



How to revise **SMARTER**

Your guide to revision strategies to get the grades to
unlock the future you aspire to.



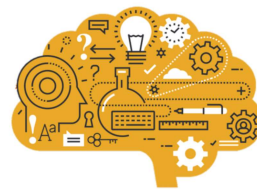


The Science of Learning

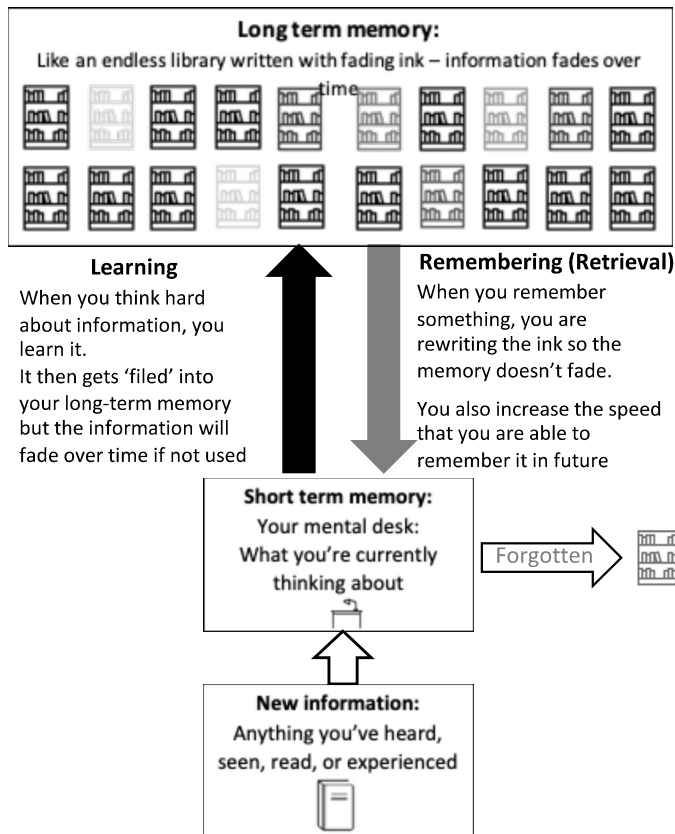
Research into cognitive science has provided us with advice on the science of learning – what ways do students learn best, and what should be avoided

How memory works

Understanding the basics of memory, helps you understand how you learn and how to revise.



The Memory Model



Short Term Memory – 'Working Memory'

- This is where you do your thinking and where you take in new information e.g., what you see/read/hear/experience
- Unless you think about it, most of it is forgotten.
- Your working memory only holds a limited amount of information at once, otherwise it gets overloaded and doesn't effectively learn anything. So, cramming is a bad idea.

Long Term Memory

- This is where information is stored, what you have learned - When you remember something, it comes from here
- It is infinite, it can hold an endless amount of information
- This information fades (is forgotten) if we don't use it.

How learning works

Learning = A change in your long term-term memory

We know that for information or skills to be learnt and stored in your long-term memory, the mind must work hard. Cognitive Scientist Daniel Willingham has this to say about learning.



"Whatever you think about, that's what you remember."

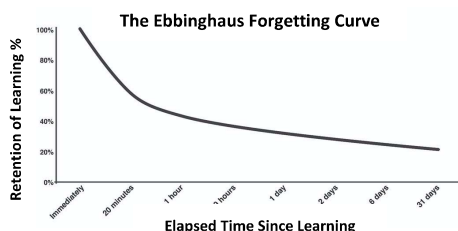
Memory is the residue of thought"

Therefore, when doing any revision activity, you must do things which actively make you think hard.

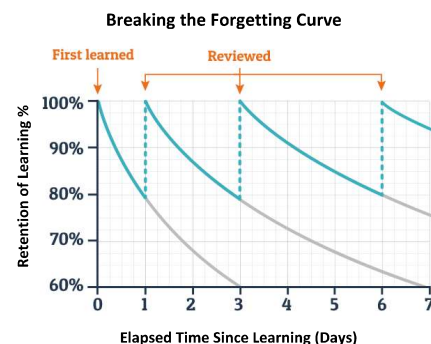
Forgetting and Retrieval

We also know that information and skills are naturally forgotten if not revisited or practiced.

Research has shows that over time you forget a majority of what you've learnt, it happens immediately.



- Practice and retrieval helps to '*Break the Forgetting Curve*' as it strengthens long term memory – it stops the information 'fading' from your Long-Term Memory
- Retrieval helps organise information in your memory, making it easier and quicker to remember in the future
- Retrieval helps you learn even more, knowledge is sticky!



What we know doesn't work.

The science of learning has also told us there are several ineffective revision strategies which remain popular. Students often feel as they have been 'busy' doing these, they are revising hard. However, they have little impact.



Re-Reading

This gives a false sense that you 'know it'. However, but your brain isn't doing any hard work or learning.



Highlighting

It wastes time & leaves you focusing on a narrow area, often missing the big picture of the notes.



Cramming

This essentially overloads your working memory, you can't learn it all. It causes stress/anxiety before exams



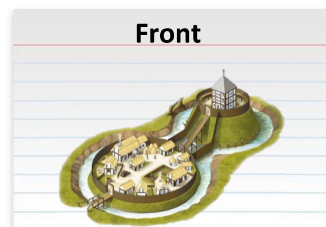
Re-Writing

Writing out your notes again isn't making your brain do any hard work, it simply wastes time.

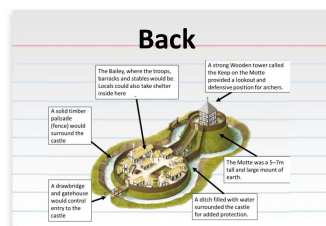


Strategy - Flashcards

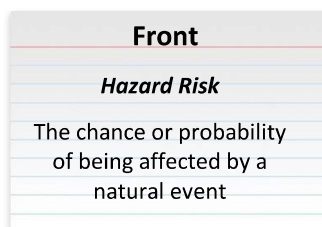
Flashcards are small sheets of paper or card with matching pieces of information on either side. They are a useful tool for learning facts and allow you to quickly check whether you have remembered something correctly. They can be used to revise in any subjects – Create for key words, equations, key diagrams and concepts.



Front



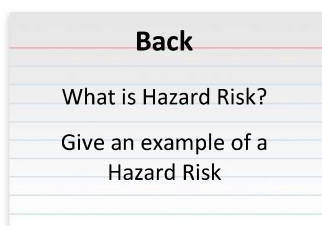
Back



Front

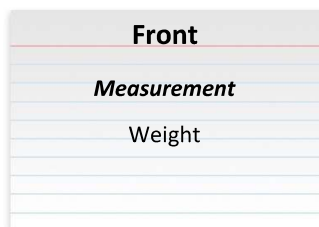
Hazard Risk

The chance or probability of being affected by a natural event



Back

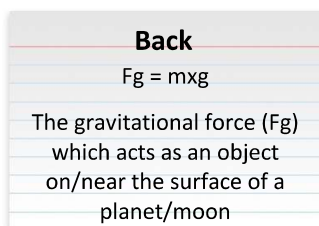
What is Hazard Risk?
Give an example of a Hazard Risk



Front

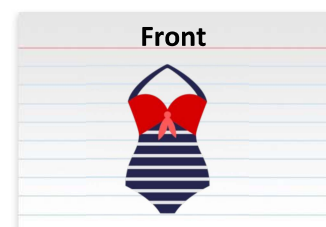
Measurement

Weight



Back

$F_g = m \times g$
The gravitational force (F_g) which acts as an object on/near the surface of a planet/moon



Front



Back

Swimsuit

El traje de baño

Creating Flashcards

Gather information to create. use textbooks, exercise books or knowledge organisers.
Or use pre-made on Quizlet

Select the most important information to put on your flashcards
Focus on the essentials!

Write/Draw the information (definitions, equations etc) on on side, and write the answer or question on the reverse

Advice

Do's

- Put a single piece of information of each flashcard.
- Sort your flashcards according to your confidence with them (see below).
- Create 'Decks' for each topic, use different colour card
- Mix up topics, so you aren't always on the same topic

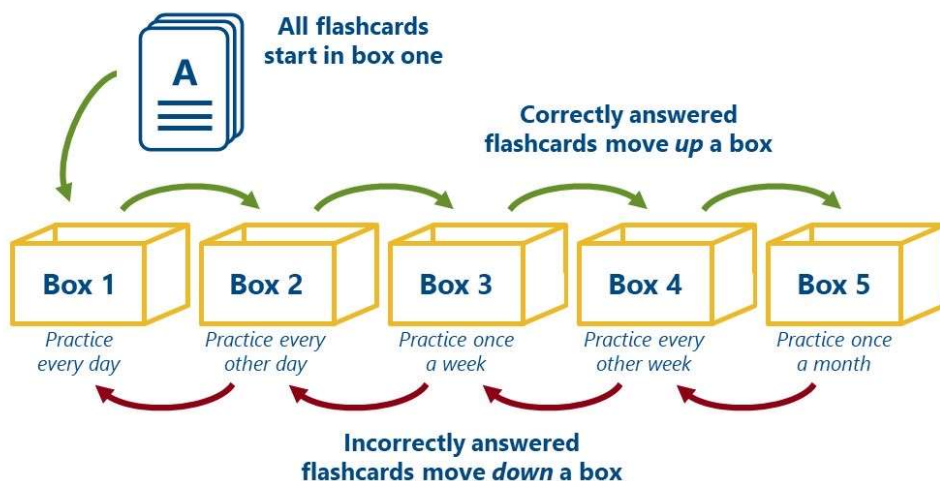
Don'ts

- Spend more time making flashcards than using them.
- Put lots of information onto each flashcard.
- Revise the flashcards in the same order every time that you use them.
- Only read through flashcards.- Test your memory!

How to use Flashcards?

The Leitner System is a simple but powerful method of using Flash Cards, it uses Spaced Practice to test you, and allows you to easily see what you do and don't know. Over time it builds confidence and your knowledge.

The below diagram explains how it works.



The aim is that more cards move towards Boxes 4 and 5 = you know more!

Flashcards can be actively used to plan out essays, processes and concepts – using memory only.

Example

Use your flashcards to plan your answer to a question, sorting into themes or paragraphs

Exam Question

"There was considerable progress in surgery between 1800-1900"
How far do you agree?

Agree

Chloroform

Carbolic Acid

Aseptic Surgery

Disagree

Surgery
Black Period

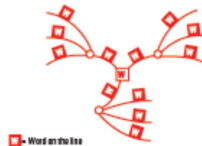
Blood Loss



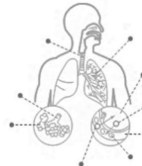
- Dual Coding is the blending of words and pictures
- Research suggests that combining words and images increases your learning, by visually representing information in two different ways, it cements it deeper into our long-term memory.
- You can use dual coding in a variety of ways (shown below) to support your revision



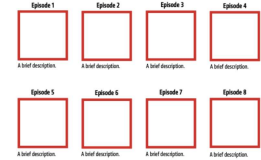
These can show the events that happen in a sequence, and the links between these events.



These allow you to group information in branches from a central theme



Diagrams to annotate key information e.g. biological features about the body.



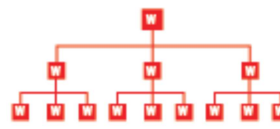
These can help you
remember the key parts in a
story or event



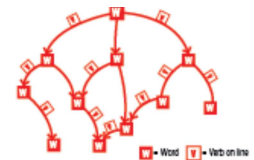
Use flow diagrams to highlight cause and effect, input/output and processes



Useful to compare
change/continuity in history
or characters in English



These can chunk any aspect of a topic; hierarchy, process, cause/effect etc.



Use to highlights links
between themes, concepts
and ideas.

Gather information to create; use textbooks, exercise books or knowledge organisers.

Pick a style to represent the topic. E.g. A timeline for the key dates in Migration from the American West topic

- Plan out before you start your design
- Categorise your information in themes
- Draw images to represent key terms/concepts
- Look for links between ideas/information

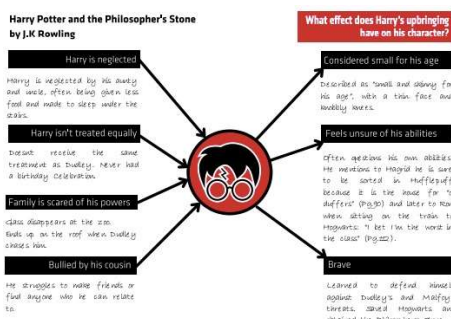
Don'ts

- Aim to eventually recreate your design from memory
 - build up to it and reduce the detail to the basics
- Choose a style that supports what you are revising
- Verbally explain the content as you go through

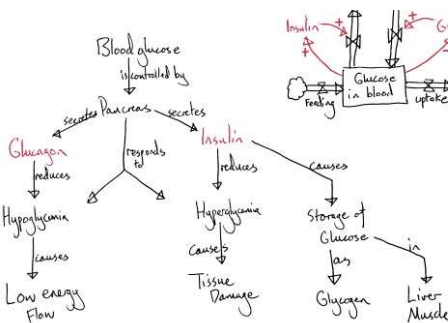
- Don't spend ages making it look pretty – it's a waste of time, remember our focus is being effective!
- Draw images that are irrelevant or confusing.

Below are several examples of you can use Dual Coding to support your revision.

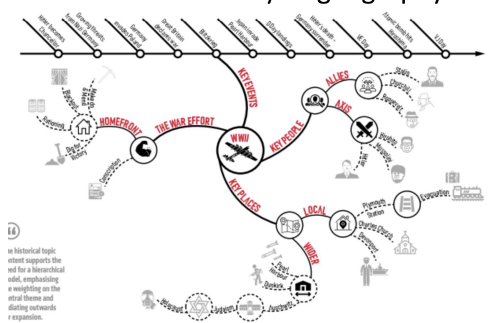
Input/Output diagrams for character analysis in English or cause/effect in history.



Flow diagrams to show processes in Science, Tech or Computing. Emphasis key parts in the process.



Using a mindmap to chunk key information within a topic in any subject. Combine with a timeline add context in history or geography





Strategy - Retrieval Practice

What is Retrieval Practice

Retrieval Practice is the act of recalling learned information from memory.

Everytime you retrieve something from your memory (e.g. a fact), it becomes deeper, stronger and easier to access in the future. It enhances your learning.

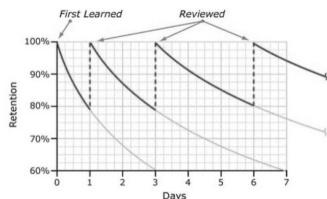
Retrieval Practice is a powerful strategy which should be at the centre of all your revision.

"Using your memory, shapes your memory"



Kate Jones

What are the benefits of Retrieval Practice?



- As we know, retrieval helps break the forgetting curve, it helps knowledge stick!
- It allows you to clearly identify gaps in your knowledge
- It helps you learn more, and apply your knowledge to new information.
- Regular testing builds your confidence over time

Using Retrieval Practice

Revise a specific topic using a strategy like flashcards, reading or summarising your notes

Complete a retrieval activity (See below examples using only your memory.

Review your practice – compare your result to your notes and previous quizzes
Make any corrections and add missing info.
Use this to focus on further retrieval/revision

Advice

Do

- Practice the areas you struggle on & need to improve
- Use topic checklists (PLCS) or revision guides as a way to monitor your retrieval practice.
- Move beyond recalling simple facts to detail/analysis

Don't

- Assume everything you've written is correct
- Throw away your quizzes or brain dumps.
- Avoid testing yourself on tough topics or keep testing yourself in easy ones. You want it to be difficult

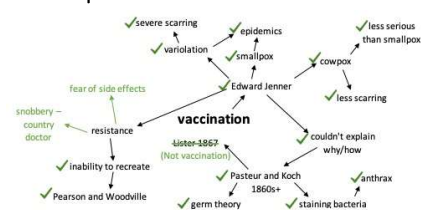
Examples of Retrieval Practice

Below are several examples of you can use Retrieval Practice to support your revision.

Brain Dump

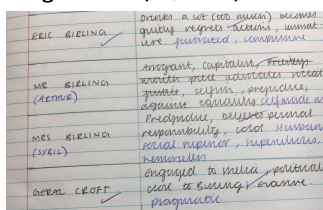
Write out everything you know, about a topic (e.g. in a mind map) under timed conditions.

Then use your notes to make any corrections or additions in another colour pen.



Self Quizzing

Answer questions on a topic, fill a diagram or complete gap fills, all from memory. Use your notes to make any corrections using a colour pen
Create your own quizzes or use those online e.g. Seneca/Quizlet/Carousel



Graphic Organisers

Complete a pre-made graphic organiser from memory, such as Round the Clock Revision or Cornell Notes. These allow you to structure your answer, providing opportunity to apply your knowledge in deeper ways.



Elaboration

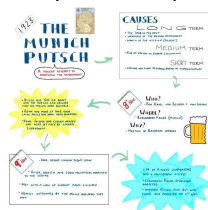
Explain a narrative (story, process or cause/effect) to someone who has the notes, so they can check your answer
Create a visual guide to help you (Dual Coding) if you support you.



Key Words
Evaporation
Convection
Condensation
Precipitation
Energy
Warm/Cool
Flow
Vapour
Fall/rise

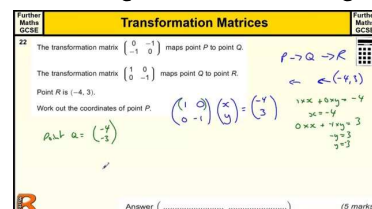
Summarising

To check understanding, can you still still produce a summary of the key content e.g. the short/long term impact of the Munich Putsch, after a period of time (1-2 weeks)



Exam Questions

Answering exam questions from memory is a useful method as it requires you to draw multiple pieces of knowledge and skills together at once. You are doing more than recalling facts!





Strategy - Spacing and Interleaving

What is Spacing and Interleaving?

'Spacing' refers to revision throughout the course of study, while 'interleaving' means switching between ideas while you learn. Both techniques can help boost your long-term memory and retrieval (remembering) of information.

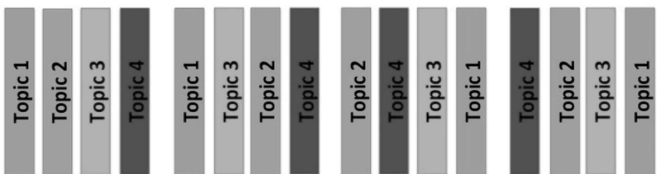
Interleaving

When you are revising the temptation is to do it in "blocks" of topics, completing one and moving onto another – this makes you feel like you've 'completed' it

The problem with this is, is that it doesn't support research around retrieval practice – we know you need to review over time to reinforce learning.



So rather than revising in 'topic blocks' it's better to chunk these topics up and interleave them – space them out and mix them up.



This means splitting up topics within a subject e.g. History where you can split up (Medicine, Germany, American West and the Anglo Saxons) or across subjects e.g. Maths, English, Science.

To strengthen your revision, you can then mix up the order of topics to space things out.

Advice

Do's	Don'ts
<ul style="list-style-type: none"> Plan out your revision, this is essential in maximising spacing and interleaving Gather the list of topics for each subject, to allow you to map out your revision. Make time for breaks and switching off, you need it. 	<ul style="list-style-type: none"> Don't worry that mixing up your revision topics feels hard, its meant to – but it will help in the long term Some topics with a narrative (story) are better not interleaved as you can lose the thread, for example in History the American West topic runs as a narrative.

How can you apply spacing and interleaving?

Designing an effective revision timetable can provide a useful way to utilise spacing and interleaving.

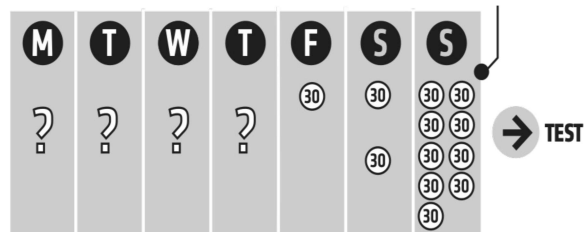
Creating a revision timetable.

1. Collate all your topics and determine where you need to focus your time e.g. which subjects/topics do you need to target.
2. Create a table for a week, with 30 minute revision slots & breaks built in.
3. Write the subjects in the table, leaving yourself at least two days between each
4. Type it up so you can re-use it, or take a photograph of it so its easy to check.
5. Put it somewhere visible and tick off completed sessions = see success!

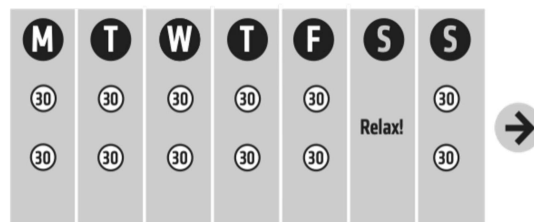
	Science	RS	English	Maths
Monday	Reactions of carbonyl compounds	Biblical examples of experiences	Otto's concept of numinous	Jacobean theatre
Tuesday	The late romance plays	General Binomial Expansion	Features of carbonyl compounds	Partial Fractions
Wednesday	Parametric Equations	Act One character and plot	Algorithms	Properties of carbonyl acids
Thursday	Properties of carbonyl acids	Swinburne credulity & testimony	Theme of Power and control	Act One character and plot
Friday	Esters, triglycerides and fats	Otto's concept of numinous	Partial Fractions	Jacobean theatre
Saturday	William James - experiences	Properties of carbonyl acids	Theme of Power and control	William James - experiences
Sunday	Properties of carbonyl acids	Act One character and plot	Algorithms	Parametric Equations
	General Binomial Expansion			

Spacing

There is often a temptation to cram all your revision until the final days before your exam but this is not how athletes or actors prepare. Research suggests this will overload your memory, and make you overconfident.



So, it is better to spread out your revision, in chunks, over time – start early! 5 hours split across a week is better than 5 hours all at once, do little bits over time, it adds up. We learn more over time, than in one session.



By leaving time between revising and testing, the harder your brain works, the more chance of remembering.



Developing Revision Habits

The Power of Habits

Habits are incredibly powerful in helping you to succeed. If you think about the greatest sportspersons, it is their habits of training and preparation (alongside their talent) which sets them apart from their competitors who all want to achieve gold too. This is the same with revision, if you have the mindset of wanting to be a better student and build the habits to become the person you want, the results will come.

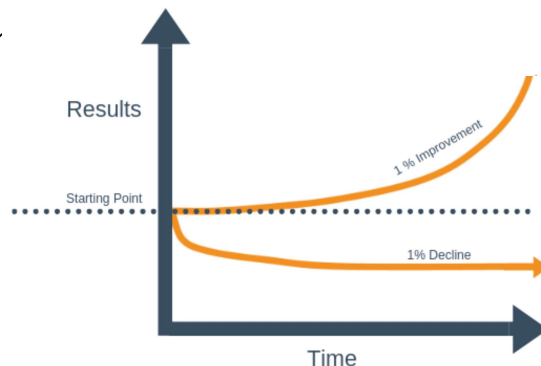


"All big things come from small beginnings. The seed of every habit is a single, tiny decision. But as that decision is repeated, a habit sprouts and grows stronger. Roots entrench themselves and branches grow. The task of building a good habit is like cultivating a delicate flower one day at a time."

It is great to have targets on what you want to achieve (e.g. passing your GCSEs, or a Grade 8 in Maths) as they give you a goal and direction. However, it is your habits which allow you to best make progress, exam success is the product of daily habits not one of transformations.

As James Clear says in Atomic Habits *"Getting one percent better everyday counts for a lot in the long-run"*.

Think of the progress you can make if you start revising from today, what could you achieve by summer?



Creating Habits

Developing revision habits is hard, and it takes time for them to 'stick', but if you stay with them, you will reach both your goals and new identity.



There are 4 principles around building effective habits, whether this be your goal to read or exercise more or revising for your exams. These principles are called the 'Habit Loop' and each phase is important to or building new habits – give them a go

Make it Obvious



- Revise in one area, so you relate the area to 'work'
- Leave your revision materials out ready to start
- Write a revision contract to schedule your revision
- Stack habits together, so go for a walk and listen to revision podcasts, or revise then tidy your room!

Make it Attractive



- Revise with friends & attend revision classes together
- Do something enjoyable as a reward once you complete *"Once I've revised for 30 mins, I'll then play Xbox"*
- Write a revision contract with your family agreeing to revise specific days and times, they can keep you on track

Make it Easy



- Start small - 10 minutes a night and build up over time
- Reduce distractions when you revise, no music or phone
- Ask your family to encourage you and get them involved in supporting your revision e.g. quizzing you.
- Create a revision timetable, place on your wall & tick off

Make it Rewarding



- Start successful by easy tests/quizzes but make sure you are challenged by increasing how hard you test yourself
- Reframe your identity, think that *"I'm a hard worker"* not *"I want a Grade 8"*, the results will come with habits
- Track revision progress & never miss revision twice.

Want to read more?

If you would like to know more, please see Mr Thornton, or you can borrow his copy of Atomic Habits by James Clear



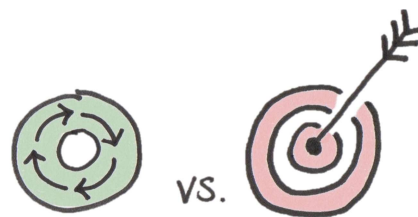
Create an effective revision system

Why create an effective system?

In Atomic Habits, James Clear states that *"Goals are good for setting a direction, but systems are best for making progress"* but what does he mean?

Whilst it is important to have clear goals for your exam results (e.g. a pass or grade 8), having these goals are not enough, it the systems you set up which is what enables you to achieve your goals and improve over a lifetime.

Therefore to maximise your chance of success, you need to create an effective revision system, using these tips.



Revision Spaces

We know that your working memory can only hold a small amount of information at once. Therefore in order to revise and learn effectively, you should use techniques which stop your working memory from becoming overwhelmed.

One way that you can free up space in your working memory is by working in an environment which is free from distractions – therefore creating an effective revision space is essential.

Find a quiet, tidy room with minimal distractions – your bedroom, library or classroom.

Put your revision timetable, exam timetable and other documents visible on your wall

Make sure you have a drink and snack with you, staying hydrated and full is important



Put your phone in another room, it is too much of a distraction -

Loud music is a distraction, if you must listen, it needs to be low tempo, without lyrics

Have all your revision materials and stationary on your desk ready to go - make it obvious

Put the phone away

Whilst phones are a brilliant invention, research has found they have a negative impact on revision and learning.



Having your phone out reduces concentration, impacting working memory



It impacts on your sleep, especially the bright lights & distractions.



It produces FOMO (Fear of Missing Out) which reduces your motivation to revise



Having revision apps on your phone increases the chance of going on others

Sleep your way to success.

Whilst we encourage you to work hard before your exams, sleep is equally as important, and it is essential you get enough sleep. Research shows that sleep duration and quality improves memory and recall, helps your concentration, aids creativity, allows you to think clearer and helps your immune system. So it makes sense to prioritise good sleep!



- **Have regular bed time** – This keeps your body clock in a routine, aim for 8-10 hours a night.
- **Help sleep arrive** – Tire yourself out by exercising, put away your phone, stop gaming or watching TV 30 minutes before bed, don't drink coffee/energy drinks in the evening & make your room dark
- **Can't sleep?** – Don't go on your phone but read a book or something that occupies your brain

Your daily routine

