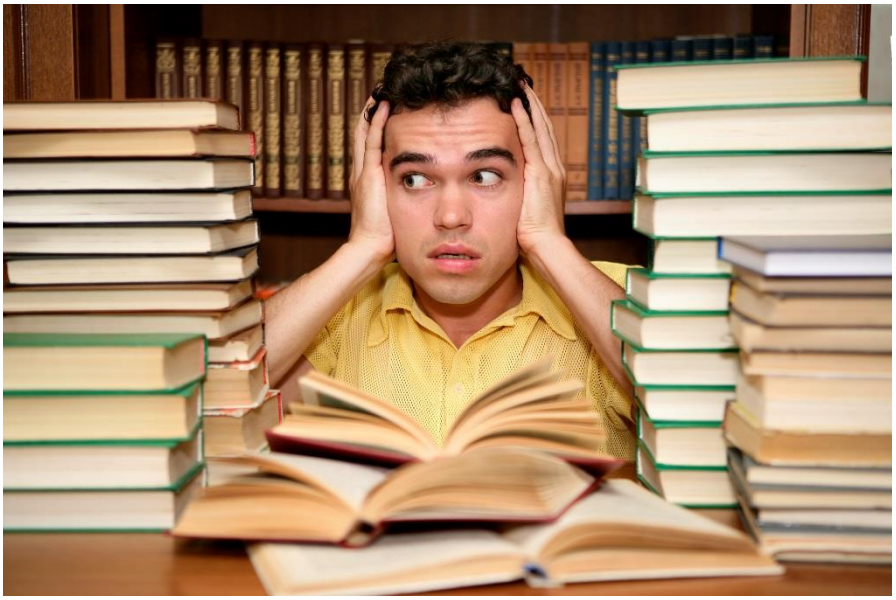
Effective GCSE Revision



Workbook

Recent changes GCSEs means the depth of knowledge you need for exams is considerably greater than previously and on top of that, you have two years' worth of study all examined at the end of Year 13. More than ever, it is vital that you are equipped with effective revision techniques that will allow you to meet your potential.

This book is designed to help you reflect on how you currently revise, identify good revision practice, and most importantly, come up with your own strategies that will work for you and the subjects you study.

GCSE exams focus on what you have learned, but effective revision requires knowledge of how you learn.

What methods of revision do you currently use?

How effective do you think your current revision methods are? What evidence do you have for this?

Identifying good and bad revision practice.

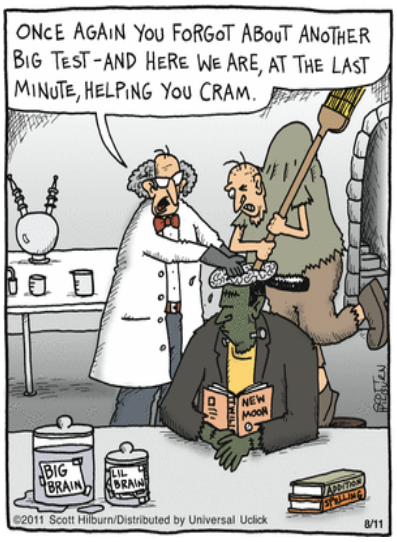
It's the night before her A Level Biology exam, and Jayne has just sat down to begin to study. She takes out her highlighter pen and begins rereading her textbook, marking it up as she goes along. She rereads the sentences that she feels are the most important and stays up most of the night, just hoping to get a good enough grasp of the material to do well in the exam. The study strategies she is using have been passed on to her by her friends, her teachers or that she simply took to on her own.

What examples of ineffective revision practice is Jayne exhibiting? Why do you think they are ineffective? Can you identify with any of these practices yourself?

Nathan knew that to revise properly he would need a technology 'black out'. With a little help from his father, Nathan made his bedroom more like an office than a games room during his GCSE revision. Each evening at seven o'clock, just after dinner, Nathan would switch off his phone and go upstairs to revise. First, he'd check his revision plan and get out what he needed before steeling himself to do some hard work. Strategy number one was always a quick flashcard challenge, mixing up his cards from his different subjects, before testing himself. Then Nathan would test himself on different topics, with past questions or simply seeing what he could recall with a blank piece of paper, before ticking them off his revision plan. Expecting his usual lull after forty-five minutes, Nathan would grab a drink and a biscuit (or three) before getting back to his revision. At the end of his revision session, he would end with the nightly ritual of returning to his revision plan to chalk up his victories and losses. He would repeat the same process every night.

What good examples of revision practice is Nathan using here ? Why do you think they are so effective?

A few general principles of revision:



1. **Manage Your Time**

The first rule is: **Don't cram!** When you have exams, time management becomes even more crucial. For GCSEs you need to have a deep understanding of the work you have covered over the last two years. This can only be achieved by good quality revision over time allowing you time to go over everything, carefully. You will retain knowledge and skills for a longer period of time if you distribute, or space out, your revision as opposed to cramming. This is the case even if you spend exactly the same amount of time using both methods. Unfortunately cramming can create the misconception that you are more familiar with the target material than is actually the case whereas distributed revision can appear slower and tougher. Do not be fooled! There is overwhelming evidence that spacing your revision out over a long period works best. Think a runner training for a marathon.

2. Plan a long term revision schedule

The most important part of your revision is to write a revision timetable. You will all have anywhere between two to four subjects to study for. You will need to focus on them all equally. You will need your revision broken up into manageable chunks accounting for the all-important down time too.

Our brains need to rest and this is a very important message to get across. Sleep and doing other activities you enjoy must be a part of the schedule. A nonstop approach to revision will cause you to lose focus and waste time, and potentially develop misconceptions that could cost you marks in the exam.

3. Target revision

As you approach your exams try to do more targeted revision. What do you know, what don't you know? Now is the time to focus on the sections you find harder. It is natural for us to avoid the things we find harder but this is a rather short-sighted approach. Using a RAG (Red, Amber, Green) analysis or something similar from the course specification, you could highlight the bits that need more focus on as the exams get closer.

4. Where and when?

It sounds obvious, but the working space you chose to revise in is important. It needs to be quiet with little or no interruptions. This isn't always home so going somewhere like a library could be a good option to get the hours in. Also, ensure that you have a technology blackout. Whilst it might be nice to keep in touch with friends via social media, it certainly won't help your revision.

5. Mix it up

Revision can get boring but a variety of activities can make all the difference. There is some value in writing up and organising your notes from the two years so this should be included, but look at imaginative ways of doing this. Using colour, tables, diagrams and mind mapping are all great ways to engage with work. This will allows you to go over the knowledge again but to also make the all-important connections between the different aspects of the course.

Analysis of subject content is a huge part of all GCSEs, often accounting for many marks in the final exams. It's important that you concentrate on the analysis of the subject as this is where the connections come from. There are many websites and useful tools on the internet too. Watching YouTube videos could be a great way to break up the monotony and consolidate learning.

Effective Revision Techniques

A good starting point is to look at the seminal work of John Dunlosky, professor of psychology at Kent State University in the USA. His 'Strengthening the student toolkit' research in 2013 analysed the effectiveness of various revision strategies used by students.

You can find the full article online, and it is well worth a read, but his main findings ranked the following techniques as follows;

Table 1 Effectiveness of Techniques Reviewed

Technique	Extent and Conditions of Effectiveness
Practice testing	Very effective under a wide array of situations
Distributed practice	Very effective under a wide array of situations
Interleaved practice	Promising for math and concept learning, but needs more research
Elaborative interrogation	Promising, but needs more research
Self-explanation	Promising, but needs more research
Rereading	Distributed rereading can be helpful, but time could be better spent using another strategy
Highlighting and underlining	Not particularly helpful, but can be used as a first step toward further study
Summarization	Helpful only with training on how to summarize
Keyword mnemonic	Somewhat helpful for learning languages, but benefits are short-lived
Imagery for text	Benefits limited to imagery-friendly text, and needs more research

Believe it or not, **re-reading your textbook has "little or no benefit" when you are studying for a test.** (Callender & McDaniel 2009; **see also John Dunlosky, "Strengthening the Student Toolbox: Study Strategies to Boost Learning", *American Educator* 37(3) (Fall 2013): 12–21.)**

Most students don't realise this, because they have an "illusion of competence" (that is, you think you know the material better than you really do) when they re-read notes and textbooks (Karpicke et al. 2009; Belluck 2011), especially when re-reading *passively* instead of *actively*.

Dunlosky's findings are clear; **you learn better and remember more from repeated testing** (from both in-class quizzes and from self-testing at home) than from repeated reading. So when your teacher gives you lots of quizzes or tells you to memorize basic facts, don't complain! That's the best way to learn and to remember what you learn.

Below are two examples of how you can test yourself. Apply these techniques to your subjects and see which ones work best for you.

Write Sample Essays & Do Sample Problems

For subjects in which you will be expected to write essays, either create plausible essay questions, or get copies of previous exams that have real essay questions on them. *Then write sample essays.* Although the essay questions that you find or make up may not be the actual ones on your exam, you will probably find that much of what you wrote in your sample essays by way of preparation for the exam can be recycled and/or adapted for the actual exam. You will then be in the advantageous position during the exam of not having to *create* an essay answer from scratch but being able to merely *recall* the main ideas from a sample that you have already written as part of your studying.

For subjects in which you will have to solve problems or write proofs, solve many sample problems from your textbooks or from previous exam papers. How will you know if your answers are correct? The best way is to form a study group of 2 or more fellow students: Solve the same problems and compare answers. If your answers agree, they're probably correct; if not, go to your teacher. It's always better when asking for help from a teacher to have a specific problem or question to ask.

Make "Flash Cards"

For any subject, you can make a set of "flash cards". You can create these from paper or use index cards. On one side, write a "question" that requires an "answer", e.g., the name of a theorem, a term to be defined, the statement of a theorem, etc. On the other side, write the answer, e.g., the statement of the theorem, the definition of the term, the proof of the theorem, etc.

Then *memorize* the questions and answers—*but* do *not* simply recite them by heart. Instead, *write down* the answers: cover the answers, and *write down* the answers. When you finish a page, check your work and repeat *writing* the answers to the questions you missed until you get them all correct.

Recent psychological evidence suggests that people learn better by making mistakes than by getting everything correct. So don't worry about getting some answers wrong! (See Roediger III, Henry L.; & Finn, Bridgid (2010), "The Pluses of Getting It Wrong", *Scientific American Mind* 21(1) (March/April): 39–41.

Why write, and not merely recite? Because you will have to *write* the answers in the actual exam; get used to writing them now Additionally it is easier to skip details when reciting, especially if you recite silently to yourself.

Two good websites to create electronic flashcards are; quizlet and brainscape.

Try to think of more methods that could be used to self-test and quiz your knowledge. Then apply them to your subjects.

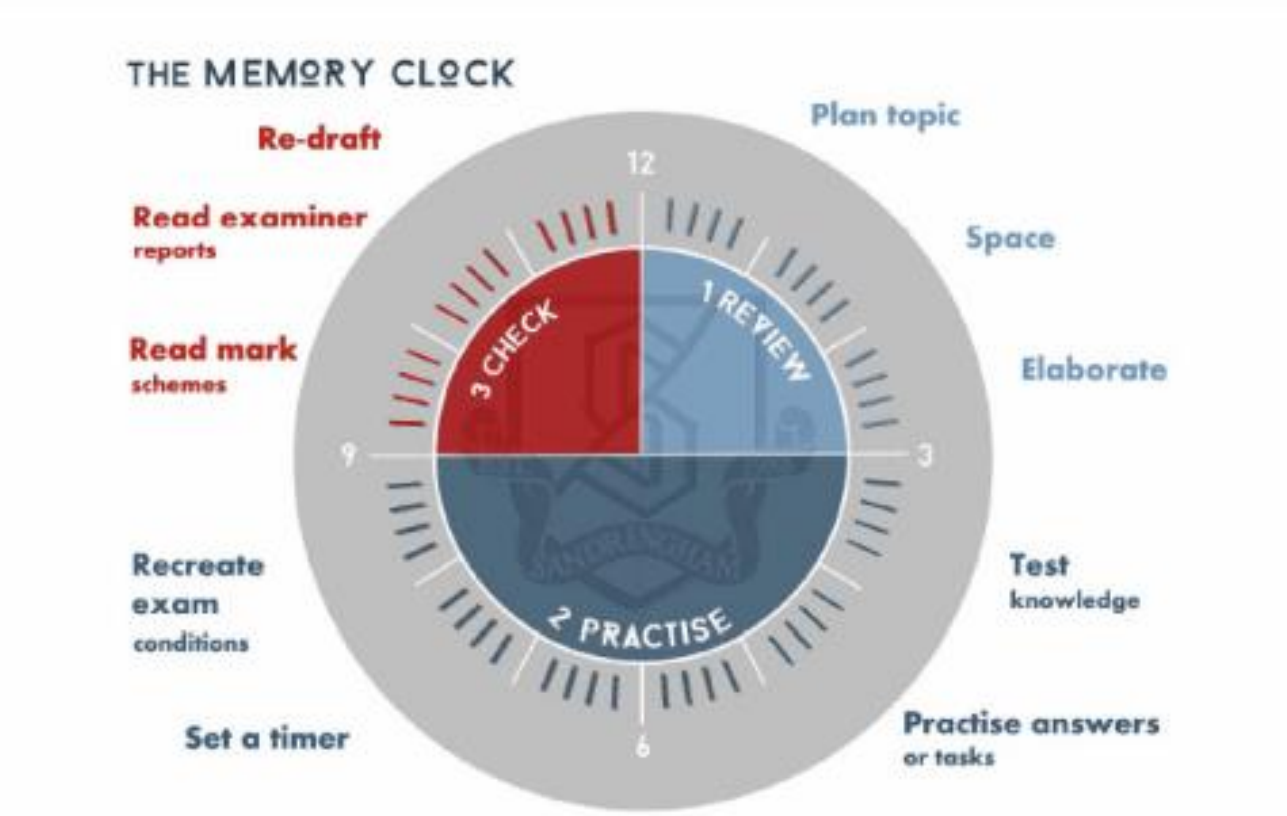
<u>The Memory Clock (</u>developed by Sandringham School)

The Memory Clock illustrates how you <u>could</u> spend an hour revising. Again, it is crucial to realise that more than **reviewing** is needed to commit information to memory. The clock is divided into

REVIEWING - look at what needs to be learned and plan how it should be learned (avoiding passive revision methods). This phase should last 15 minutes.

PRACTICING - low stakes quizzes, flash cards through to completing past exam questions. Focus on testing. The importance of this phase is shown by the need to devote 30 minutes on this.

CHECKING - checking of answers and work to correct misconceptions and mistakes. This should then be used to compile strengths and weaknesses to inform future revision plans.



Plan your own revision Memory Clock on a particular topic. Implement it and see how you find it. Reflect on this below.

Six Strategies for Effective Learning

LEARNINGSCIENTISTS.ORG

All of these strategies have supporting evidence from cognitive psychology. For each strategy, we explain how to do it, some points to consider, and where to find more information.

ELABORATION

Explain and describe ideas with many details

RETRIEVAL PRACTICE

Practice bringing information to mind

CONCRETE EXAMPLES

Use specific examples to understand abstract ideas

SPACED PRACTICE

Space out your studying over time

INTERLEAVING

Switch between ideas while you study

DUAL CODING

Combine words and visuals

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Useful web links:

https://www.learningscientists.org/ This website is the gold standard for revision! Put together by US cognitive scientists and aimed at students. It provides 6 general strategies that are proven by the science to work. All pupils wanting to put together an effective, and time efficient study strategy should visit the site.

https://s-cool.co.uk/ Contains lots of subject specific revision materials and guidance. You do need to register but it is free, giving you access to question banks, revision timetables amongst other materials.

https://www.senecalearning.com – fantastic revision website full of quizzes on all GCSE subjects and specifications. Contains clever algorithms that will track your progress and ask more difficult or simpler questions accordingly. It is also free!

Useful revision apps:

My Study Life: an app to use throughout the year, not just during your revision period. Track homework and assignments, and organise your daily and weekly schedule. Everything is stored in the Cloud for easy access on multiple devices. Available on: Play Store, iTunes

Timetable: if you're an Android-head, Timetable is one way to manage school life across your devices. The app even mutes your phone during lessons, in case you forget... Available on: Play Store

The revision app: Perhaps the most appropriately named revision app out there is, indeed, the Revision App. It sports over a million revision notes, flashcards and quizzes covering a wide variety of subjects from the GCSE and AS/A-level syllabuses. What's great about the app is the fact that you can tailor it to your needs and study level. (Android and iOS)