What's inside the brain of a genius?

There are intriguing differences between the brain of a genius and a normal noggin

NORMAL BRAIN

Cortex

The Average Joe's brain has a broad 50:50 ratio of long and short connections between the various brain regions, with a sllight bias either way that varies from person to person.

Frontal cortex

The frontal cortex – part of the brain believed to be involved in abstract thought – is built out of 'mini-columns'. These are units of brain tissue that typically consist of 80-120 neurones.

Dopamine receptors

The thalamus is the brain's relay centre. Information from the brain's sensory parts bottleneck at the thalamus, where they're filtered and sent to the cortex. This is partly regulated by dopamine receptors.

Parietal Lobe

In average people this is the part of the brain that is activated when you tackle a maths problem. Any part of the brain in constant use enlarges as it strengthens your most vital connections.

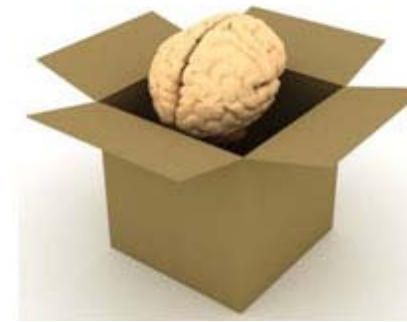
GENIUS BRAIN

Cortex

A genius's brain is heavily biased towards long or short connections. Short connections indicate an aptitude in one interest, while long connections suggest aptitude in many interests and the ability to see problems from new perspectives.

Frontal cortex

Geniuses have a denser concentration of mini-columns than the rest of the population – it seems that they simply pack more in. Mini-columns are sometimes described as the brain's 'microprocessors', powering the thought process of the brain.



Dopamine receptors

Research shows that geniuses have fewer dopamine receptors in the thalamus. Dopamine inhibits neuronal signals, cancelling out information it deems worthless. The shortage of such receptors in geniuses might mean they can consider unusual solutions to a problem normal brains disregard.

Parietal Lobe

Einstein's brain was smaller than normal, but his maths-processing parietal lobe was enlarged. Developing a skill over time that relies heavily on one area seems to cause enlargement and strengthening.