10 Facts About Your Wacky Brain

With new techniques like neural imaging, scientists are learning incredible new things about the brain that we could never have observed ourselves. Some of these are good news, some are a bit strange, but all of them are food for thought. Below, we've listed 10 cool facts about your brain, and translated these into kidspeak for your younger pals. Don't miss the punchline in #10.

Use these facts for your own knowledge, or make this into a fun activity with your students by making it into a "surprise brain fact" each week, or each day.

Fact #1: Your brain contains half a galaxy of tiny computers.

Our brains have anywhere between 86 billion and 100 billion neurons – the cells that transmit signals throughout the brain. This is about half the number of stars in the Milky Way.

In kidspeak: When you look up at the sky at night, you see___? There are *millions* of stars. Your brain has *millions* of tiny computers. These little computers, called neurons, are working to help you learn all day, every day.

Fact #2: Your brain is constantly creating neurons.

While you are developing in the womb, your brain is growing neurons at about 250,000 neurons per minute. After you're born, this slows down, but you will continue to create new neurons throughout your life.

In kidspeak: Your brain grows the fastest when you are a baby in your mother's womb, but will keep changing your entire life!

Fact #3: Your brain is always reprogramming.

Each of these billions of neurons is connected to thousands of others that either work together to perform the same function or are associated in some other way. And these connections are continuously being created, rerouted, or removed in response to how you engage your brain. If two brain regions are repeatedly activated at the same time, the neurons in them will form more connections, making the association easier and faster in the future. Otherwise, they will form separate networks and take longer to be activated together.

In kidspeak: The more your practice something, the easier it is for your brain to do it! It needs practice, practice, and more practice.

Fact #4: Your brain is an energy hog.

Your brain contains 400 miles of blood vessels and uses about 20% of your body's energy and total oxygen intake. And all those neurons firing generate up to 25 watts of electricity – enough to power a small lightbulb.

In kidspeak: Your brain uses a lot of energy - enough to power a small lightbulb!

Fact #5: Your brain hates diets.

At first glance, your brain seems to contain a lot of wasted space – about 60% fat or 73% water. But these are actually crucial for all that energy use. Dehydration of just 2% impairs your attention and memory and brain cells starved of energy will begin to cannibalize other brain cells, which is why you need nutrition and rest for your brain to work at its full potential.

In kidspeak: Your brain needs water. If you are just a little bit dehydrated, you won't be able to learn as well. Keep your diet healthy and drink enough water!

Fact #6: Your brain regions are both specialized and versatile.

You may have been told that certain parts of the brain control certain activities. But this division of labor is not set in stone. Many of our mental processes involve multiple brain regions working together, and when one part is damaged, others can take over its job. Even some patients who had half their brains surgically removed were able to function without major changes.

In kidspeak: Think of your brain like a bunch of puzzle pieces. Every piece does lots of different things - and even if you remove some of the pieces, it can still work just fine.

Fact #7: Your brain can control time.

Our perception of time is the result of our brain receiving multiple signals and organizing them in a way that it can process. More signals – especially unfamiliar ones – take longer to organize, which is why moments where you are experiencing something new or intense can feel longer. So you can make time pass slower for you by putting yourself in unfamiliar and interesting situations – almost like living longer just by doing new things.

In kidspeak: when you do new things, your brain thinks time is passing by more slowly. When you are having a fun day, it might feel like your day is going by slowly. Can you think of a time when things felt that way?

Fact #8: Your brain may stop growing, but it never stops changing.

It's true that your brain stops growing in overall volume and mass at a certain point, usually around the age of 18. But the physical structure of your brain – the density and relative size of different regions – keeps changing throughout your life.

In kidspeak: By the time you're 18, your brain stops growing. But it keeps changing forever - getting better at things you will do as an adult, like parking on a steep hill, but worse at things you do more of when you're a child, like hula-hooping! What do you think is important for your brain to practice now? Or when you're an adult?

Fact #9: Stress can reshape your brain.

Being stressed isn't just unpleasant – it can actually affect your brain development, killing neurons and neural connections and preventing new ones from forming. Avoiding stress when possible, and learning healthy strategies for managing it isn't only important for your mood, but your mental functioning as well.

In kidspeak: when you're having a bad day, maybe because you got in an argument with a friend or you had a bad dream, your brain has a harder time learning. You can take a deep breath or talk to your parent or teacher about how you feel, and get back to learning. What other ways can you help your brain feel happier?

Fact #10: YOU have the power to change your brain.

No matter what you do, you're constantly reshaping your brain by learning and doing things, even when you're just going about your normal day. But it's not just about the contents of your brain – you can also change how well it works. By engaging different brain regions at the same time and making neurons fire together, activities like working out, meditating, learning a language, playing a musical instrument, or solving puzzles can form new neural connections, permanently rewiring your brain to work more quickly and efficiently. For learners whose brains may not be wired efficiently for reading, this is critically important to know: neurons that fire together wire together. With regular, varied, motivating practice, your brain's superhighways can be built for reading. Fast ForWord software has been shown to rewire the brains of struggling readers!

In kidspeak: You can help your brain build all those "tiny computers" (called neurons) for reading, writing and all learning. YOU have the power to change your brain!

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