

BRAIN HACKS

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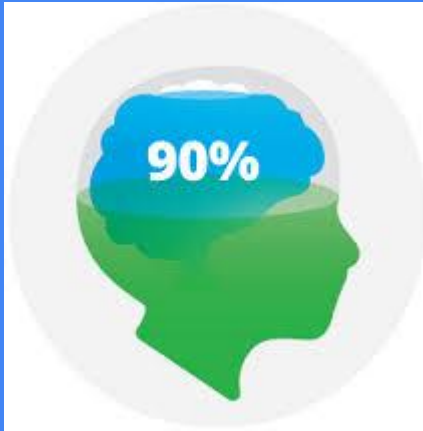
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Dyslexia

Founder, Learning Foundations

- Brain Development
 - Making Neural Connections
 - Learning Style
 - Mindset
 - Hacks for Learning
- 

Did you know?

That 90% of our brain is developed by the age of 5?



- A newborn baby has all the neural cells they will have for the rest of their life.

The fetus produces twice as much as they will need

- 100 billions brain cells by birth to learn

1 million connections/second
0 - 3 years

- By age 3, 80% of the brain is formed.

By age 6, 95% adult size



Brain Architecture

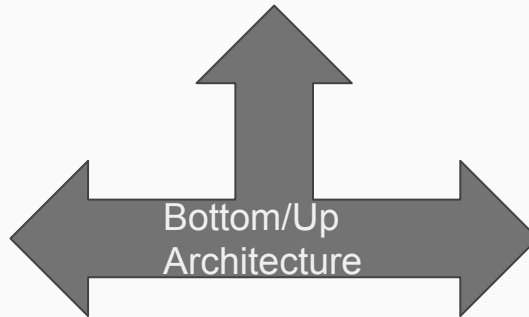
Emotional
Development

Motor Movement
Fine/Gross

Language
Development



Bottom/Up
Architecture



Factors that Influence Brain Development

Nature: Genes

Nurture: Environment

Critical Periods in Development: Abrupt development, heightened sensitivity, OPTIMAL TIME

Sensitive Periods: Start & End Gradually, Responsive/Absorbing Learning, Less Efficiently

Neuroplasticity: Reorganizes, Connects, Reshapes, Compensatory Response

Stages in Brain Development

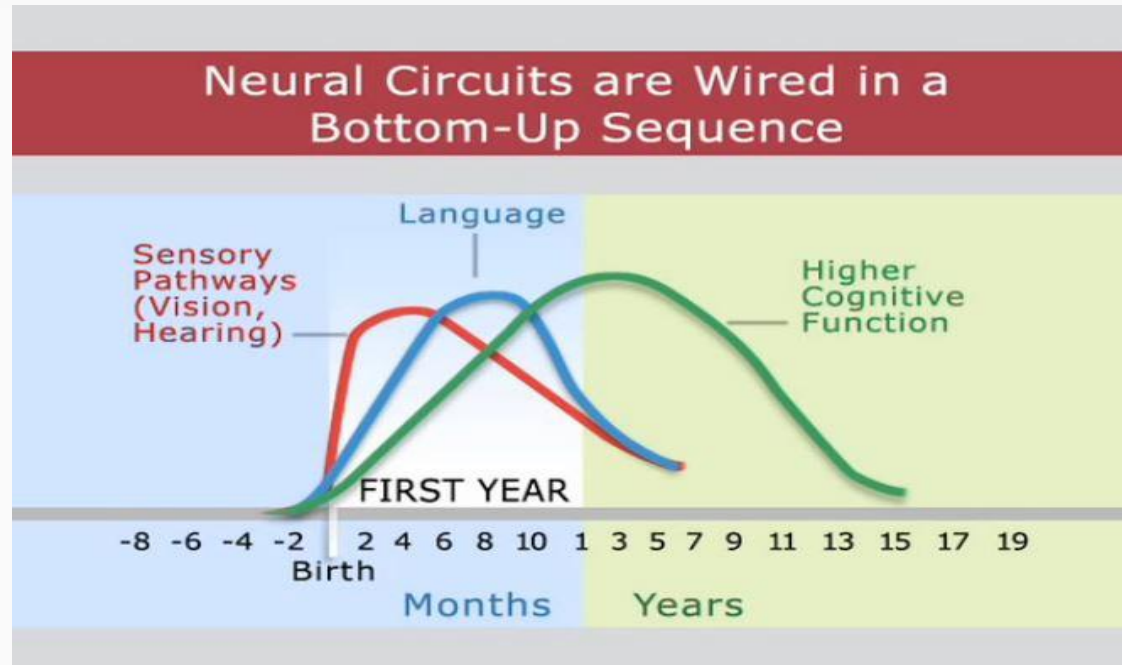
Stage 1 - Infancy, 0 - 10 months old

Stage 2 - Toddler/Child, 0 - 6 years old

Stage 3 - Adolescent, 7 to 22 years old

Stage 4 - Adult, 23 to 65 years old

Stage 5 - Senior, +66 years old



A Critical Period vs. A Sensitive Period

YOUR CHILD'S TIMELINE OF FINE MOTOR DEVELOPMENT

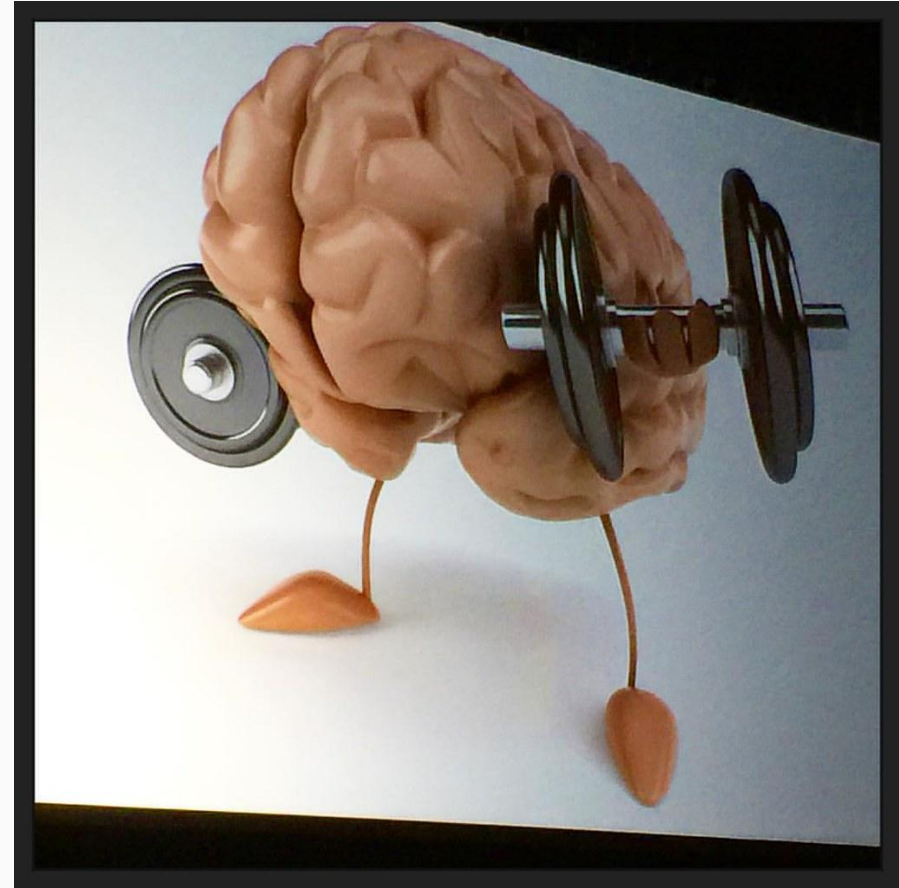
Approx Age of Onset (months)	Fine Motor Skill
0	Reflexes such as grasping
1-3	Reaching (ineffective)
3	Grasping
4-5	Reach and grasp
6-7	Control of reach and grasp
9	Pincer grasp
10	Clasps hands
12-14	Releases objects crudely
18	Controlled release



www.gooseybrains.com

Adapted from "What's Going On in There?" - Lise Eliot 2000

Neuroplasticity: Traumatic Brain Injuries Have Taught Us



Our brain is muscle and we can flex it

Lifelong neuroplasticity

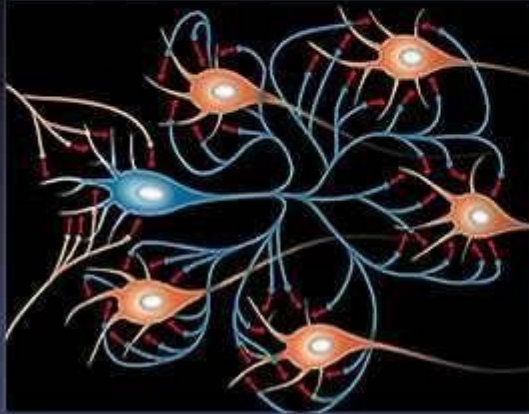
Stimulation/Growth - Senses & Mindset

Neuroplasticity: Traumatic Brain Injuries



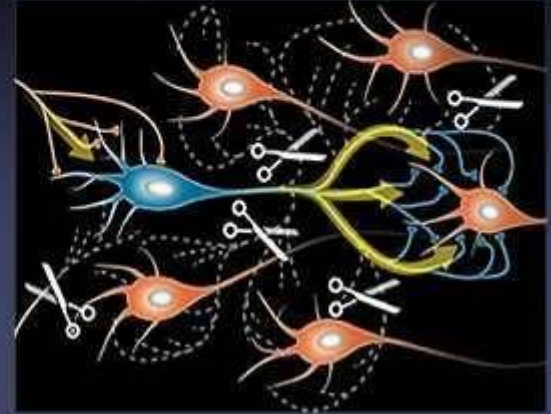
Nerve Proliferation...

■ By age 11 for girls and 12 for boys, the neurons in the front of the brain have formed thousands of new connections. Over the next few years most of these links will be pruned.

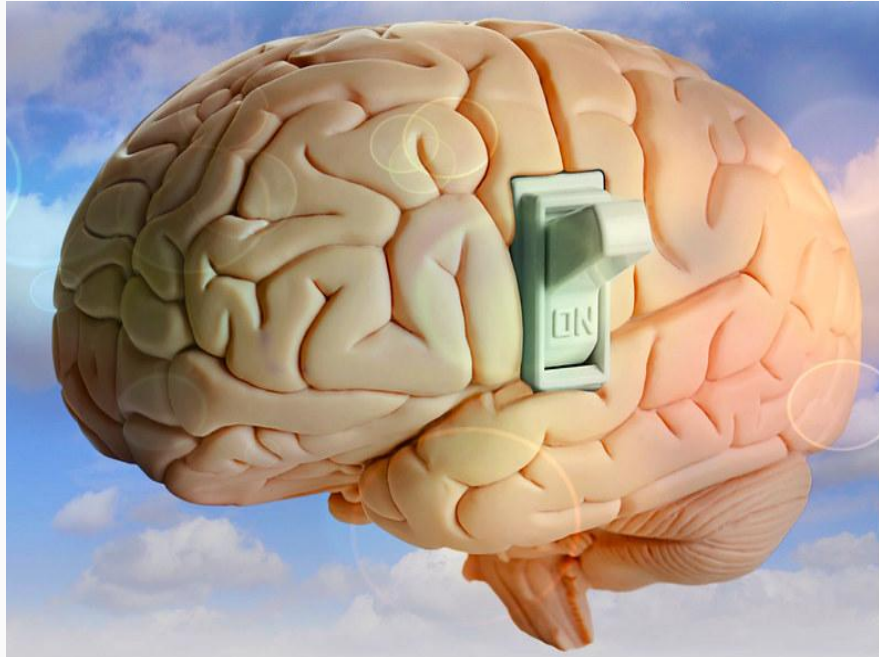


...and Pruning

■ Those that are used and reinforced — the pathways involved in language, for example — will be strengthened, while the ones that aren't used will die out



Our 5 Senses Stimulate Growth



From a baby to an adult...we use our senses to learn and retain learning.

We call this our Learning Style

The more senses engaged in an activity, the more brain stimulation and retention

Science is nothing more than Man's attempt to make sense of the world around him using his senses.



MINDSET: Fixed versus Growth





The *pessimist* sees difficulty in every opportunity.

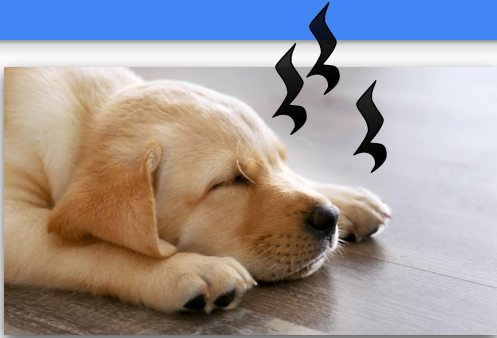
The *optimist* sees the opportunity in every difficulty.

-Winston Churchill

Learning Requires Making Connections

BRAIN + STOMACH + HEART

FIVE brain hacks to increase your performance: The *FIVE FACETS* of brain hacking:



Rest easy.



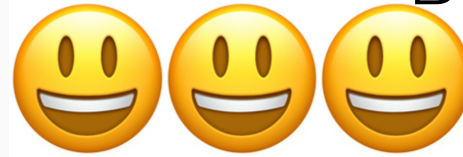
Stay calm.



Be gutsy.



Find gratitude.



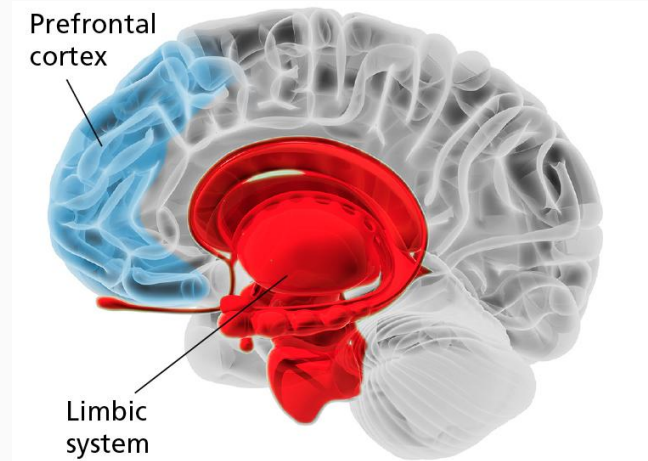
Be positive.

There's a battle inside our brains: *limbic system vs. prefrontal cortex*

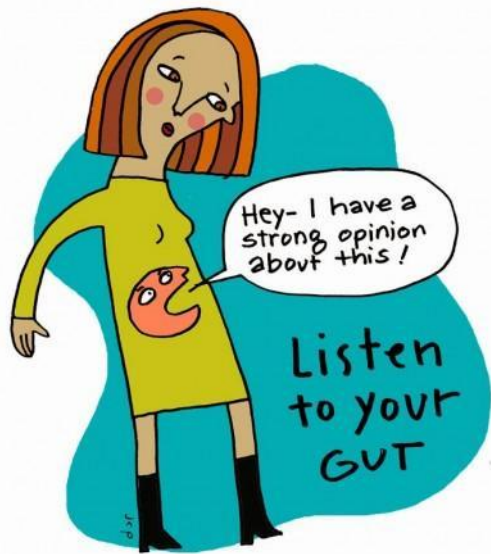
The limbic system is responsible for our **emotions**

Our prefrontal cortex is responsible for **decision making, motivation, organization & more....**

Who will you let win?



Be gutsy. Anxiety is real and it all starts in our gut.



Brains have existed for 200 million years.

Stomachs have existed for 450 million years.

Take care of your gut! **100 million brain cells** reside in your stomach - if your stomach is in good shape, then so is your brain!

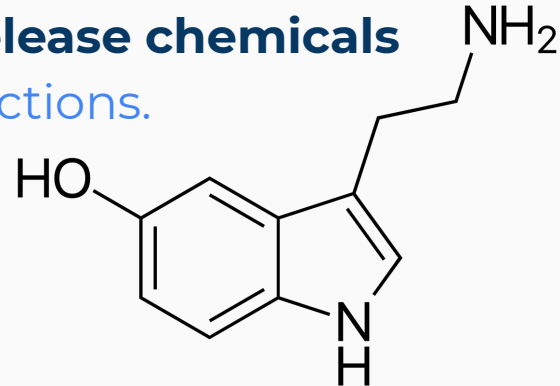
Your stomach is in charge of your head! Your attitude releases messages to your stomach to release either serotonin or cortisol.

Can't *stomach* school? Take care of your *stomach*.

Your stomach is the second brain. The gut has brain cells - **enteric nervous system** has *more* brain cells than our spinal cord - 100 million neurons

This system *does not* make decisions, but it does **release chemicals** which predetermine our thoughts, actions, and reactions.

This system controls the release of **serotonin**.

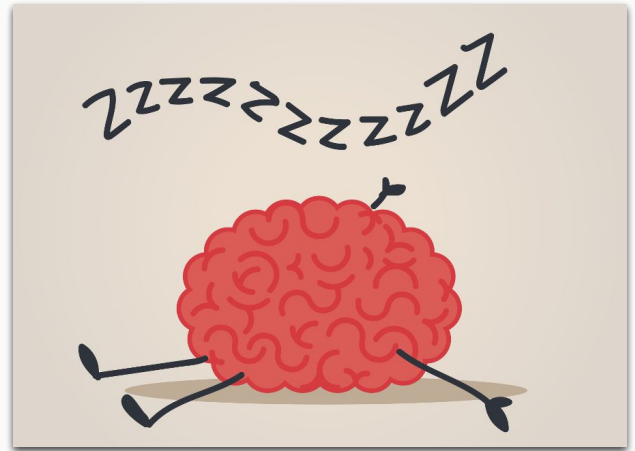


Rest easy. Let your brain sort things out.

When your brain rests, it is actively sorting and filing information that you think about.

Give it **plenty** of time to do its job!

No neural **input**. That means **no video screens**. They make your eyes and brain *work* instead of *rest*.

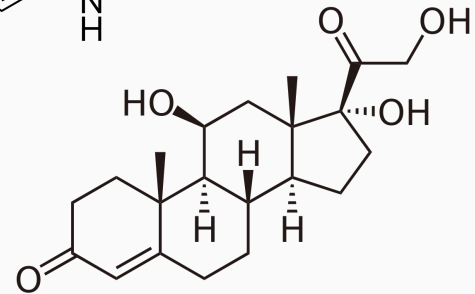
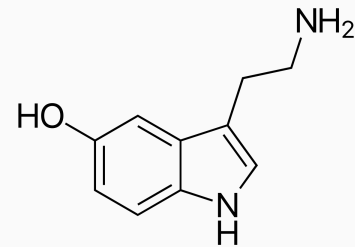
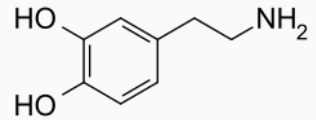


Be *positive*. Find the bright side.

Did you know that positive thinking literally **lights up the brain** and **expands** our ability to understand? It's true.

Positive thinking produces **serotonin, dopamine, oxygen flow, and groups of neural stimulation.**

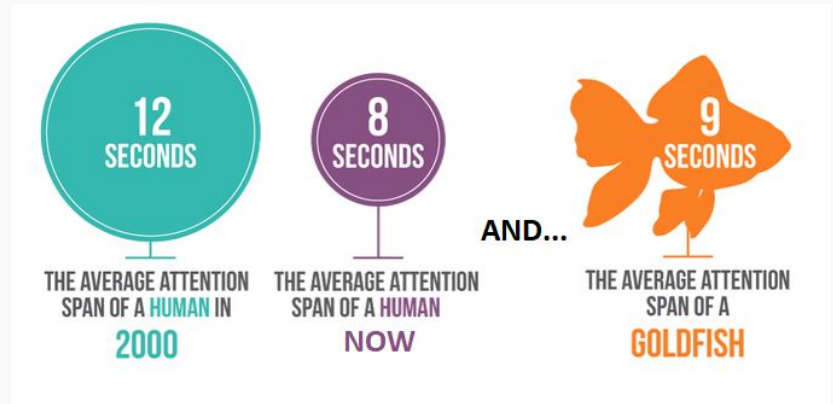
Negative thinking release **cortisol**, a stress chemical, and contracts neural stimulation.



Staying positive keeps our brain *primed*...

“Positive feelings:

- widen our **attention span**,
- enhance our **creative thinking** and **cognitive flexibility**,
- Cause oxygen to release to the frontal lobe - our ability to comprehend relaxes and our **processing speed increases.**”



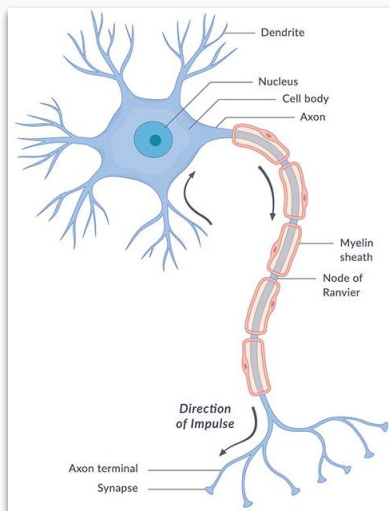


...and helps our brain **grow**.

Positive thinking reinforces **regeneration** and **neural growth** while **stimulating** surrounding neurons...

...Which produces **metacognition** and opens our span of comprehension.

Neural growth leads to stimulation of more **synapses**.



Don't be *negative*, Nancy.

“The brain actually draws metabolic energy **away from our prefrontal** & puts it **toward fight or flight.**”

SPECT imagery also shows “*reduced activity in the cerebellum*” which means that we **narrow** our span of attention. This **slows down our thinking** and **hinders our creativity.**

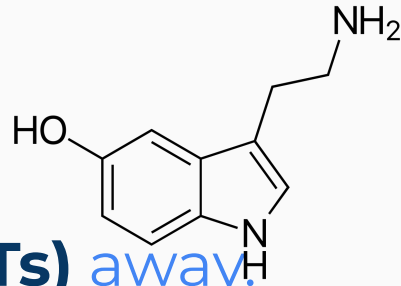
Cortisol builds up while we sleep (worry, stress, anxiety)

Find *gratitude*. Be grateful.

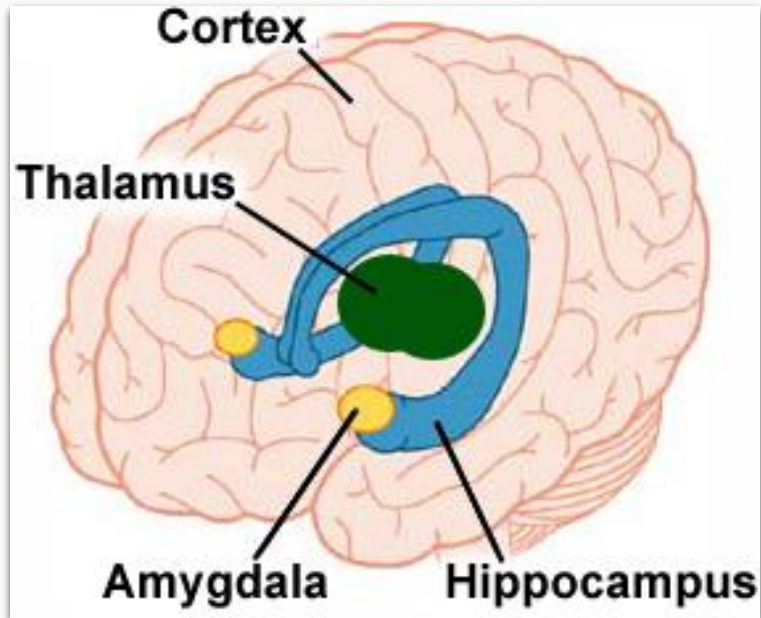
5 minutes of gratitude releases as much **serotonin** as a **30**-minute walk

We can **trick** our brain to positive pathways

Keep the **automatic negative thoughts (ANTs)** away.



Keep your *amygdala* happy!



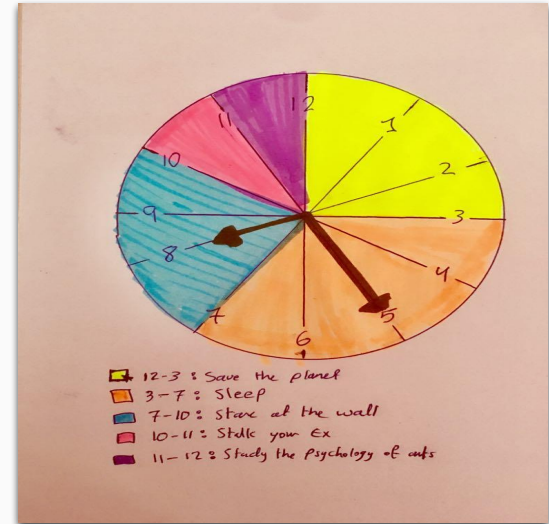
1. Grab a healthy **snack**.
2. Pour yourself a **slightly sugary** drink.
3. Keep an item nearby that makes you **happy**.
4. Make a **plan**!

Brains like *patterns* and *simplicity*.

Chunk It Down

Make Time Visual

20/5/5: Learn/Rest/Review



Hacks for daily productivity:

When you're in a bad mood, **smile** for 60 seconds. Using these muscles is enough to trigger **dopamine** in the brain.

Make a list ... prioritize...gratitude

Make your bed daily - Be productive all day long.

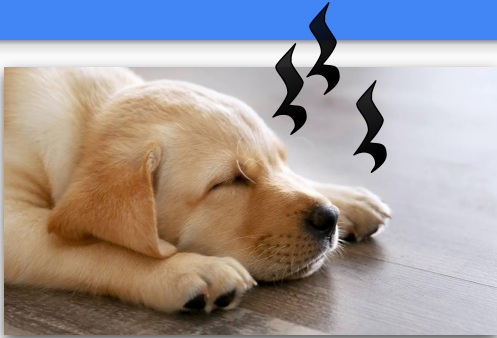
Visualize: Describe what you see, think, feel, and want
what does happiness look like for me?



Hacks for *school*:

- Know your learning style - VARK - Advocate for it! Be Gutsy!
- When studying, **teach the topic to someone else**. This increases the brain's motivation, focus, and memory.
- Read and think **aloud**. This utilizes your visual AND auditory systems.
- FOCUS: Only have **one tab** open on your computer, the one you are using for your task. Close all others to focus better.

FIVE brain hacks to increase your performance: The *FIVE FACETS* of brain hacking:



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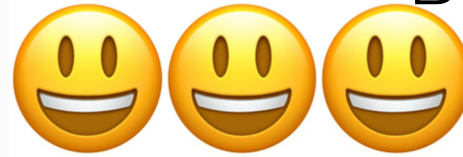
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Must-have *websites* and *apps*:

Math: Y Homework, Math Papa, MalMath, Desmos, Photomath

Language Arts: Grammarly, Notability, Audio-note, Wordhippo.com, Son of Citation Machine for bibliographies

Organization: Goal Tracker, My Homework

Finances: Expensify

Brain Hacks to Improve Focus, Memory, and Emotional Development

Webinar research and content resources

Harvard:

<https://developingchild.harvard.edu/>

<https://developingchild.harvard.edu/resources/what-is-executive-function-and-how-does-it-relate-to-child-development/>

Dr. Amen:

<https://www.creativityatwork.com/2011/01/10/amen-7-ways-to-optimize-your-brain-your-life/>

<https://www.amenclinics.com/the-science/peer-reviewed-studies/>

The effects of gratitude on the brain:

<https://www.ncbi.nlm.nih.gov/pubmed/26746580>

https://www.researchgate.net/publication/288932385_The_effects_of_gratitude_expression_on_neural_activity

https://ggsc.berkeley.edu/images/uploads/GGSC-JTF_White_Paper-Gratitude-FINAL.pdf

<https://www.health.harvard.edu/healthbeat/giving-thanks-can-make-you-happier>

Memory/Attention/Brain Research:

<http://www.bri.ucla.edu/research/integrative-center/learning-memory>