Memory and Effective Learning

Understanding Boys

Position Papers

Memory and Effective Learning

The influence of memory on study
Many students believe that their memory is like a library, that once something is learned, that knowledge is banked and there is no need to revisit it. The library metaphor also means that students expect that retrieving knowledge should be easy, just like taking a book down from the shelf.

Unfortunately, both beliefs are incorrect, and they actually disempower students when it comes to effective learning. When students learn how memory truly works, they are better informed to study and learn in ways that work with, instead of against, their brains.

Learning is a life skill
Learning is not only necessary at school, but also for life more broadly. Sports are far more technical than they used to be, hobbies have steeper learning curves and more facets and components. Throughout their careers, people are also required to learn more, at a faster pace, and retain knowledge for longer periods given the increasingly complex nature of work.

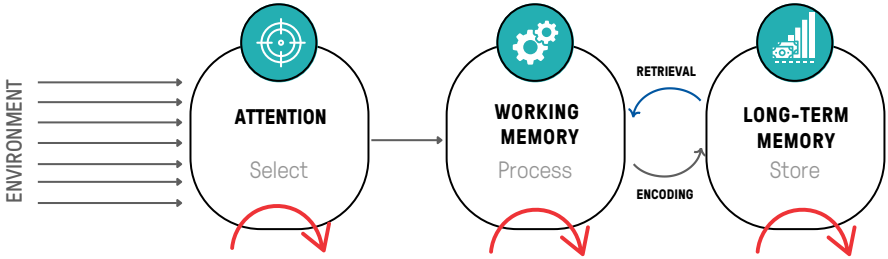
The more that students can learn about how to effectively learn and remember information, the more they are prepared to face learning and memory challenges during their schooling, and beyond the school gates.

What do the experts say?
There are two main ideas that students need to know when it comes to memory; the first is about how memory is structured, and the second is about how forgetting happens (and how to overcome it!).

The human memory system is made up of three key components; the environment, working memory, and long-term memory (Willingham, 2009).

The environment is the external world, it's where textbooks, teachers, classmates, and Google live. The environment is where new information comes that can be learned. When students pay attention to information in the environment, this attention brings that information into their working memory.

Working memory is the place where we do our thinking. Whenever we plan what we're going to say, ponder an idea, or make a plan, this all happens in our working memory.



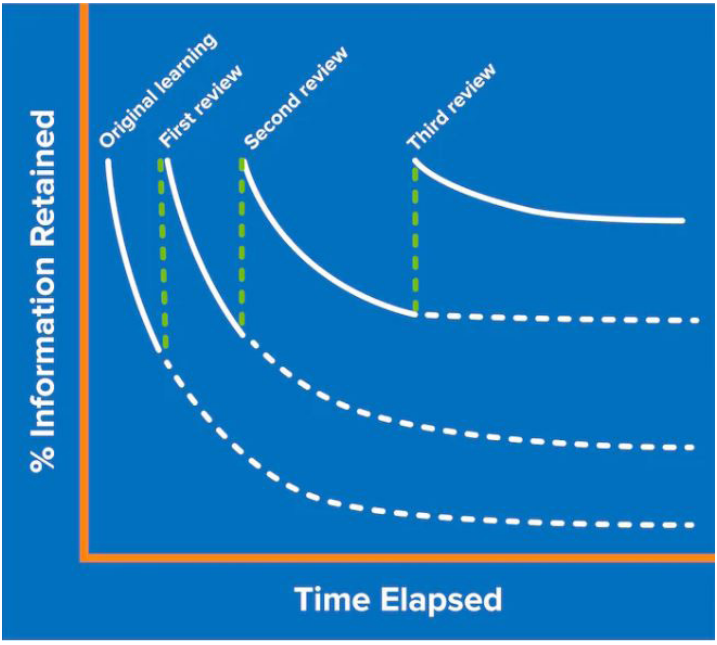
(Image from Evidence Based Education, 2020)

Unlike the environment, our working memory is limited, it can only hold about seven items of information at any one time (Miller, 1956). In this way, thinking is like juggling. We can only juggle a limited number of balls at a time, and it takes concentration and focus to do so. When we do focus on new information effectively and connect it to what we already know, we can learn it, and it begins to become embedded in our long-term memories.

For your child, this means that attention is a vital part of learning. During class, it is essential that students are engaged in listening to the explanations of the teacher and are thinking deeply about the content. Learners need to then link this new knowledge to skills they learned last lesson and last week. Teachers check for understanding through short activities (answer a question, write a sentence). This is a powerful process for maximising learning.

However, once something is learned and stored in our long-term memories that idea isn't static. It's often quite fragile, and the neural pathways representing that memory will degrade over time unless we reactivate them (Ebbinghaus, 1885; Wozniak & Gorzelanczyk, 1994).

We all forget based on a forgetting curve. If we don't revise information, we slowly forget it more and more (as in the white line below). If we do revise it regularly over time, our memories grow stronger (green lines below), and we forget more slowly after each retrieval.



How can you help?

• Ensure that your son's study environment is free from distractions (TV, Netflix, phones, etc).

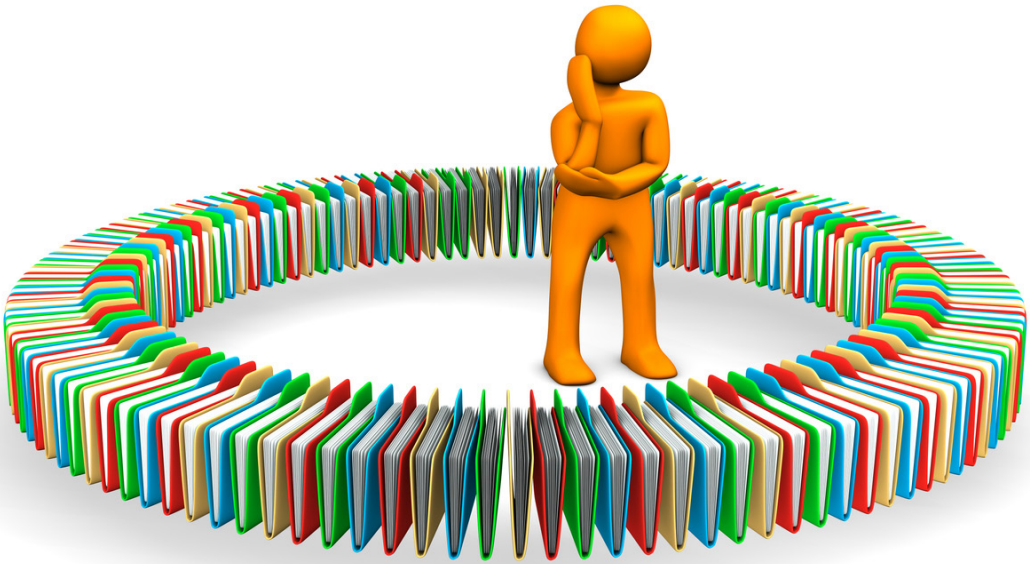
• Encourage the importance of paying attention during explanations when learning new concepts.

• Support your son to focus on learning whilst he is studying, and congratulate him for achieving increasingly long intervals of focused attention and work.

• Encourage your son to regularly revisit key ideas, and to spread this learning out over time. A good way to do this is to have him explain to you some ideas and concepts from prior topics and terms.

• Model focused and sustained attention in your own work with a distraction-free working environment and by demonstrating deep work and focus for extended periods.

If you would like to learn more, please visit the *Crowther Centre.*



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