Aga Khan Education Board
for the United Kingdom | akeb@iiuk.org
Every Step, *together*

AKEB | Revision tips

2021

EARLY YEARS | PRIMARY | SECONDARY | TERTIARY | LIFE-LONG LEARNING

Start revising early

This means months, not days before the exam. Make a timetable to plan your revision and stick to it.

REVISION TIMETABLE

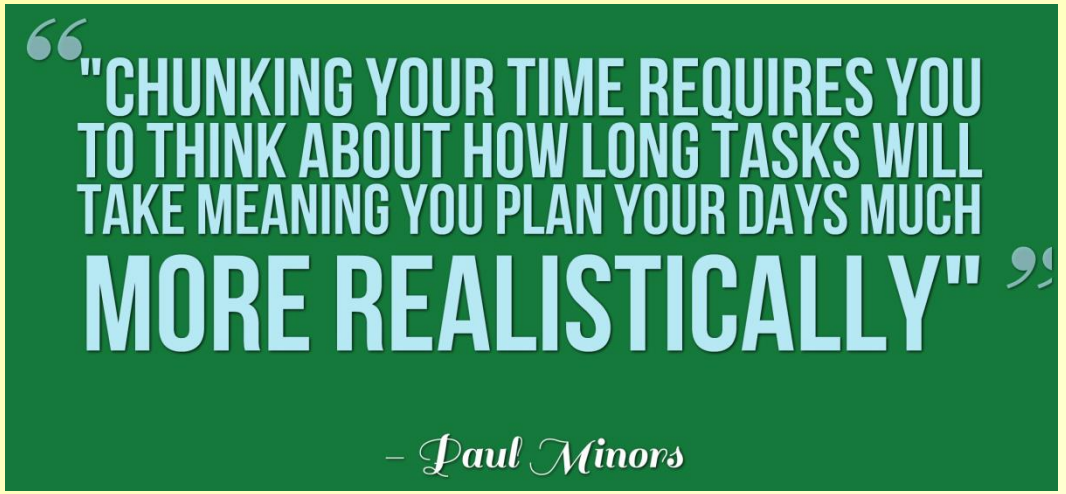
WEEK	Subject	Subject	Subject	Subject	Subject	Subject	TOTAL
Monday	Topic (1 hour)				Topic (1 hour)		2 hours
Tuesday		Topic (1 hour)	Topic (1 hour)			Topic (1 hour)	3 hours
Wednesday				Topic (1 hour)	Topic (1 hour)		2 hours
Thursday		Topic (1 hour)				Topic (1 hour)	2 hours
Friday			Topic (1 hour)				1 hour
Saturday			Topic (1 hour)			Topic (1 hour)	2 hours
Sunday		Topic (1 hour)		Topic (1 hour)			2 hours
TOTAL	1 hour	3 hours	3 hours	2 hours	2 hours	3 hours	14 hours

Don't be tempted to cram

Revise continually. Don't leave it a few weeks before an exam. Go through the work you're learning as you learn it. Go home from school and make flash cards, posters and so on. That way, when you come to the exam period, you already know most of it and it's just brushing up on final details. Try not to frantically cram for an exam, it is not as productive.

Plan realistically

There are limits to how much work you can effectively do in a day, in order to be able to balance leisure and revision and be as productive as possible.

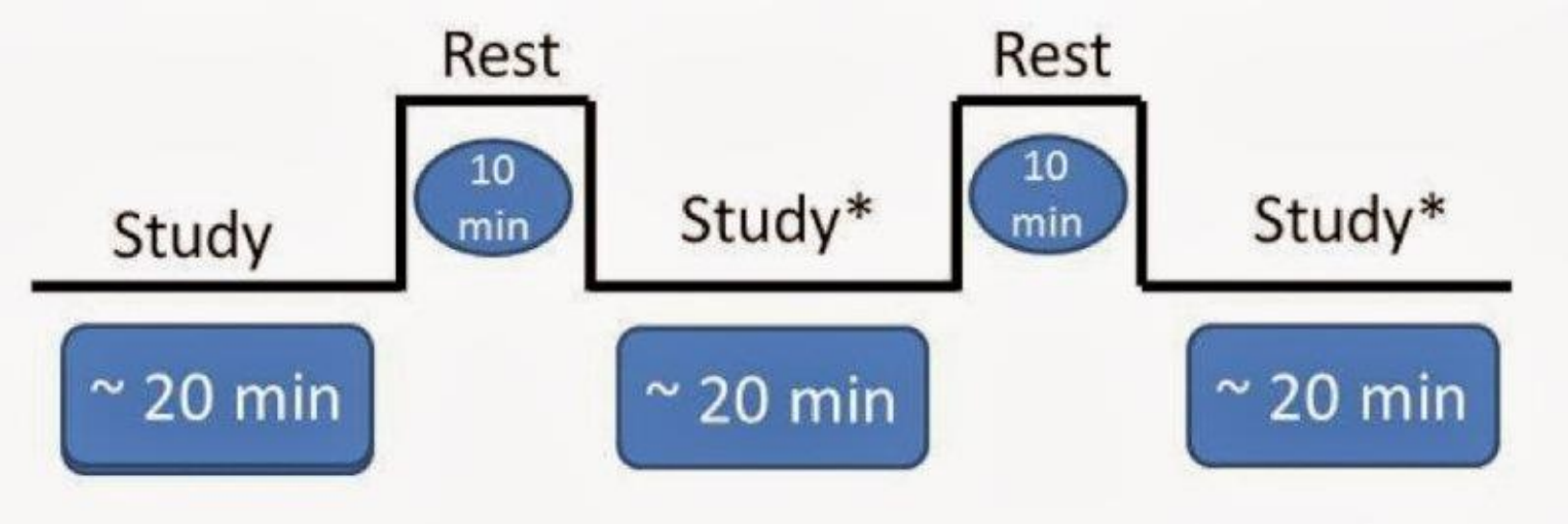


Set reasonable study targets that you know you can reach

Going over twelve chapters of trigonometry the night before a big exam is probably going to do more harm than good. Likewise, trying to revise all that Shakespeare several days before being tested might not be the best way to remember the information by test-time. Organize in the most effective way to remember the most important information you've got to study.

Make it more manageable

Break down your subject into ordered sections. Breaking down the exam into lots of little sections makes revision less daunting, and you'll know exactly where you stand in terms of how much you've done.



Don't turn yourself into a revision zombie!

If you only revise and do nothing else, you will turn into a zombie! It's really important that you keep time to do things you enjoy... like cinema, shopping, sports, frisbee, rock-climbing, making model planes, nose-picking, whatever tickles your ferret... When you're doing these things try to relax and totally forget about revision.

Plan for breaks

Remember you need regular breaks or else you could become worn out, which will affect your productivity. Ideally, plan a short (5-10 minutes) break every 1.5 to 2 hours, with longer breaks for meal times. When setting a revision timetable, remember to also reward yourself with break days or “cheat” days.

Find the right environment to revise

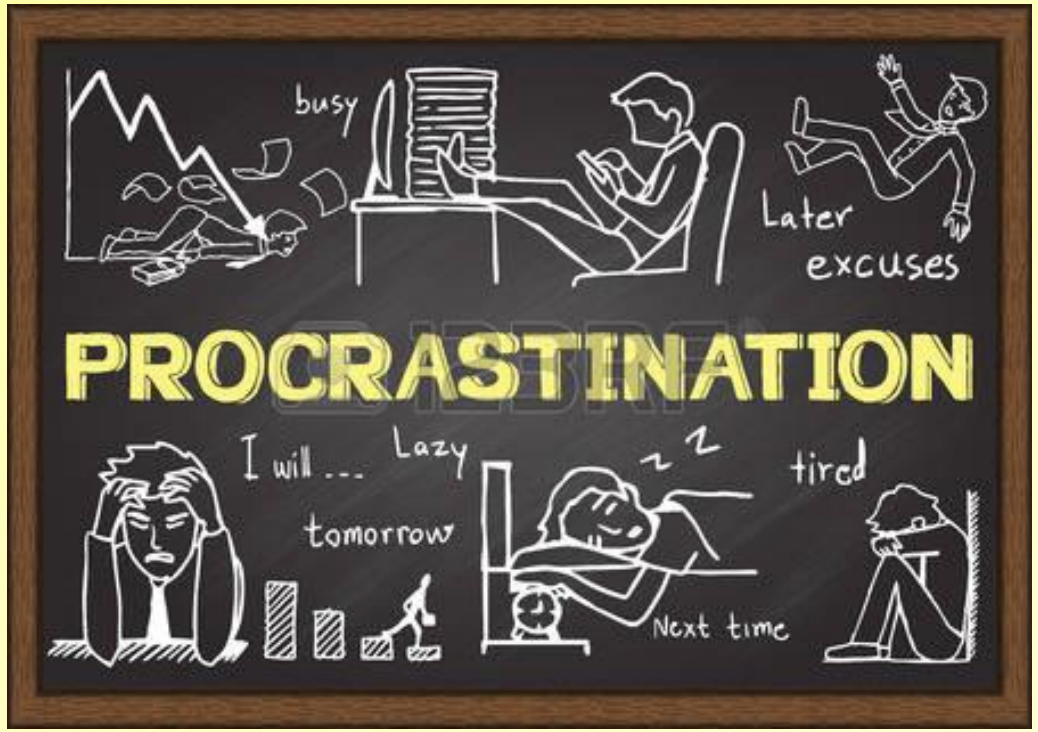
NOT in front of the TV. **NOT** listening to the radio. Music can sometimes be OK, but you need to find the right kind. It's got to be something that's just there in the background that you're not thinking about at all. Music without singing is better as you won't be tempted to dance around your bedroom like a big fool.

On study leave, start revising early

A good time is 9 am because you will get your work done much quicker and will have time to relax in the evening.

Don't put it off!

Another word for this is **procrastination**! And it means rearranging stuff on your desk, playing the guitar, thinking about the weekend, painting your toenails, etc... Just sit down at your desk and **GET ON WITH IT.**

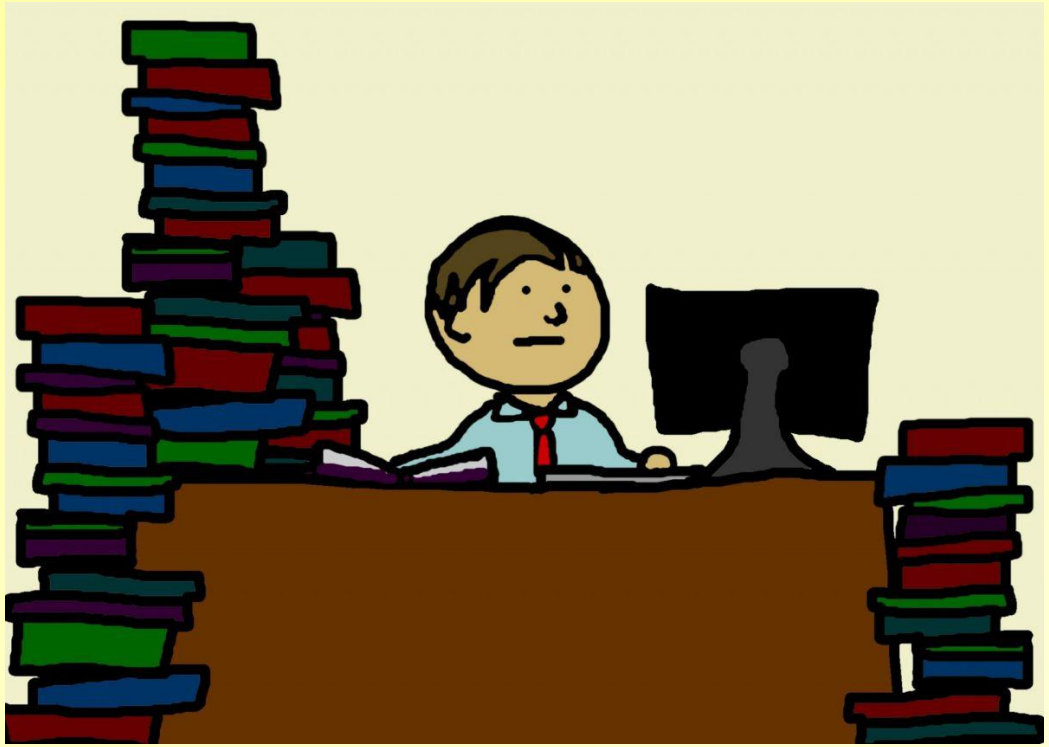


Ask the teacher

If you are missing any class notes, revision booklets or homework, make sure you ask your subject teacher. Teachers are likely to appreciate that you care about your revision by asking rather than missing out on some material important to the understanding of the subject.

Don't just read your work

If you just read your work, you will only take in about 5% of what you are reading! You need to **do something** with your notes in order for them to make any difference.



Variety is the Spice of Life!

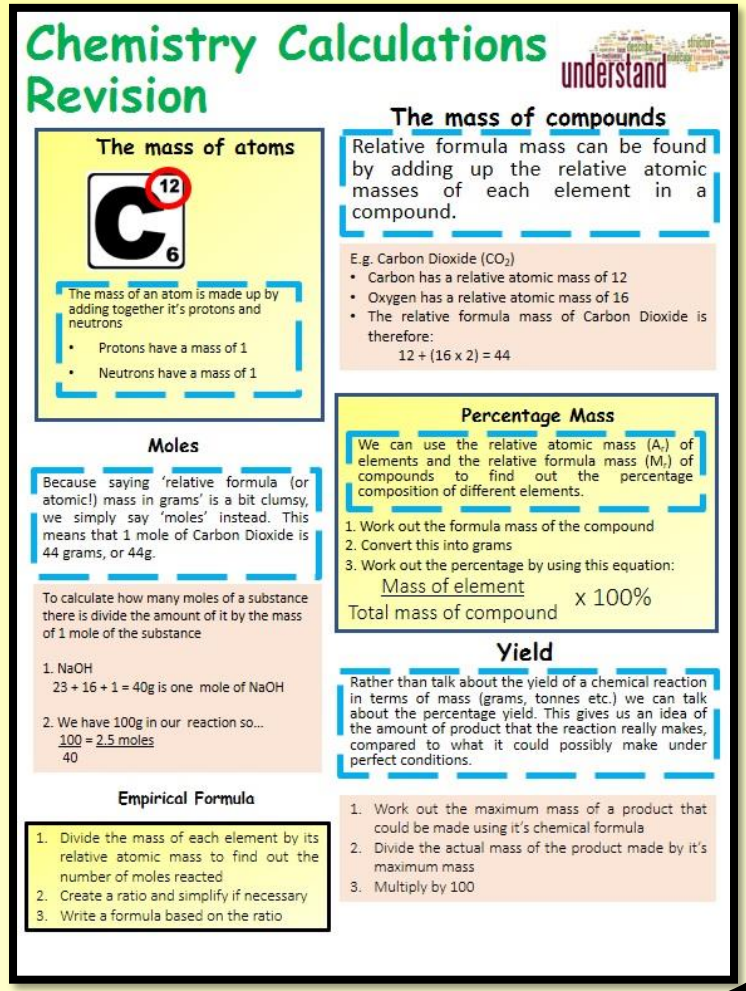
Mix up your study habits and methods by listening to podcasts, watching videos or documentaries, moving to a new study area or even something as simple as using different colours for your study notes.

Think twice about using highlighters

Despite being the favourite weapon of many students tackling revision, research suggests they don't work very well. People learn and recall information better if they connect it to other pieces of information. Highlighters don't do this, they isolate single pieces of information. Quite often, students end up highlighting whole chunks and passages of text, which can give the appearance of having worked hard, but is of little value.

Don't spend time making work look pretty...

This is just wasting time. For diagrams, include all the details you need to learn, but don't try to produce a work of art. Limit yourself to 2 or 3 colours so you don't get carried away colouring things in.

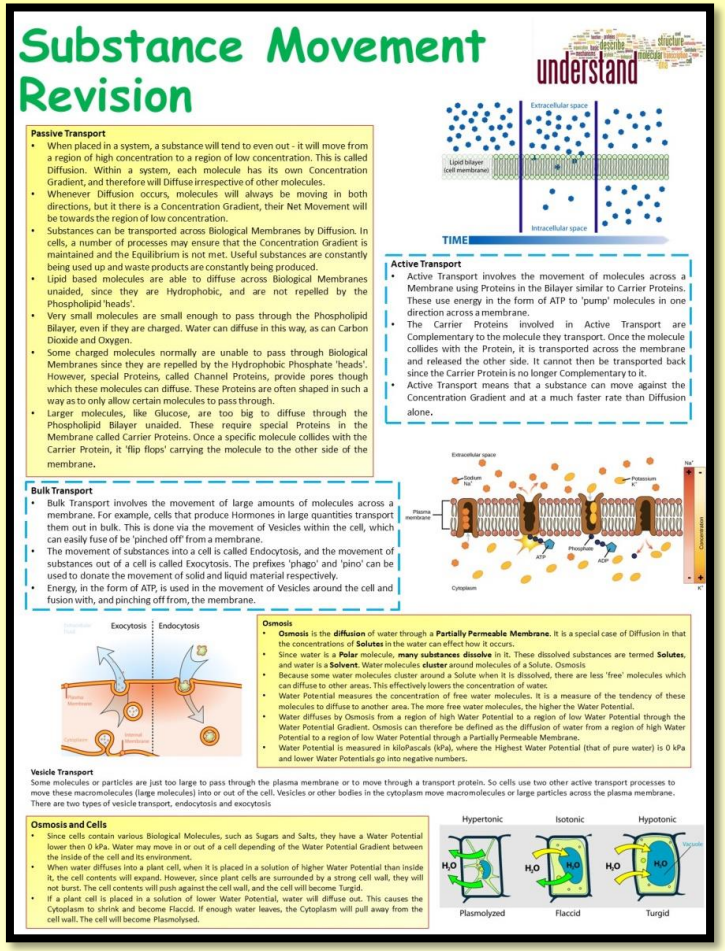


Collaborate with Classmates

If you find your coursework to be too much, why not divide the revision notes between trustworthy classmates and share your notes with each other. This will reduce the amount of workload you need to do to prepare for your GCSEs plus you will gain an insight into how other students learn.

Make summary notes

In order to help you digest what you read, a good study technique is to make summary notes as you go. You don't want to end up re-writing all your existing notes from class, but picking out the most important points or highlighting them with a pen can help you remember important facts and figures.



Substance Movement Revision

Passive Transport

- When placed in a system, a substance will tend to even out - it will move from a region of high concentration to a region of low concentration. This is called Diffusion. Within a system, each molecule has its own Concentration Gradient, and therefore will Diffuse irrespective of other molecules.
- Whenever Diffusion occurs, molecules will always be moving in both directions, but if there is a Concentration Gradient, their Net Movement will be towards the region of low concentration.
- Substances can be transported across Biological Membranes by Diffusion. In cells, a number of processes may ensure that the Concentration Gradient is maintained and the Equilibrium is not met. Useful substances are constantly being used up and waste products are constantly being produced.
- Lipid based molecules are able to diffuse across Biological Membranes unaided, since they are Hydrophobic, and are not repelled by the Phospholipid 'heads'.
- Very small molecules are small enough to pass through the Phospholipid Bilayer, even if they are charged. Water can diffuse in this way, as can Carbon Dioxide and Oxygen.
- Some charged molecules normally are unable to pass through Biological Membranes since they are repelled by the Hydrophobic Phosphate 'heads'. However, special Proteins, called Channel Proteins, provide pores though which these molecules can diffuse. These Proteins are often shaped in such a way as to only allow certain molecules to pass through.
- Larger molecules, like Glucose, are too big to diffuse through the Phospholipid Bilayer unaided. These require special Proteins in the Membrane called Carrier Proteins. Once a specific molecule collides with the Carrier Protein, it 'flip flops' carrying the molecule to the other side of the membrane.

Active Transport

- Active Transport involves the movement of molecules across a Membrane using Proteins in the Bilayer similar to Carrier Proteins. These use energy in the form of ATP to 'pump' molecules in one direction across a membrane.
- The Carrier Proteins involved in Active Transport are Complementary to the molecule they transport. Once the molecule collides with the Protein, it is transported across the membrane and released the other side. It cannot then be transported back since the Carrier Protein is no longer Complementary to it.
- Active Transport means that a substance can move against the Concentration Gradient and at a much faster rate than Diffusion alone.

Bulk Transport

- Bulk Transport involves the movement of large amounts of molecules across a membrane. For example, cells that produce Hormones in large quantities transport them out in bulk. This is done via the movement of Vesicles within the cell, which can easily fuse of be 'pinched off' from a membrane.
- The movement of substances into a cell is called Endocytosis, and the movement of substances out of a cell is called Exocytosis. The prefixes 'phago' and 'pino' can be used to donate the movement of solid and liquid material respectively.
- Energy, in the form of ATP, is used in the movement of Vesicles around the cell and fusion with, and pinching off from, the membrane.

Osmosis

- **Osmosis** is the **diffusion** of water through a **Partially Permeable Membrane.** It is a special case of Diffusion in that the concentrations of **Solutes** in the water can effect how it occurs.
- Since water is a **Polar** molecule, **many substances dissolve** in it. These dissolved substances are termed **Solutes**, and water is a **Solvent**. Water molecules **cluster** around molecules of a Solute. Osmosis
- Because some water molecules cluster around a Solute when it is dissolved, there are less 'free' molecules which can diffuse to other areas. This effectively lowers the concentration of water.
- Water Potential measures the concentration of free water molecules. It is a measure of the tendency of these molecules to diffuse to another area. The more free water molecules, the higher the Water Potential.
- Water diffuses by Osmosis from a region of high Water Potential to a region of low Water Potential through the Water Potential Gradient. Osmosis can therefore be defined as the diffusion of water from a region of high Water Potential to a region of low Water Potential through a Partially Permeable Membrane.
- Water Potential is measured in kiloPascals (kPa), where the Highest Water Potential (that of pure water) is 0 kPa and lower Water Potentials go into negative numbers.

Vesicle Transport

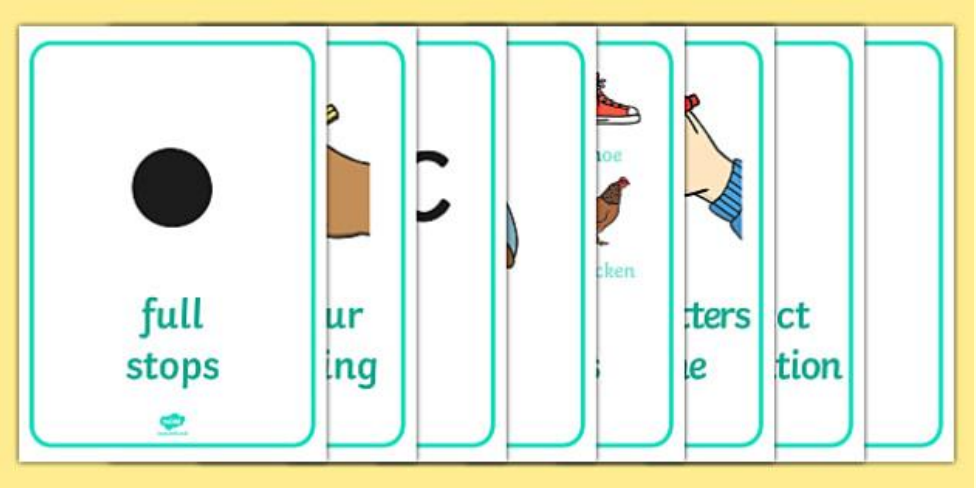
Some molecules or particles are just too large to pass through the plasma membrane or to move through a transport protein. So cells use two other active transport processes to move these macromolecules (large molecules) into or out of the cell. Vesicles or other bodies in the cytoplasm move macromolecules or large particles across the plasma membrane. There are two types of vesicle transport, endocytosis and exocytosis

Osmosis and Cells

- Since cells contain various Biological Molecules, such as Sugars and Salts, they have a Water Potential lower then 0 kPa. Water may move in or out of a cell depending of the Water Potential Gradient between the inside of the cell and its environment.
- When water diffuses into a plant cell, when it is placed in a solution of higher Water Potential than inside it, the cell contents will expand. However, since plant cells are surrounded by a strong cell wall, they will not burst. The cell contents will push against the cell wall, and the cell will become Turgid.
- If a plant cell is placed in a solution of lower Water Potential, water will diffuse out. This causes the Cytoplasm to shrink and become Flaccid. If enough water leaves, the Cytoplasm will pull away from the cell wall. The cell will become Plasmolysed.

Create visual reminders

Much like summary notes, visual reminders of important formulas, facts, figures and quotes can help you memorize essential information without having to actively study them. Try writing important information down on post-it notes and sticking them around your study area. Every time you sit down to study, you'll subconsciously absorb the information.

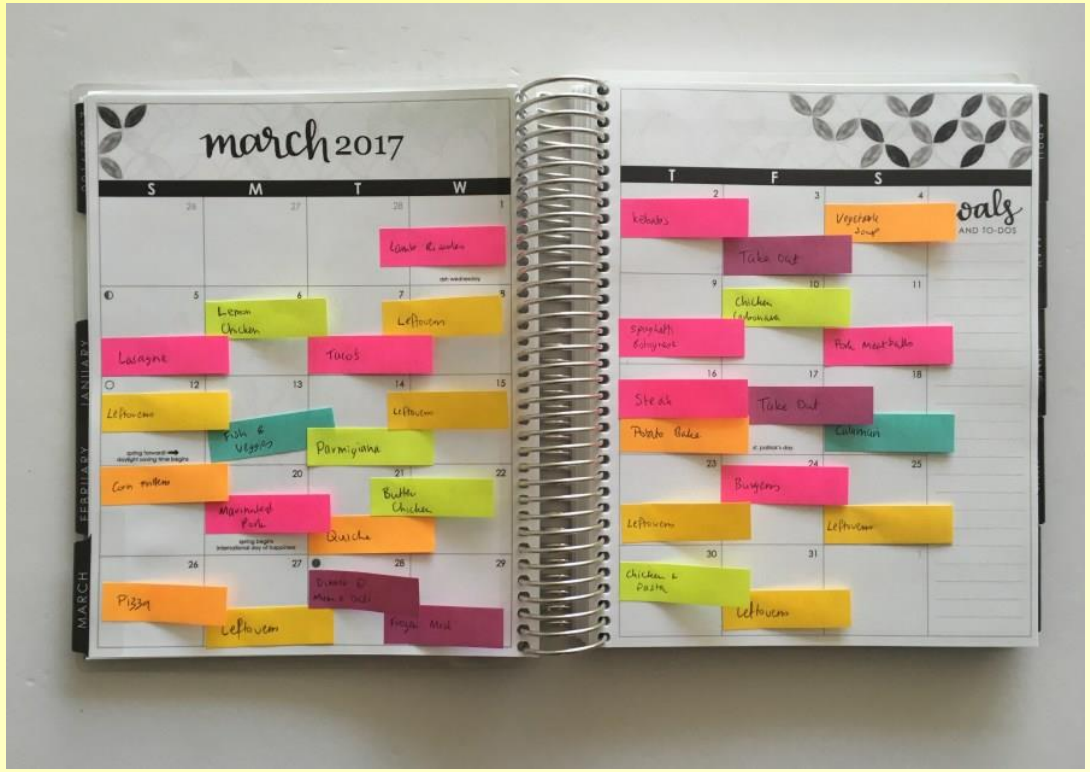


Flashcards

Start by writing out individual cards covering specific revision topics, with the title on one side and key bullet points on the reverse. Once done, you can follow the ‘look, cover, check’ method. Eventually you will become more confident and you can practice writing out everything you remember from each card, checking back afterwards to see how accurate the information written down is. This technique is a great way for your child to be able to retain lots of key facts almost instantly.

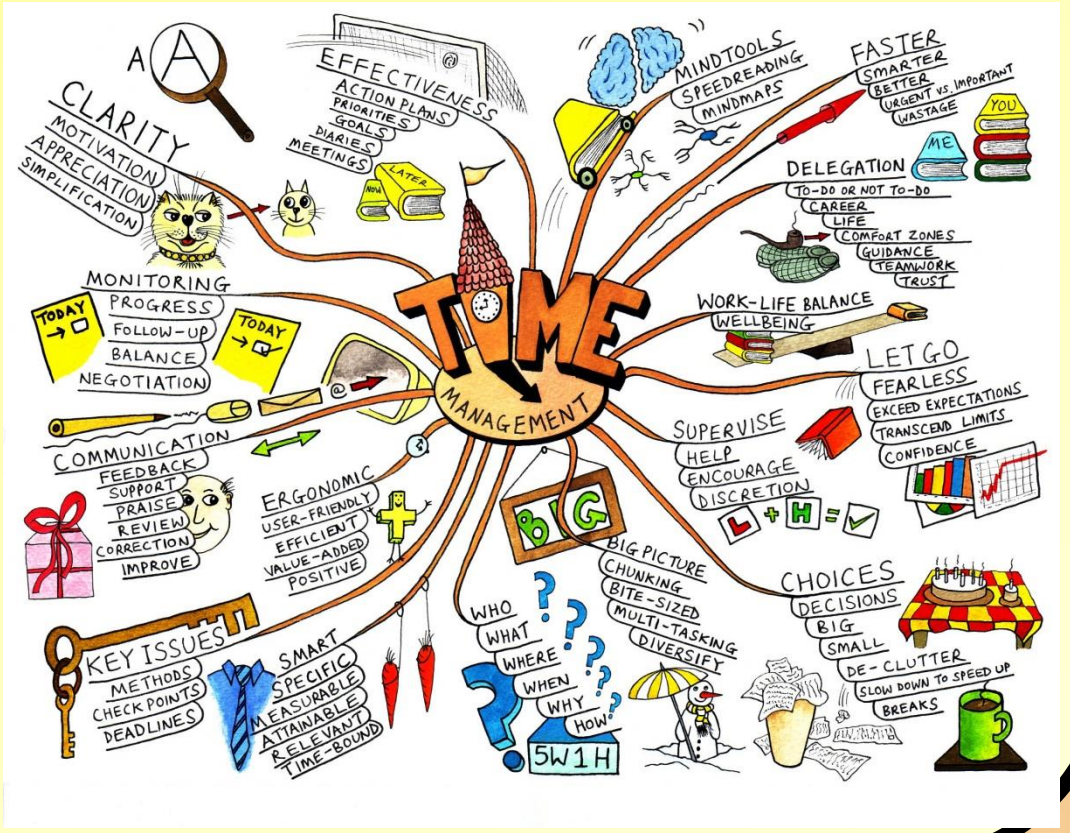
Colour-Coded Post It Notes

Create colour-coded sticky notes with important snippets of information written on for each subject. Not only is this an easy-peasy revision technique, but it's also super effective if you have quotes, statistics and dates that need to be remembered for your exams. Sticking them around your bedroom is also a great idea. Make sure you use **one colour per subject** so it's easy to differentiate between the subjects.



Use Mind Maps to Connect Ideas

If you find it difficult to remember tons of new study notes, **Mind Maps** may be the key to improving your memory. The theory behind mind mapping explains that making associations by connecting ideas helps you to memorize information easier and quicker.

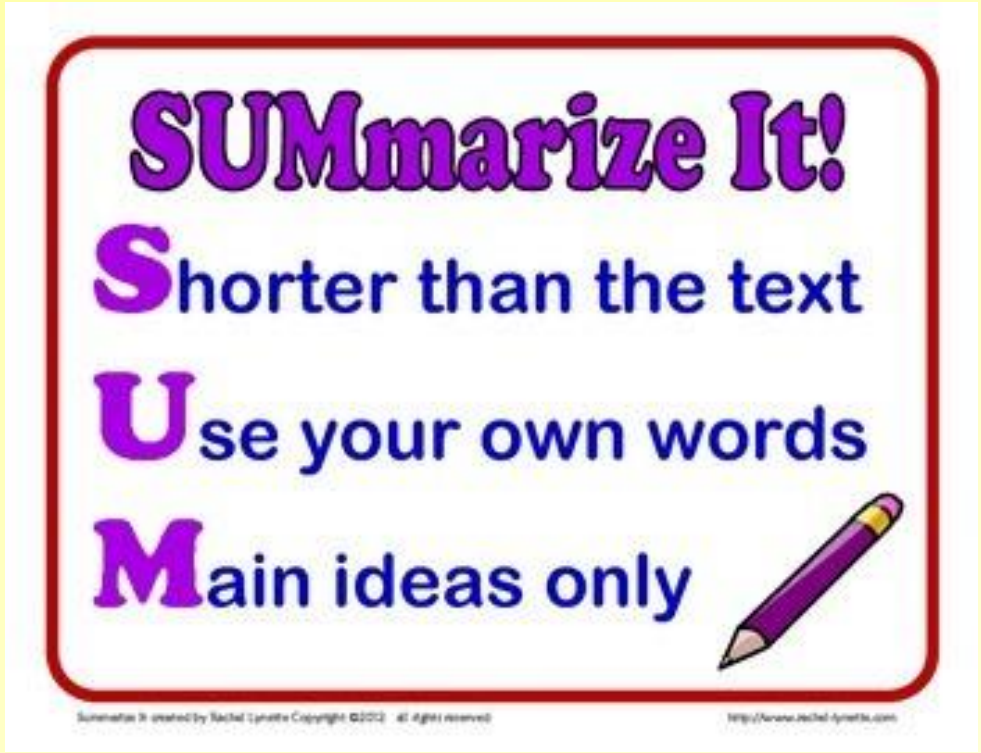


Mnemonic Devices

A mnemonic device is a method of memorizing something difficult by associating it with something easy to remember. For instance, you have probably at some point used the phrase ‘Richard of York Gained Battle in Vain’ to recall the order of the colours of the Rainbow.

Recall & Summarize

As you're studying, stop every few minutes recap what you've read. Write a short summary--a few sentences--in your notes, or at the bottom of the page. Use your own words. A good way of recalling is writing your notes down from memory then going back over them and filling in the gaps with another color of pencil or pen. You'll know the different color refers to information you might have trouble with.



The Day of Your GCSE Exam

The day of your exam can be the most stressful of the entire examination experience. Some tips for reducing anxiety include;

- Avoiding panicked friends.
- Giving yourself plenty of time to get to the exam centre.
- Eating a healthy breakfast.