How Learning Happens

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'Without an understanding of human cognitive architecture, instruction is blind.'

(John Sweller, 2017)

Cognitive Load Theory
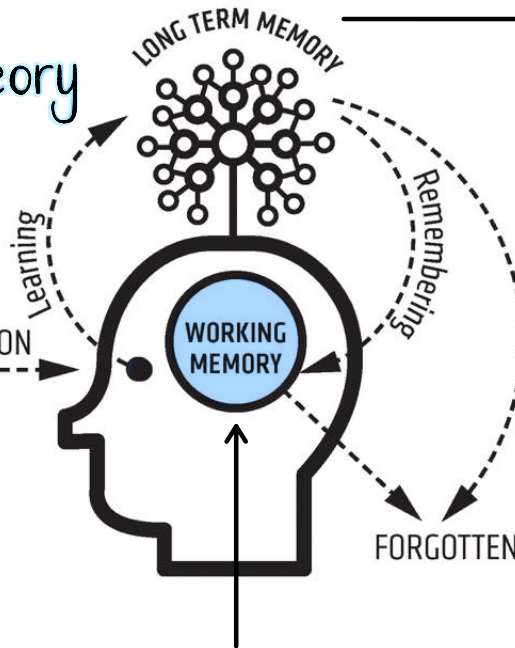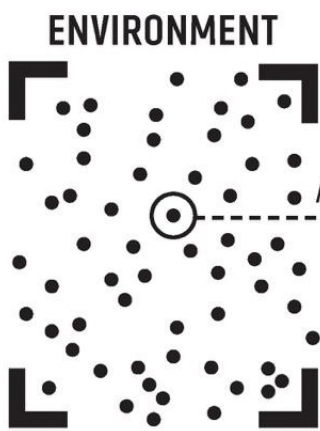
ENVIRONMENT

LONG TERM MEMORY

Learning

ATTENTION

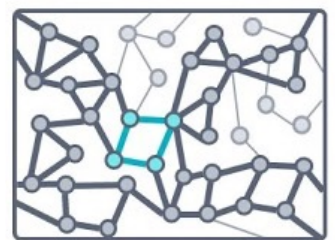WORKING MEMORY

Remembering

FORGOTTEN

LONG-TERM MEMORY (LTM)

- Vast storehouse of knowledge
- Unlimited in capacity
- Information is organised into schemas
- We retrieve information back into our WM when needed

Schema

'An interconnected web of items of knowledge' (David Didau)

The more complex and interconnected our schemas are, the easier it is to make sense of new related information and the better we are able to organise it so that it makes sense.

Classroom Environment

- STAR listening to focus students' attention
- Simplicity - less is more
- High levels of focus and purpose

WORKING MEMORY (WM)

- The site of awareness and thinking
- Limited in capacity ~ 4/5 chunks
- WM overload leads to information loss
- Processing in WM is essential for long-term storage

'Memory is the residue of thought'

↳ The more you think about something, the more likely that you will remember it later.

(Daniel T. Willingham)

3 Types of Cognitive Load:

INTRINSIC
→ The inherent difficulty of the subject matter
→ How hard the content is!

✳ MANAGE ✳

EXTRANEOUS
→ Unecessary distraction which adds to cognitive load without benefiting the learning

✳ MINIMISE ✳

GERMANE
→ The mental effort needed to construct schemas
→ Increases transfer of new knowledge/processes into LTM

✳ MAXIMISE ✳

Learning = a change in long-term memory

'if nothing has changed nothing has been learned'