

Directions:

1. Highlight your confusion.
2. Demonstrate evidence of a close reading.
3. Write a 1+ page reflection

## 12 Things We Know About How the Brain Works

Source: <http://theweek.com/article/index/248669/12-things-we-know-about-how-the-brain-works>

Here are 12 things we know about how the brain works from *Brain Rules*.

### 1. Exercise boots brain power

Wondering whether there is a relationship between exercise and mental alertness? The answer is yes. Just about every mental test possible was tried. No matter how it was measured, the answer was consistently yes: A lifetime of exercise can result in a sometimes astonishing elevation in cognitive performance, compared with those who are sedentary. Exercisers outperform couch potatoes in tests that measure long-term memory, reasoning, attention, problem-solving, even so-called fluid-intelligence tasks. These tasks test the ability to reason quickly and think abstractly, improvising off previously learned material in order to solve a new problem. Essentially, exercise improves a whole host of abilities prized in the classroom and at work.

### 2. Your brain is a survival organ

The human brain evolved, too. The brain is a survival organ. It is designed to solve problems related to surviving in an unstable outdoor environment and to do so in nearly constant motion (to keep you alive long enough to pass your genes on). We were not the strongest on the planet but we developed the strongest brains, the key to our survival. The strongest brains survive, not the strongest bodies. Our ability to understand each other is our chief survival tool. Relationships helped us survive in the jungle and are critical to surviving at work and school today. ... If someone does not feel safe with a teacher or boss, he or she may not perform as well. ... There is no greater anti-brain environment than the classroom and cubicle.

### 3. Every brain is wired differently

What you do and learn in life physically changes what your brain looks like — it literally rewires it. Regions of the brain develop at different rates in different people. The brains of school children are just as unevenly developed as their bodies. Our school system ignores the fact that every brain is wired differently. We wrongly assume every brain is the same.

### 4. We don't pay attention to boring things

The brain is not capable of multi-tasking. We can talk and breathe, but when it comes to higher level tasks, we just can't do it. Workplaces and schools actually encourage this type of multi-tasking. Walk into any office and you'll see people sending e-mail, answering their phones, Instant Messaging, and on MySpace — all at the same time. Research shows your error rate goes up 50 percent and it takes you twice as long to do things. When you're always online you're always distracted. So the always-online organization is the always unproductive organization.

### 5. Repeat to remember

Improve your memory by elaborately encoding it during its initial moments. Many of us have trouble remembering names. If at a party you need help remembering Mary, it helps to repeat internally more information about her. "Mary is wearing a blue dress and my favorite color is blue." It may seem counterintuitive at first but study after study shows it improves your memory.

### 6. Remember to repeat

How do you remember better? Repeated exposure to information in specifically timed intervals provides the most powerful way to fix memory into the brain. Deliberately re-expose yourself to the information more elaborately if you want the retrieval to be of higher quality. Learning occurs best when new information is incorporated gradually into the memory store rather than when it is jammed in all at once. Memory is enhanced by creating associations between concepts. This experiment has been done hundreds of times, always achieving the same result: Words presented

in a logically organized, hierarchical structure are much better remembered than words placed randomly — typically 40 percent better.

### **7. If you sleep well, you'll think well**

The bottom line is that sleep loss means mind loss. Sleep loss cripples thinking, in just about every way you can measure thinking. Sleep loss hurts attention, executive function, immediate memory, working memory, mood, quantitative skills, logical reasoning ability, general math knowledge. As for naps? Napping is normal. Ever feel tired in the afternoon? That's because your brain really wants to take a nap. There's a battle raging in your head between two armies. Each army is made of legions of brain cells and biochemicals — one desperately trying to keep you awake, the other desperately trying to force you to sleep. Around 3 p.m., 12 hours after the midpoint of your sleep, all your brain wants to do is nap. One more tip: "Don't schedule important meetings at 3 p.m. It just doesn't make sense."

### **8. Stressed brains don't learn the same way**

Your brain is built to deal with stress that lasts about 30 seconds. The brain is not designed for long-term stress when you feel like you have no control. The saber-toothed tiger ate you or you ran away but it was all over in less than a minute. If you have a bad boss, the saber-toothed tiger can be at your door for years, and you begin to deregulate. If you are in a bad marriage, the saber-toothed tiger can be in your bed for years, and the same thing occurs. You can actually watch the brain shrink. What effect does stress have on the brain? Stress damages virtually every kind of cognition that exists. It damages memory and executive function. It can hurt your motor skills. When you are stressed out over a long period of time it disrupts your immune response. You get sicker more often. It disrupts your ability to sleep. You get depressed.

### **9. It's important to stimulate more senses**

Our senses work together so it is important to stimulate them! Your head crackles with the perceptions of the whole world, sight, sound, taste, smell, touch, energetic as a frat party. Smell is unusually effective at evoking memory. If you're tested on the details of a movie while the smell of popcorn is wafted into the air, you'll remember 10-50 percent more. Those in multisensory environments always do better than those in unisensory environments. They have more recall with better resolution that lasts longer, evident even 20 years later.

### **10. Vision trumps all other senses**

We are incredible at remembering pictures. Hear a piece of information, and three days later you'll remember 10 percent of it. Add a picture and you'll remember 65 percent. Pictures beat text as well, in part because reading is so inefficient for us. Our brain sees words as lots of tiny pictures, and we have to identify certain features in the letters to be able to read them. That takes time. Why is vision such a big deal to us? Perhaps because it's how we've always apprehended major threats, food supplies and reproductive opportunity.

Possible Writer's Notebook questions:

1. Based on the article above, what steps can you take to strengthen your brain?
2. Choose a word, sentence, or passage and respond to it.