

## TOPIC 2 – HOW THE BRAIN LEARNS

We now live a time that technology allows us new access to the living brain and how it functions. Scientists can now study children learning and watch their brain activity including how it grows and the impact of emotion on the brain.

One area that has emerged in recent years and has stunned scientists is the discovery of what is called “**Brain Plasticity**”. No, this doesn’t mean our brains are made of plastic but it is able to change and grow. It used to be believed that the brains people were born with couldn’t really be changed, but this idea has now been disproved. Study after study has shown the incredible capacity of brains to grow and change within a really short period.

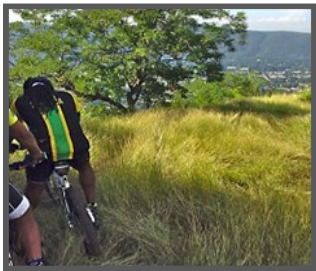

### What happens in our brains when we learn?

When we learn a new idea, an electric current fires in our brains, crossing synapses and connecting different areas of the brain.

See picture.



If you learn something deeply then the synaptic activity will form a lasting connection, but if you only visit a topic once or twice then it forms a weak connection and can be easily ‘washed away’.

<p>Imagine riding a bike through a field of long grass for the first time – it’s difficult and if you only do it a few times it will always be difficult. Your synapse pathway is NOT well formed.</p>		<p>On the other hand, if you ride this path continually and regularly then the path becomes clearer and easier to ride upon. Your synapse pathway is well formed.</p>	
<p>This is what it is like for our brains when they are forming synaptic connections. The deeper the learning the stronger the pathway.</p>			

Synapses fire when learning happens, but learning does not happen only in classrooms or when reading books; synapses fire when we have conversations, play games, or build with toys, and in the course of many other life experiences.

Watch this 5 minute clip showing examples of how the brain can grow and change in a short period with examples of amazing brain research and stories.

<https://www.youcubed.org/brain-science/>

***‘Every second of the day our brain synapses are firing, and children raised in stimulating environments with growth mindset messages are capable of anything. A lot of scientific evidence suggests that the difference between those who succeed and those that don’t is not the brains they are born with, but their approach to life, the messages they receive about their potential and the opportunities they have to learn.***

*Jo Boaler, Stanford University*