Study and Research Tips

Many people believe that good students are simply smarter than everyone else. In reality, successful students often have better systems for learning. They organise themselves, use strategies to remember information, ask questions when they need help, practise regularly, and use mistakes as opportunities to improve.

There is no single "perfect" way to study. Different learning strategies work for different people, and the key is finding a system that helps you learn effectively and consistently.

As you move into senior school, the most valuable skill you can develop is not memorising more information, but learning how to learn. The strategies in this guide are based on educational research and cognitive science and are designed to help you study more effectively, remember information for longer, and approach assessments with greater confidence.

Study Tip 1. Spacing Effect

One of the most effective ways to improve your memory is to spread your study over time, rather than trying to learn everything in one long session. Scientists call this the Spacing Effect, and decades of research have shown that studying in shorter, repeated sessions leads to much better long-term memory than cramming the night before a test or exam.

Every time you revisit information, you strengthen the memory and make it easier to retrieve in the future. While cramming may help you remember information for tomorrow's test, spaced practice helps you remember it weeks or even months later.

Instead of studying for five hours the night before an exam, try reviewing the same material in shorter sessions over several days.

A simple way to get started is:

- 10 minutes today.
- 10 minutes tomorrow.
- 10 minutes next week.

Although the total study time is much shorter, your brain has multiple opportunities to strengthen the memory, making it far more likely that you'll remember the information when you need it.

Key takeaway: *Study a little, more often. Your brain remembers better when learning is spread over time.*

Study Tip 2. Use Retrieval Practice

Many students spend hours rereading their notes, highlighting textbooks or copying information. While these strategies can make you feel like you're learning, they don't do as much to strengthen your memory as retrieval practice.

Retrieval practice, sometimes called the Testing Effect, is based on a simple idea: your brain doesn't learn by putting information in, it learns by pulling information out. Every time you try to remember something without looking at your notes, you strengthen the memory and make it easier to recall in the future.

Rather than asking yourself, *"Have I read this?"*, ask, *"Can I remember it without looking?"* The effort of recalling information is what helps your brain learn.

Try these retrieval practice strategies:

- Close your book and write down everything you can remember about a topic.
- Answer practice questions before checking your notes.
- Use flashcards and try to recall the answer before turning the card over.
- Explain a concept from memory to a friend or family member.
- Draw diagrams, processes or mind maps without looking at your notes.

If you can't remember something, don't worry. That's not failure, it's feedback. It simply tells you what you need to practise next.

Key takeaway: *Don't just reread your notes. Challenge your brain to remember the information without looking.*

Study Tip 3. Use the Feynman Technique

One of the best ways to test whether you truly understand something is to try explaining it to someone else. The Feynman Technique is based on a simple idea: if you can't explain a concept in simple language, you probably don't understand it as well as you think you do.

Rather than memorising definitions or rereading your notes, pretend you're teaching the topic to a 10-year-old. To do this successfully, you'll need to use your own words, avoid unnecessary jargon, and explain ideas clearly and logically. If you find yourself getting stuck or relying on complicated terminology, you've identified a gap in your understanding.

The goal isn't to sound clever. It's to explain the concept so simply that someone with little or no background knowledge could understand it.

Try the Feynman Technique by:

- Choosing a topic you've recently studied.
- Explaining it aloud as if you were teaching a 10-year-old.
- Using simple language and examples instead of technical terms.
- Identifying any parts you struggle to explain, then revisiting those sections before trying again.

The easier it is to explain a concept, the more likely it is that you truly understand it.

Key takeaway: *If you can teach it simply, you understand it.*

Study Tip 4. Take Brain Breaks

Studying for hours without a break might feel productive, but your brain learns more effectively when it has the opportunity to switch its focus. Taking short breaks or changing the subject you're studying helps refresh your attention and allows your brain to process what you've just learned.

Changing what you're doing also encourages your brain to retrieve different information, make new connections between ideas, and maintain focus for longer periods. Rather than spending three hours studying one subject, try alternating between subjects or taking a short break before returning to your work.

Try these brain breaks:

- Switch to a different subject after 30–60 minutes of study.
- Get up and stretch or go for a short walk.
- Play with your pet or spend a few minutes outside.
- Grab a drink or healthy snack.
- Listen to a song before returning to your work.

The key is to take a short break that refreshes your mind without becoming a distraction.

Key takeaway: *Sometimes the best way to solve a problem is to step away from it for a few minutes.*

Study Tip 5. Learn From Your Mistakes

Making mistakes is a normal part of learning. The goal of studying isn't to prove what you already know, it's to improve what you don't know. Every mistake gives you valuable information about what to focus on next.

When you get a question wrong, don't just look at the correct answer and move on. Instead, ask yourself why you got it wrong. Understanding the cause of the mistake will help you choose the best strategy to improve.

Ask yourself:

- Did I forget the content?
- Did I misunderstand the question?
- Did I make a careless mistake?
- Did I run out of time?
- Did I not fully understand the concept?

Once you've identified the problem, use it to guide your next study session.

Every mistake is an opportunity to improve your understanding. The students who make the greatest progress aren't the ones who make the fewest mistakes, they're the ones who learn the most from them.

Mistake	Next Study Session
Forgot the definition	Make a flashcard and test yourself tomorrow.
Didn't understand the concept	Use the Feynman Technique to explain it in your own words.
Couldn't remember the diagram	Draw it from memory three times, then compare it with your notes.
Made a careless mistake	Slow down, highlight key words in the question, and practise similar questions.
Forgot the formula	Practise retrieving the formula from memory before attempting practice questions.

Key takeaway: *Don't ask, "What mark did I get?" Ask, "What should I learn next?"*

Study Tip 6. Write It Down

Although typing is often faster, research has consistently shown that handwriting is more effective for learning. When you write by hand, your brain works harder to process, organise and remember information, leading to stronger long-term learning.

Handwriting activates more of your brain.
Writing by hand engages regions of the brain involved in memory, language, movement and learning, creating stronger connections than typing alone.

Handwriting encourages deeper thinking.
Because handwriting is slower than typing, you're more likely to think about what you're writing instead of simply copying information word-for-word.

Handwritten notes improve memory.
Students who write their notes by hand generally remember concepts better than students who type notes on a computer.

Handwriting strengthens learning.
Forming each letter requires coordination between your eyes, hands and brain, helping to reinforce new information and improve long-term retention.

Use typing for assignments, handwriting for learning.
Typing is an excellent tool for drafting and submitting assignments, but handwriting is often the better choice when you're taking notes, summarising information or revising for exams.

Key takeaway: *Use a keyboard to produce your work, but use a pen to help your brain learn it.*

How to Answer Research Questions

Breaking Down a Research Question

One of the biggest mistakes students make is trying to answer a research question before they fully understand it. A good researcher starts by breaking the question into its key concepts.

Let's use the example:

Investigate the ways in which farmers are using Genetic Modification (GM) to meet food demands.

The first step is to identify the keywords in the question. In this example, those include farmers, Genetic Modification (GM) and food demands. These keywords become the starting point for your research.

Rather than searching the entire question, investigate each keyword separately. Creating a simple mind map helps identify the different aspects of each concept and highlights areas where you may need to learn more before beginning your research.

For each keyword, develop a series of questions that improve your understanding. For example:

- What is Genetic Modification?
- Who uses Genetic Modification?
- What different types of Genetic Modification are used in agriculture?
- How does Genetic Modification affect farming?
- What are global food demands, and why are they changing?

As you answer these questions, you'll develop a much broader understanding of the topic. This process also helps you identify gaps in your knowledge and refine your own research question.

Remember, your goal isn't simply to answer the teacher's question. It's to develop your own focused research question that explores one specific aspect of the topic in greater depth. The better you understand the background information, the easier it becomes to identify meaningful search terms and locate high-quality sources.

How to Find the Right Research

Once you have developed a basic understanding of your topic, you're ready to begin searching for academic research.

By this stage, you may have expanded your mind map, answered some background questions, or refined your research question. Before you start searching, identify the key concepts you want to investigate. These keywords will form the basis of your search terms.

Remember, the quality of your search results depends on the quality of your search terms. Think carefully about different words, phrases and synonyms that researchers might use to describe the same concept. Combining these keywords effectively will help you find more relevant and reliable sources.

It's also important to remember that searching Google Scholar is different from searching individual journal databases. Google Scholar searches across many disciplines and publishers, making it an excellent place to begin your research. Journal databases, however, allow you to search within specific subject areas and often provide more advanced search options. This guide focuses on using Google Scholar, but if you need to search discipline-specific databases, we recommend speaking with your teacher or librarian for further guidance.

Using Google Scholar

Google Scholar is a free search engine that helps you find academic articles, books, theses, conference papers and other scholarly publications. Knowing how to search effectively will help you find more relevant, high-quality research.

Use keywords, not questions.
Rather than typing your entire research question into Google Scholar, search using the key concepts you identified earlier. For example, instead of searching *"How are farmers using genetic modification to meet food demands?"*, search terms such as genetic modification, crop yield, food security, and agriculture.

Use quotation marks for exact phrases.
If you're looking for a specific phrase, place it inside quotation marks. For example, searching "genetic modification" will only return results containing those words together in that exact order.

Refine your search using the sidebar.
Use the filters on the left-hand side of the results page to narrow your search by publication year. This is particularly useful if you're looking for the most recent research or only want articles published within a certain time period.

Look for free full-text articles.
Not every research paper is freely available. If an article is behind a paywall, click "All versions" beneath the search result. Google Scholar will often show alternative versions of the same paper that have been uploaded to university repositories or authors' websites and are available to read for free.

Consider the number of citations.
Google Scholar shows how many times an article has been cited by other researchers. Articles with a high number of citations have generally had a greater impact on their field and are often good starting points for your research. Remember, however, that newer articles may have fewer citations simply because they haven't been published long enough to be widely referenced.

Understanding Abstracts

The abstract is a short summary of a research paper and is often the best place to decide whether the article is relevant to your research. Before reading the full paper, take a few minutes to read the abstract carefully.

Look for a clear aim.
A good abstract should clearly explain the purpose of the research or the question the researchers wanted to answer.

Look for a clear problem definition.
The abstract should describe the problem or issue being investigated and explain why it is important.

Look for a clear outcome or conclusion.
A good abstract should briefly summarise the main findings or conclusions of the study so you can quickly determine whether it is relevant to your research.

Check that the methods match the research question.
If the abstract describes the research methods, they should be appropriate for answering the research question. For example, if the study is investigating people's opinions, you would expect methods such as surveys or interviews. If it is investigating the effectiveness of a new treatment, you would expect an experimental design.

Key takeaway: *A well-written abstract should quickly tell you what the researchers wanted to find out, how they investigated it, and what they discovered.*