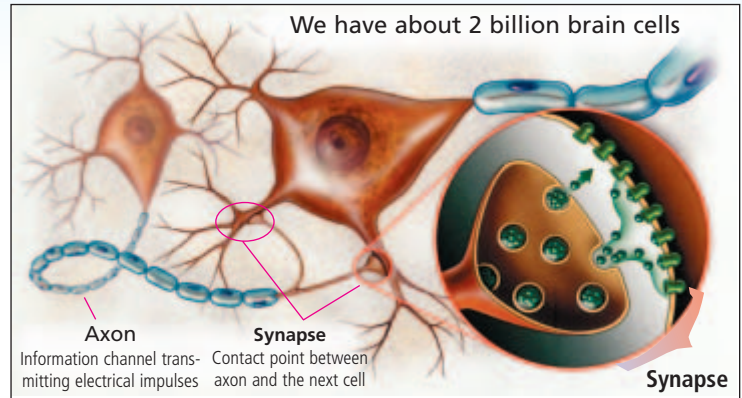


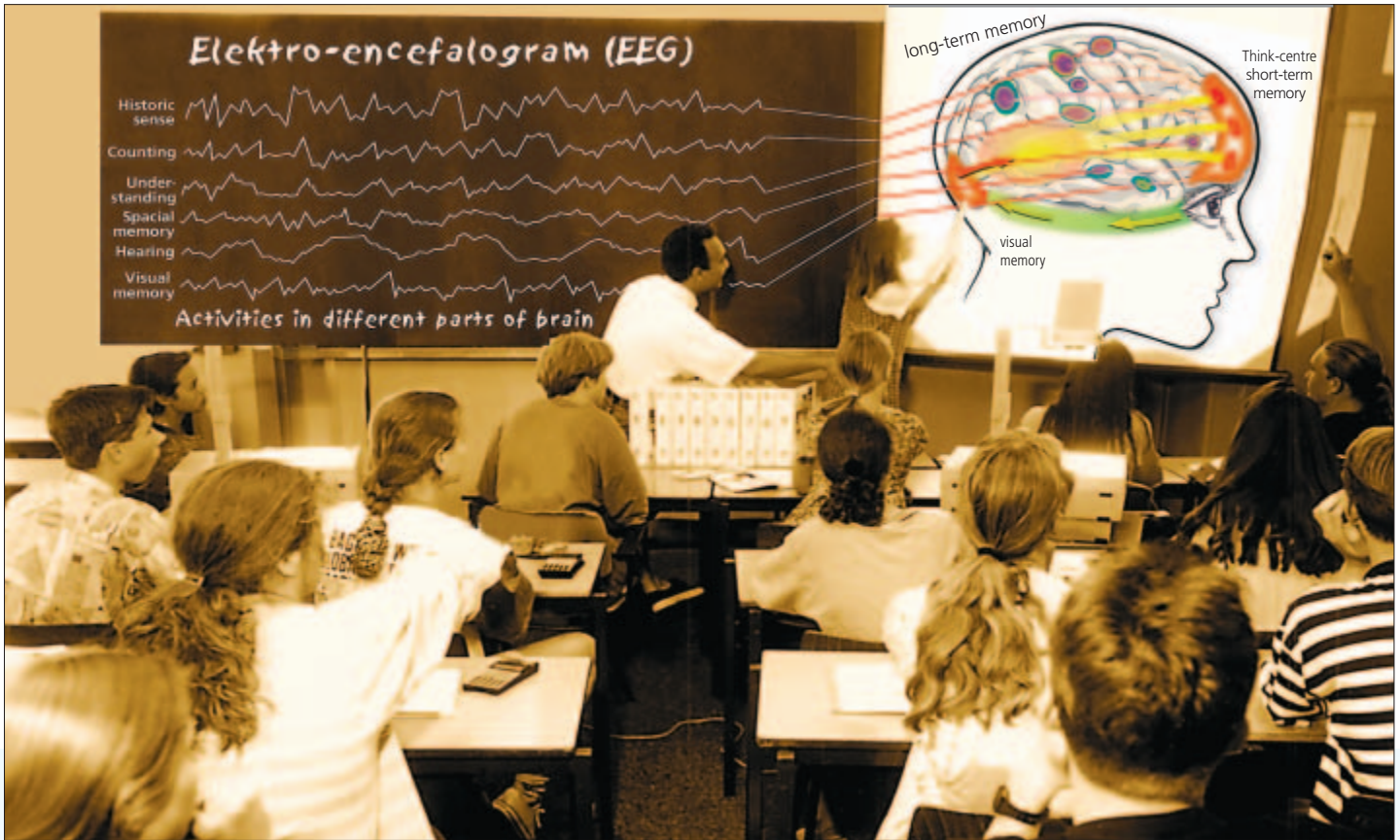
Neurophysiologist Eric Kandel was awarded the Nobel Prize in 2000 because he showed that short-term and long-term memories are tied to changes in the form of and function of *synapses*.

The short-term or *working* memory in the think-centre, which acts as information buffer, is obviously something other than Kandels' storage of memories on sub-cellular or molecular levels causing some memories to be easily forgotten and others to remain longer. Most likely in part when we sleep, the hippocampus in the limbic system coordinates how long memories will last. Evolutionary-coded interests, as well as personality and earlier experiences, thus determine storage in the synapses. Anchored in girls' personality is a capacity to learn and remember through examples of personal relationships, whereas most boys get more excited about heroic acts.



Brain cell or neuron: a cell body with thousand or more tree-like fibres which communicate with one another via the synapses. Mathematically, there are more routes available through the brain than atoms in the universe.

Local brain activities with their specialist functions are measured in micro-volts.



More than a modern supplement to independent learning

Memory traces – physiology of the memory

The long-term memory is activated more by a large projection. In subject-related parts scattered over the brain, *memory traces* from existing knowledge can be strengthened and misconceptions might be corrected; new memory pathways called 'engrams', are built for new knowledge. The synapses, the connections between the brain cells, become more or less permanently altered. This is the physiological basis of remembering.

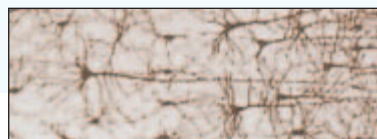
What we see with our eyes is largely interpretation. Learning to interpret together is useful and can be a pleasant variation to working individually on the computer. The projected image motivates and gives the teacher a leading role in directing the involvement of the students. When appropriate, the teacher's story telling skills can be unleashed. Team spirit and learning are both enhanced.

Team spirit for independent thinking

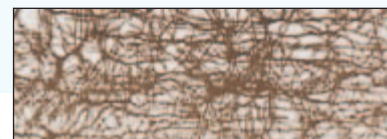
Research has shown that the sense of belonging to a group is a condition for learning. Modern education is striving to develop students' independent thinking faculties. Both are promoted through a systematic *collective* searching for coherence in a large image, discovering relationships between details and drawing conclusions.



Neural connections at birth



3 months



2 years old

A baby's brain responds to the many impressions of the outside world by growing more and more neural connections. In addition, some are strengthened and others are weakened as the baby learns new skills and forms memories. In the brain of an attentive student millions of connections are changing every minute.

Whether this happens in the right places and in the correct way depends mostly upon the stimuli.