



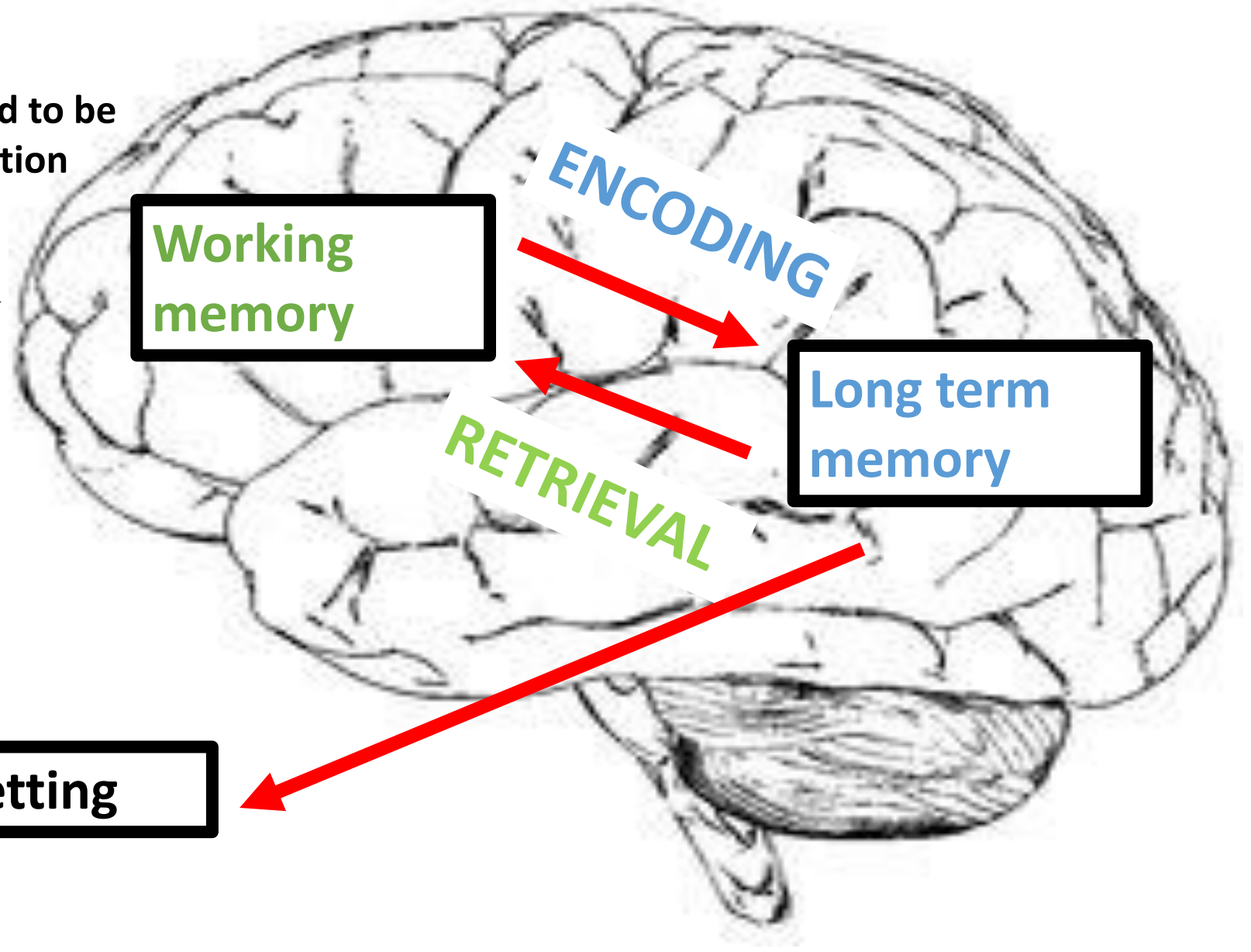
*How did it get so
late so soon?"
-Dr. Seuss*

**How should I revise
for my GCSEs?**

Working memory holds very little information at once.

For exam success, students need to be able to quickly retrieve information from their long term memories

INPUT



**Working
memory**

ENCODING

**Long term
memory**

RETRIEVAL

Forgetting

4 steps

1. Remove distractions
2. **INTERLEAVE** - Revise in 30 minute chunks, several subjects per day
3. **DON'T use ineffective methods**
4. **DO use active revision techniques**

STEP ONE:

Remove distractions

4 steps

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*"A journey of a
thousand miles
begins with a
single step"*



I'm very busy doing things I don't
need to do in
order to avoid
doing anything I'm
actually supposed
to be doing.

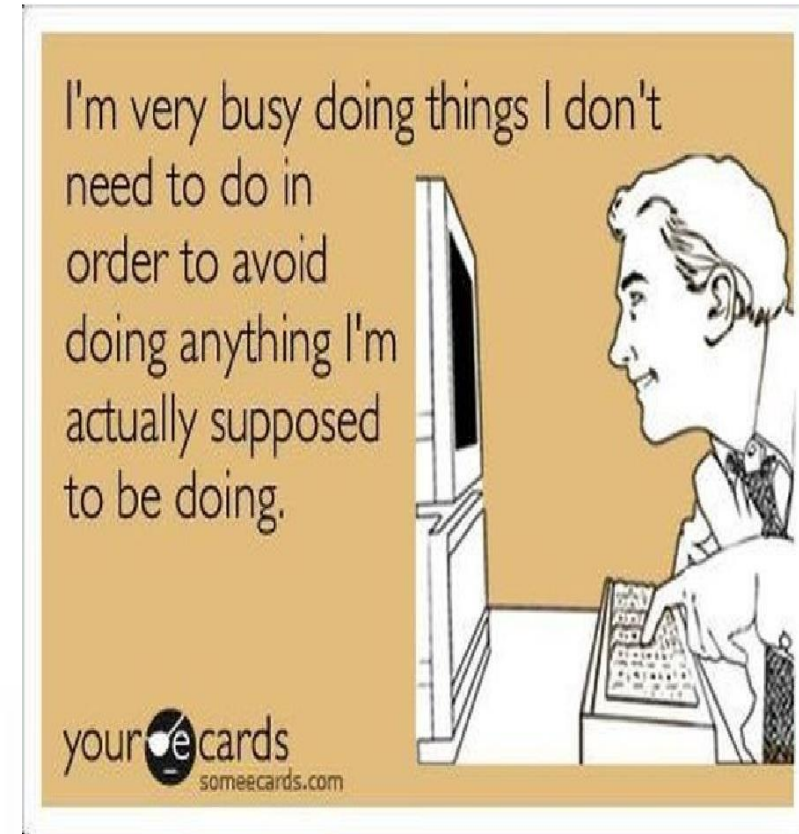


your  cards
someecards.com

Switch off your music, put away your phone and focus



It is not possible to revise effectively whilst watching television, or playing a game or going online / listening to music!



STEP TWO:

INTERLEAVE

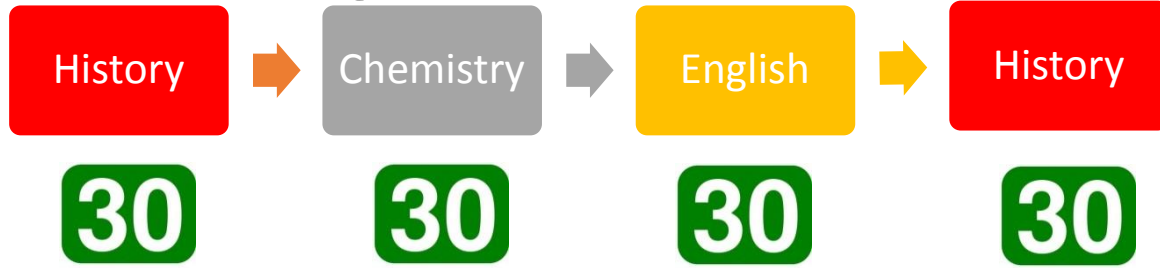
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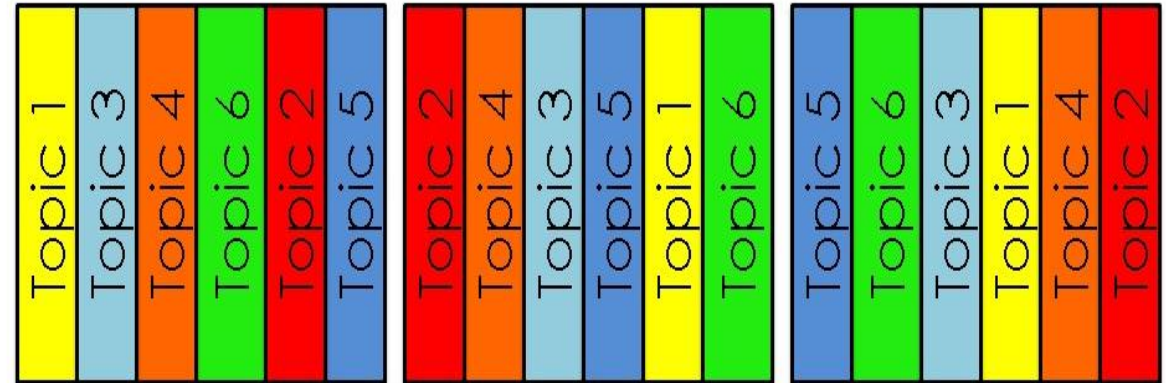
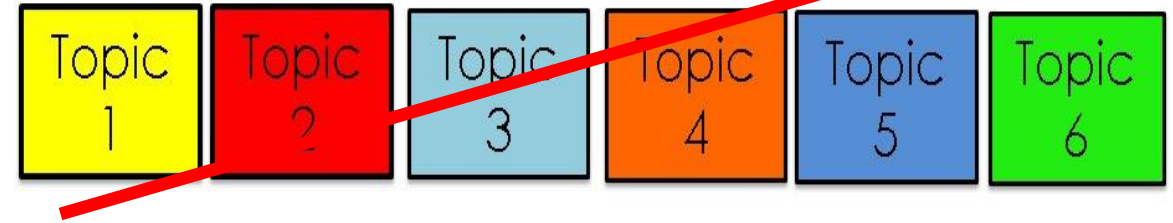
How many subjects per day?

Your memory works best when it is forced to mix up different subject. This is called interleaving.

Monday



Tuesday



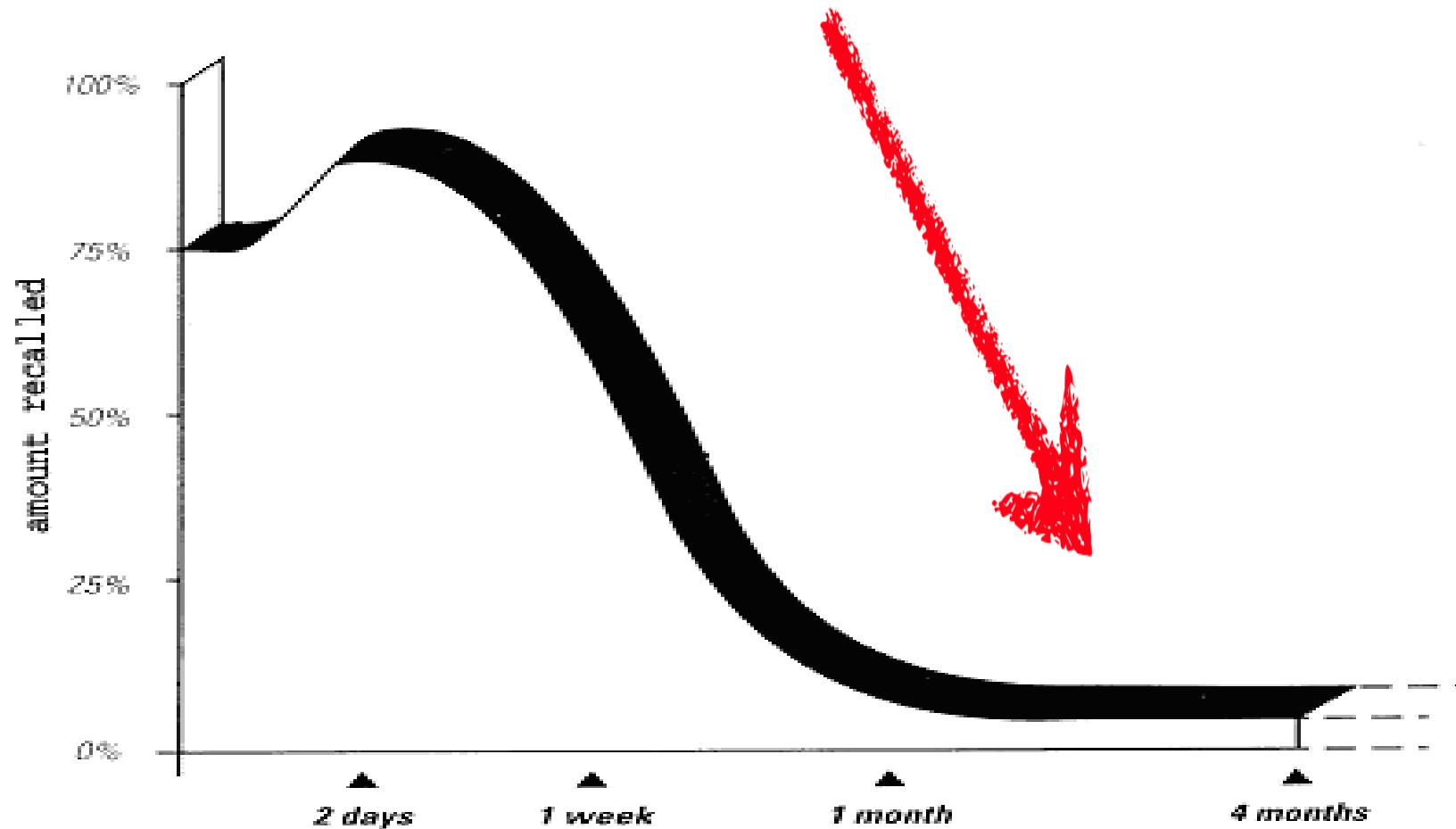
STEP THREE:

Don't use
ineffective
methods

4 steps

1. Remove distractions
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What happened to all the stuff I learned last term?



Don't... just re-read your book/textbook



**In scientific
studies on
memory re-
reading notes
does not score
well as an
effective
revision
technique**

Don't...just highlight everything!



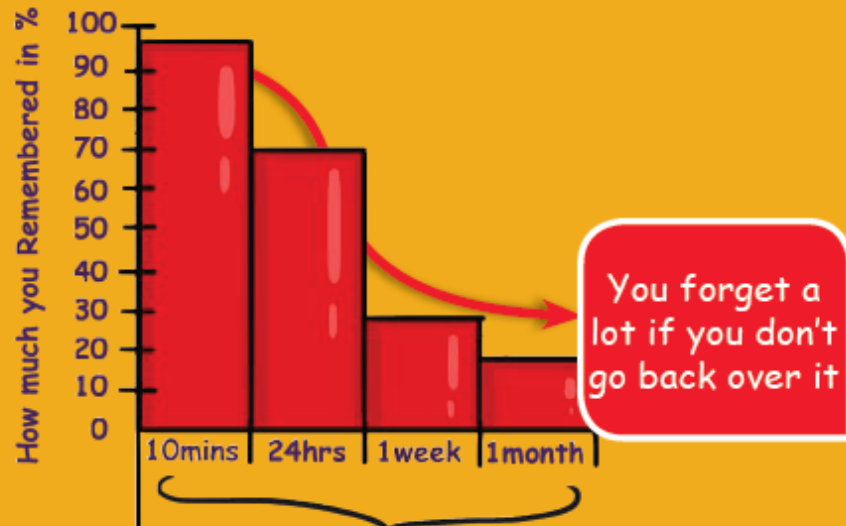
Another strategy that feels like you are doing something but doesn't actually help you remember much

Relying only on turning up to lessons or only revising a topic once

The 'Forgetting Curve'

Back in 1885 Professor Ebbinghaus looked at how our memory works. He found that we forget things very fast unless we go back over them lots of times. This could explain why your revision does (or doesn't) work!

Learning in Class



Revising Once



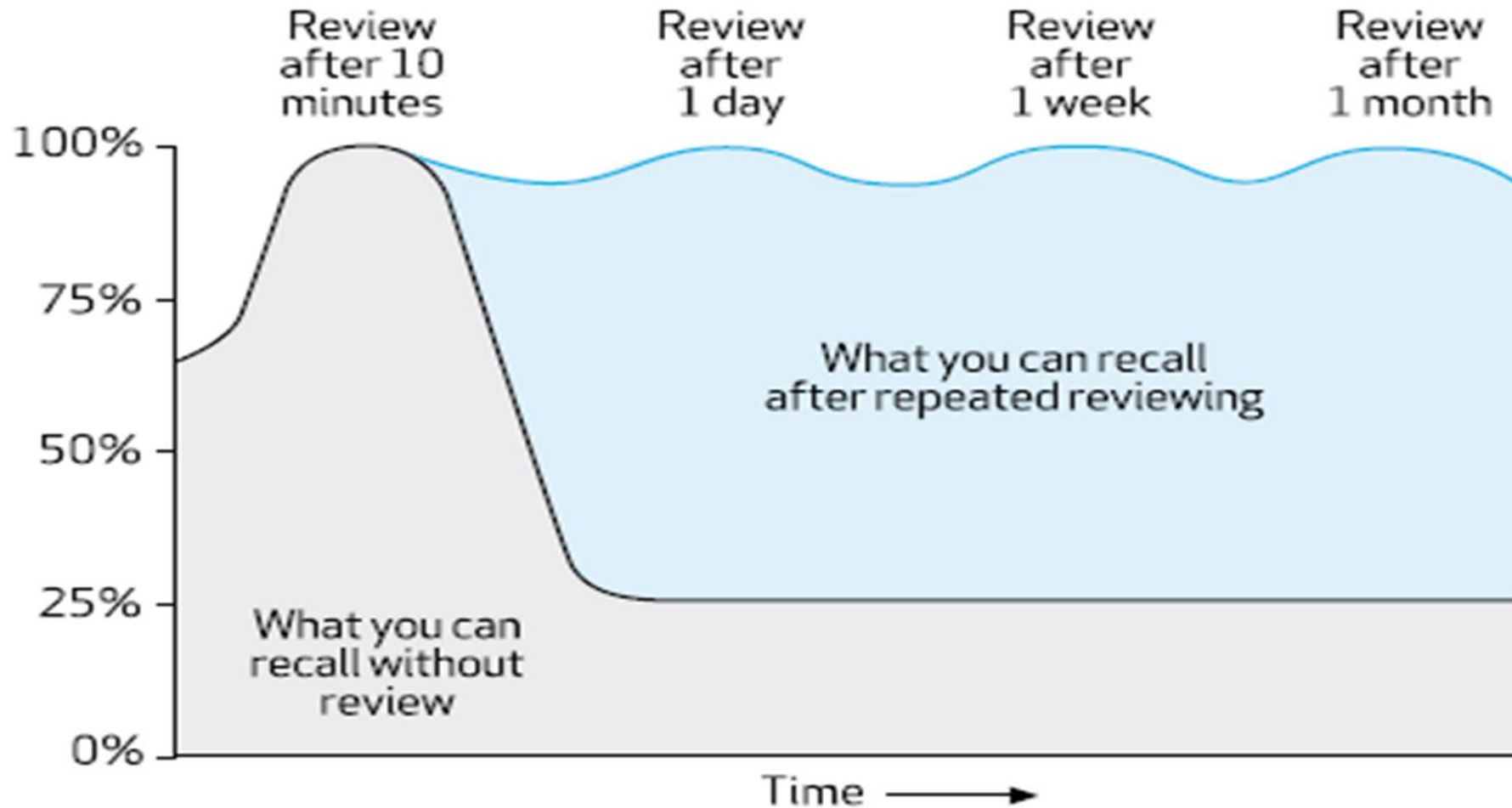
STEP FOUR:

Do use
active
revision
techniques

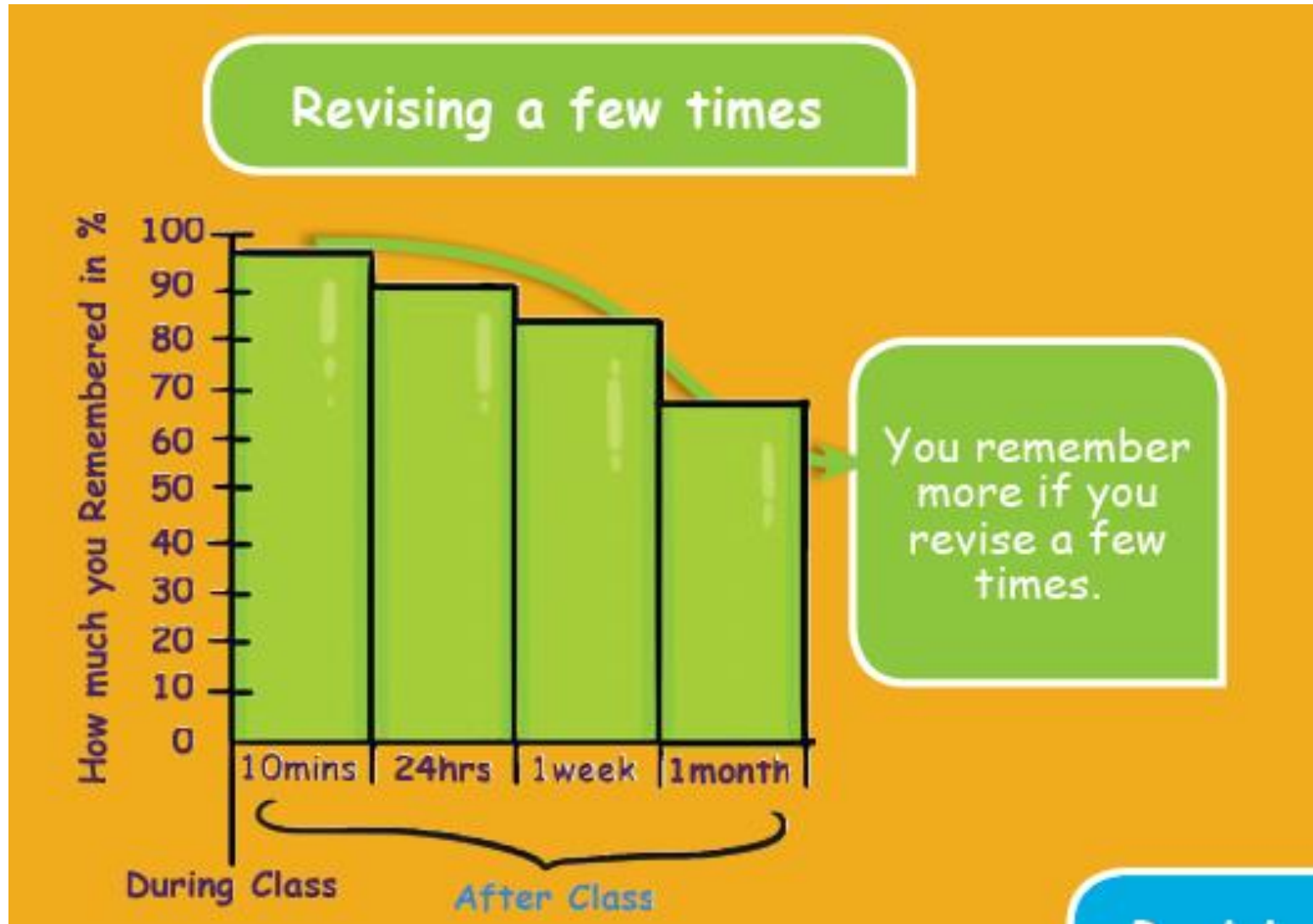
4 steps

1. Remove distractions
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You will remember so much more if you revise



Revising a few times...



Revising a topic four times

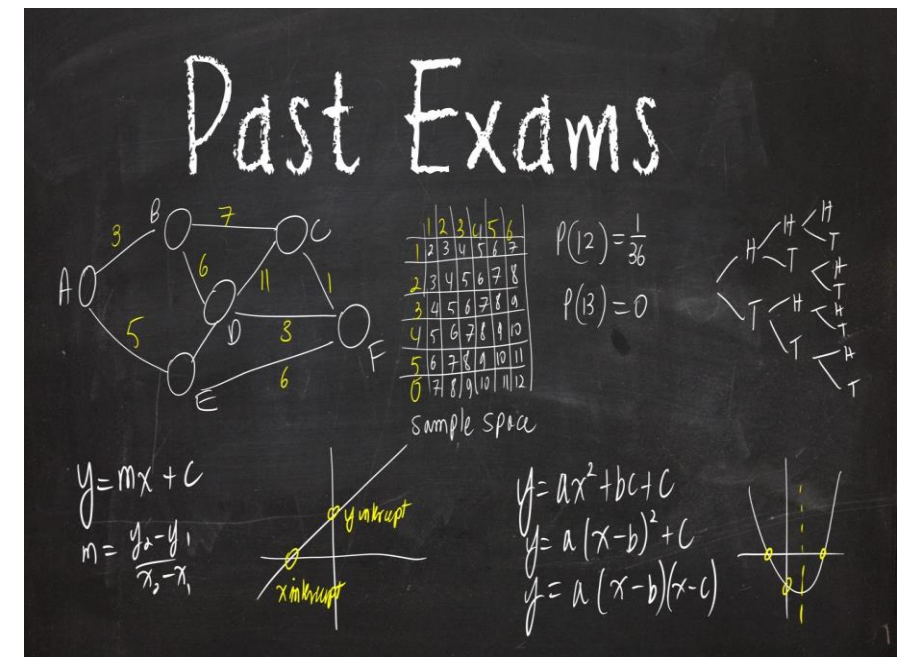
Revising at least times 4 times



You remember a
lot
if you revise
many times!

Do...test yourself

LOOK
SAY
COVER
WRITE
CHECK



Revision technique:

Retrieval Practice

- "Students who can test themselves or try to retrieve material from their memory are going to learn that material better in the long run", says Prof Dunlosky.

What all does this mean? It means that people who test themselves regularly remember more.

Retrieval practice improves long-term memory retention in hundreds of studies

1906 Thorndike	2006 Roediger & Karpicke	2009 Pyc & Rawson
1909 Abbott	2006 Rohrer & Taylor	2009 Rohrer
1914 Myers	2007 Barcroft	2009 Toppino & Cohen
1917 Gates	2007 Butler & Roediger	2010 Butler
1939 Spitzer	2007 Carpenter & Pashler	2010 Fazio, Agarwal, Marsh, & Roediger
1940 Sones & Stroud	2007 Fritz, Morris, Nolan, & Singleton	2010 J. C. K. Chan
1968 Fishman, Keller, & Atkinson	2007 Karpicke & Roediger	2010 Jacoby, Wahlheim, & Coane
1972 Atkinson & Paulson	2007 McDaniel, Anderson, Derbish, & Morrisette	2010 Karpicke & Roediger
1977 Kratochwill, Demuth, & Conzemius	2007 Metcalfe & Kornell	2010 Pyc and Rawson
1979 Bahrick	2007 Metcalfe, Kornell, & Son	2010 Rohrer, Taylor, & Sholar
1980 Wenger, Thompson, & Bartling	2007 Butler & Roediger	2010 Sumowski, Chiaravalloti, & DeLuca
1981 Duchastel	2008 Agarwal et al.	2010 T. A. Smith & Kimball
1982 Nungester & Duchastel	2008 Bishara & Jacoby	2010 Tse, Balota, & Roediger
1983 Runquist	2008 Butler, Karpicke, & Roediger	2010 Vojdanoska, Cranney, & Newell
1985 Rea & Modigliani	2008 Carpenter, Pashler, Wixted, & Vul	2010 Weinstein, McDermott, & Roediger
1986 Rees	2008 Cepeda, Vul, Rohrer, Wixted, & Pashler	2010 Zaromb and Roediger
1988 Foos & Fisher	2008 Helder & Shaughnessy	2011 Agarwal & Roediger
1989 Glover	2008 Karpicke and Roediger	2011 Bouwmeester & Verhoeijen
1993 Bahrick, Bahrick, Bahrick, & Bahrick	2008 Logan & Balota	2011 Carpenter & Vul
1995, 2006 Hunt	2008 Sommer, Schoell, & Büchel	2011 Coppens, Verhoeijen, & Rikers
2000 Cull	2009 C. I. Johnson & Mayer	2011 Hinze and Wiley
2002 Morris & Fritz	2009 C. K. Chan	2011 Kang, McDaniel, & Pashler
2003 Pashler, Zarow, & Triplett	2009 Carpenter, Pashler, & Cepeda	2011 Karpicke & Bauernschmidt
2003 Wheeler, Ewers, & Buonomano	2009 Cepeda et al.	2011 Karpicke & Blunt
2005 Bahrick & Hall	2009 Cranney et al.	2011 Kornell, Bjork, & Garcia
2005 Bahrick & Hall	2009 Cranney et al.	2011 Maddox, Balota, Coane, & Duchek
2005 Carpenter & DeLosh	2009 J. C. K. Chan	2011 McDaniel, Agarwal, Huelser, McDermott, & Roediger
2005 Pavlik & Anderson	2009 Kornell	2011 Rawson & Dunlosky
2005 Roediger & Marsh	2009 Kromann et al.	2011 Roediger & Butler
2006 Balota et al.	2009 Kromann, Jensen, & Ringsted	2011 Roediger, Putnam, & Smith
2006 Balota, Duchek, Sergent-Marshall, & Roediger	2009 Marsh et al.	2011 Schmidmaier et al.
2006 Carpenter and DeLosh	2009 Marsh, Agarwal, & Roediger	2011 Vaughn & Rawson
2006 Carpenter, Pashler, & Vul	2009 McDaniel, Howard, & Einstein	2012 McDaniel, Wildman, & Anderson
2006 J. C. K. Chan, McDermott, & Roediger	2009 Metcalfe, Kornell, & Finn	2012 Pyc & Rawson
2006 Roediger & Karpicke		

**LOOK
SAY
COVER
WRITE
CHECK**

Frequently
testing
yourself
will
prevent
you
forgetting
knowledge
in your
exam.

Revision techniques: Read / cover / write / check. Repeat

Read your notes

Cover them up

Write down what you can remember

Check – did you leave anything out?

Repeat

Repeat this until you can be
confident that you can remember all
the material you need to know

Retrieval Practice

LOOK



SAY



COVER



WRITE



CHECK



Revision techniques: Just a minute.
Record yourself & play it back

Retrieval Practice



**Can you talk
continuously for one
minute about a topic you
need to revise?**

**Doing this as part of your revision sessions will increase
your confidence & highlight areas you need to focus on
for further revision**

Do...use flashcards

Three Gorges Dam

• world's largest hydroelectric scheme
• HEP seen as clean energy source
• cost of coal is rising
• help support rapid industrial growth

Benefits

- 18,000 MW saving
- 100,000 tonnes of CO₂ per year
- 100,000 tonnes of CO₂ per year
- 100,000 tonnes of CO₂ per year
- 100,000 tonnes of CO₂ per year

Costs

- 100,000 tonnes of CO₂ per year
- 100,000 tonnes of CO₂ per year
- 100,000 tonnes of CO₂ per year
- 100,000 tonnes of CO₂ per year
- 100,000 tonnes of CO₂ per year

With other molecules
Form new free radicals
 $\text{CH}_4 + \text{Cl}_2 \rightarrow \text{CH}_3\cdot + \text{HCl}$
 $\text{CH}_3\cdot + \text{Cl}_2 \rightarrow \text{CH}_3\text{Cl} + \text{Cl}\cdot$
 $\text{CH}_3\text{Cl} + \text{Cl}\cdot \rightarrow \text{CH}_2\text{Cl}\cdot + \text{HCl}$

Breaking bonds is sometimes called **bond fission**. The way a bond breaks has an influence on the reaction.

Homolytic fission: One of the two electrons go to each atom. The dot (·) indicates unpaired electron.

Heterolytic fission: Both electrons go to just one atom and become negatively charged.

Covalent bond: A pair of electrons is shared between two atoms. When a covalent bond breaks, the two electrons are distributed between two atoms...

$\text{H}-\text{H}$ a covalent bond of H_2

MUSCLE & MOVEMENT

STRUCTURAL FUNCTION: Muscles are made of muscle fibers. They are long, thin, and cylindrical. They are surrounded by a cell membrane called the sarcolemma. They contain myofibrils, which are the contractile units of the muscle.

FUNCTIONAL FUNCTION: Muscles are responsible for movement. They contract and relax to generate force. They are also involved in maintaining posture and balance.

PLANTS

STRUCTURAL FUNCTION: Plants have a rigid cell wall made of cellulose. This provides structural support and prevents the plant from collapsing. The cell wall also acts as a barrier against pathogens and environmental stress.

FUNCTIONAL FUNCTION: Plants are responsible for photosynthesis. They use light energy to convert carbon dioxide and water into glucose and oxygen. They also play a role in the water cycle and the carbon cycle.

C) EQUITABLE REMEDIES

1. SPECIFIC PERFORMANCE

Order to do to specifically perform the contract.

2. TEMPORARY RESTRAINING ORDER (TRO)

Issued pending a hearing to determine whether it should be made.

3. TEMPORARY INJUNCTION (TI)

Order to do to specifically perform the contract.

4. PERMANENT INJUNCTION (PI)

Order to do to specifically perform the contract.

5. DAMAGES

Compensation for loss or injury.

6. RESCUE

Order to do to specifically perform the contract.

7. DECLARATORY JUDGMENT

Order to do to specifically perform the contract.

8. ACCOUNTS

Order to do to specifically perform the contract.

9. INJUNCTIONS

Order to do to specifically perform the contract.

10. DAMAGES

Compensation for loss or injury.

11. RESCUE

Order to do to specifically perform the contract.

12. DECLARATORY JUDGMENT

Order to do to specifically perform the contract.

13. ACCOUNTS

Order to do to specifically perform the contract.

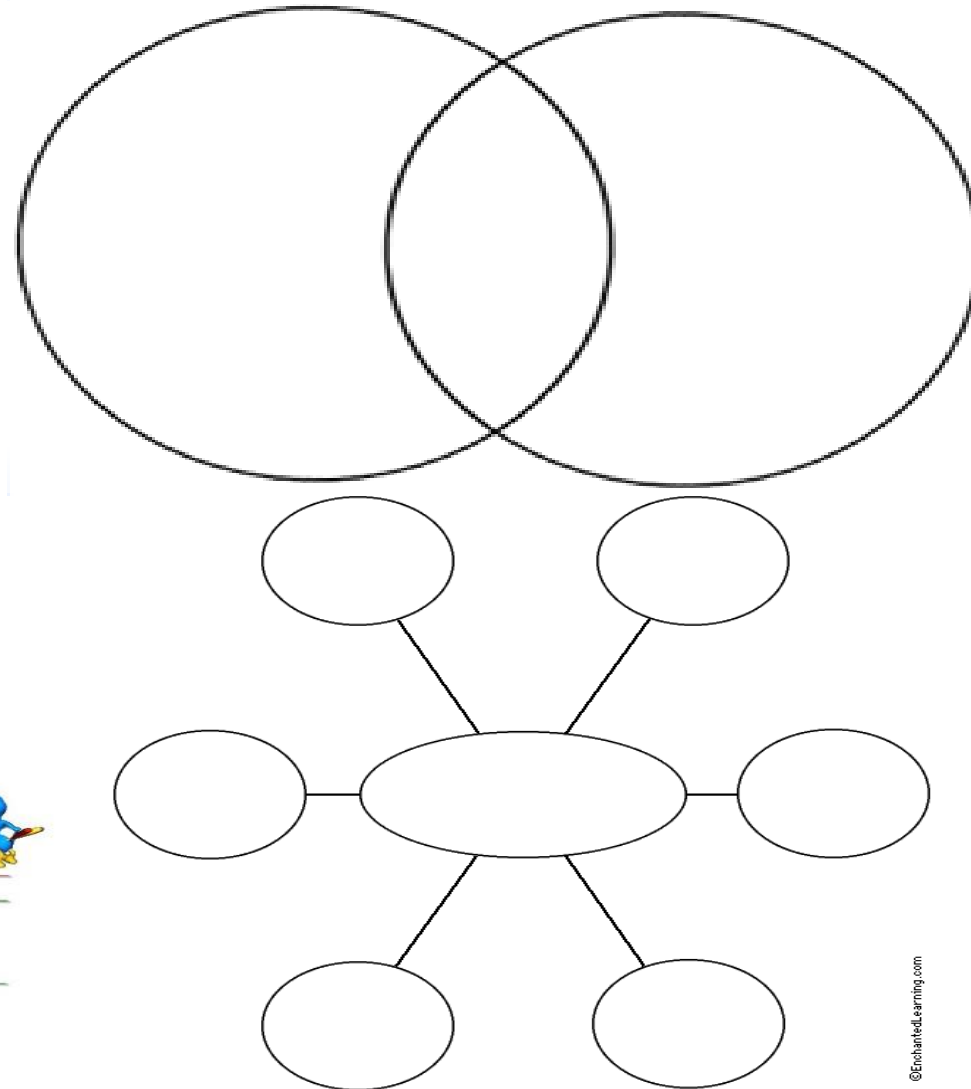
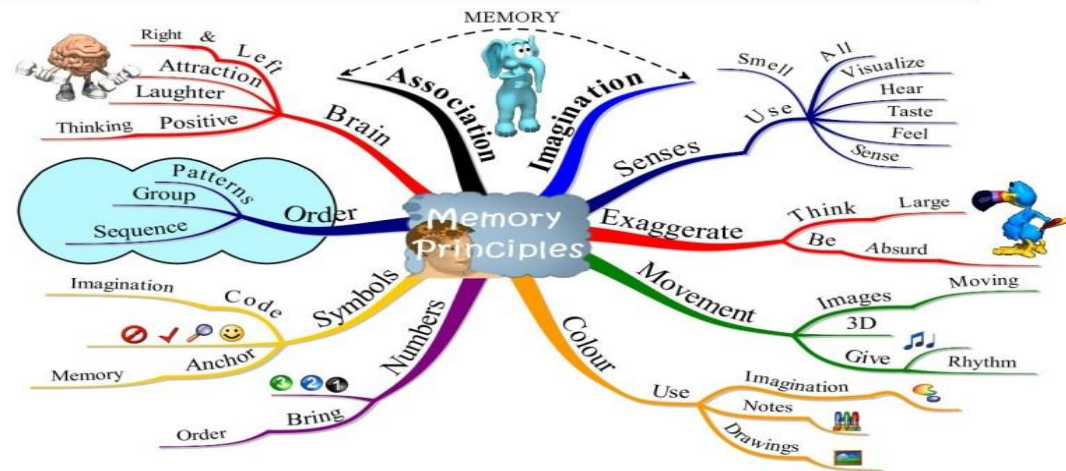
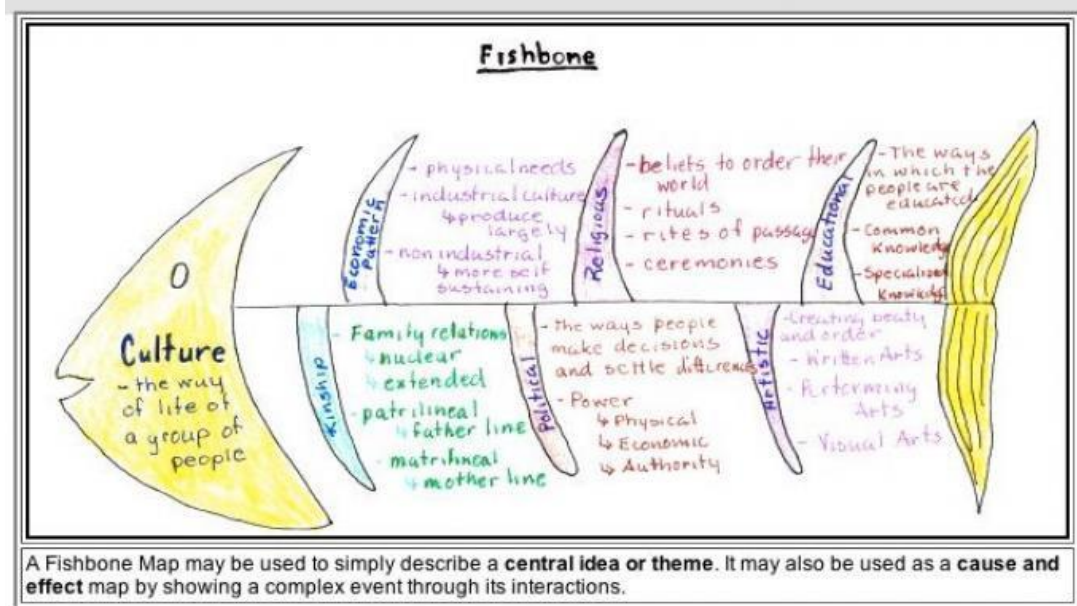
14. INJUNCTIONS

Order to do to specifically perform the contract.

15. DAMAGES

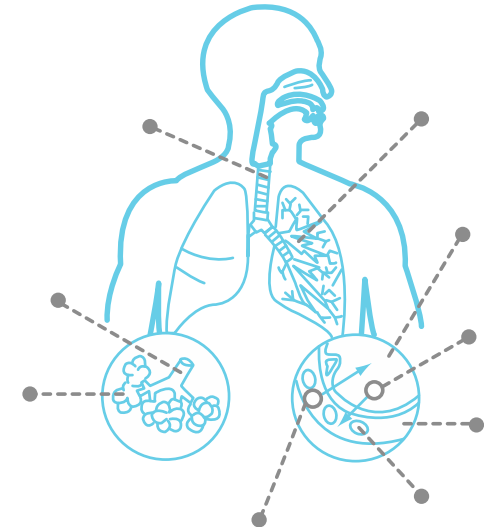
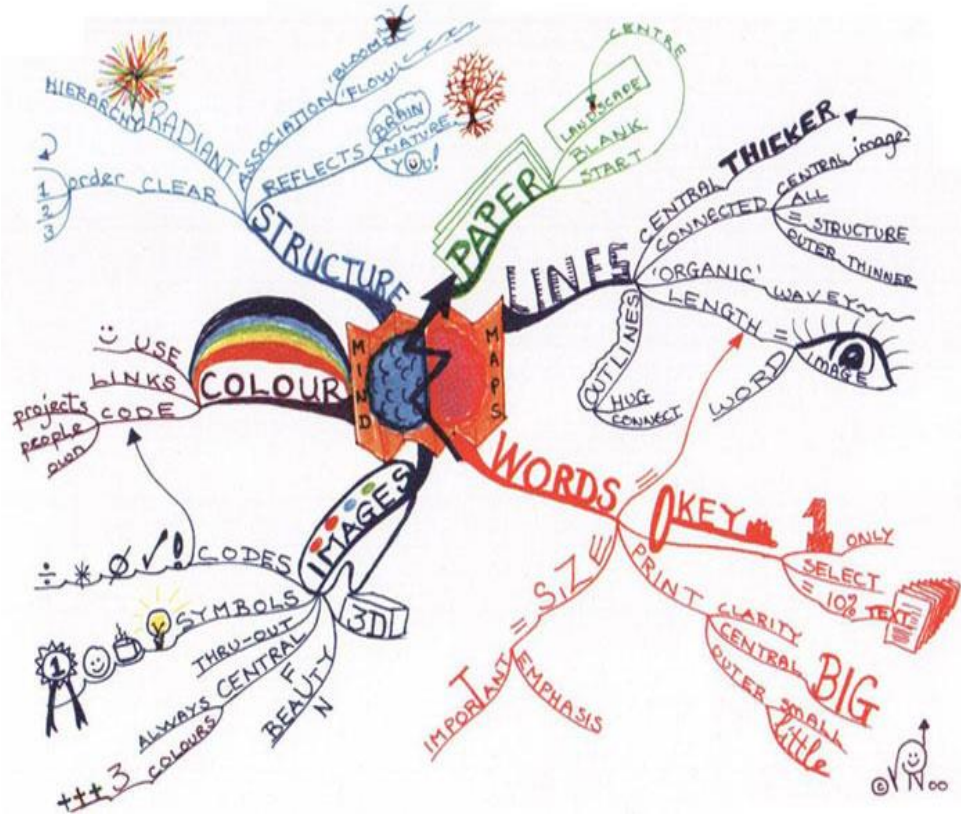
Compensation for loss or injury.

Do...use graphic organisers



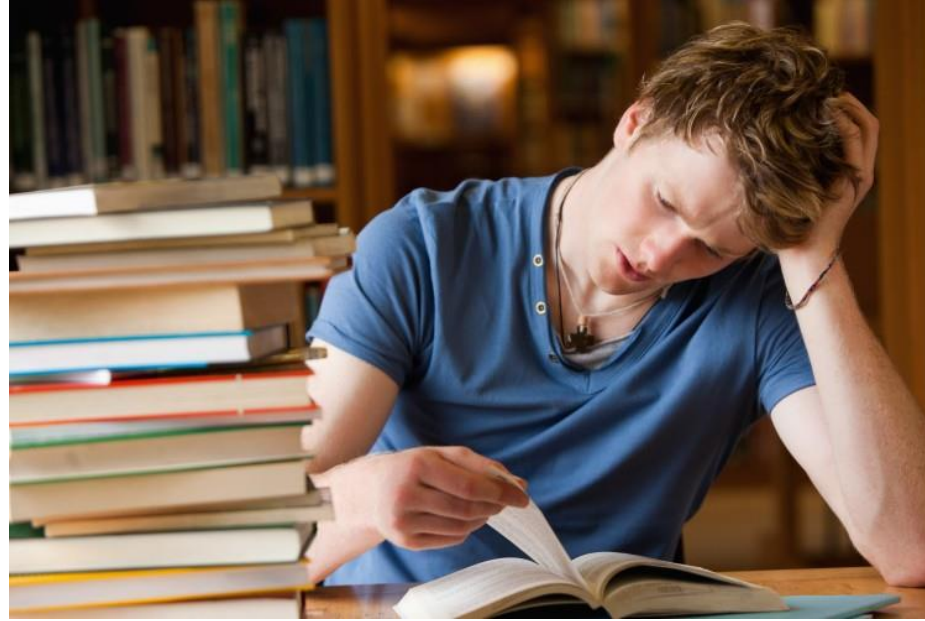
Dual coding – combining words & visuals.

- ✓ Find visuals in your notes and explain them in your own words
- ✓ Draw images to go along with what you are trying to learn (remember)
- ✓ Try to come up with different ways to represent the information visually, for example an infographic, a timeline, a cartoon strip or a diagram of parts that work together.



Revision techniques: Answer exam questions

Retrieval Practice



Practice exam questions under timed conditions. This will help improve your technique & show you which topics you know a lot about & which you still have to learn.

Memory Skills

- 1 Use **IMAGINATION** to make it **MEMORABLE**
- 2 **ASSOCIATE** it to something you already know
- 3 **PRACTICE RECALLING** it until you can't get it wrong

How will you remember this quote?

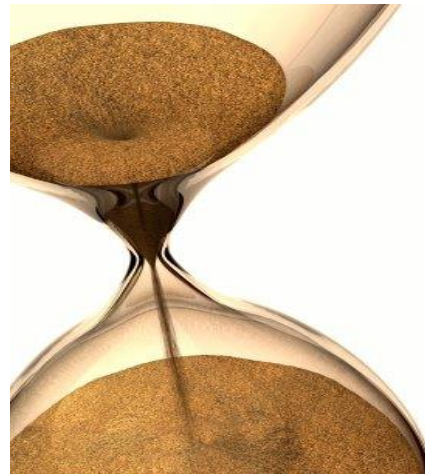
**Out, out, brief candle!
Life's but a walking shadow, a poor player
That struts and frets his hour upon the stage
And then is heard no more:**

Make it memorable!

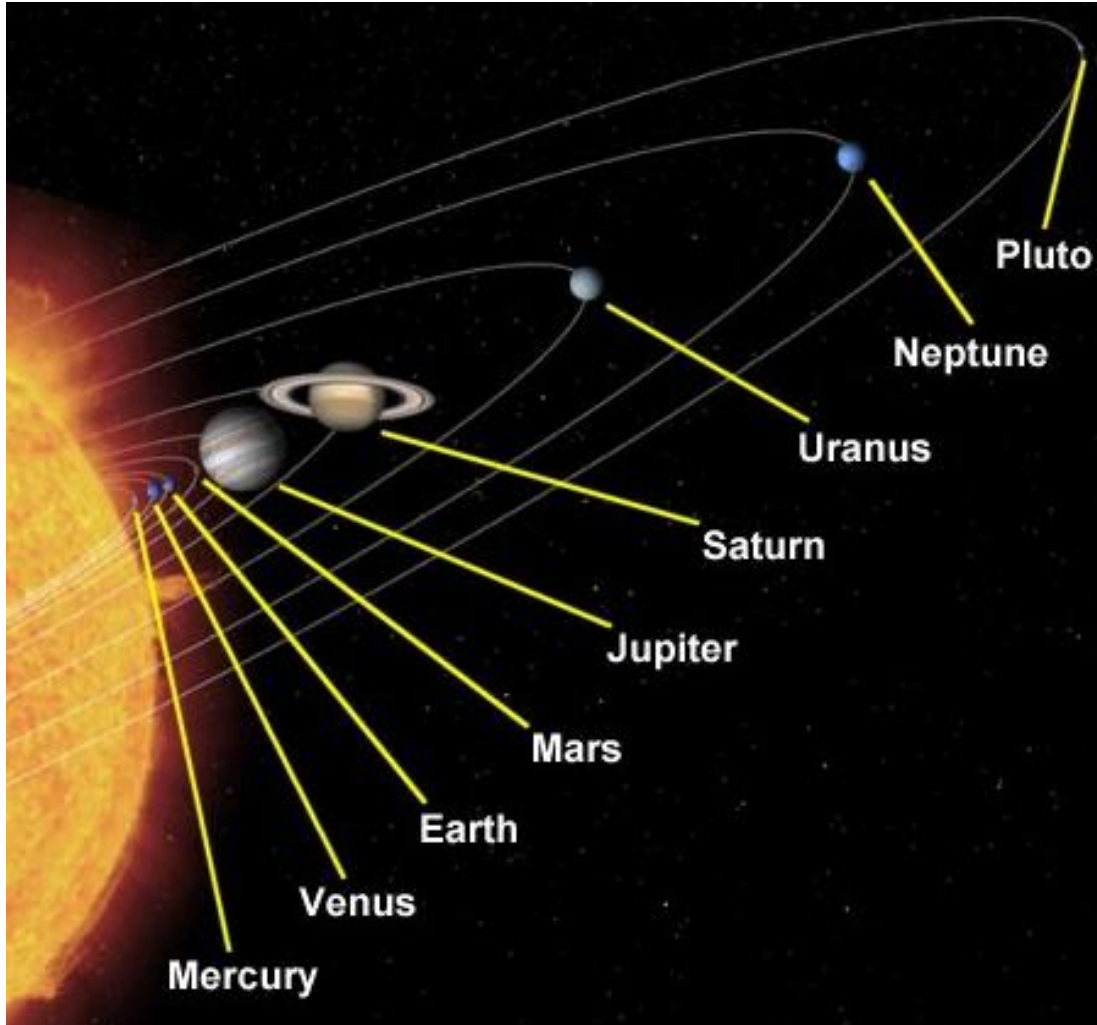


Out, out, brief candle!

Life's but a walking shadow, a poor player
That struts and frets his hour upon the stage
And then is heard no more:



Memory Skills - mnemonics



My very educated
mother just sent us
nine pizzas



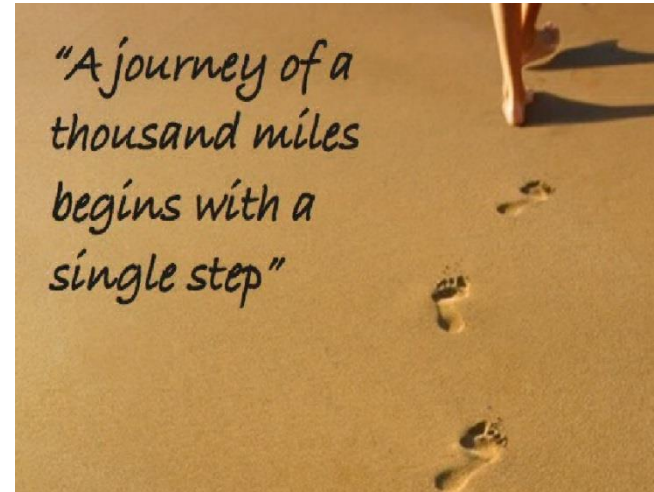
Managing stress as you approach your exams



Your best is all anyone expects. No one is perfect

TO REDUCE FEELINGS OF ANXIETY AND STRESS...

- ✓ Sleep well – 15 & 16 year olds need 9 hours of sleep per night to function well. Go to bed on time.
- ✓ Eat properly – especially breakfast
- ✓ Exercise – reduces stress
- ✓ Don't forget there is life after exams



4 steps

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