

Learning in a world where $2+2$ does not equal 4

David Crabtree



The Theatre of the classroom



Batch production



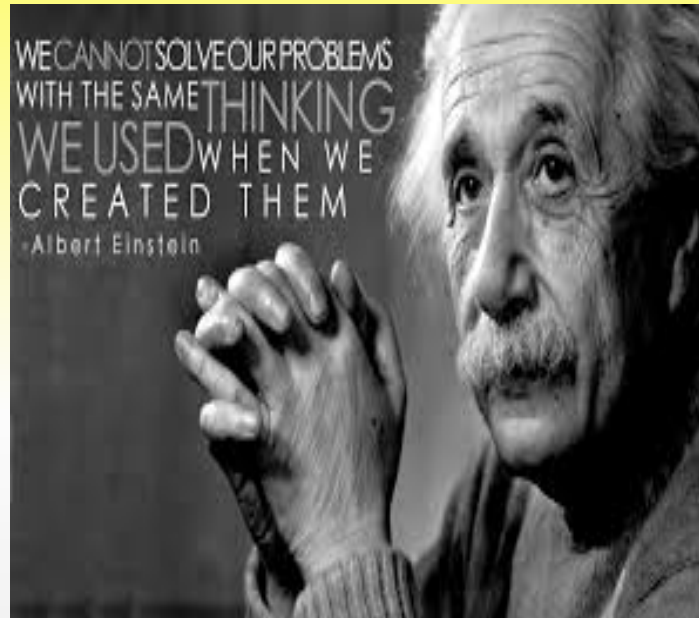
Yet all children in the class are

DIFFERENT

Is the brain Leaky or Sticky?



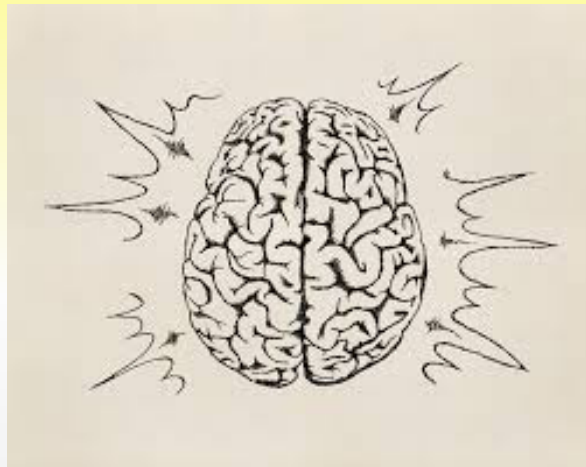
What do we want our education system to do?



Strategic thinking

Of those children who find classroom learning difficult, many have at least equal intellectual ability to the majority

The contribution of those who find classroom learning difficult is that they tell us about learning



By responding effectively to the needs of children who find
classroom learning difficult
we create an education system that enables
all children
to learn and reach their potential

My perfect.....

p

p

q

d

b

p

q

d

b

The Dyslexic Advantage: Unlocking the Hidden Potential of the Dyslexic Brain by Brock L. Eide M.D. M.A



Can we use what we know about the brain to develop inclusive classrooms?

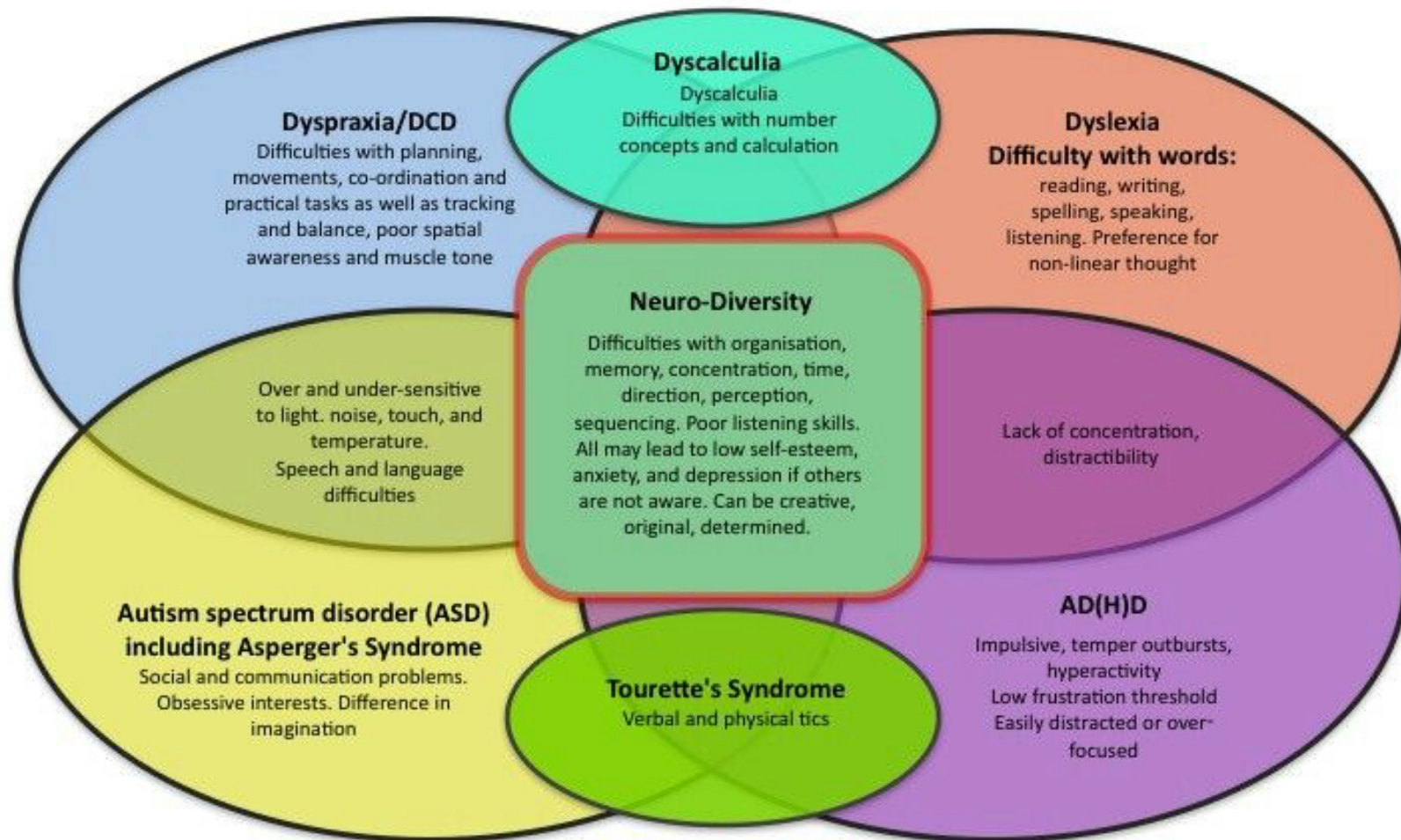
- Some children process information differently than the majority, this is due to physical differences in various parts of the brain



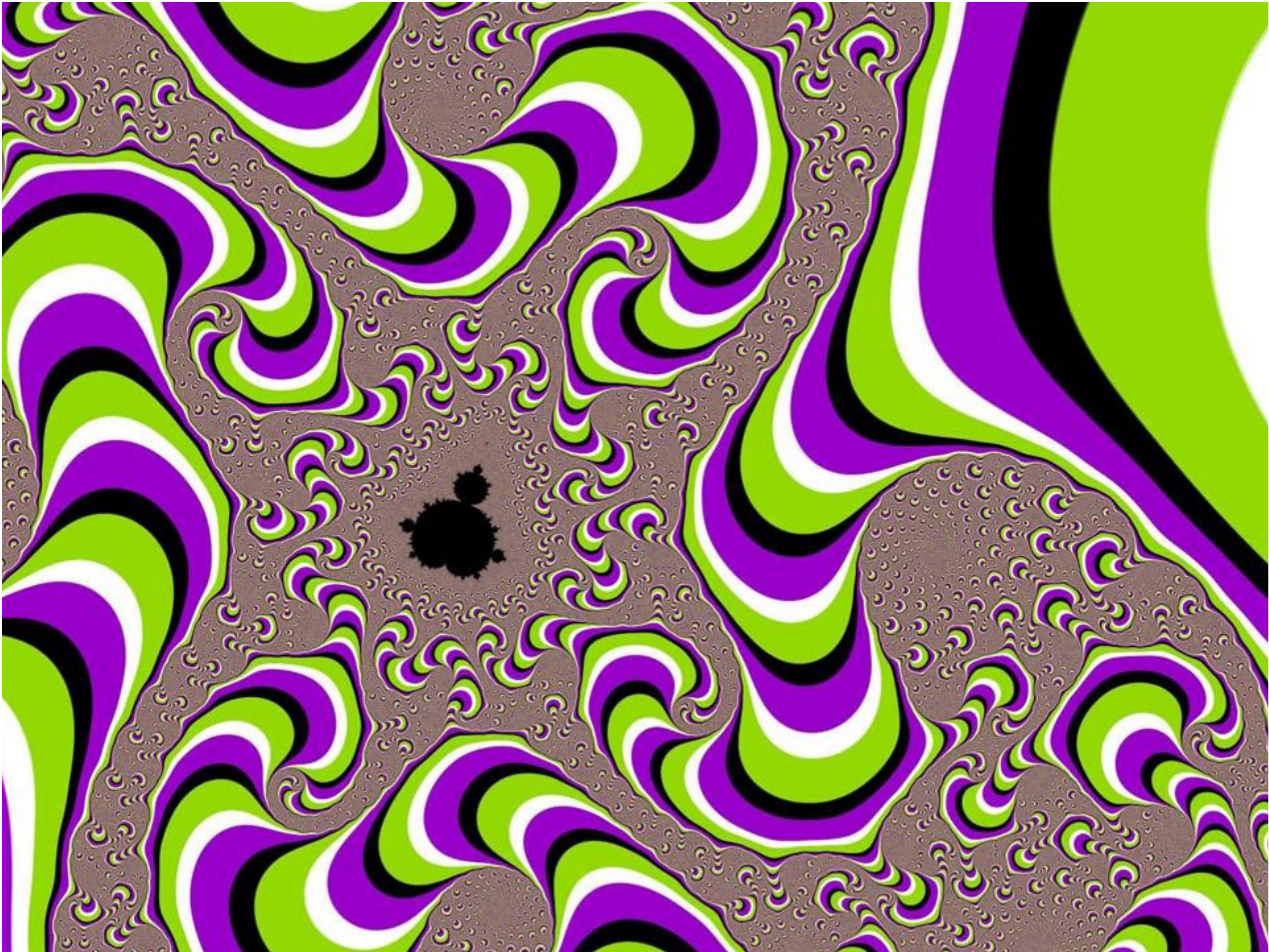
Neurodiversity

The Make-up of Neuro-Diversity

This is a document for discussion, concentrating mainly on the difficulties of those with neuro-diversity. It must however be pointed out that many such people are excellent at maths, co-ordination, reading etc . We are people of extremes.



Created by Mary Colley



The nature of classroom
learning

And

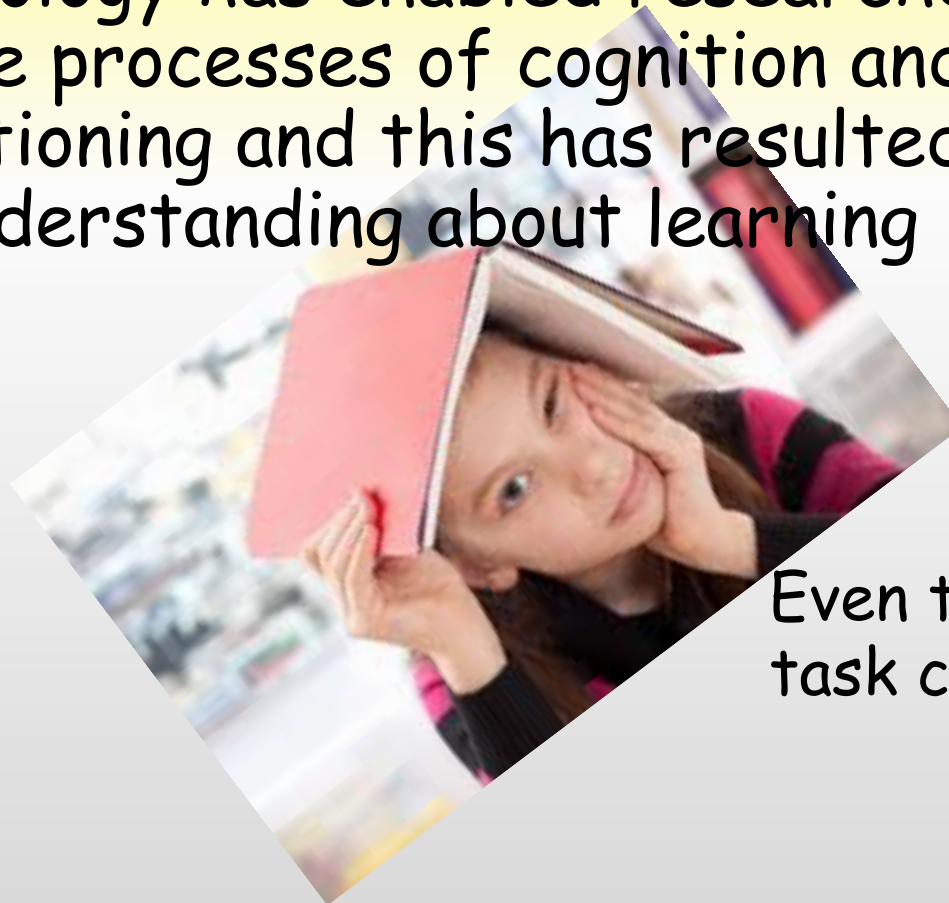
the

case study of 2



The importance on learning about learning differences

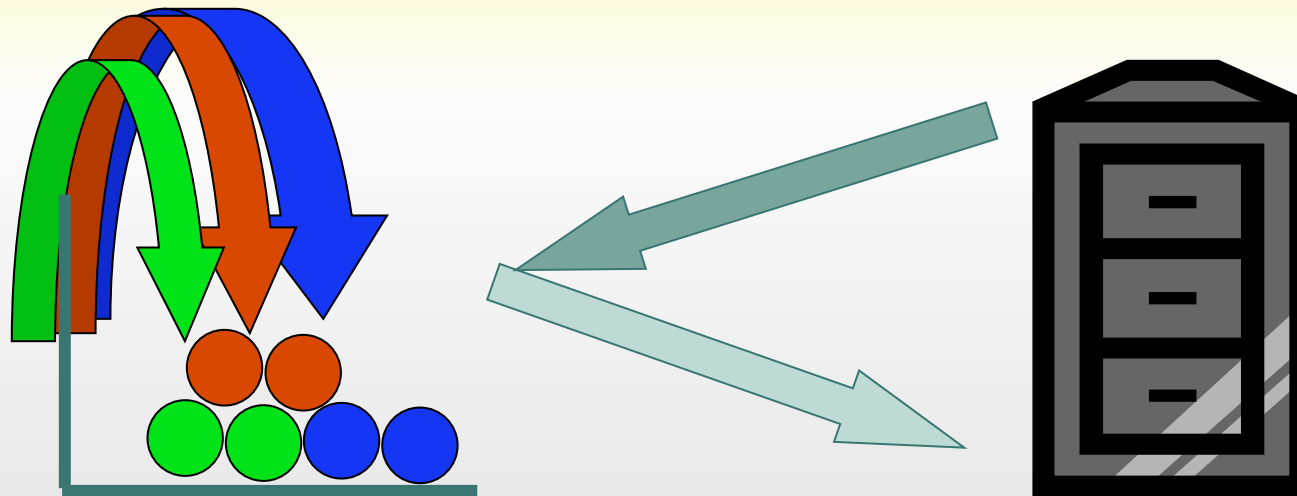
- New technology has enabled researchers to explore the processes of cognition and map brain functioning and this has resulted in greater understanding about learning



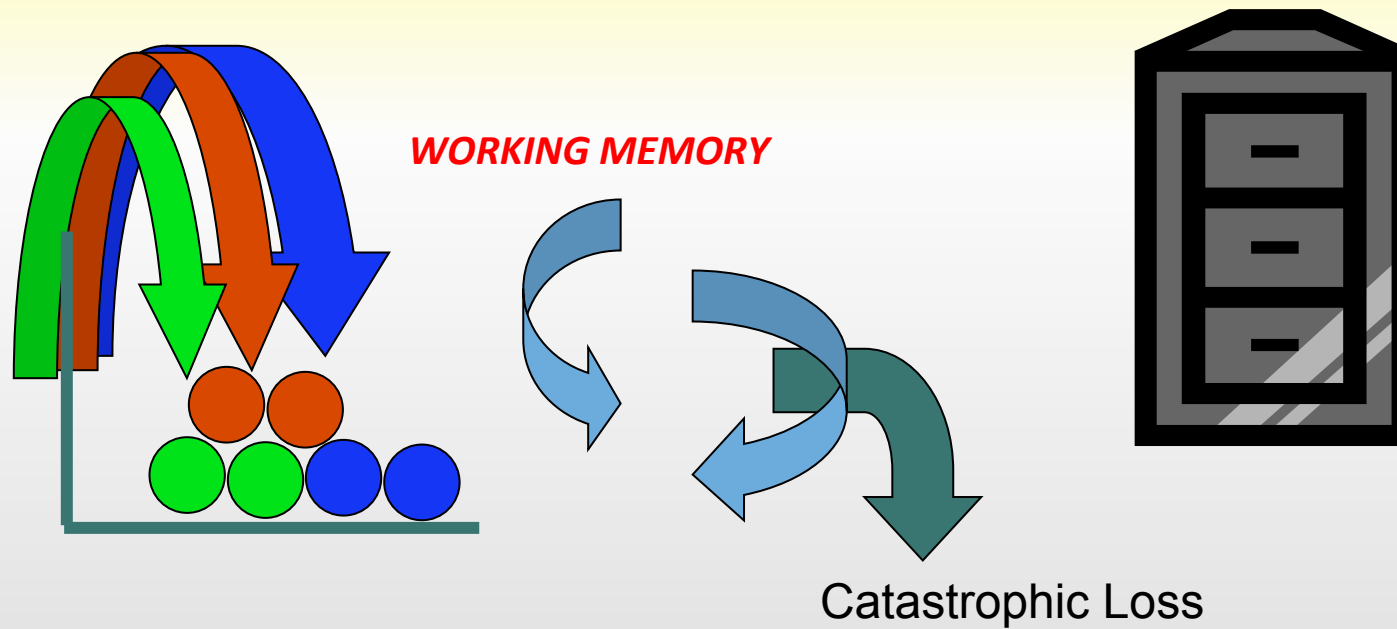
Even the off task child?

The classroom – the learning arena

Working memory and learning transfer



The classroom – the learning arena
Working memory and learning transfer



Working memory

- Working memory acts as a kind of “holding area”
- for temporary recall of the information which is being processed at any point in time e.g. classroom activity
- Working memory holds a small amount of information (typically around 7 items or even less) in mind in an active, readily-available state for a short period of time (typically from 10 to 15 seconds, or sometimes up to a minute).
- Working memory links into a “hook” in long term memory to help “place” the new memory in with other memories and be stored
- Working memory has been shown to be important for successful classroom learning.

Opening up the super-highway



LEFT BRAIN

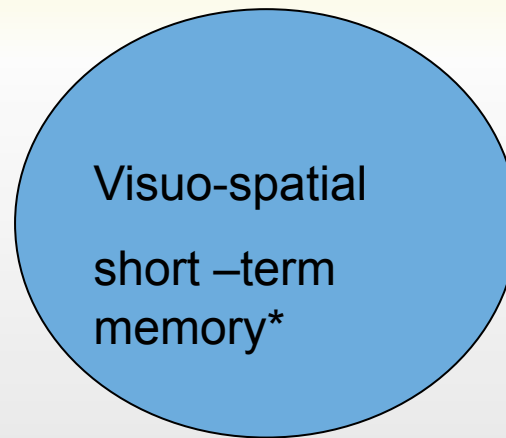
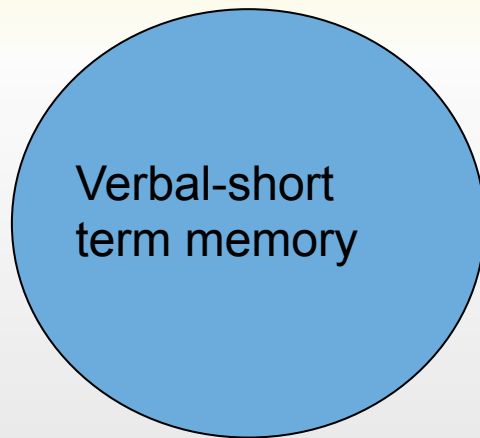
LOGIC
ANALYSIS
SEQUENCING
LINEAR
MATHEMATICS
LANGUAGE
FACTS
THINK IN WORDS
WORDS OF SONGS
COMPUTATION



RIGHT BRAIN

CREATIVITY
IMAGINATION
HOLISTIC THINKING
INTUITION
ARTS (Motor skill)
RHYTHM (Beats)
NON-VERBAL
FEELINGS
VISUALISATION
TUNE OF SONGS
DAYDREAMING

Linking the two hemispheres



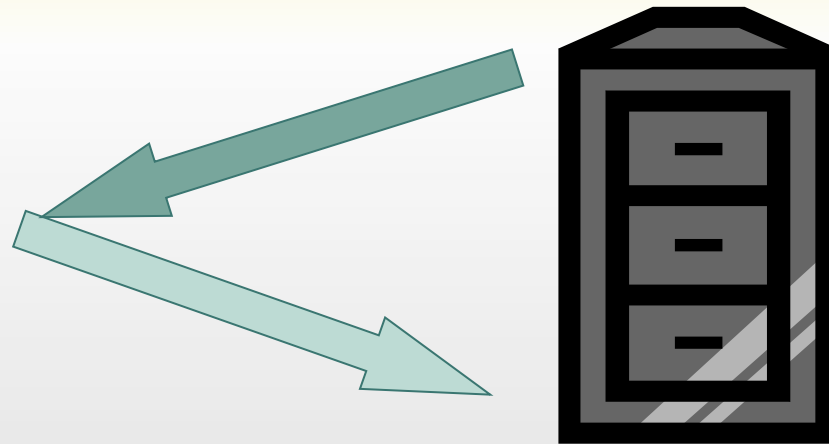
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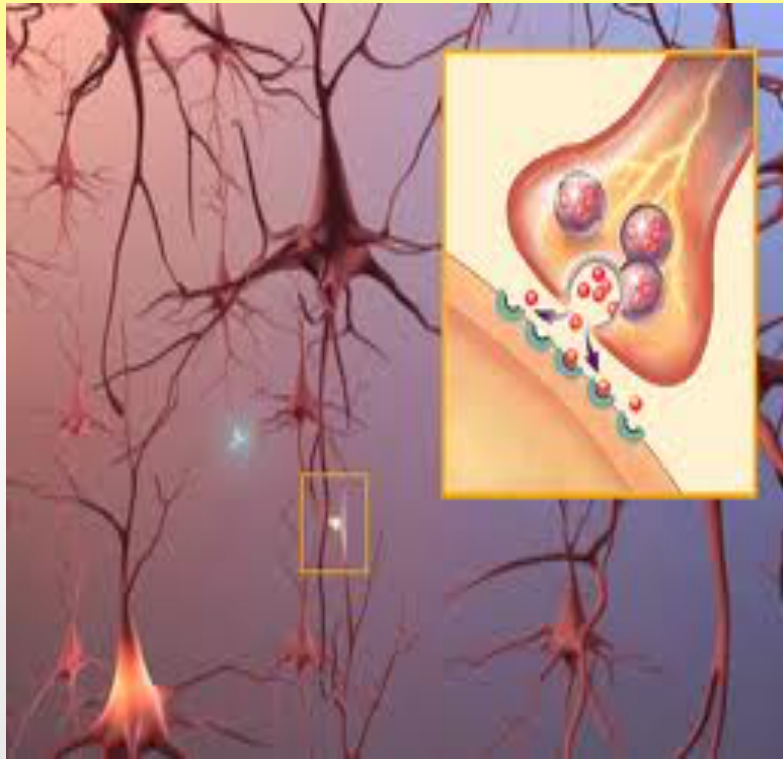


* Ravens matrices

Long term memory (Stickability)



Synapse (Stickability)



- Synapse plays an important role in learning and memory
- New information is absorbed and retained through a process characterized by changes in synaptic interconnections
- This happens among neurons in the hippocampus and cerebral cortex, regions of the brain associated with memory.

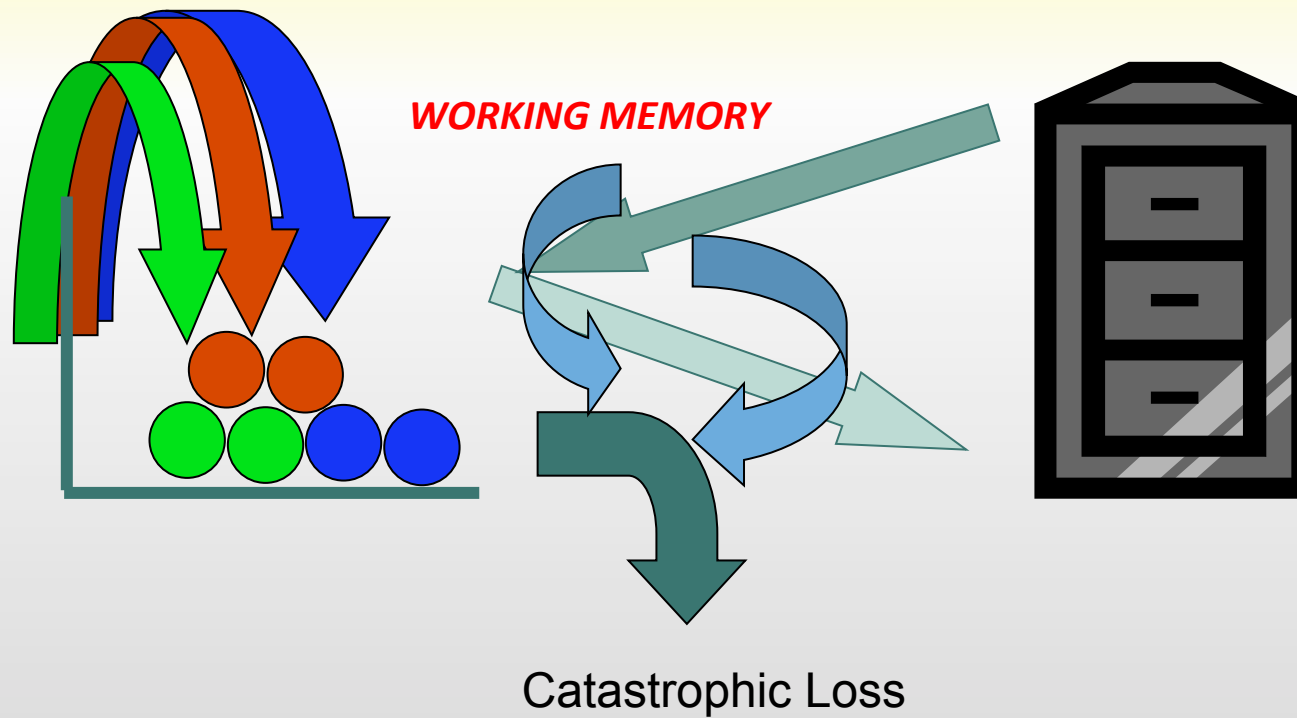
The brain's plasticity



- Woollett K and Maguire EA. Acquiring 'the Knowledge' of London's layout drives structural brain changes. *Curr Biol* 2011
- Dr. Gottfried Schlaug, Music and Neuroimaging Laboratory
- Research has shown that in fact the brain never stops changing through learning

The classroom – the learning arena
Working memory and learning transfer

And link this to other knowledge



Read the following text.

Note any hesitations, errors or other tendencies.

ehT .srehto eht fo ngis on llits saw erehT
.pmac eht dehcaorppa yeht sa deppots dah gnignis
yeht, nehT .nees eb ot eno on saw ereht woN
taerg a sexob eht fo eno fo pot eht no was
tuB .derbhguoroht on saw tl .god etihw
eht ekilnu – tsop sti ot kcuts dah ti
deraeppasid dah yehT .step rehto
yeht woN .nageb tsrif elbuort eht neh
.deppart erew yehT .tops eht no erew

How do we improve stickability

