

Brainology® Intro Unit Lesson 3, "Practice It": Reading for Lesson - Option B

You Can Grow Your Intelligence

New Research Shows the Brain Can Be Developed Like a Muscle

Many people think of the brain as a mystery. They don't know much about intelligence and how it works. When they do think about what intelligence is, many people believe that a person is born either smart, average, or dumb—and stays that way for life.



What do YOU think?

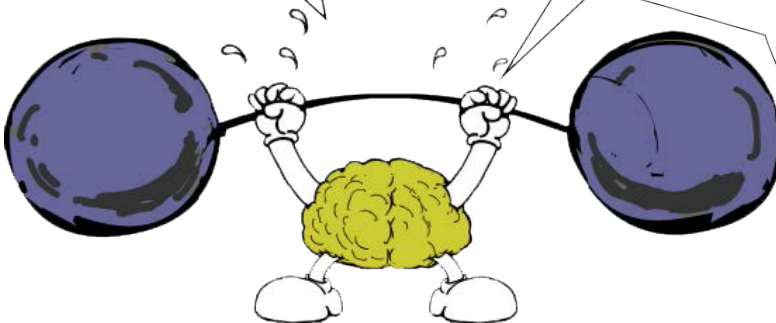
GUESS WHAT?

New research shows that the brain is more like a muscle—it changes and gets stronger when you use it!

Everyone knows that when you lift weights regularly, your muscles get bigger and you get stronger.

But what happens to your muscles when you STOP lifting weights?

I think that when you stop lifting weights...



Brainology® Intro Unit Lesson 3, “Practice It”: Reading for Lesson - Option B, cont.**That’s why people say, “Use it or lose it!”**

Most people don’t know that when they practice and learn new things, part of their brain changes, grows, and gets stronger and larger, a lot like muscles do when they exercise.

Scientists have actually been able to show just how the brain grows and gets stronger when you learn.

So here is an analogy: Muscle is to exercise as the brain is to _____.

In other words... Muscles will grow with exercise and the brain will grow with _____.

Here’s the secret:

Inside the cortex of the brain are billions of tiny nerve cells called neurons. The nerve cells have branches connecting them to each other in a complicated network. Communication between these brain cells is what allows us to think and solve problems.

When you learn new things, these tiny connections in the brain actually multiply and get stronger.

The more that you challenge your mind to learn, the more neuron connections you make in your brain.

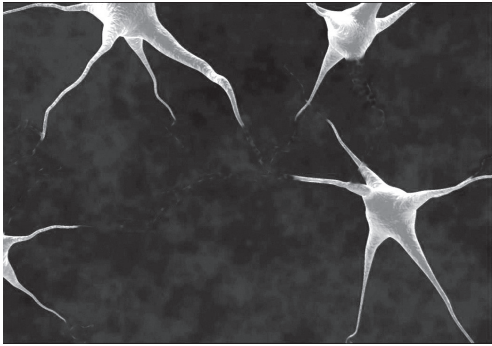
If you continue to strengthen these connections, things that you once found very hard to do—like remembering information for a test or doing algebra—seem to become easy. The result is a stronger, smarter brain.

Use the information you have just read to complete the organizer below.

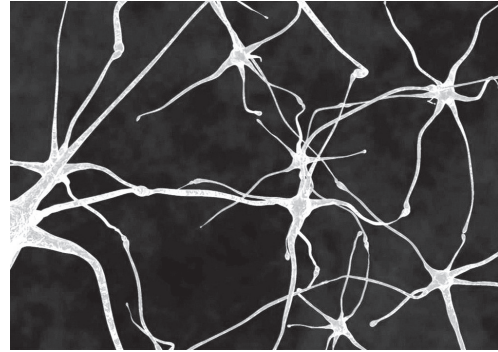
IF...	→	THEN...
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Scientists started thinking that the human brain could develop and change when they studied animals' brains. They found out that animals who lived in a challenging environment, with other animals and toys to play with, were different from animals who lived alone in bare cages.



Nerves in brain of animal living in bare cage
(non-stimulating environment)



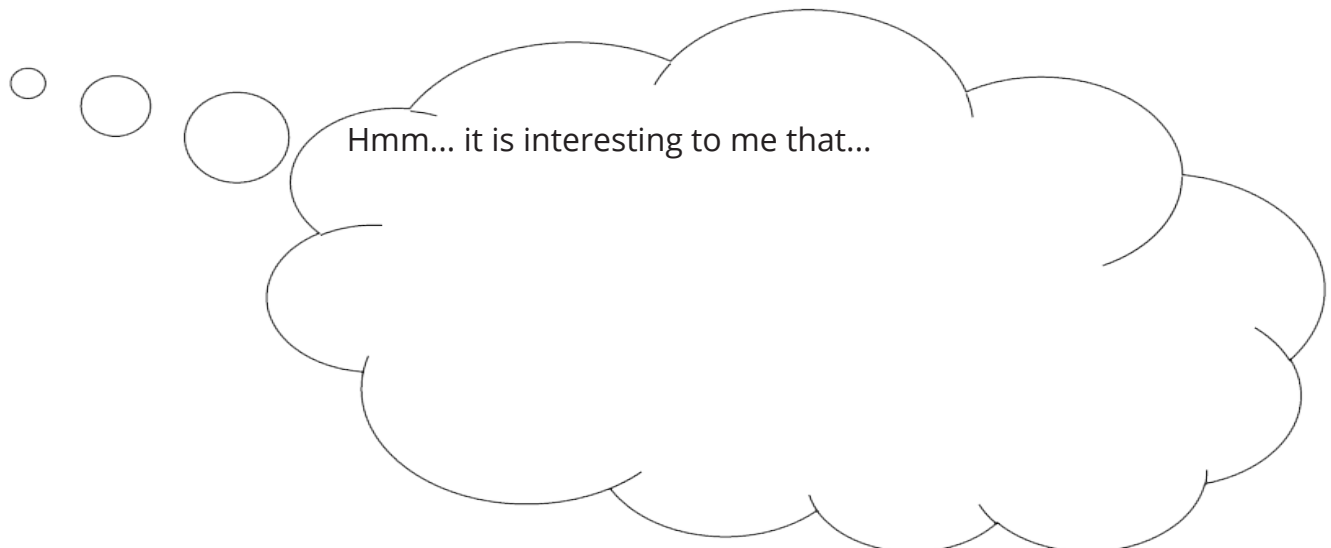
Brain of animal living with other animals and toys
(stimulating environment)

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While the animals that lived alone just ate and slept all the time, the ones that lived with different toys and other animals spent a lot more time figuring out how to use the toys and how to get along with other animals.

The animals who lived in the stimulating environment had more connections between nerve cells in their brains. The connections were bigger and stronger, too. In fact, their whole brains were about 10% heavier than the brains of the animals who lived alone without toys. The animals who were exercising their brains by playing with toys and each other were also “smarter”—they were better at solving problems and learning new things.

Even old animals got smarter and developed more connections in their brains when they got a chance to play with new toys and other animals. When scientists put very old animals in cages with younger animals and new toys to explore, their brains grew by about 10%.

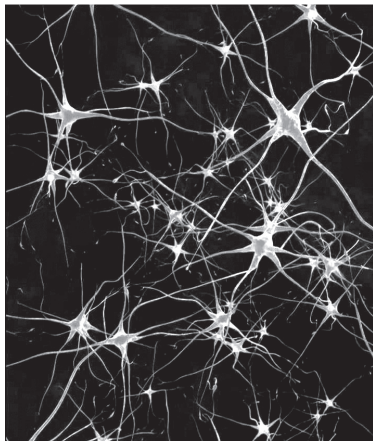


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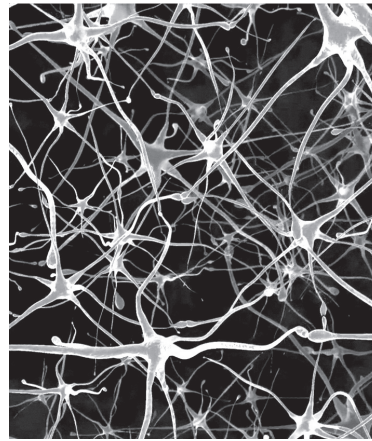
Children’s Brain Growth

Another thing that got scientists thinking about the brain growing and changing was babies. Everyone knows that babies are born without being able to talk or understand language. But somehow, almost all babies learn to speak their parents’ language in the first few years of life. How do they do this?

Neuron connections in a child from birth to 6 years old



At birth



At age 6

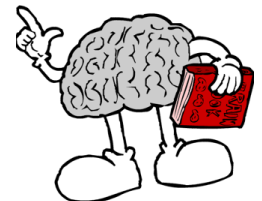
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Do you think this child developed strong language skills by the age of six? Why or why not?

How do you think this child grew all of those neuron connections and pathways?

The Real Truth about “Smart” and “Dumb”

No one thinks babies are stupid because they can’t talk. They just haven’t learned how to yet. But some people will call a person dumb if they can’t solve math problems, or spell a word right, or read fast—even though all these things are learned with practice. At first, no one can read or solve equations. But with practice, they can learn to do it. And the more a person learns, the easier it gets to learn new things—because their brain “muscles” have gotten stronger!



What Can YOU Do to Get Smarter?

Just like a weightlifter or a basketball player, you have to exercise and practice to make your brain grow stronger. By practicing, you also learn skills that let you use your brain in a smarter way—just like a basketball player learns new moves.

Brainology® Intro Unit Lesson 3, “Practice It”: Reading for Lesson - Option B, cont.

Why doesn't EVERYBODY do this?

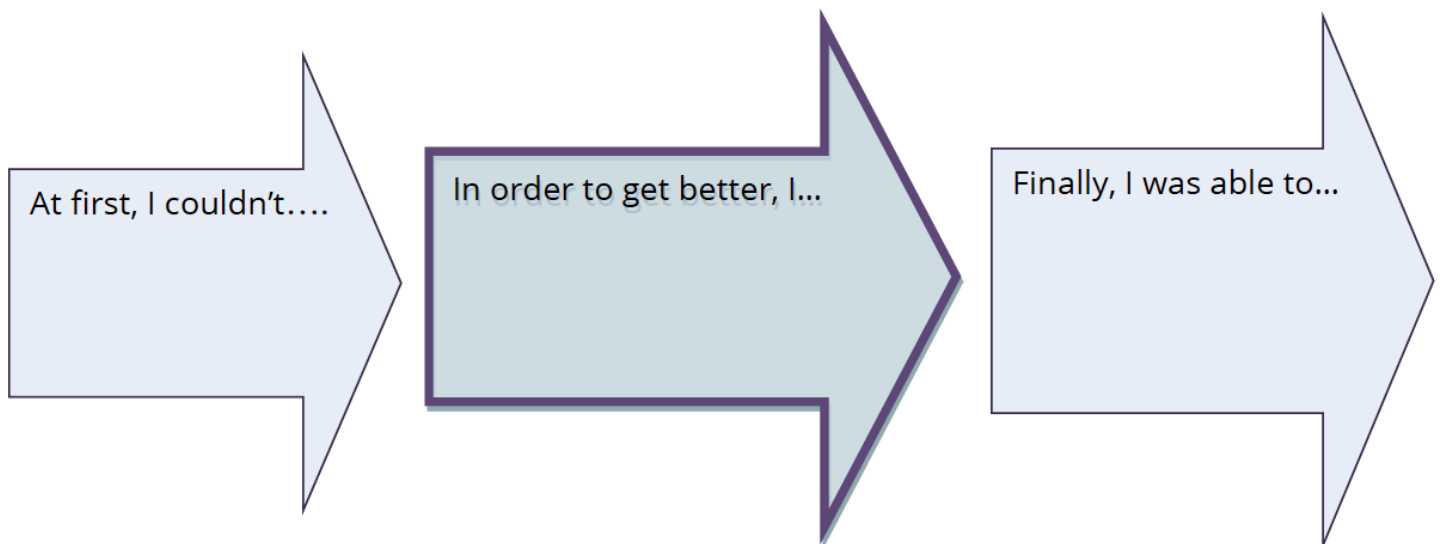
Many people miss out on the chance to grow a stronger brain because

- they think they can't do it
- they think it's too hard
- they think it's too much work

Reflection: Remember a time when you worked extremely hard on something that was at first difficult,

Can you relate?

but after practice and effort you were able to succeed.



How did you feel when you were successful?

Was it worth the effort? Explain.