

Brain Training

- Mondays at 3:00pm, SW103
- Thursdays at 6:00pm, Zoom
- February 10 & 13; April 14 & 17: Tools of the Brain
- February 17 & 20; April 21 & 24: Effective Studying
- February 24 & 27; April 28 & May 1: Beat Procrastination
- March 3 & 6; May 5 & 8: Conquer Exams

Tools of the Brain

Learn about the tools you have and
how to use them

Memory – How it works

Short Term Memory
versus
Long Term Memory

Memory – How it works

Short Term Memory versus Long Term Memory

RAM
vs
hard drive

Memory – How it works

Short Term Memory versus Long Term Memory

RAM
vs
hard drive

Open on your desk
vs
Books on the shelf

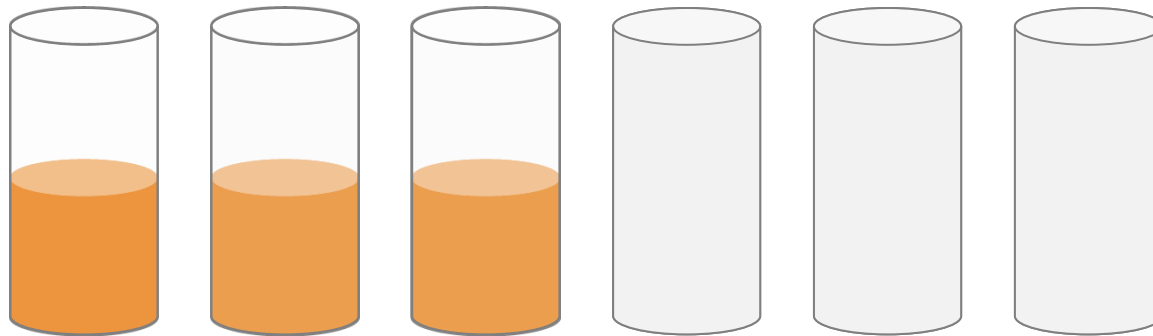
Memory – How it works



Memory – How it works



Tools of the Brain



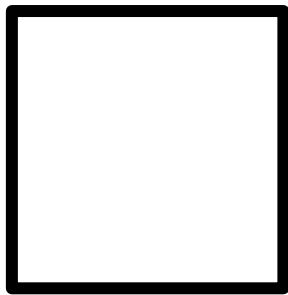
Three of the glasses are filled with orange juice, and three are empty. While only touching one glass can you make the empty and full glasses alternate?

(Modified from Goldsmith, M., 2012)

Tools of the Brain

MIND
—
MATTER

|R|E|A|D|I|N|G|



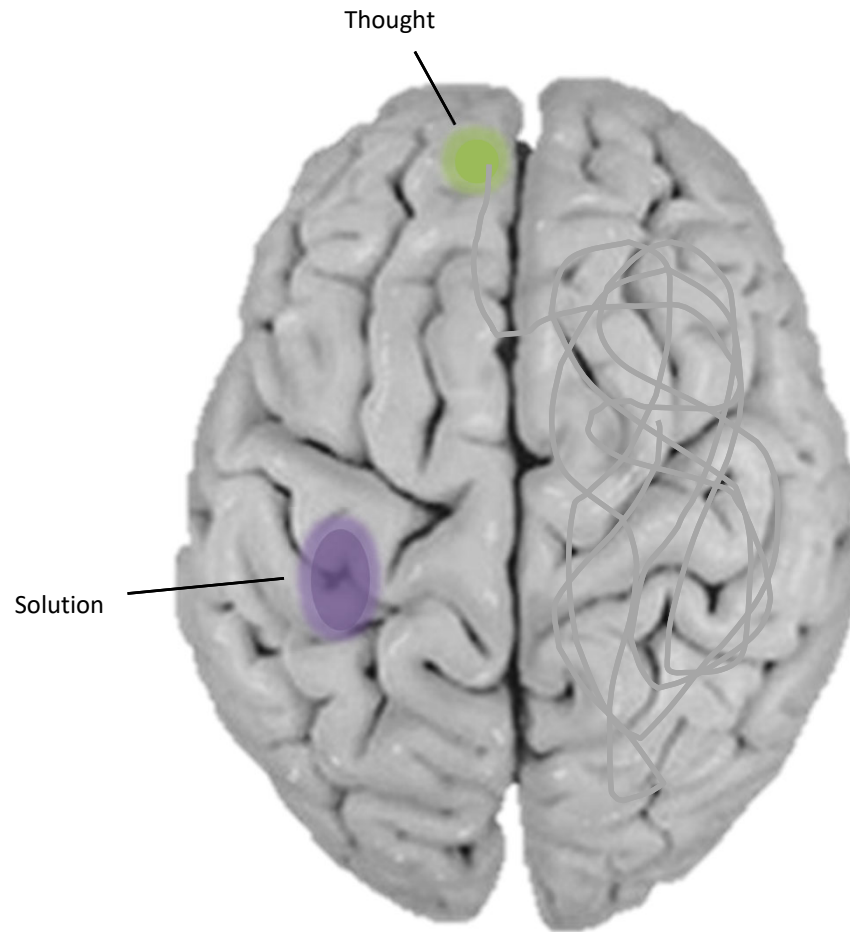
THINK

Lang4uage

Focused vs. Diffuse modes of thinking



Focused vs. Diffuse modes of thinking



Focused vs. Diffuse modes of thinking

Grated vegetable dish (2 words)

— — — — — — — — — —

Focused vs. Diffuse modes of thinking

Grated vegetable dish (2 words)

C _ R _ OT _ _ _ _ _

Focused vs. Diffuse modes of thinking

Grated vegetable dish (2 words)

CARROT _ _ _ _ _

Focused vs. Diffuse modes of thinking

Grated vegetable dish (2 words)

CARROTS _ _ _ _

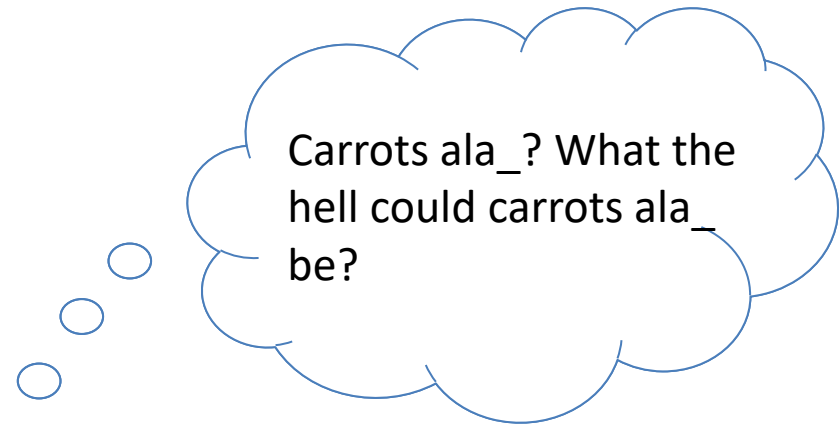
Focused vs. Diffuse modes of thinking

Grated vegetable dish (2 words)

CARROTSALA _

Focused vs. Diffuse modes of thinking

Grated vegetable dish (2 words)



CARROTSALA _

Focused vs. Diffuse modes of thinking

$$12 - 3x = 4$$

Focused vs. Diffuse modes of thinking

$$12 - 3x = 4$$
$$\underline{-12} \quad \underline{-12}$$

$$\underline{-3x} = 8$$
$$\underline{-3} \quad \underline{-3}$$

$$x = -8/3$$

Focused vs. Diffuse modes of thinking

$$\begin{array}{r} 12 - 3x = 4 \\ -12 \quad -12 \\ \hline \end{array}$$

$$\begin{array}{r} -3x = 8 \\ \hline -3 \quad -3 \end{array}$$

$$x = -8/3$$

$$12 - 3x = 4$$

$$-3x = -8$$

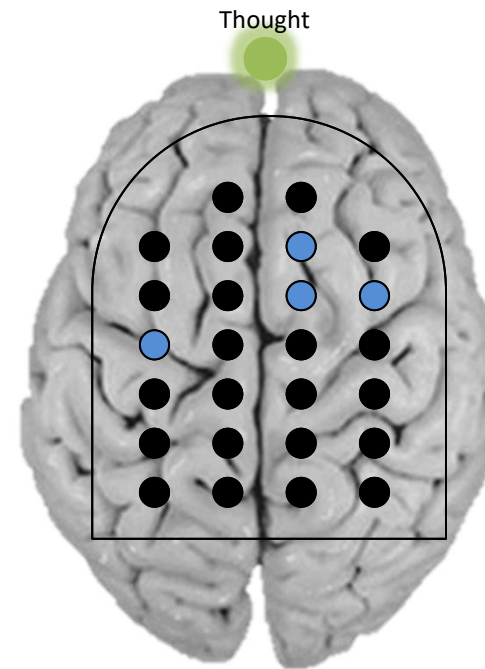
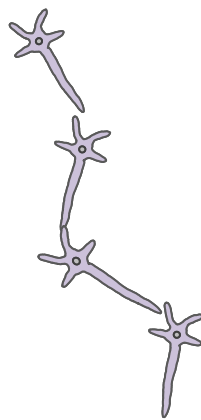
$$x = +8/3$$

Focused vs. Diffuse modes of thinking

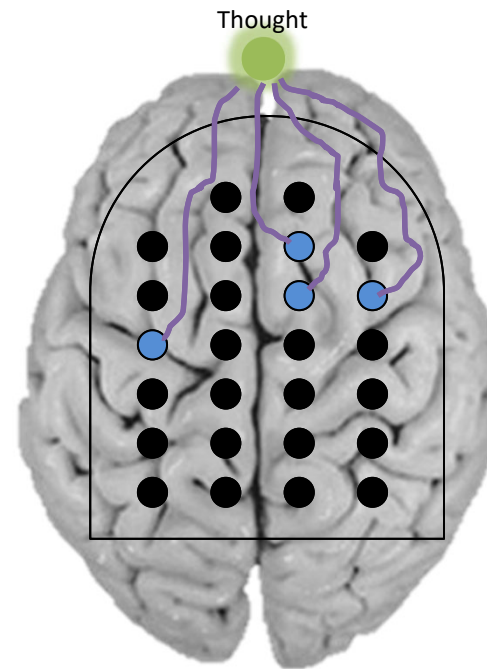
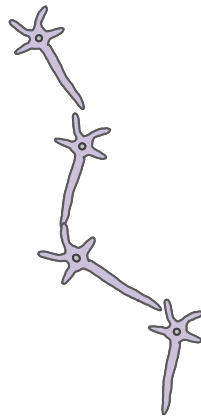
WALK AWAY!

- work on a different problem
- work on a different class
- take a break

Invest in your neural pathways

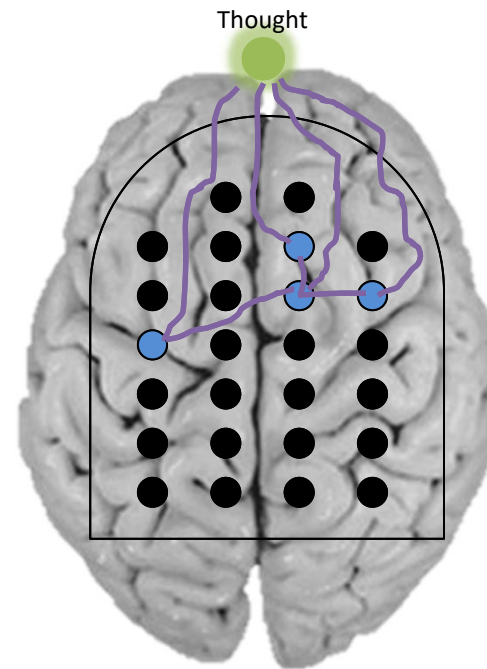
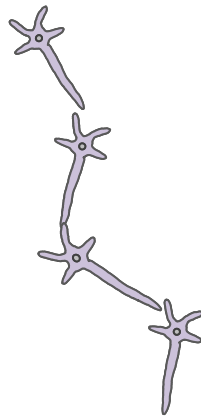


Invest in your neural pathways



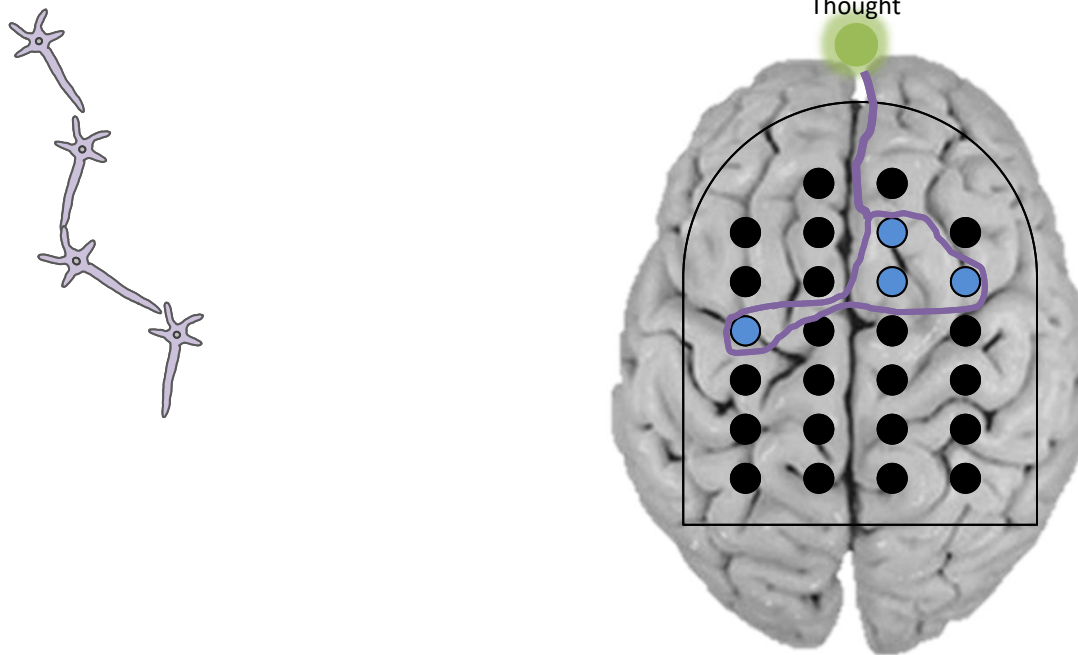
Modified from Oakley, B. 2014, figure (pg 54)

Invest in your neural pathways



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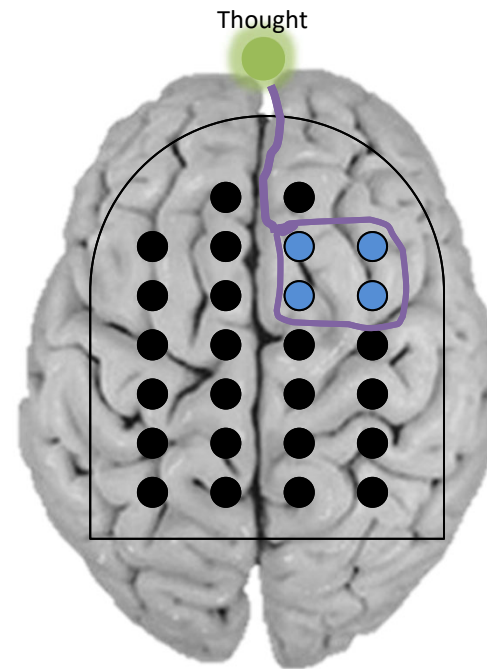
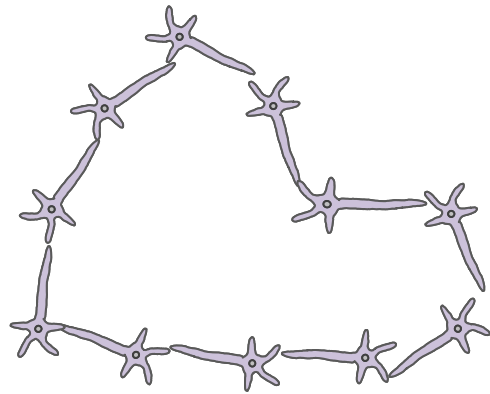
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Modified from Oakley, B. 2014, figure (pg 54)

Invest in your neural pathways

Chunking

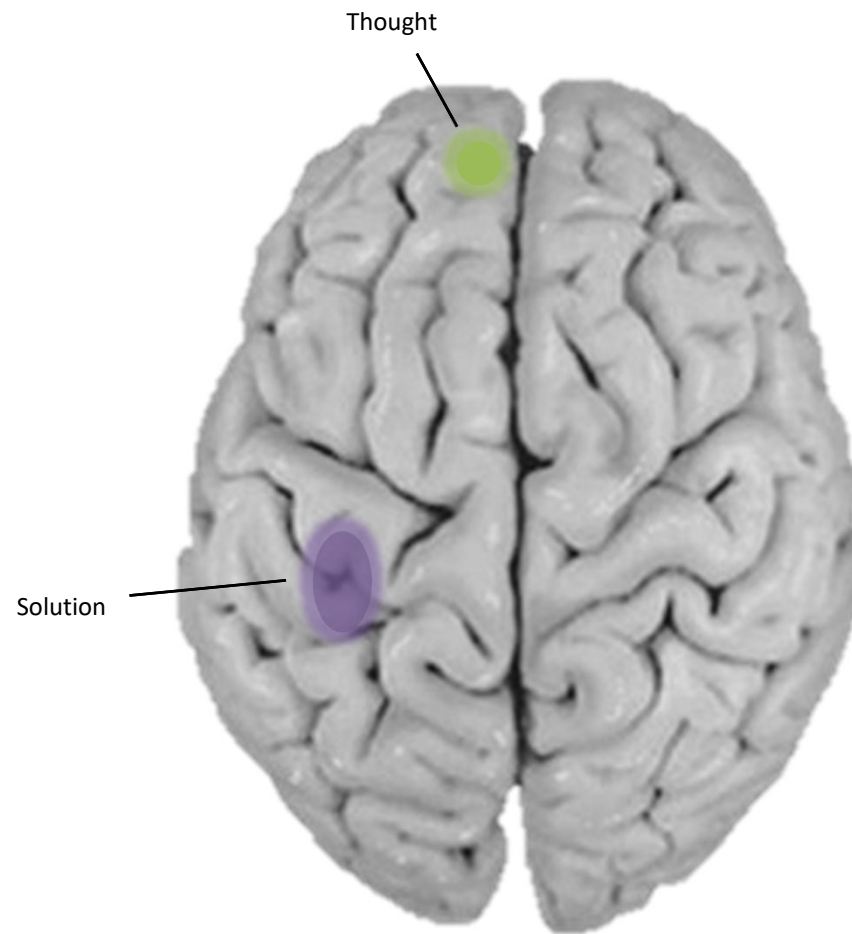


Practice Retrieval

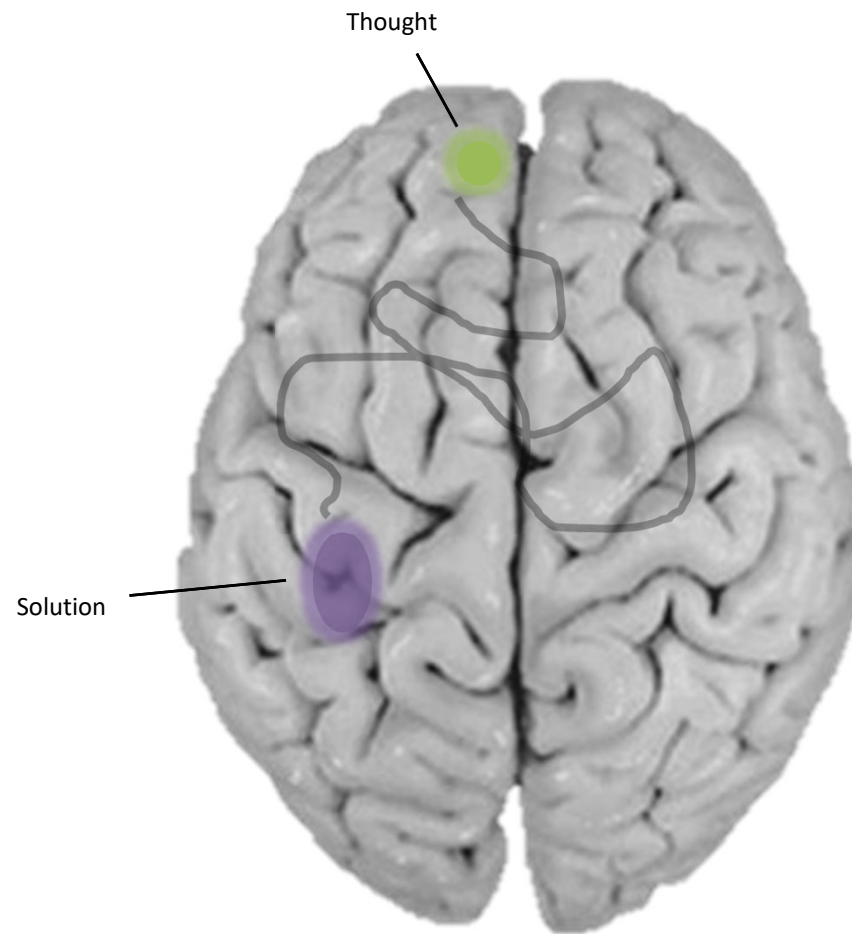
Remembering information does not help if you cannot *retrieve* it!



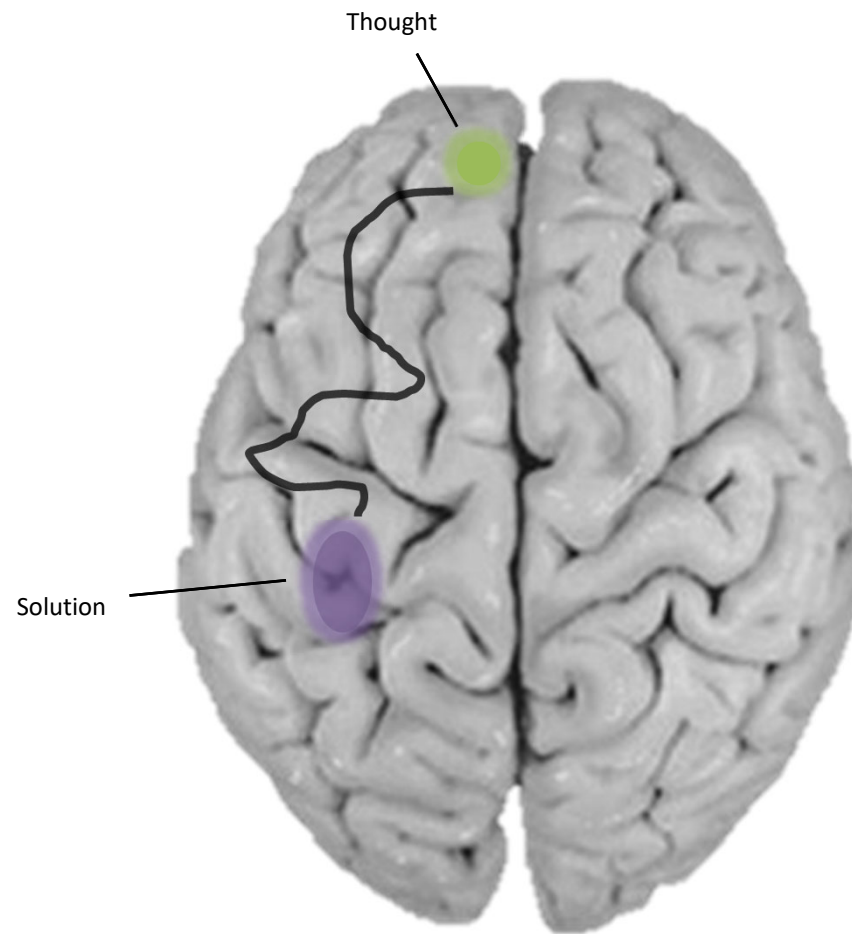
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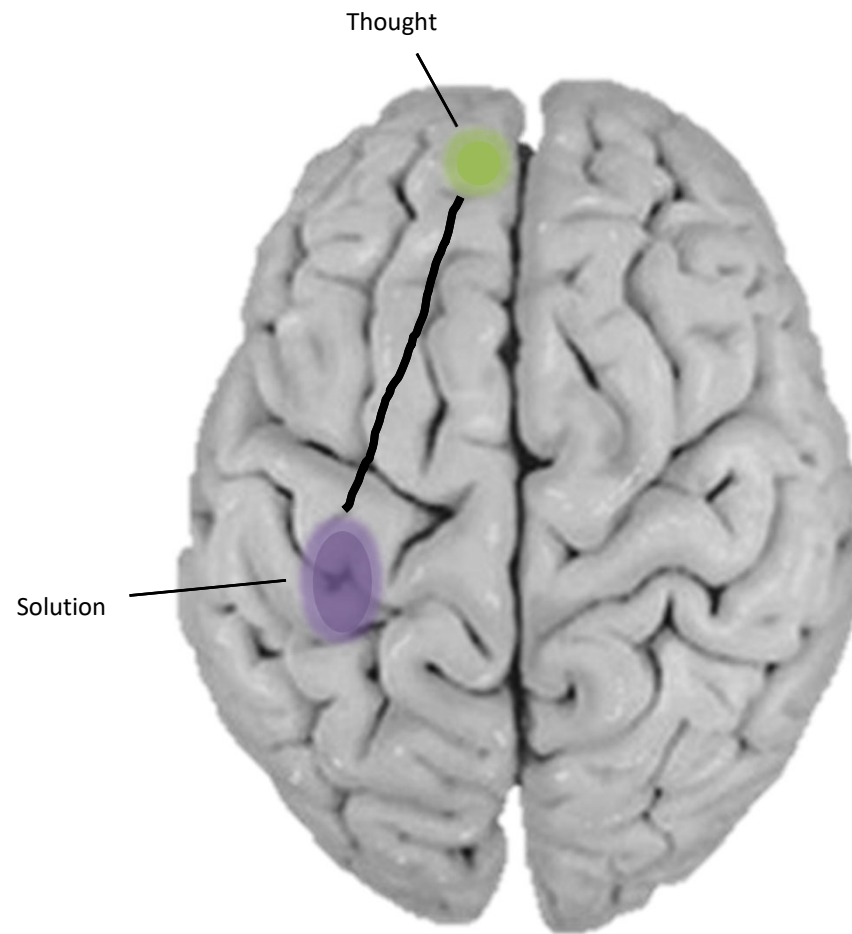
Practice Retrieval



Practice Retrieval

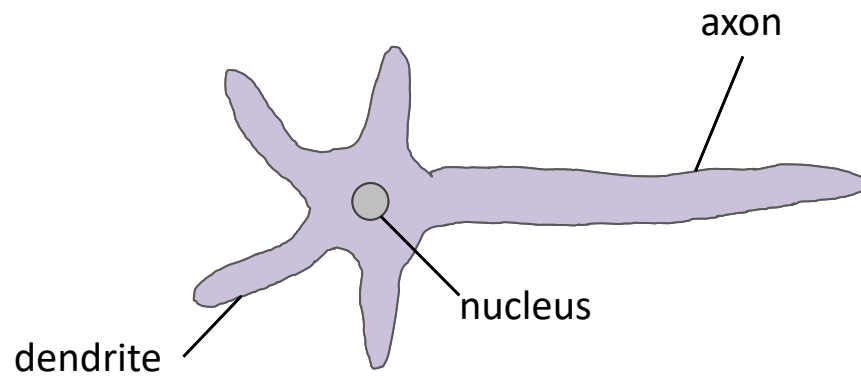


Practice Retrieval



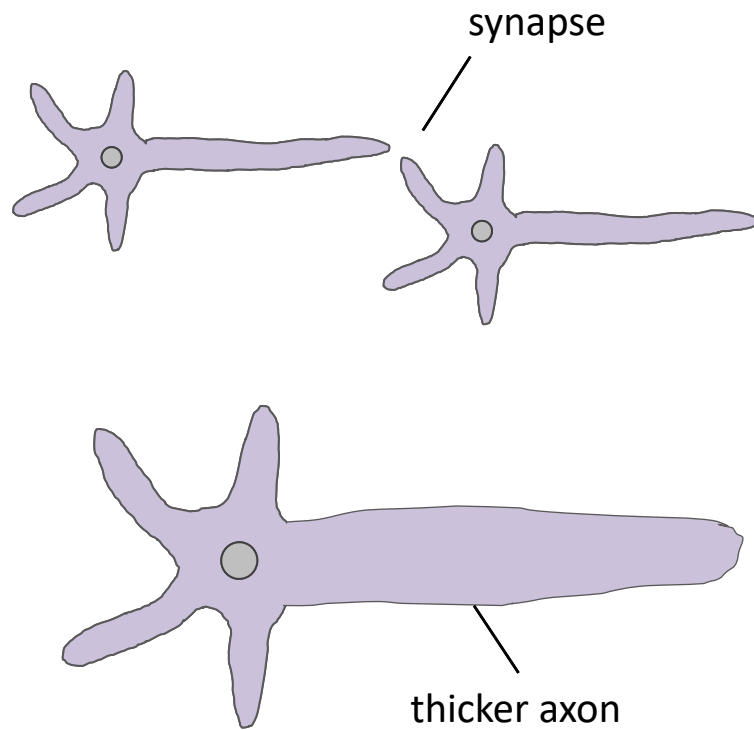
Practice Retrieval

Anatomy of a neuron



Practice Retrieval

Anatomy of a neuron



Chunking – invest in your neural pathways

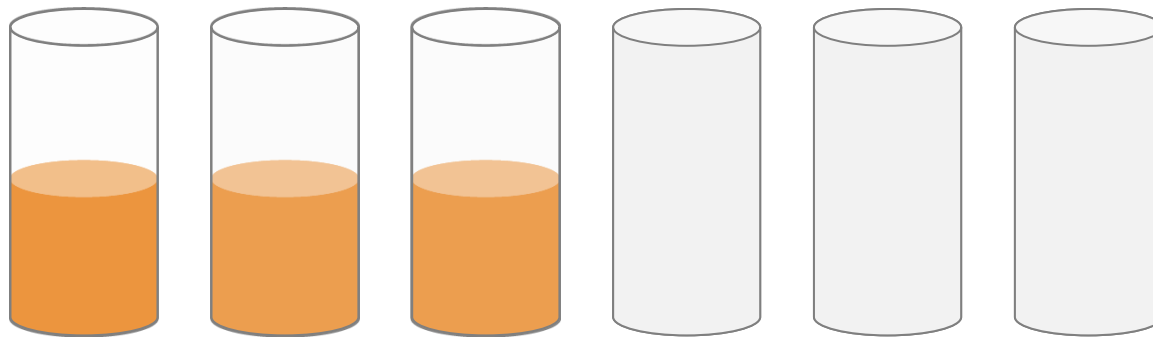
How to form a chunk

1. Focus on the info you want to chunk
(sample problem)
2. Understand the information/concept
you are trying to chunk.
3. Practice without notes or book
(practice retrieval)
4. Build Context (interleaving)

Memory Techniques

- Visualization
 - Method of loci (memory palace)
- Metaphors/Analogies
- Spaced repetition
- Interleaving

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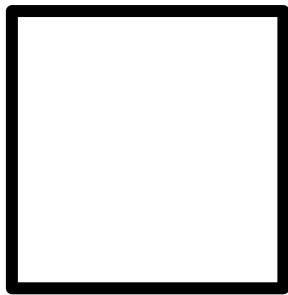
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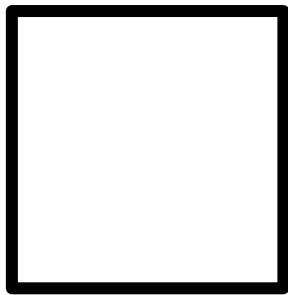
Focused vs. Diffuse modes of thinking

MIND
—
MATTER

Mind over matter

|R|E|A|D|I|N|G|

Reading between the lines



THINK

Think outside the box

Lang4uage

Foreign language

Take home tips

Take home tips

- Focused vs. Diffuse thinking
 - Sometimes it pays to walk away and come back later.

Take home tips

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- Forming Chunks
 - Associate memories with other memories. Turn them into a block so you only have to remember *one* thing instead of many little things.

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- Sleep!
 - Your neurons grow and adapt when you are sleeping – adequate sleep is important to make sure the training sticks!