

How to Form a Chunk – Part 2

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In this video I'm going to walk you through the basic steps behind how to make a chunk. Every discipline is a little different. Chunking in the subject of history, for example, is quite different from chunking in chemistry or in karate. In my explanations here, I'm going to lean a little more towards explaining chunking of mental ideas rather than physical body motions. But you'll see that the two approaches are closely related. So, whether you're learning something mental or something physical, you'll find some helpful ideas here.

The first step on chunking is simply to *focus your undivided attention on the information you want to chunk*. If you had the television going on in the background, or you're looking up every few minutes to check or answer your phone or computer messages, it means you're going to have more difficulty in making a chunk, because your brain is not really focusing on chunking the new material. When you first begin to learn something, you're making new neural patterns and connecting them with pre-existing patterns that are spread through many areas of the brain. Your octopus tentacles, so to speak, can't reach very well if some of them are off on other thoughts using up some of the limited slots in your working memory.

The second step in chunking is to *understand the basic idea* you're trying to chunk, whether it's understanding a concept such as continental drift, seeing the connection between the basic elements of the plot for a story, grasping the economic principle of supply and demand, or comprehending the essence of a particular type of math problem. Students can often synthesize the gist; that is figure out the main idea or ideas, pretty naturally. Or at least they can grasp those ideas if they allow the focused and diffuse modes of thinking to take turns in helping them figure out what's going on. Understanding is like a superglue that helps hold the underlying memory traces together. It creates broad encompassing traces that can link to other memory traces. Can you create a chunk if you don't understand? Yes, but it's often a useless chunk that won't fit in with, or relate to other material of your learning. That said, it's important to realize that just understanding how a problem was solved, for example, does not necessarily create a chunk that you can easily call to mind later. Don't confuse the "Aha!" of a breakthrough in understanding, with solid expertise. That's part of why you can grasp an idea when a teacher presents it in class, but if you don't review it fairly soon after you first learned it, it can seem incomprehensible when it comes time to prepare for a test. In math and science related subjects, closing the book and testing yourself on whether you, yourself, can solve the problem you think you understand, will speed up your learning at this stage. You often realize the first time you actually understand something is when you can actually do it yourself. It's the same in many disciplines, just looking at someone else's painting doesn't mean you could actually create that painting yourself, and just hearing a song won't give you the expertise you need to sing it in the same resonant fashion. >> [MUSIC] >> Just because you see it or even that you understand it, it doesn't mean that you can actually do it. Only doing it yourself helps create the neural patterns that underlie true mastery.

The third step to chunking is *gaining context*, so you can see not just how, but also when to use this chunk. *Context means going beyond the initial problem and seeing more broadly, repeating and practicing with both related and unrelated problems, so that you can see not only when to use the*

chunk, but when not to use it. This helps you see how your newly formed chunk fits into the bigger picture. In other words, you may have a tool in your strategy or problem solving tool box, but if you don't know when to use that tool, it's not going to do you a lot of good. Ultimately, practice helps you broaden the networks of neurons that are connected to your chunk, ensuring it's not only firm, but also accessible from many different paths. As you can see from this top down, bottom up illustration, learning takes place in two ways. There's a bottom up chunking process, where practice and repetition can help you both build and strengthen each chunk, so you can easily access it whenever you need to. And there's also a, a sort of a top down big picture process that allows you to see what you're learning and where it fits in. Both processes are vital in gaining mastery over the material. Context is where bottom up and top down learning meet. To clarify here, chunking may involve your learning how to use a certain problem-solving technique. Context means learning when to use that technique instead of some other technique. Doing a rapid two-minute picture walk through a chapter in a book before you begin studying it, glancing at pictures and section headings, can allow you to gain a sense of the big picture. So can listening to a very well organized lecture. These kinds of activities can help you know where to put the chunks you're constructing, how the chunks relate to one another, just as you see here, with the image of the man in the car. Learn the major concepts or points first. These are often the key parts of a good instructor or book chapter's outline, flow charts, tables, or concept maps. Once you have this done, fill in the details. Even if a few of the puzzle pieces are missing at the end of your studies, you can still see the big picture. So there you go!

Summing it up, chunks are best built with focused attention, understanding of the basic idea, and practice to help you gain mastery and a sense of the big picture context. Those are the essential steps in making a chunk and fitting that chunk into a greater conceptual overview of what you're learning. But there's more.

I'm Barbara Oakley. Thanks for learning how to learn. [BLANK_AUDIO]