3) Frequency is the number of complete waves passing a certain point per second. Frequency is measured in hertz (Hz). 1 Hz is 1 wave per second.

Transverse Waves Have Sideways Vibrations

Most waves are transverse:
1) Light and all other EM waves.
2) Ripples on water.
3) Waves on strings.
4) A slinky spring wiggled up and down.

In TRANSVERSE waves the vibrations are at 90° to the DIRECTION OF TRAVEL of the wave.

Longitudinal Waves Have Vibrations Along the Same Line

Examples of longitudinal waves are: 1) Sound waves and ultrasound.
2) Shock waves, e.g. seismic waves (see p120).
3) A slinky spring when you push the end.

Oscilloscopes show even longitudinal waves as transverse — just so you can see what's going on.

In LONGITUDINAL waves the vibrations are along the SAME DIRECTION as the wave is travelling.

There are Seven Types of Electromagnetic (EM) Waves

Electromagnetic (EM) radiation is all around you. There are seven basic types of electromagnetic waves:

1) All forms of electromagnetic radiation travel at the same speed through a vacuum.
2) Waves with a shorter wavelength have a higher frequency (see next page for why).
3) As a rule the EM waves at each end of the spectrum tend to be able to pass through material, while those nearer the middle are absorbed. When EM radiation is absorbed, it can cause:
   i) heating, ii) a tiny AC current with the same frequency as the radiation.
4) Also, the ones with higher frequency (shorter wavelength), like X-rays, tend to be more dangerous to living cells. That's because they have more energy. See page 115 for more information.
5) About half the EM radiation we receive from the Sun is visible light. Most of the rest is infrared (heat), with some UV thrown in. UV is what gives us a suntan (see p115).

Waves — dig the vibes, man...

Waves carry energy, but can also carry information — e.g. EM waves carry TV signals, sound waves carry speech, and water waves carry... um... boats. Anyway, get learning about transverse and longitudinal waves. Quite a straightforward page, so make the most of it.

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Avoid sensory overload: put away the phone and have a distraction free zone

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NEWS

Now hear this: teens can't mix homework and music

Louise Callaghan Published: 19 October 2014

Print

DO NOT be fooled when your kids claim that listening to music or watching television does not disrupt their homework. Research has found 85% of teenagers perform simple tasks less well when distracted by music, phones or email.

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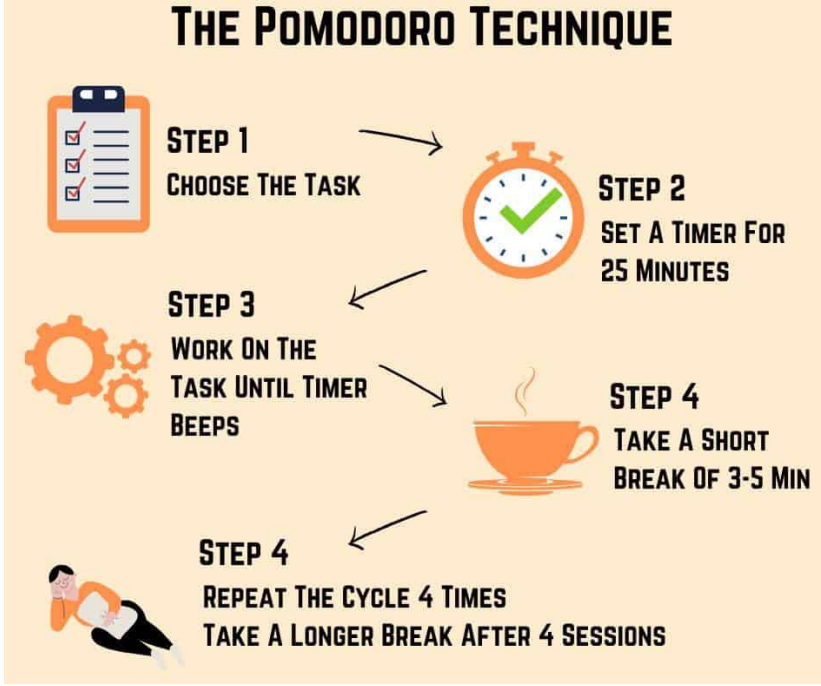
Study Tips and Tricks

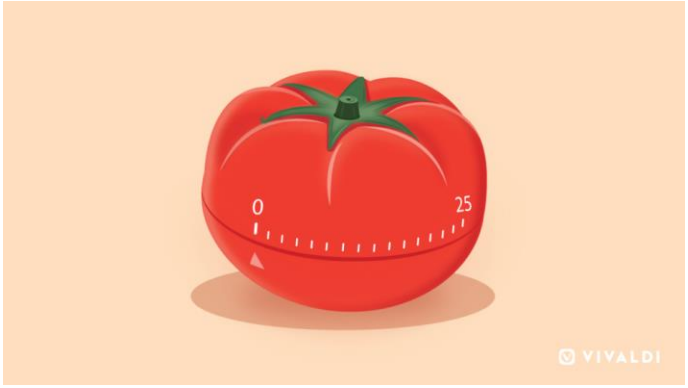
- If your child is struggling with their concentration, try out the **Pomodoro** method with them: working in short, 25 minute bursts with a 5 minute break



Structure your Revision

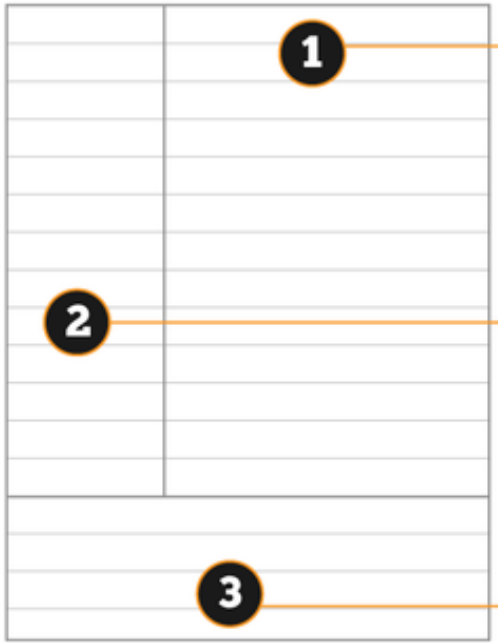
https://youtu.be/mNBmG24djoY

- How does it work?
- What objectives are given in this video?
- Why is it called the Pomodoro technique?



Cornell Note-taking

The Cornell Method



CollegeThrive.com

Notes

This is the section where you should take your notes during the course of the lecture. Use bullets, sentences, short-hand, etc.

Cues

Questions, main points, visual clues, and other clues that jog your memory go here. Fill this section in after class.

Summary

Most important points and main ideas go here. Fill in this section after class when you are in the reviewing process.

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Wellbeing

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Top 10

1. Quality over quantity
2. Focus on the hard topics first
3. Teaching a topic (elaboration)
4. Graphic organisers
5. Just a Minute
6. Ditch the highlighters
7. Spaced practice
8. Retrieval practice (self testing)
9. Interleaved practice (timetable)
10. Wellbeing

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1. Name a memory strategy I have gone over this session

2. True or false: music helps you revise

3. Why is it important to put your phone away when you revise?

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