

Learning On The Move

From Fire to Inspire

Actively Exploring the Science of Learning



Liz Giles-Brown

lizzygbrown@gmail.com



Programs

Combines my passion for **movement** and the **science of learning & teaching** to empower teachers & learners of all ages.



Movement &
Motor Learning

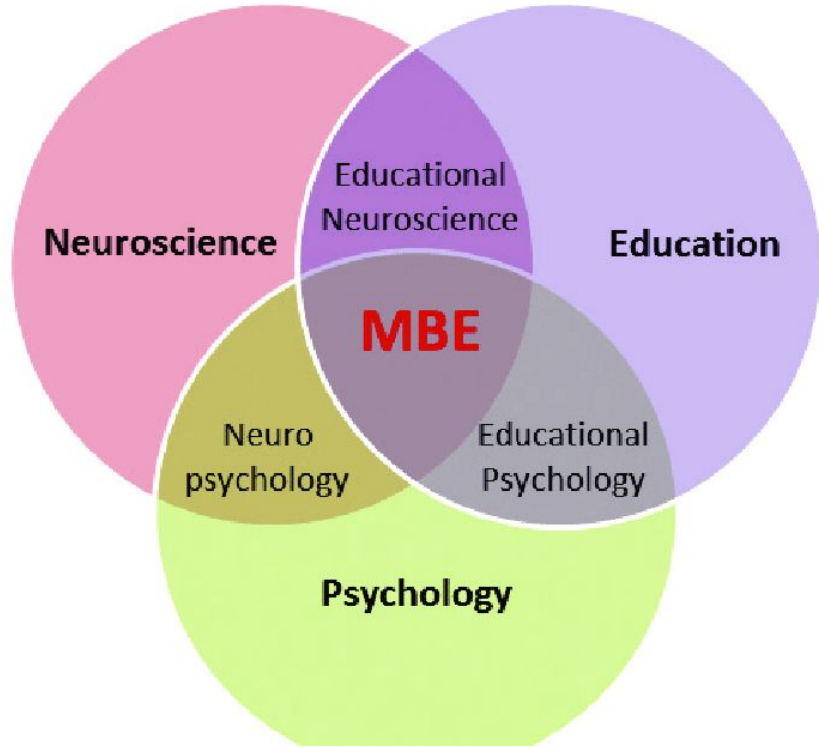


Science of Learning



Power & Resilience

Mind, Brain & Education Science (MBE)



- Founded Mind, Brain & Education Science **Research**
- Research done at the intersection of **Neuroscience Psychology & Education**

NeuroCircus in Schools



“Wire” Circus Arts Skills
& An Understanding of
how the Brain Learns

WIRING



MASTERPIECE ME!


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Awareness &
Empowerment

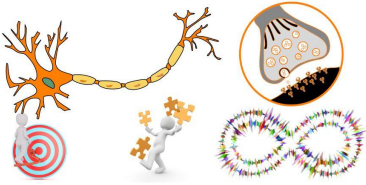
Images

FIRE



One hundred billion neurons
Are working in my brain.
ZIP-ZAP-WHOOSH, they fire,
As I think, feel, move, and train.

WIRE




Neurons wire memory,
But one thing must be clear.
My brain is neuroplastic,
And I'm chief engineer!

MIRE



With strong synaptic signals,
My eyes grow big and bright.
Success is now consistent.
And my face shines with delight!
ZIP, ZAP, WHOOSH! I did it!
I'll celebrate! "YIPPEE!"
I'm forever reconstructing
This MASTERPIECE called ME!

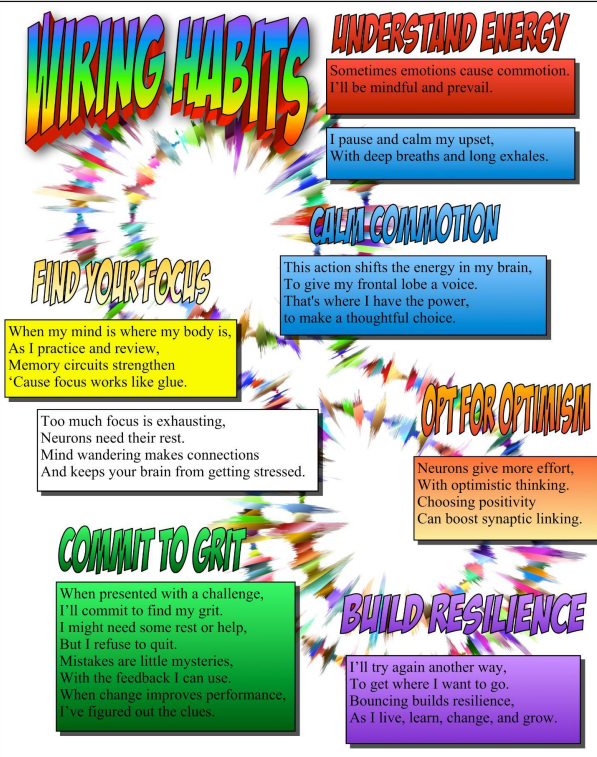
**ASPIRE
INSPIRE**



New goals create more challenge,
To give my brain a thrill.
Dendrites keep on branching
As I create with my new skills.
If I notice someone struggling,
When they're just starting out,
I can offer helpful guidance,
Of that there is no doubt.

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Colors



WIRING HABITS

UNDERSTAND ENERGY
Sometimes emotions cause commotion.
I'll be mindful and prevail.

I pause and calm my upset,
With deep breaths and long exhales.

FIND YOUR FOCUS
When my mind is where my body is,
As I practice and review,
Memory circuits strengthen
Cause focus works like glue.

Too much focus is exhausting,
Neurons need their rest.
Mind wandering makes connections
And keeps your brain from getting stressed.

OPT FOR OPTIMISM
Neurons give more effort,
With optimistic thinking.
Choosing positivity
Can boost synaptic linking.

COMMIT TO GRIT
When presented with a challenge,
I'll commit to find my grit.
I might need some rest or help,
But I refuse to quit.
Mistakes are little mysteries,
With the feedback I can use.
When change improves performance,
I've figured out the clues.

BUILD RESILIENCE
I'll try again another way,
To get where I want to go.
Bouncing builds resilience,
As I live, learn, change, and grow.

CALM COMMOTION
This action shifts the energy in my brain,
To give my frontal lobe a voice.
That's where I have the power,
to make a thoughtful choice.

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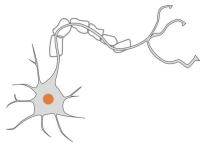
Rhyme

*There are one
hundred billion
neurons,*

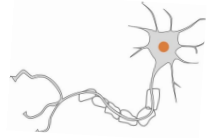
*At work inside my
brain.*

*Zip Zap Whoosh
they fire,*

*As I think, feel,
move, and train!*



NeuroCircus Workshops for Educators



Actively Exploring

Memory
Stress/Threat
Attention
Emotion
Movement
Creativity

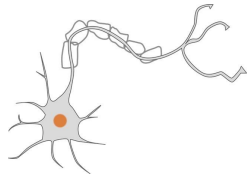


When I create a habit of making the science of learning a primary consideration as I plan, teach and interact, I increase the likelihood that what I teach is also learned.

Today



Actively Explore

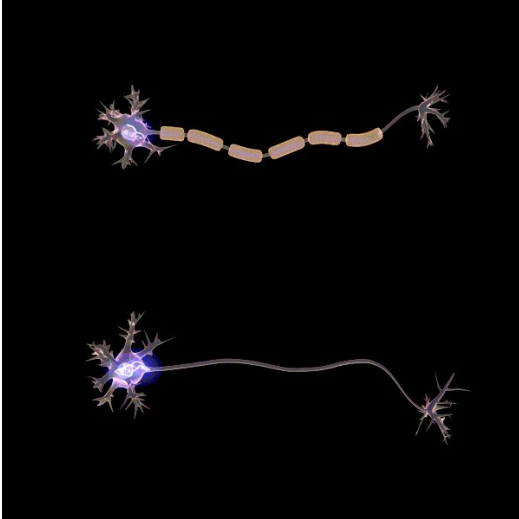


Neuro-Nugget
Memory Pathways

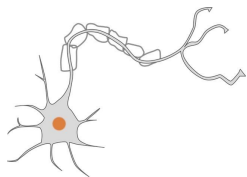


Change your brain by adding
strategies to your individual
teaching and learning toolbox

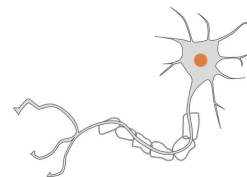
Neuroplasticity



- **The power** to reorganize neural connections through **external & internal** stimuli.
- The ability to **change** the **structure** & function of the **brain**.



Memory



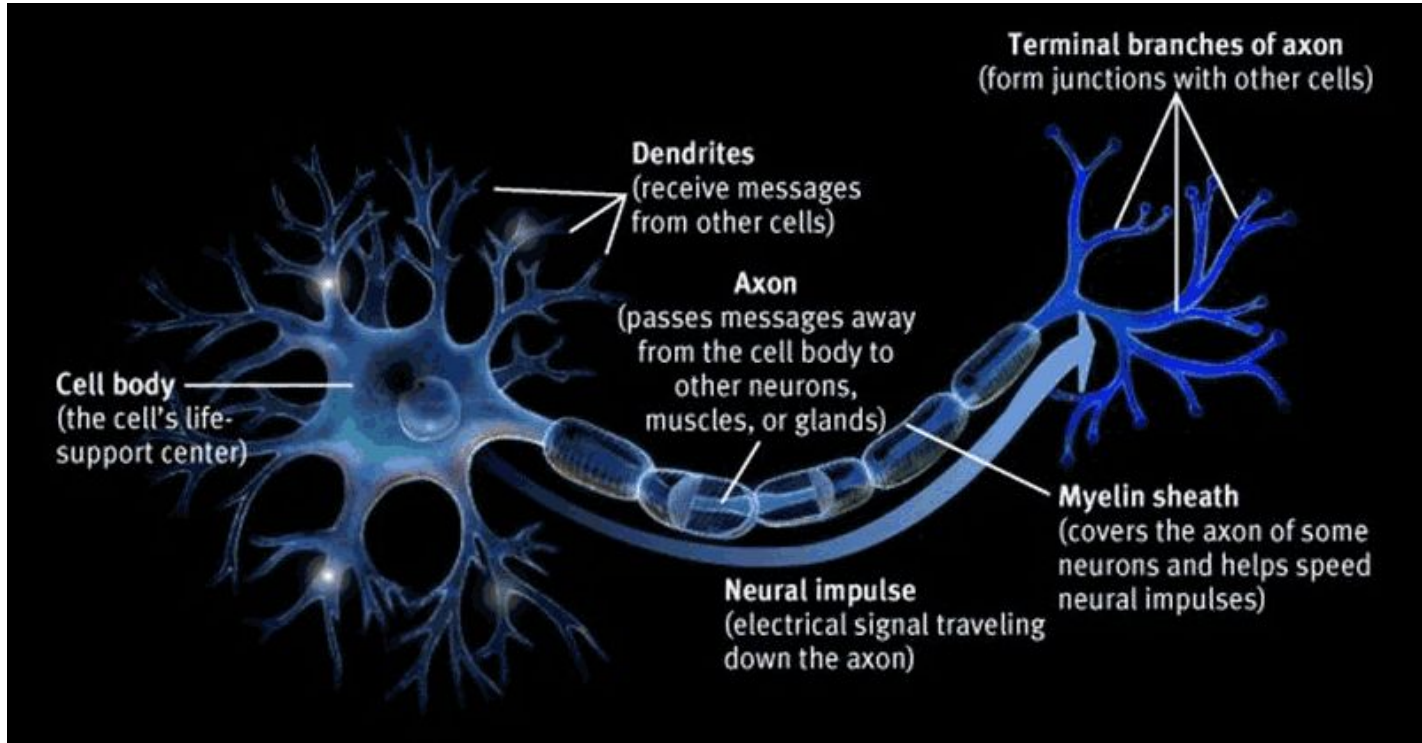
- Ability to store and retrieve information
- Measure of all learning
- There is no new learning without some form of **memory** and some form of **attention**. (The science of attention is a Neuro-Nugget for another day!)



As a **lead learner** I am charged with designing experiences that create lasting memory for all learners.

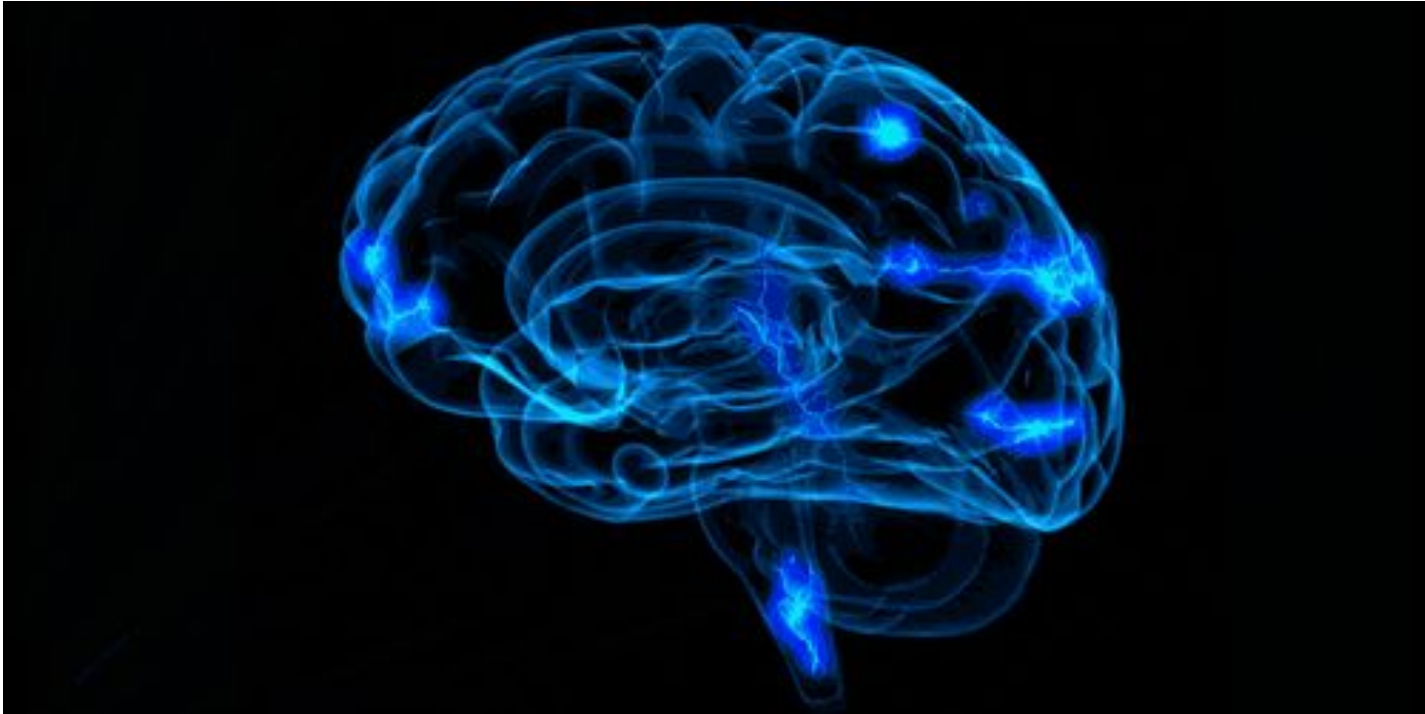
Cellular Level

Networks of Neurons - Memory Circuits



Recall

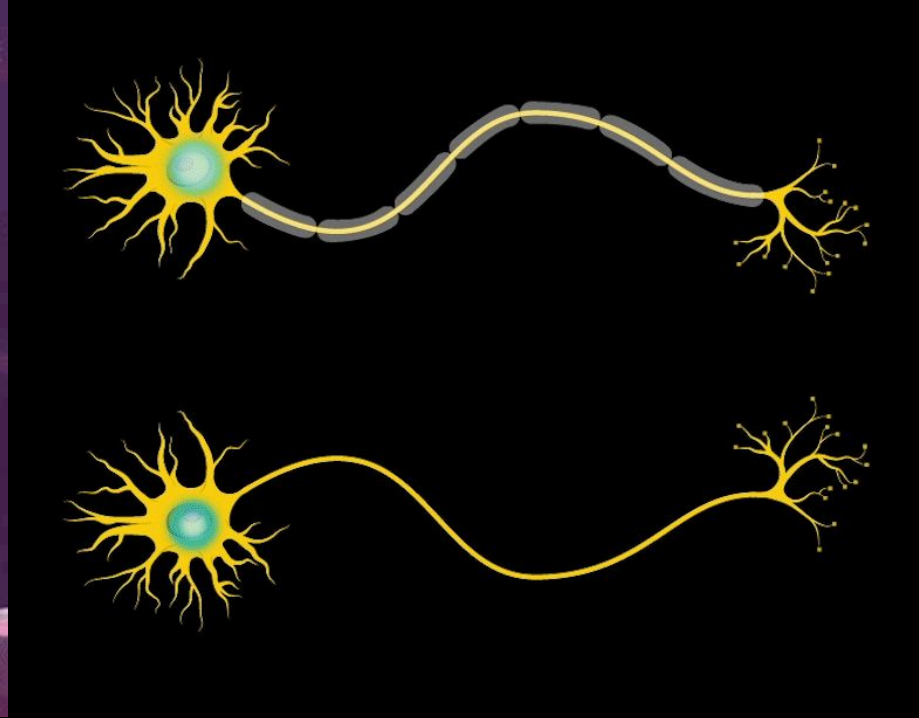
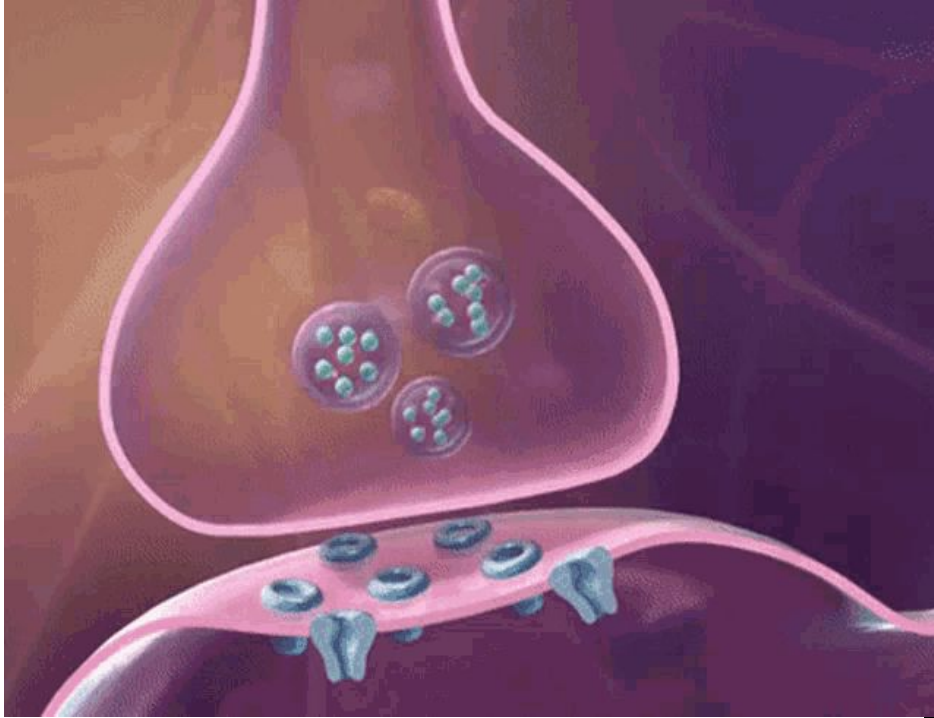
Reactivating specific networks of neurons



Repetition

Synaptic Plasticity - changes in the strength of connections between neurons (practice & repetition)

Myelin - a fatty substance that coats axons of well used networks & speeds transmission



Pathways

Additional Strategy - Purposefully create multiple pathways to memory throughout a variety of brain regions.



Pathway Partners



Long Term Memory

Explicit Memory

- Consciously formed - deliberately take time to create it
- Requires conscious recall (awareness)

Implicit Memory

- Formed unconsciously (trauma, emotional events, happy times)
- Might affect the way a person thinks or behaves



Through **NEUROPLASTICITY**

Habits of thinking, feeling, and doing I repeat grow stronger.

That which I choose to practice grows stronger.

Declarative Memory



- **What Memories**
- All the stuff we know, understand, remember, talk about (facts, numbers, dates, etc.)
- *Explicit* - Requires Conscious Recall
- It's what is on the test
- Weakest when asked to stand alone
- Requires a lot of repetition (spaced practice is best)
- Too much - too fast - won't last

Episodic Memory



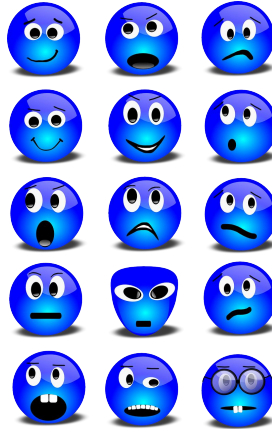
- **Where** Memories
- Personal Episodes - Memories **triggered** by location or context
- Strengthened when paired with strong emotion
- Time - Space Stamp “I remember when...”
- *Explicit* - Requires Conscious Recall

Procedural Memory

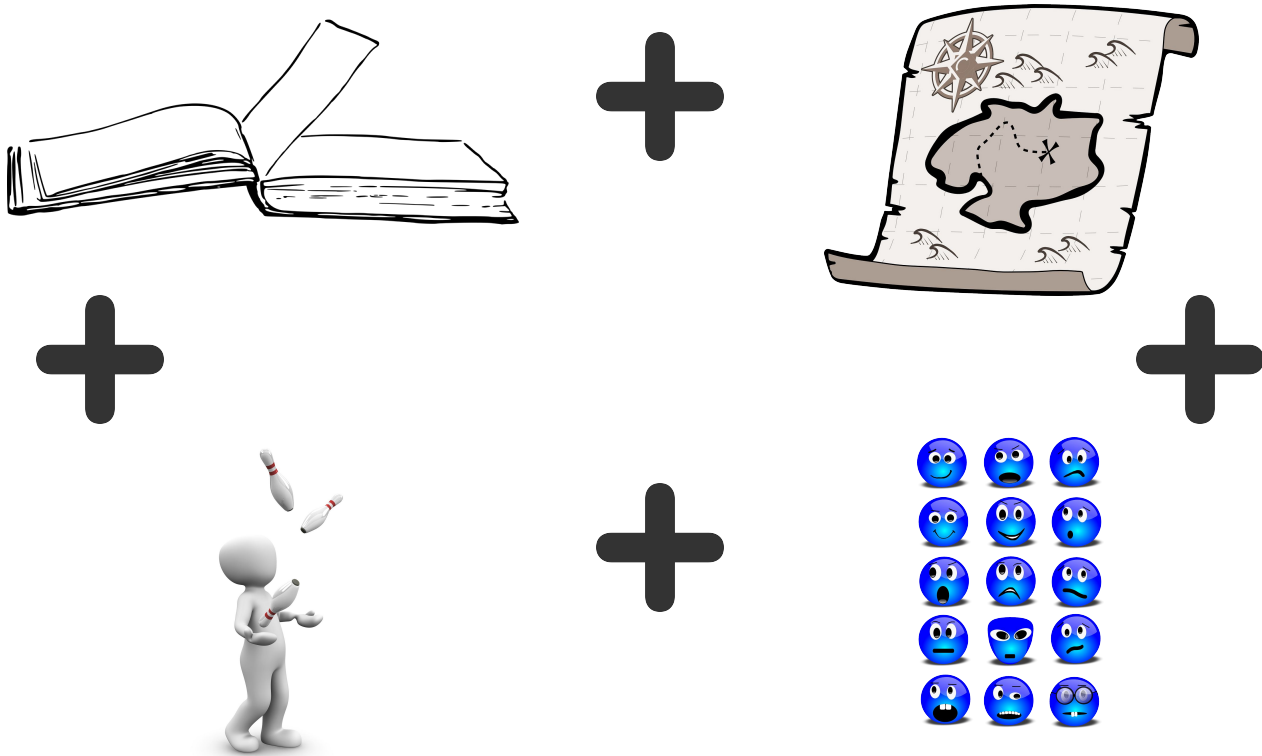


- **How** Memories
- Memory of how to physically carry out a sequence
- Movement
- *Implicit* - Unconscious recall

Emotional Memory



- **WOW & OW** Memories
- Every experience has an emotional stamp (OH NO!, blah..., yeeha!)
- High levels of emotion take the superhighway to memory
- *Implicit* - Unconscious recall



More Pathways equals...

Stronger Circuits with Multiple Routes for Retrieval



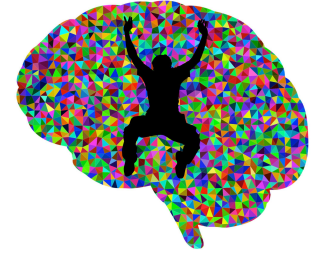
When I create a habit of making the science of learning a primary consideration as I plan, teach and interact, I increase the likelihood that what I teach is also learned.

Pathway Partners - Instant Activities



Spaced repetition strengthens
circuitry and speeds
transmission!
Zip-Zap-Whoosh

Turn - To - Clue - Review



1. Look & Listen
2. Consensus
3. “The Answer is...” or “Assess your work”

Correct = “*Yes*” *Move*

Incorrect = “*Oops... That’s OK. We’ll get it next time!*”



- **Declarative**
- **What** - Memories
- All the stuff we know, understand, remember, talk about (facts, numbers, dates, etc.)
- *Explicit* - Requires Conscious Recall
- It's what is on the test
- Weakest when asked to stand alone
- Requires a lot of repetition (spaced is best)
- Too much - too fast - won't last



- **Episodic**
- **Where** - Memories
- Personal Episodes - Memories **triggered** by location or context
- Stronger when paired with strong emotion
- Time - Space Stamp "I remember when..."
- *Explicit* - Requires Conscious Recall



- **Procedural**
- **How** - Memories
- Memory of how to physically carry out a sequence
- Movement
- *Implicit* - Unconscious recall



- **Emotional**
- **WOW & OW** - Memories
- Every experience has an emotional stamp (OH NO!, blah..., yeeha!)
- High levels of emotion take the superhighway to memory
- *Implicit* - Unconscious recall

Dissect

Declarative

Memory

Explicit

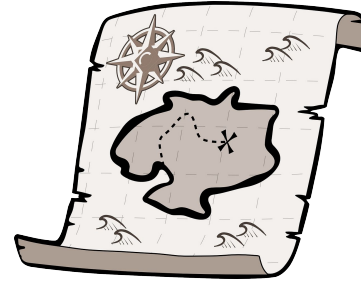
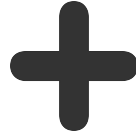
Implicit

Declarative

Episodic

Procedural

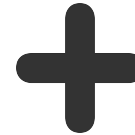
Emotional



Episodic

Room Location

Partners



Procedural

Movements



Emotional

Music

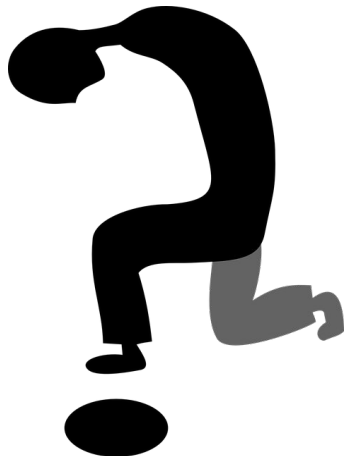
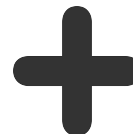
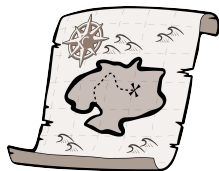
Movement

Celebration

Laughter

Fun

Reflect & Connect



- A. Content I might pair “Content Partners” with is...
(My Math Example)
- B. An activity I currently use that taps multiple pathways to memory ...
- C. A physical activity I could use to embed content is... (So many ice breakers)

3 C's

1. **Connect**
2. **Choose, Complete, Collaborate,
Create, **Compare**, Consensus, or
Compete**
3. **Celebrate**



Two-fer?

Physical Activity = 2-3-4-5...fer

**Physical activity does not take time away from learning.
From a neuroscientific perspective, it can enhance it!**

1. **Oxygenate & Energize** (2% body weight - 20% available oxygen/nutrients)
2. **Integrate** (bilateral integration & proprioceptive development)
3. **Memory Pathway** (procedural)
4. **Instant Activities** to practice/Review (Zip-Zap-Whoosh)
5. **Connection Tool** (oxytocin - eye contact/presence/touch/playfulness)
6. **MVPA** (neurogenesis, capillary networks, balance brain chemicals, metabolize stress hormones, stress vaccination)

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