This is a comprehensive guide on how to study for ANY exam.

When revising for exams the process is divided into three main sections: Understanding(the content), Remembering(the content) and focusing.

As you will see, the guide has been designed in the form of questions(ps, this is a form of active recall which you will find out about later) and is very short and snappy, without the waffle.

If you feel like you have benefitted in any way from this, a follow my tiktok account 'ahmadfromasia' would be greatly appreciated.

Understanding Overview

- Why is understanding so important and why is it first in learning something?

   Understanding is the most important step or else knowledge won't really glue or stick or have a context to sit within already existing knowledge base within your brain, it will just be a loose fact if you jump straight to memorisation techniques

- If you want further reading into the topic of understanding what book could you read?

   Make It Stick - Peter C. Brown

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The Feynman Technique

- What is The Feynman Technique?

  To be able to convey something complex to a 5 year old (layperson) by using simple language and removing any complicated industry jargon. Drill it down to the essence. How can I summarise this in as least words as possible

- Why do we use simple words?

  To prove you understand it by not hiding behind big words

- What to do if somebody asks why on a topic?

  Answer them and if you can't explain 'why' to something it means you don't understand it fully enough. Identity gaps in your knowledge so go back and understand it

  use the Feynman to understand topics and explain to something to deepen understanding

- Who is the Feynman Technique based after?

  Richard Feynman (American Physicist)

Active Recall

- What does recall mean?

  - Simply means test yourself without having the answer or solution in-front of you
- Why does recall work?

  The brain is like a muscle in that if you practice remembering it gets stronger at doing it because you use it more. If you read about something, then close it, test yourself on that chapter your mind switches from easy passive re-reading (an illusion of competing) to active retrieval and the neurons that represent that chapter in your mind have to work hard. That process is vital and is what strengthens the learning. The harder our brain has to work to try to retrieve information the more that neurons strengthen in the process of the retrieval process.

- How important is recall?

  Recall is the single most important aspect of efficient studying

- Is recall legit?

Scientific evidence proves the validity of recall as a high yield effect studying method

How to Learn New Content With Active Recall

- Why is testing ourselves important in everyday learning, not just in tests?

  Testing is part of the learning process itself. It's the only way really to prove you know something other wise you read/studied a book or course for nothing.

- How can you learn something with active recall?

  At the end of every paragraph, close the book and see if you can actively recall it. Quiz yourself as you go along

- What is better 1 hour of study or 1 hour of active recall?

  1 hour of testing yourself is more beneficial than 1 hour of studying as the act of retreating information from your brain strengths the neurons associated with that item

- Hiding notes in the toggle feature feels unnatural at first, like you're slowing down after each chapter to quiz yourself, but why is this better than reading?

  You are saving time in the long run, so you don't waste time passively rereading text which is a low yield method

Taking Notes During Class

- Is keyboard typing better than handwriting for long term retention?

  Handwriting has been proven by research to be more effective for remembering things as you pay more attention to the words you write as it requires more input, so as it's harder, you gain more from it. You can write by hand then take a photo afterwards.

- Is taking notes as you go along worthwhile?

  Taking notes as you go along is pointless if you're doing it as they speak on the video it's completely passive. Instead watch a section, close it and practice recall. You'll get better at this

- What is The Cornell Note Taking System?

  Covering up the notes and asking ourselves the questions to try and remember it

before expanding it out. Basically the recall system built into Notion

- <u>If notes or summaries are already provided for you should you take your own?</u>

  No this is a waste of time, you only need to take notes to turn into active recall content. If notes have already been done for you, don't undo their efforts and redo the process. Just work with it

  - You need to understand the content first fully!

Taking Notes After Class

- <u>Why should we take notes after a class?</u>

  To build active recall questions for the Cornell Note Taking System (Notion toggles) or Anki cards to take advantage of spaced repetition

- <u>Should you add more information to the notes?</u>

  If you want to further consolidate understanding. If you need to add more context and look up additional material to add to your notes so in the future when you read back you'll have a more coherent understanding

- <u>How does The Feynman Technique work with Notions Cornell Note Taking System?</u>

  Promotes the usage of the Feynman Technique as you'll naturally want to spend as little time on this as possible

Scoping the Subject

- <u>How do we scope the subject?</u>

  When beginning a new topic/course/book etc, go through all the topics and subcategories the different topics before you even start the course.

- <u>What's also an important thing to consider when scoping?</u>

  To set a limit on learning. You'll know how deep your going to go on a specific thing

- <u>Why do we scope the subject to begin with?</u>

  You need to know the big picture of the study session and where things will fit in and within what context to on another, also tells you the limit on your learning and roughly how big each section will be. Youll know the syllabus and what's coming up.

To understand something we need to understand where it fits into the wider picture of things. You won't know where something fits into your currently existing knowledge base, you'll just know it fits in eventually leaving a constant feeling of unease and increase of imposter syndrome.

- What can scoping the subject help prevent?

The temptation to focus on the details and forget the big picture straight away

Bonus: The Importance of Understanding

- Why is it vitally important to understand something?

Simply memorising details without understanding can cause a nagging feeling to understand whats going on

- What is another way of realising you have understood something (excluding The Feynman Technique)?

Internal coherence within your mind. If there are no longer any unexplained questions you have in a topic then you can consider it understood.

Teach it to somebody else

Bonus: Developing a Syllabus for Your Subject

- What is developing a syllabus for your subject used for?

When the context or outline (scoping the subject) of what you need to study is not fully clear, it's important we create our own syllabus (subjects in a course of study) and to have a limit to what you're learning

- You have a big reading list or many options available to you when studying a topic. How should you go about this?

Your big reading list will be too much. If you take one book and make it your key to understanding it and understand that book in detail and even go over it 3 times. You can skim read the rest of the books. And basically top of the foundational concepts that you have.

- How does the analogy 'learning the first Bible' relate to finding a syllabus for yourself?

If you learn the Bible, the supplementary text you can get through very quickly. But

you wouldn't start by reading smaller passages of religious scrolls/text, doing it in reverse would be unwise. First go broad and get the overall big picture

Remembering Overview

- Why is remembering second?

  Its second because after you learn something you'll want to remember it to make it stick to use in your life when you are away from the textbook

- What is Parkinson's Law?

  If you have infinite time the task just expands to fill the time, so work expands so as to fill the time available for its completion.

  If something must be done in a year, it'll be done in a year. If it must be done in six months, then it will. Parkinson's Law should not be used to set unreasonable deadlines.
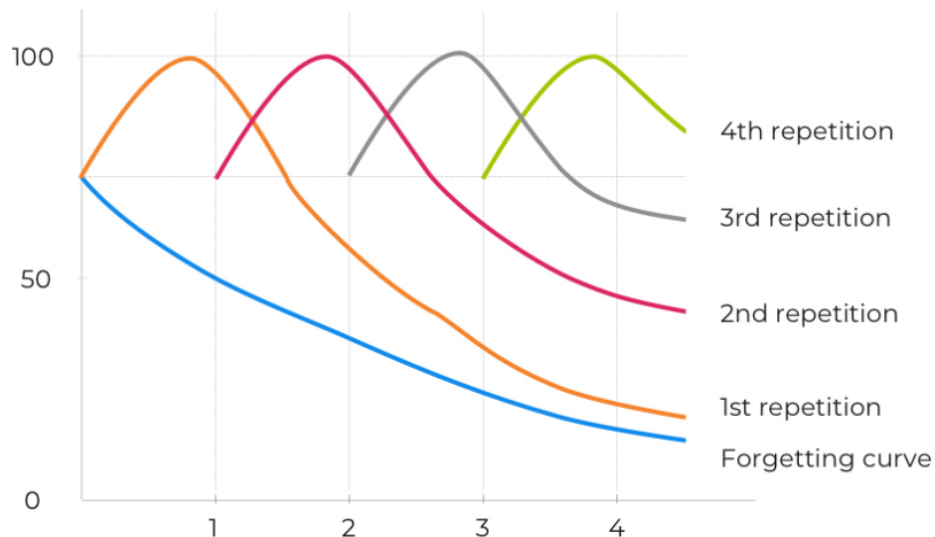
Spaced Repetition

- What is spaced repetition?

  Going back over what you already understood by practice recalling information over multiple days, weeks and months down the line.

- Why do we do spaced repetition?

  To combat the forgetting curve. This is the rate at which things we have learnt are forgotten over time. By spacing out our repetitions over a period of time, the rate that we forget things is longer. We are trying to flatten out the curve in the diagram below to be more like a straight line. The more we repeat a topic the longer it takes to forget that information.

- How important is spaced repetition?

  It is the second most important aspect of efficient studying. (Recall is first)

- Why does spaced repetition feel difficult?

  If its easy, just like smashing out songs you already know how to play on guitar you're not learning anything new as its completely passive. When you have to try hard to recall something challenging thats when its vital, no point recalling something on the same day as its to easy.

Retrospective Version Timetable

- What is a retrospective revision timetable?

  You decide what you will study on the day based on what topics you've done in the past and the rating you gave yourself last time you did it.

A	B	C	D	E	F
Implicit vs Explicit	20/04/2015	22/04/2015	12/05/2015	13/05/2015	20/05
Recollection vs Familiarity	20/04/2015	15/04/2015	18/05/2015	20/05/2015	21/05
Semantic vs Episodic	20/04/2015	15/05/2015	18/05/2015	20/05/2015	Saturday
STM vs LTM	20/04/2015	03/05/2015	04/05/2015	13/05/2015	18/05
Episodic Buffer	12/05/2015	13/05/2015	17/05/2015	22/05/2015	Saturday
Decay vs Interference	12/05/2015	13/05/2015	18/05/2015	Saturday	Tuesday
PFC	12/05/2015	13/05/2015	18/05/2015	Saturday	Sunday
Semantic Hub - ATL	13/05/2015	16/05/2015	22/05/2015	Saturday	
Semantic Memory Organisation	14/05/2015	16/05/2015	21/05/2015	Saturday	Sunday
Episodic Memory - Encoding spec	18/05/2015	21/05/2015	Saturday	Sunday	
Working Memory - Loop and Pad	Saturday	Sunday	Tuesday		
Cognitive or Affective	15/05/2015	Sunday			
Anchoring Explanations	Saturday	Sunday			
Affective Judgments	Saturday	Sunday			
^ ESSAYS					

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- Why use this type of timetable? (3)

  1. Don't have to prophesies into the future, since you don't know when you'll be free
  2. See an scoped overview of all your subjects so you'll know the syllabus well
  3. Encourages you to think of your studying in terms of topics rather than in time, less pressure
- Why is planning in the future what topic you'll study difficult?

  You don't know how much of a topic you know as you're not looking at the syllabus's grade result, just a time-slot on your dairy. Unless you make a separate system. You're only studying it because your dairy says so, not because it's your lowest area. How can you predict your spaced repetition results in the future?

- How do use this method?

  1. Scope the subject down the spreadsheet into subcategories.
  2. After you study 'understand' one subcategory mark the date you did it
  3. The next day you look down and see what has not been done yet, do it, then mark, until it's all done at-least once.
  4. After you have done them all once, revise again (recall using the questions you made for yourself in the understand section) and mark the date
  5. Rate traffic light colour coding or stars or (1) numbers next to each topic on the date you did it
- When looking at your scoped topics to test yourself on, which do you prioritise?

  When you go to recall again, prioritize the topic you are least happy about, if the

exam was tomorrow. Probably the lowest scoring or red level topics

- What does this timetable ensure?

  Overtime we develop an understanding of every signal topic in our subject. As we are tackling the thing we find most difficult is picking the study that we are weakest on.

The Power of Interleaved Practice

- What's the difference between interleaving vs blocked practice?

  - Interleaving: Split up time within one study session itself. Mix up your practice as you go along within the same study session so little bit of one topic
  - Blocked practice: Involves studying one topic very thoroughly before moving to another topic.

- Explain interleaving (3)

  - It involves retrieval practice, it is **more difficult than blocked practice, therefore making it more effective**. It prevents your brain from making short cuts and applying the same method. If you mix problems up, your brain now has to think ok what problem solving method are we using now. The principle behind this is that as soon as something becomes easy you're not longer learning effectively.
  - Each practice attempt is different from the last, so rote responses pulled from short-term memory won't work. Cognitive psychologists believe that interleaving improves the **brain's ability to differentiate**, or discriminate, between concepts and strengthens memory associations.
  - Improved ability to **transfer** learned knowledge to different contexts.

- How did a famous hockey coach use this method to get great results for his team?

  There was a famous hockey coach(can't remember his name) that employed the method of instantly switching to something more difficult Just as his team just started to grasp how to do something well .His players don't really like it, but in the long term they always win so they are happy

- How does this impact practice?

It impairs practice session performance making the study session more difficult, but exam/life performance long terms are better. Its really hard to switch up during a study session.

Should You-Re-Read You Notes?

- <u>Why should we not reread?</u>

  Its low utility, it "feels' ' productive as you have the illusion of competence, seeing the information in-front of you but its not actually doing anything. Just because you spend time with the materials doesn't mean it's going into your brain. Recall instead.

- <u>When is the only valid time to passively reread notes?</u>

  If you're tired and only intended to get your rep in if you're on a current streak and don't want to miss a day of study.

How to Highlight/Underline Effectively

- <u>Why do we insist on highlighting?</u>

  We most probably saw a parent or teacher highlighting/underlining something complex as a child and accosted that with effective studying. At that young age you probably saw them as a grand wizard and one way hope to replicate the same effects

- <u>What do we think will happen when highlighting?</u>

  To isolate parts of text that stand out to us in hoping it will somehow stand out in our minds later on. It wont. Instead, just use it to quickly find something in a book later on when building active recall questions

- <u>Whats the only real benefit to highlighting?</u>

  Categorising different information in a book. Locating within the book excerpts to turn into active recall questions later down the line. Makes a book look "studied" and not new/untouched.

- <u>How can you separate different highlighting practices (4)</u>

  Colour 1: general stuff (specific book instructions, key figures, new word definition etc)

  Colour 2: insightful (interesting information but not that valuable so it doesn't make it

into an active recall question for later)

 Colour 3: active recall question (key information to remember and store in long term memory)

 Colour 4: experimental evidence (psychology study such as The Orchid Hypothesis, too long to quickly turn into a active recall question later on so might require some additional time to come back to, simply because its long)

How to Use Flashcards Properly

- What don't you need to do with flashcards?

 Make questions for easy things like where is the heart or how many legs does a spider have

- Why shouldn't we go straight into flashcards after a first pass through the material?

 Because it might stick anyway, especially if its new and insightful. Only make a flashcard if you absolutely have to, If it doesn't stick using Notion, turn it into a flashcard for that solid Anki algorithm. Notion toggle feature would probably be quicker for generic memory things.

- When will you know a good time to create a flashcard?

 When it just wont stick and its proven resistant to retain that information or its really difficult.

- What are you building a collection of?

 Building a bank of things you got wrong or you know will be very difficult to remember, so when its time to prepare for an exam you can blitz through all the stuff you got wrong in one place

Mind Maps

- What are they?

 Concept in the middle of the page (tree) and arrows (branches) going out the middle to different subcategories then small sections (leaves) going out from that. A more visual way to scope the subject

- What is the main principle behind them?

Getting a visual broad outline of everything out your mind. Shows you where things fit in the bigger context/picture as a whole

- How can mind maps help with learning a syllabus?

  Doing a one page syllabus, put the entire course structure out on a mind-map to see whats going on. This is helpful for when you're revising it you can go through one at a time. Do i know everything about x,y,z?

- Think of a second way you can use them

  Can you recreate it from scratch without looking, active recalling it all out on paper is a great exercise. Fill in gaps afterwards, then do it again throughout the year to see if you can do it fully

- Think of a third way you can use them

  When learning a new topic to see what you already know so you can throw it all down visually so you know your weak areas and where to study

- How can you store them?

  Buy a cheap little notebook or use iPad

The Active Recall Framework

- How do we create recall questions?

  Go through lecture notes and a textbooks alongside and convert everything into questions. You can have hundreds of 100 questions. Screen grab everything into the answers to save time, don't write it out yourself thats to slow, but quicker than copy and paste. Have the book on the left and Notion on the right.

- What is a big misconception in learning?

  In order to study we have to put stuff into our brains, but actually its flipped on its head if you look at the evidence. The actual way to make something stick is by retreating information from our brains to makes it stick rather than trying to put it back in

- How many times does it take to hear something over and over to internalise something new?

- <u>What do you do if you don't know the answer when going through a set of questions?</u>

  Colour code, so next time if your short on time just go through ones marked in red

  So you only do questions you know you got wrong with different colours

- <u>Do you need to write the answer to the questions</u>

  If you know you'll know the answer to it you don't need the answer so it can be blank. Or if you know you can look it up somewhere else super quick don't bother it will slow you down

- <u>What is the gym analogy for active recall?</u>

  If you bench 80 kilograms your muscles will grow thats hard work. If you bench 1 kilogram (a bag of feathers) they wont because its easy. The same when retreating information, we want it to be hard so the "muscle" in our brain grows. When its difficult we are actively forming connections in our brains and when we sleep them connections get solidified.

- <u>When creating Anki/Notion questions, textbooks are long and broad how do we deal with this?</u>

  We want to compress all the information down while keeping just enough context that it makes sense to you personally

How to Use Anki

- <u>How do you see the Anki decks?</u>

  The backs of cards you want to learn religiously. Its an extension of your brain so you can upload it to your brain. Its serious, ok i MUST have this stick in my mind, where as Notion is like generic info

- <u>What's the different between the first, second and third pass through a Anki deck?</u>

  First pass: You'll know the facts in isolation

  Second pass: You can link cards together in your mind and build the overall model overtime

- What's a good analogy for describing the different pass throughs of Anki decks?

  Each time you watch a complex film you realise and understand a bit more

- How to treat front and backs of cards?

  1 memorable concept per card. A concept can be deep and have lots of things in it but will help you reduce the total number of cards and make synthesising it within your mind on the spot easier.

- What's the disadvantage of sometimes having 1 fact per card?
  1 fact can be too small , meaningless, lots of disconnected fragmented information is hard to recall and re synthesise on the spot. If everything is split up you lose the bigger picture understanding

Focusing Overview

- Why is this(Focusing) an important topic?

  We need to actually sit down and do the work in the first place.

  Good work life balance. We want to make sure we are taking appropriate breaks, not burning out and avoiding overall bad work life balance which may lead to health problems down the line. Don't be on a never ending treadmill of learning

Motivation is a Myth

- If you want further reading into the topic of motivation what book could you read?

  The Motivation Myth - Jeff Haden

- What is motivation, when and why do people say you typically "need" it?

  We only need motivation to do the things we don't want to do. Usually they are things that require short term pain to achieve long term gain. We never need motivation to watch Netflix or hangout with my friend.

We say I need motivation to work or go to the gym because they are not pleasant in the short term but lead to good results in the long term

We overweigh short term benefits over long term benefits.

- **When scrubbing the word motivation from our vocabulary what should we replace it with?**

  The concept of discipline

- **What does the saying 'screw motivation, what you need is discipline' mean**

    - Recognise that the way you feel is completely inconsequential to weather you do the thing or not. Be disciplined and do it
    - There's no need for us to have an infantile mood, ie, feel like doing the thing before we do the thing. Just do it
    - A 3 year old bases its decisions on what it feels like, an adult bases it on what it needs to be doing
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- **Instead of thinking "how do i get myself to feel like doing what i decided to do" how should we think?**

    - The proper question is "How do I make my feelings inconsequential and do the things I consciously want to do without being a little bitch about it?".
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- **When we see discipline in a new way, what are we essentially trying to do and why?**

  The point is to cut the link between feelings and actions, and do it anyway. You get to feel good and buzzed and energetic and eager *afterwards*.

- **What is a good way to motivate yourself when thinking you can't be bothered to do something?**

  How punishing is the alternative for not doing it (make sure there is an alternative for not doing: staying in a job you hate, not achieving your potential)

- **How should we treat our hobbies, interests, skills in online courses etc we want to progress in but don't feel like doing?**

  The same as jobs. Even if we don't like it we should still go do the thing with discipline

- **How does time pressure affect motivation?**

  If you have time pressure you will get more done, otherwise you'll just procrastinate all day "Parkinson's Law"

- When you are in holiday mode how can you change the focus to study mode?

  Change your environment. If you are used to waking up at 9am and being lazy in holiday mode, change it to 8:30. Try going to the coffee shop or make some environmental or temporal change.

- What is the best optimal strategy?

  The best strategy study routine is the one you will do. If you sit in silence for 8 hours you won't want to do it again as its less pleasurable meaning you may do it less

Pomodoro

- Why should we take breaks? (2)

  Enter diffuse mode to allows all areas of the brain to function

  Maintain focus over the long term

- When is it best to use this method?

  To fight procrastination. When something is so boring but necessary.

- Are the pomodoro cycles set in stone, what is a good quote to remember how to treat them?

  Nope, you don't need to follow it rigidly. It's more like the pirate's guidelines. If you need an extra 5 mins that's fine

- What app can you use?

  Forest, only on mobile devices though. May consider it on my iPad as my phones always dead

Music

- Music with lyrics?

  Messes with working memory in the part of the brain that processes words, but the most enjoyable

- Music without lyrics?

  Middle ground performance, middle ground fun. Try to avoid music you know the film/game to word for word or else youll be thinking of that part of the film/game

- No music at all?

  Best. Might get a slight edge in performance but makes studying so much more pleasant if you play instrumental music. Slight hit in productivity is ok, whats the point in getting 0.05% better if you hated the entire journey

- How does environment factor in test results?

  You need to mimic the real life environments you'll be applying this knowledge in. If the only way you can yourself to study is to listen to Evanesce and Nirvana then when the going gets tough you probably wont have that. You need mental toughness of your own mind to be able to focus and perform without that aid.

Work-Life Balance

- When recognising your priorities, what should you consider?

  Physical and mental health. Studying is not at the top of that.

- When is it ok for life to be out of balance?

  A week before an art test or interview. We can always neglect our friends or family but readdress the miss balance later on if its a very high stakes opportunity

- Read: http://www.wisdomination.com/practical-discipline/

BONUS: Burnout

- What does taking time out mean?

  Recalibrating yourself, think was is not working draw a new plan and see what is working and what's not

- What analogy can we use to treat our lives better in regards to avoiding burnout and life balance?

Treat it like a single player game. You're not competing with anybody else, you're just playing by yourself, taking breaks when you need to, studying when you need to. Ultimately you're going to die of old age at best, so remember to check in with your long term goals and how much time you have on earth.

- I don't want to be the richest man in the graveyard - Steve Jobs

  OR

  Treat it like you're a company and the product your offering is studying. How can we produce this product using as little money and employees as possible to optimise the amount of money we have best. Are you so burnt out and no longer enjoying it? Are the employees (yourself) taking too many sick days off?

  - Why is it a bad idea to compare ourselves to others?

    You only see their good points. You can't compare yourself to others because they don't have the same personality, traumas, health difficulties and upbringing and these things make different people capable of different things and stress tolerances. It's like comparing a Porsche to a Tractor.

- How do you identify signs of burnout?

  Are you enjoying the stuff you are doing alongside the work as much as you used to? Eg playing an instrument, sports, friends. Are you not enjoying them because you are just tired and need to reset and be you alone. Study bleeds over into other areas of your life and sours everything else you're doing. Mental ram has been overflowing, you need to purge it

BONUS: Eating

- How can snacks help when studying?

  If it makes the studying process more enjoyable and is not at a dramatic cost to your health it's ok.

BONUS: Procrastination

- How can we prevent procrastination, other than using the pomodoro method?

  Remove the temptation. Prevention is better than cure. Make what you are doing a

bit more interesting. Check if you can add snacks or music

- <u>Why is it good to put off more enjoyable things at the end of the day?</u>

  Delayed gratification. It's going to feel so good when you finally watch 1 episode of your favourite Netflix show or an hour of The Witcher in the evening because you haven't just given in and gone straight to it. You earn it

- <u>If you are going to procrastinate what is a poor but good enough thing to do</u>

  Things that indirectly benefit you. Looking at famous paintings or successful artists work for fun but knowing you're seeing that and thinking oh gosh I need to do my own study in order to be even close to this person's level. Even if it's avoiding what you need to do you can see where it goes, then you start studyIng

- <u>How to look at your natural procrastination quest</u>
  The areas you are naturally drawn to as a form of procrastination are usually a good indication of what you want to do. If you naturally vibrate to the frequencies of doing something else perhaps you find that interesting.