

Revision techniques that work



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This information guide includes details of revision techniques that work. They have all been tested under laboratory conditions and then in field studies. They have been tested against the following measures:

1. **Speed of recall** – how quickly you can remember something
2. **Accuracy of recall** – that what you remember is correct
3. **Amount of recall** – how much you can remember
4. **Duration of memory** – how long the memories will last

This guide also includes details on those techniques which have been shown not to work. There are several techniques which remain popular because they are easy, even though they have small, zero or negative impacts on learning.

Revision techniques that work

Revision techniques that are effective share certain characteristics:

- 1.** They require you to use the information in an effortful way. Looking at notes requires minimal effort and does not use the information. In contrast, completing a past paper under timed conditions uses the information in an effortful way which means your brain is pushed to create a stronger memory connection. Testing yourself forces your brain to create stronger longer-lasting memories.
- 2.** The task requires the recall (remembering with no help, e.g. no notes or books) of information and not just recognition (knowing you have seen something before, this doesn't mean that you 'know' the information, and can recall it).
- 3.** They encourage reflection on how much and how well you know something. This is called meta-memory, which means you reflect not just on what you know but how confident you are that the knowledge is correct and has high detail (it is not vague).
- 4.** Processing the information at a deeper level of understanding leads to stronger memory connections. Deeper levels of processing are where you think about and reflect upon the meaning of the information (e.g. I think 'this' means 'this' to me and I can see how it influences my life through...). Shallow processing looks at very basic information, like colour, and doesn't require any real thinking or effort.

An important note about learning:

There is a large difference between recognising something and being able to recall that same information under exam conditions. Some people confuse recognition with recall and think that because they recognise something they know it well enough for the exam.

- Example of recognition: while looking through a book you recognise the information in a topic and think 'I know that' (this does not mean you 'know' it well enough for an exam).
- Example of recall: being able to remember information without any cues (this is what exams test), for example, listing what you know on a blank piece of paper.

Technique 1. Spaced repetition (aka learning schedules):

When you space the repetitions of a topic out over time your brain creates a stronger memory for the information. Learn something on **day 1** – then test yourself and fill in the gaps the **next day**. Test yourself again **a week later** and fill in the gaps again. Then test yourself **a few weeks** after that and you should find that you have remembered most of the information. You will also have created a very permanent memory. Each repetition should involve some form of testing of your knowledge.

Technique 2. Blank page method – a great technique for testing your knowledge AND pushing your brain to build stronger memories. This technique also helps you to identify what you can easily remember and what you do not know well enough yet. The blank page method is easy to do – all you need is a blank piece of paper and two different coloured pens. This is most effective when you want to test yourself on something you learnt the previous day (don't cheat by looking at your notes just before testing – it doesn't help your learning). With the paper in front of you write down everything that you can remember on a topic. When you have finished use your notes to go through and add in what you have missed out (it helps to do this in a different coloured pen). You can time yourself and see how long it takes – to get everything down. This lets you practice a few times and see if you can speed up your recall. Remember faster recall in the exam means you have more time to write and to think about the difficult questions.

Technique 3. Method of loci – a very powerful way of encouraging long lasting memories through the use of lots of connections to different locations, people, objects, colours, noises, smells, and humour. The effort put into creating the multiple connections is what makes this technique work so well. Plus you also have to practise the story of your Method of Loci several times which fits into the spacing repetitions out.

Method of Loci: the basics

Step 1: You need to create a list of all of the things you are going to learn. Split the list into sections so that each section contains between 6-15 items. Each item is a 'chunk' of information and could cover a researcher and their results, or a historian and their key points.

Step 2: Pick a location with enough rooms to place all of the items in different places. The location should be somewhere you know really well. You are going to practice thinking of each item in that location until it becomes a permanent memory.

Step 3: Try to move clockwise around the location (i.e. always go left when you can). This rule makes it easier

to know where you are in the journey through the Loci. In each room also follow the same rule of moving clockwise around the room. With practice this quickly becomes easier and you don't even have to think about it. In addition, the structured approach will help you to focus on the content.

Step 4: Draw a map of the location and label where things have been placed. This helps you to build up a more complete memory of the Loci and the items.

Step 5: For each item make what is happening as vivid as possible. Make it weird and strange; make it funny; use all of your senses: colour, sound, smell, taste, and touch. Include your friends and family. Include famous people, songs, films, and characters. The more detailed you make the story for each item the more likely it is you will remember the item.

Step 6: Once you have created your Loci practice it at least once a week. Very quickly you won't need any notes to help you. Try teaching your Loci to a friend, this has been very successful for many of our students. To boost the effectiveness of your Loci try teaching it to someone else.

Technique 4. Mind maps (done properly) – a visual technique that takes more effort than you might have previously been told. A mind map can be called a mind map when you can recall the whole thing by closing your eyes and thinking about it – it literally is in your ‘mind’. If you don’t get to this level you have only drawn a diagram (sticking it on the wall isn’t going to help). It takes effort and practise to embed a mind map in your memory – often at least three versions of each mind map will need to be created for the information to become long lasting. Each version would normally be more complicated. **The first version** might be a simple mind map with the keys words. **The second** might include colours you have carefully chosen with slightly more detail written with each heading. **The third** usually includes colours and pictures (for more connections). Then the mind map is practised on blank pieces of paper until you can accurately recall the whole map at least a week after you last tried to learn it.

Technique 5. Revision cards – these are a good technique because they are portable and can easily be given to a friend/parent to test you. Try to avoid writing whole essays on them – three key points is a healthy amount to put on a revision card. Perhaps the best technique is to write the name of a key theory/definition/fact/event on one side and then on the other the three or four key pieces of information you should know for the exam. This allows you to test your own knowledge and to let someone else test your knowledge. The testing part is essential to making revision cards work. Just making them will not help that much and nor will just looking through them. If you want to push your brain to make stronger connections make sure you leave at least a day (a few days and up to a week would be better) between looking at the cards and testing your memory for the information.

Technique 6. Socratic reading – this is an old technique that works very well and is a traditional approach to getting the most from reading. It is not quick and if you read at speed you are definitely not getting much from it. Socratic reading means that you read slowly, questioning and interrogating the information you are reading to get maximum understanding from it. Part of Socratic reading is writing small questions in the text as you think of them while reading. Sometimes these questions are accompanied by your thoughts and answers to the question. Socratic reading is a **reflective process** where you carefully analyse the information to see if you understand it – to see if you agree with it – to see if it fits with other knowledge that you have. You might note down on the text how it has made you feel. This technique maximises the amount you will recall from reading any text – its enemy is speed reading where a student tries to find an answer quickly, without bothering with understanding and contemplation.

Technique 7. Annotating your work – Similar to Socratic reading annotation of your work forms part of a **reflective process** where you engage with your own writing or work. You might note down on a piece of work which parts you are confident about and which parts you are worried about. You might note those sections where you think your knowledge is inaccurate. This process of reflection encourages your brain to form connections for the knowledge and helps to build self-understanding and awareness. In science we call this meta-memory: not just knowing facts but also having an awareness of how confident you are that the facts are correct.

Technique 8. Acronyms and acrostics (for small lists of simple information) – is a brilliant technique for remembering simple lists in an order. The most common acrostic example people use is Richard of York gave battle in vain for the colours of the rainbow. The acronym for the colours is Roy G Biv. While it is a very handy way to remember lists, try to avoid learning lots of information this way as it can become very confusing.

Technique 9. Past exam papers under exam conditions – Frequent practise of past exam papers under timed conditions meets all of the criteria for creating long lasting memories. The bonus is that you also develop an understanding of the exam questions. Examiners can only ask so many different questions on set topics. This means that if you have attempted many of the past papers you will have already seen some of the questions that could come up in your real exam. If you add in the use of mark schemes you can really start to develop what researchers call ‘test-wiseness’, which is linked to achieving higher grades than expected. Finally, exam boards write Examiner Reports on each exam advising teachers and students on the common mistakes previous students have made. If you really want to push your test-wiseness these reports are essential reading. Examiner reports and mark schemes can be found on the exam board websites.

Technique 10. Timed essays under exam conditions – are an old favourite that really do work. It is important that you complete practise essays under timed conditions (time limit and no text book or notes). You can plan your essay using your notes and books but then you should put the notes and books away and wait at least an hour (ideally the next day - or even a week later) before testing yourself. Then ask your teachers for feedback on content, style and structure. This technique will help you build both factual knowledge and test-wiseness. By the way if you use your notes and your books it is so easy that very little learning is taking place.

Technique 11. Transformations – are a technique that can work in several different ways in many different subjects. The goal is to take a piece of information and turn it into something else. Done well this requires effort, creativity and reflection – all good things when you want to build strong long lasting memories. An example could be taking the parts of a key theory in Sociology and transforming the information into a list of strengths and weaknesses. Alternatively you could take the same information and write a story based on the themes, or an advice booklet. If you put effort into the ‘transformation’ your brain is pushed to build long lasting connections for the information.

Other techniques – there are many other techniques that work and can be useful in building long lasting strong memories. All of them share the characteristics of effort and repeated practice. If a technique is really working for you, and you have tested yourself to make sure it is working, then keep doing it. However, when you test yourself, if it is obvious that something isn't working change your technique.

Things that don't work or are damaging (and ways to make them work)

Poor technique 1. Visual, Auditory and Kinesthetic (VAK)

learning. This was never an evidence based approach. The only reliable evidence on VAK is that it doesn't work and may even damage learning. When you focus on only one type of learning your brain fails to make enough connections to lead to long lasting memories. An alternative approach (that does have evidence to support it) is to focus on learning using all of the learning styles: this is because you will have to work harder, which builds stronger memories, and you will have created more connections. If you only use the style you find easiest, your brain will have to work less hard and you will make weaker connections for each memory.

Poor technique 2. Highlighting is useful if you are highlighting key words, but that is it. Highlighting uses a very low level of processing and leads to virtually no learning. It is effectively a waste of time if used beyond identifying key words. The purpose of highlighting is to draw your attention to important information in the future. It is *preparation* for learning and does not count as part of learning itself. It should be used sparingly and with the knowledge that little learning is happening while you are highlighting.

Poor technique 3. Rereading your notes. Unless you are engaging in Socratic reading you will be learning virtually nothing. It is easy to do and feels like you are being productive but adds very little to your long term memories. This is because the information is not being used in an effortful way. Even if you do this many times the repetitions won't create the strong connections needed for long lasting memories.

Poor technique 4. Placing post it notes around your house and not actively trying to remember them when you are not in the house. If you do try to remember them when you away from home, this is the same as the method of loci. Again it is the testing part that is important- and it is also the bit that most people forget to do.

Poor technique 5. Mind maps that are just diagrams. Creating a mind map that you don't learn isn't learning, instead you have created a diagram. This is pretty much useless as a revision technique. You must learn the mind map. You will know you have learnt it when you can close your eyes and picture the whole thing hours after last looking at the mind map you have created.